European businesses statistics compilers' manual for ICT usage and e-commerce in enterprises

2022 survey edition

MANUALS
AND GUIDELINES

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European businesses statistics compilers' manual for ICT usage and e-commerce in enterprises

2022 survey edition

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Abbreviations

ADSL	Asymmetric Digital Subscriber Line
AI	Artificial Intelligence
APT	Advanced Persistent Threat
ATM	Automatic Teller Machine
B2B	Business To Business
B2C	Business To Consumers
B2G	Business To Government
BSDG	Business Statistics Directors Group
CDMA	Code Division Multiple Access
CES	Conference of European Statisticians
CNC	Computer Numerical Control
COGs	Content-Oriented Guidelines
CONVAL	Content Validations
CPA	Classification Of Products By Activity
CRM	Customer Relationship Management
CSPA	Common Statistical Production Architecture
CV	Coefficient of Variation
DDoS	Distributed Denial Of Service
DPI	Deep Packet Inspection
DSD	Data Structure Definition
DSI	Data Set Identification
DSL	Digital Subscriber Line
EBS	European Business Statistics
EC	European Commission
ECB	European Central Bank
eDAMIS	electronic Dataflow Administration And Management Information System
EDI	Electronic Data Interchange
EEA	European Economic Area
EFTA	European Free Trade Association
ERP	Enterprise Resource Planning
ESMS	Euro SDMX Metadata Structure
ESQR	ESS Standard For Quality Reports
ESQRS	ESS Standard For Quality Reports Structure
ESS	European Statistical System
ESSC	European Statistical System Committee
ESS-MH	European Statistical System Metadata Handler
ESS QAF	European Statistical System Quality Assurance Framework
ESTP	European Statistical Training Programme
EU	European Union
EWP	eDAMIS Web Portal
FTE	Full-Time Equivalent
GDP	Gross Domestic Product
GIA	General Implementing Act
GSBPM	Generic Statistical Business Process Model
GSIM	Generic Statistical Information Model
HDSL	High-Bit-Rate Digital Subscriber Line

HIDS	Host-Based Intrusion Detection Systems
ICT	Information And Communication Technology
IDS	Intrusion Detection System
IEEE	Institute Of Electrical And Electronics Engineers
IFR	International Federation of Robotics
INFOSOC	Information Society
IPS	Intrusion Prevention System
ISDN	Integrated Services Digital Network
ISIC	International Standard Industrial Classification
ISO	International Organization For Standardization
IT	Information Technology
ITGS	International trade in goods statistics
KAU	Kind-of-Activity Unit
LKAU	Local Kind-of-Activity Unit
M2M	Machine To Machine
MH	Metadata Handler
MS	Member States
NACE	Statistical Classification Of Economic Activities In The European Community (Nomenclature Generale Des Activites Economiques Dans Les Communautes Europeennes)
NAT	Network- And Port-Address Translation
NGFW	Next Generation Firewall
NGIPS	Next Generation Intrusion Prevention System
NIDS	Network Intrusion Detection Systems
NSI	National Statistical Institute
NUTS	Nomenclature Of Territorial Units For Statistics
OECD	Organisation for Economic Co-Operation And Development
OTP	One-Time Password
PIN	Personal Identification Number
R&D	Research And Development
RIA	Robotic Industries Association
RMAR	Relative Mean Absolute Revisions
SBR	Statistical Business Register
SDC	Statistical Disclosure Control
SDMX	Statistical Data and Metadata Exchange
SDSL	Symmetric Digital Subscriber Line
SIEM	Security Information And Event Management
SIMS	Single Integrated Metadata Structure
SME	Small and Medium-Sized Enterprises
SOA	Service Oriented Architecture
SSL	Secure Sockets Layer
STRUVAL	Structural Validations
UMTS	Universal Mobile Telephone System
UNECE	United Nations Economic Commission for Europe
VPN	Virtual Private Network
VTL	Validation and Transformation Language
WG	Working Group
Y2Y	Year to Year

Contents

1 Introduction

1.1. What are statistics on ICT usage and e-commerce in enterprises?

Information and communications technologies (ICT) usage and e-commerce in enterprises statistics measure the uptake of EU technologies and the digitalisation of the EU economy. These statistics are gathered through the annual 'ICT usage and e-commerce in enterprises' survey. The 2022 survey measured enterprises' access to and use of the internet and e-commerce (i.e. sale of goods and services online), employment of ICT specialists, ICT security, use of robotics and the use of ICT in connection with the environment.

This exercise has been carried out since 2002 when the European Commission (EC) established annual 'information society' surveys to benchmark ICT-driven development in enterprises and by individuals.

Eurostat is responsible for coordinating the 'ICT usage and e-commerce in enterprises' survey which is conducted at national level. Survey questions are developed every year, in close collaboration with Member States (MS) and the Organisation for Economic Cooperation and Development (OECD), in line with the changing needs of data users and policy makers. This survey takes the form of a model questionnaire and is accompanied by methodological guidelines for its implementation.

1.2. Usage and importance of statistics on ICT usage and e-commerce in enterprises

ICT account for a significant part of EU productivity and growth and are transforming our societies and economies in a profound and unprecedented way. Official statistics are indispensable for an informed understanding of the implications of the transformations under way. Selecting appropriate indicators is a crucial step. Measuring the development of the information society with relevant statistics on society, business processes and the digital economy requires continuous revision and improvement.

The current compilers' manual refers to the model questionnaire used for collecting part of the statistical data for monitoring progress towards the Commission's vision for Europe's digital transformation by 2030 presented on 9 March 2021. This vision for the EU's Digital Decade revolves around four cardinal points: skills; digital transformation of businesses; secure and sustainable digital infrastructures; and digitalisation of public services. The model questionnaire also helps users measure the implementation of one of the six priorities of the 2019-2024 von der Leyen Commission – A Europe fit for the digital age.

1.3. What is the purpose of this compilers' manual

This compilers' manual (hereafter referred to as the '**Manual**') is meant to serve as a practical reference document for all National Statistical Institutes (**NSI**) involved in the compilation of data on the use of ICT and e-commerce in enterprises. As such, its main objectives are:

- to help NSIs translate Eurostat model questionnaires into national languages and to ensure that the same methodology is used by all countries when conducting national surveys;
- to set out the concepts, definitions and compilation methods, guiding the compilation of data;
- to explain the validation and quality rules, and metadata reporting;
- to explain the concepts and methods of data transmission to Eurostat.

In order to do so, each chapter of this Manual describes a step of the production process of statistics on ICT usage and e-commerce in enterprises.

The second chapter is on data compilation. Data compilation is carried out by the NSIs on the basis of the model questionnaire. This chapter introduces the legislative background underpinning the process and explains how to interpret the model questionnaire to ensure the comparability of data between MS.

The third chapter is on data transmission. Once the data has been collected by the NSIs, they must transmit them to Eurostat. To that effect, this chapter sets out how to transfer the data to Eurostat (codification, transmission channel, deadlines, flags, confidentiality…).

The fourth chapter is on data quality. Once the data are transmitted, Eurostat applies validation rules to assess their quality. This chapter sets out the quality framework and the validation rules used by Eurostat.

Finally, the fifth chapter is on data dissemination. Once the whole data collection process is complete, Eurostat publishes the data. This chapter describes the type of data that is published and how to access them.

Note that this edition of the Manual serves as a reference for the compilation and transmission to Eurostat of data relating to 2022 as reference year.

To keep up with technological advances in digitalisation and changes in data requirements, this Manual will be updated every year.

This Manual focuses on issues relevant to ICT and e-commerce in enterprises. It does not provide an exhaustive list of all concepts and tools underpinning European statistics. For this information, please refer to the manuals, guidelines and other references listed in Section 1.4. below. Notably, the European Business Statistics Manual, 2021 edition (EBS Manual) covers the concepts that are shared across the business statistics domains.

1.4. Where can I find further guidance?

Further guidance is available from the following sources:

- The Digital economy and society webpage provides a global and regularly updated overview of Digital economy and society statistics, including statistics on the use of ICT and e-commerce in enterprises.
- The European Business Statistics Manual provides an overview of business statistics while highlighting the features introduced by a new regulatory framework. The manual also describes the various statistical tools and activities supporting EBS production such as statistical units and profiling, classifications, data processing and statistical disclosure control.
- The European Statistical System handbook for quality and metadata reports sets out guidelines for the preparation of producer and user reports for the full range of statistical processes and their outputs within Member States, EFTA countries and Eurostat.
- The ESS Handbook Methodology for data validation 2.0 provides a generic reference framework and metrics for data validation.
- The Business Architecture for ESS Validation manual sets out a common understanding of how ESS validation should be conducted.
- The European Statistics Code of Practice sets out principles that aim to ensure that statistics produced within the European Statistical System are relevant, timely and accurate, and that they comply with the principles of professional independence, impartiality and objectivity.
- The Quality Assurance Framework of the European Statistical System provides a collection of methods, tools and good practices on how to implement the European Statistics Code of Practice.

2 Data compilation

Data compilation is done by the NSIs on the basis of the model questionnaire. This chapter explains the legislative background and the data requirements, and provides guidance on the interpretation of the model questionnaire.

2.1. Legislative background

Statistics on the usage of ICT and e-commerce in enterprises are based on EU legislation to ensure a harmonised approach for the production of statistics by all reporting countries. Three regulations currently form the legal basis of the survey on ICT usage and e-commerce in enterprises for the 2022 survey:

- Regulation (EU) 2019/2152 of the European Parliament and of the Council of 27 November 2019 on European business statistics, repealing 10 legal acts in the field of business statistics ('**EBS Regulation**');
- Commission Implementing Regulation (EU) 2020/1197 of 30 July 2020 laying down technical specifications and arrangements pursuant to Regulation (EU) 2019/2152 of the European Parliament and of the Council on European business statistics, repealing 10 legal acts in the field of business statistics ('**General Implementing Act**' or '**EBS GIA Regulation**'); and
- Commission Implementing Regulation (EU) 2021/1190 of 15 July 2021 laying down the technical specifications of data requirements for the topic 'ICT usage and e-commerce' for the reference year 2022, pursuant to Regulation (EU) 2019/2152 of the European Parliament and of the Council ('**Implementing Act**').

Regulation (EU) 2019/2152 is a framework regulation. It therefore provides flexibility to adapt the survey on 'ICT usage and e-commerce in enterprises' to the evolving needs of users and decision-makers. Annual implementing measures, such as Commission Implementing Regulation (EU) 2021/1190, are the basis for the Eurostat surveys. This ensures harmonised data for all EU-27 Member States. The annual implementing Regulation is of relevance for the European Economic Area (EEA).

2.2. Data requirements

2.2.1. Introduction

The statistical product is the clear and precise definition of the statistical information to be produced. It is distinct from the production methodology. The production methodology is the way or method of doing, while the statistical product is its direct result. Different methodologies can produce the same statistical product, being only different ways of doing the same thing. This means that as long as it is guaranteed that two figures concern the same statistical product – for instance for two different countries – they are comparable. Distinguishing between the statistical product and the statistical methodology thus helps to focus on the aspects that are more important for ensuring comparability between national statistics and for producing new ones at EU level. NSIs may choose the most appropriate statistical methodology to be applied taking into account national particularities.

Elements that make up the statistical product, at input level, are the statistical unit, the target population and the observation variables. Elements at output level are the periodicity and the summary measures, aggregate variables and tabulation. Covering all the elements of the statistical product, the statistical concepts and the nomenclatures are the additional elements ensuring that statistics are harmonised and comparable.

This chapter provides a detailed description of data requirements on ICT usage and e-commerce in enterprises. These are based on the EBS Regulation and the Implementing Act.

2.2.2. Statistical unit

The statistical unit is the base type of the elements of a group (also called population) that we want to observe or analyse. The basic statistical operations of classification, aggregation and ordering are done on the statistical unit.

The choice of the statistical unit is a matter of both the data collection process (namely the operational restrictions associated with collecting data from each type of statistical unit) and the conceptual framework chosen to observe and analyse the phenomenon. The statistical unit is the bearer of statistical characteristics or attributes that we ultimately want to measure.

There are several types of statistical units, according to their usage. An observation unit represents an identifiable entity, about which data can be obtained. During the collection of data, this is the unit for which data are recorded. It should be noted that this may, or may not be, the same as the reporting unit. The reporting unit is the unit that reports to the survey authority. It reports information for the observation unit(s). In certain cases, it may be different from the observation unit. A reporting unit is a unit that supplies the data for a given survey instance.

The observation unit in the survey on ICT usage and e-commerce in enterprises is the enterprise, as defined in Council Regulation (EEC) No 696/93 of 15 March 1993 on the statistical units for the observation and analysis of the production system in the Community. The Regulation defines a list of statistical units:

> *'The enterprise is the smallest combination of legal units that is an organisational unit producing goods or services, which benefits from a certain degree of autonomy in decision-making, especially for the allocation of its current resources. An enterprise carries out one or more activities at one or more locations. An enterprise may be a sole legal unit.'*

The enterprise, therefore, is an economic entity that can, under certain circumstances, correspond to a grouping of several legal units. Some legal units, in fact, perform activities exclusively for other legal units and their existence can only be explained by administrative factors (e.g. tax reasons), without them being of any economic significance. A large proportion of legal units with no employees or self-employed persons also belong to this category. In many cases, the activities of these legal units should be seen as ancillary activities of the parent legal unit they serve, to which they belong and to which they must be attached to form an enterprise used for economic analysis.

However, the definition of the enterprise as the appropriate statistical unit poses some limitations. Some enterprises, especially larger ones, are composed of several local units (establishments). Because of this, a geographical breakdown of the results (although still possible using the location of the enterprise's main headquarters) is of limited use. Nevertheless, ICT usage is not easily attributable to an enterprise's various establishments, and for this reason the enterprise is the statistical unit adopted.

Implementation of the statistical unit 'enterprise' in business statistics requires specific considerations for the delineation of enterprises in business registers (profiling), the consolidation of the data on legal units, etc. Nevertheless, for surveys with qualitative variables specifically, the consolidation is more challenging.

Specific guidelines have been developed for this survey and are further developed in Section 2.2.3. below.

2.2.3. Statistical unit enterprise

2.2.3.1. THE CONCEPT OF ENTERPRISE IN EUROPEAN BUSINESS STATISTICS

The enterprise is the most important statistical unit in European business statistics. The enterprise concept is applied in almost all domains of business statistics. It is also the core unit, given that the other statistical units, such as the kind-of-activity unit, the local kind-of-activity unit([1]) and the local unit([2]), are defined in relation to the enterprise.

An enterprise may carry out one or more economic activities at one or more locations. The enterprise is thus not a homogeneous unit, neither with respect to its activity nor to its geographical location. However, in most enterprises, the principal activity accounts for quite a large share of the value added generated, and thus these enterprises come closer to the homogeneity of the economic activity. Also, most of the enterprises only have one location, which means that, for those enterprises, the regional attribution would be close to correct. Larger enterprises, however, perform various activities and have more than one location.

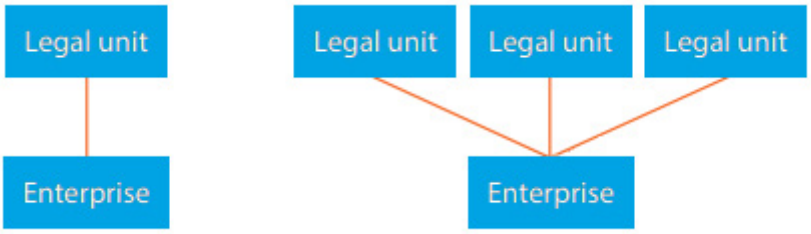
In business statistics, the term enterprise should always be used in the sense of a 'statistical enterprise'. This means, by definition, one aims to create a statistical unit that would allow one to compile harmonised data, irrespective of the actual organisational and legal structures of the economic agents. The criteria that a statistical enterprise should satisfy are: operating the necessary factors of production; having an organisational and managerial structure; autonomy of decision-making; and producing and selling goods and services on the market (see European business statistics methodological manual for statistical business registers, 2021 edition, Subsection 4.5.2).

Definition of an enterprise

The Statistical Unit Regulation 1993 (Council Regulation (EEC) No 696/93) defines the enterprise as follows:

'The enterprise is the smallest combination of legal units that is an organisational unit producing goods or services, which benefits from a certain degree of autonomy in decision-making, especially for the allocation of its current resources. An enterprise carries out one or more activities at one or more locations. An enterprise may be a sole legal unit.'

The relationships between legal units and enterprises in statistical business registers may be summarised by the examples below.



An enterprise consisting of more than one legal unit under the same management can be referred to as a 'complex enterprise'.

2.2.3.2. RECOMMENDATION FOR THE CORRECT IMPLEMENTATION OF THE STATISTICAL UNIT ENTERPRISE IN THE ICT DOMAIN

In general, the share of complex enterprises or enterprises consisting of more than one legal unit is low at around 5% or even lower, depending on the country. However, complex enterprises are usually those with a high turnover of employment. So, an effort should be made to provide data for those enterprises in a harmonised way.

Consistency is especially encouraged with structural business statistics but also with other annual business statistics at national level.

([1]) The kind-of-activity unit is a part of an enterprise. It groups together all the offices, production facilities etc. of an enterprise that contribute to the performance of a specific economic activity defined at class level (four digits) of the European classification of economic activities (NACE Rev. 2.) For example, a kind-of-activity unit might be the combination of all parts of a metal-producing enterprise that produce copper (class 24.44 in NACE Rev. 2); within the same enterprise, there might be another kind-of-activity unit consisting of those parts that produce aluminium (class 24.42 in NACE Rev. 2). The local part of kind of activity units is called local kind-of-activity unit; the term establishment is common as well, e.g. in SNA or ISIC (Glossary: Kind-of-activity unit and local-kind-of-activity unit - Statistics Explained (europa.eu)).

([2]) The local unit is an enterprise or part thereof (e.g. a workshop, factory, warehouse, office, mine or depot) situated in a geographically identified place. At or from this place, economic activity is carried out for which - save for certain exceptions - one or more persons work (even if only part-time) for one and the same enterprise (Glossary: Local unit - Statistics Explained (europa.eu)).

2.2.3.2.1. Target population

In the case of complex enterprises, the attributes for the complex enterprise as a whole should be relevant for including the enterprise and its underlying legal units in the sample, even if one or more legal units are out of scope.

Therefore, the target population should comprise enterprises, including complex ones, having the main attributes (e.g. given NACE code, number of employees and self-employed persons) in the scope of the ICT survey.

2.2.3.2.2. Sampling

The sample should be drawn at the level of enterprise. The attributes of the enterprise should be used as they are registered in the statistical business registers.

Unit consistency with structural business statistics and preferably also other national annual business statistics at the national level should be ensured.

If the variables 'employees and self-employed persons' and 'turnover' from existing data sources prove to be outdated, it could be considered to collect those variables from the enterprises, pre-fill them for verification by the enterprise, or check against the latest information of the statistical business registers when processing the data. It should be considered to ask for intra-enterprise flows on a voluntary basis.

2.2.3.2.3. Data collection

It is up to the NSIs to collect the data either from legal units or from enterprises.

Data collection		
At enterprise level	**Contact person**	If an enterprise consists of more than one legal unit, the NSI should make an agreement with the enterprise as to who should be the contact person. If that is not possible, the legal unit that is best suited to reply should be chosen. If it is not known which legal unit is best suited to reply, the group head or top management should be contacted. If they cannot reply, they should forward the questionnaire for the individual modules to the person who is best suited to reply.
	Measures to ensure quality	The contact person should be given a list of legal units for which they should respond. If it turns out that the information in the statistical business registers as regards the legal units belonging to the enterprise is not correct, it should be reported back to colleagues in the responsible unit for profiling or the statistical business registers.
From legal units	**Contact person**	Ideally, data should be collected from all legal units belonging to the enterprise in the sample. If data cannot be collected from all legal units, the legal units that report should report for all legal units belonging to the enterprise; they should be explicitly made aware for which legal units they should provide the data.
	Measures to ensure quality	Special care should be taken to include the legal units having e-commerce in order not to underestimate the e-commerce. These would include, for example, legal units that, in previous years, reported having e-commerce or websites with functionalities to order goods or services, or legal units known from other sources to have e-commerce. For non-additive variables, e.g. variables with intra-enterprise flows, it might be better to collect them from a contact person/legal unit nominated or agreed or legally best-suited to reply for the whole enterprise, or the group head or top management. For non-additive variables, legal units should be asked to deduct the intra-enterprise flows.

2.2.3.2.4. Consolidation of variables

<table>
<tr><th colspan="4">Consolidation</th></tr>
<tr><td>Qualitative dichotomous questions (yes/no questions)</td><td colspan="3">As a general rule, if one answer is ‘yes’, the answer should be ‘yes’ for the whole enterprise.</td></tr>
<tr><td>Qualitative questions with different answer options</td><td colspan="3">In the 2022 survey, this concerns the question on internet speed, where the fastest connection in the enterprise should be chosen, and the question on the definition of the most recent review of documents on measures, practices or procedures on ICT security, where it should be the most recent update in the enterprise.</td></tr>
<tr><td rowspan="3">Quantitative variables</td><td>Additive variables</td><td colspan="2">Additive variables are those for which the simple sum of the amounts of the legal units yields the consolidated amount for the enterprise. This must be the case for all enterprises, regardless of the way in which the legal units are combined to form the enterprise.
In principle, variables such as ‘number of persons employed having access to the internet for business purposes’ and ‘number of persons employed using a portable device provided by the enterprise, that allows internet connection via mobile telephone networks’, are additive variables. However, in line with the summary note on additive and non-additive statistical business register variables, the number of persons employed are headcounts and not additive. For example, if one person (employee) is part-time employed by different legal units of the enterprise, that person should be counted once. If further information is not available, the variable should be treated as additive for practical reasons.</td></tr>
<tr><td rowspan="2">Non-additive variables</td><td rowspan="2">Non-additive variables are those that cannot be simply added up to calculate the total amount at enterprise level, if the enterprise consists of several legal units. However, a consolidation of the amounts of the variable in question (e.g. turnover) of the underlying legal units must be carried out, involving the elimination of values that are related to internal flows.
Non-additive variables in the survey on ICT usage in enterprises and e-commerce are variables with internal flows, such as e-commerce or turnover. Non-additive variables should be collected from the contact person, the legal unit best suited to reply for the whole enterprise or the group head/top management, or if the consolidation is done in the national statistical institute, an attempt should be made to deduct the intra-enterprise flows in the case of web sales or EDI-type (electronic data interchange) sales.</td><td>Data collection from enterprises
If data are collected from enterprises, they should be asked to deduct the intra-enterprise flows.</td></tr>
<tr><td>Data collection from legal units
If data are collected from legal units, information on the existence of intra-enterprise flows from the (statistical) business register should be used if available. Legal units could be asked to deduct the intra-enterprise flows.</td></tr>
<tr><td rowspan="2">Percentages</td><td>Data collection from enterprises</td><td colspan="2">If data are collected from the enterprise, the contact person, the legal unit best suited to reply for the whole enterprise or the group head/top management in the enterprise should provide the percentage or an estimate for the whole enterprise.</td></tr>
<tr><td>Data collection from legal units</td><td colspan="2">If data are collected from legal units, the NSI should consolidate by dividing the absolute values (e.g. persons employed having access to the internet for business purposes) from all legal units by the total value for the denominator (e.g. persons employed in all legal units).
If data from any legal unit is not available, it should be imputed.
Information from statistical business registers can be used, if available or useful.
Care should be taken if the percentages are for non-additive variables, where, for example, intra-enterprise flows should be excluded if possible.</td></tr>
</table>

Mutually exclusive questions	**Mutually exclusive questions** are, for example, questions about using artificial intelligence (AI), where there is a different set of questions for those who are using AI and for those who don't (such as the reasons for not using AI). In that case, the answers for such a question (e.g. reasons for not using AI) should only be counted if no legal unit in the enterprise has used the relevant technology (AI technologies). Therefore, the replies should be counted for the enterprise as whole; a 'yes' answer in at least one legal unit should be counted as a 'yes' for the whole enterprise.

2.2.4. Statistical population

A population is a collection of objects of the same class. In statistical terms, this means a group of elements of the same statistical unit. There are two types of populations to be considered when producing statistics: the target population and the frame population.

The **target population** is the population of interest. It is identified by clearly delimiting the group of statistical elements about which information is desired. That delimitation is based on one or more attributes of the statistical unit. For example, for the enterprise, some commonly used attributes to delimit the target population are the size (e.g. number of employees and self-employed persons), the economic activity and its location. An example of a target population could be 'enterprises with 10 or more employees and self-employed persons, classified in Divisions 41–43 of NACE Rev. 2 (Construction), localised in the EU'.

The target population of the survey on ICT usage and e-commerce in enterprises is the group of enterprises delimited by the following attributes.

- **Economic activity**

NACE[3] is the standard for the statistical classification of economic activities in the European Union. The present NACE Rev. 2, which is the new revised version of the NACE Rev. 1 and of its minor update NACE Rev. 1.1, is the outcome of a major revision of the international integrated system of economic classifications that took place between 2000 and 2007. NACE Rev. 2 reflects the technological developments and structural changes of the economy enabling the modernisation of EU statistics and contributing, through data that is more comparable and relevant, to better economic governance at both EU and national level.

NACE Rev. 2 was implemented for the first time in the 2009 survey. During that survey, both classifications NACE Rev. 1.1 and NACE Rev. 2 had been used to report the data. The results for the surveys since 2010 are reported following NACE Rev. 2 only.

Enterprises are classified in the following categories of NACE Rev. 2:

NACE Rev. 2	Description
Section C	Manufacturing
Section D, E	Electricity, gas and steam and air-conditioning supply, water supply, sewerage, waste management and remediation activities
Section F	Construction
Section G	Wholesale and retail trade; repair of motor vehicles and motorcycles
Section H	Transportation and storage
Section I	Accommodation and food service activities
Section J	Information and communication
Section L	Real estate activities
Section M	Professional, scientific and technical activities
Section N	Administrative and support service activities
Group 95.1	Repair of computers and communication equipment

Enterprises are classified in one of these categories based on their principle economic activity. Since 2021, in accordance with the provisions of the EBS Regulation, Division 75 Veterinary activities is also included in the target population.

(3) NACE is the acronym for Nomenclature statistique des activités économiques dans la Communauté européenne. For more information on NACE Rev. 2: https://ec.europa.eu/eurostat/web/nace.

- **Enterprise size**

The target population consists of enterprises with 10 or more employees and self-employed persons.

Optionally, the target population can be extended to enterprises with numbers of employees and self-employed persons between 0 and 9.

With the adoption of the EBS Regulation, the variable 'persons employed' was replaced by the variable 'employees and self-employed persons'. This change of name of the variable does not imply any change in the scope. The two variables represent exactly the same concept. For the sake of user-friendliness, the term 'employees and self-employed persons' is only used in the introductory part of the model questionnaire and in Module X; in the rest of the questionnaire, the term 'persons employed' is still used.

The variable number of employees and self-employed persons is defined in Commission Implementing Regulation (EC) No 2020/1197 of 30 July 2020 (p. 92, Variable 120101: Number of employees and self-employed persons) and should not be confused with the number of employees or with full-time equivalents[4]. In what follows, from the statistical definition point of view, even though the word 'employees' is used, it always refers to 'employees and self-employed persons'.

- **Geographic scope**

Enterprises located in any part of the territory of the country.

The **frame population** is an operationalisation of the target population, consisting ideally of the complete list of the target population elements. A target population can be easily defined but, in practice, a list of all its elements is needed for its complete or partial observation (if a sample is used). This can be very difficult to obtain. The list should be complete and include each element of the target population only once. However, it will usually suffer from both under-coverage and over-coverage. Generally, files of statistical elements (registers) are maintained and updated, containing lists of statistical elements and also information on some attributes, usually used for delimiting target populations. Normally, frame populations are extracted from those registers.

2.2.5. Accuracy

The accuracy of statistical information refers to the closeness of estimates to the unknown true values. In practice, it is the degree to which the information correctly describes the phenomena it was designed to measure. The accuracy of statistical information is broken down into bias (systematic error) and variance (random error).

Sampling error is one of the quality indicators related to accuracy and, for most of the sampling surveys, is the most indicative quality information. The quality aspect is covered in Article 17 of the EBS Regulation, Articles 10 and 11 of EBS Regulation General Implementing Act, and Article 2 of the Implementing Act. The quantitative element for evaluating the data accuracy, established in agreement with Member States, has been the standard error. The maximum standard error (commonly used for evaluating quality) has been set to 2 percentage points for the whole coverage and 5 percentage points for the breakdowns, for the proportions and ratios that are calculated on the basis of the aggregate data that Member States transmit to Eurostat. It is an obligation of the NSIs, as producers of national official statistics, and of Eurostat, being the provider of official statistics on the EU, to estimate and present these statistical errors to the users.

2.2.6. Periodicity

The periodicity is annual. The data are collected and compiled once a year.

However, the content of the survey and questionnaire can be adapted to accommodate the evolving needs of data users. In practice, the content is changed every year. In addition, to minimise the burden on NSI and respondents, some variables can be observed with a lower frequency, e.g. variables that tend to be stable over time.

The coverage of the survey is 2021-2022. Most variables of the 2022 survey are collected for the year 2022. However, the 2022 survey also collects certain variables for the year 2021. For example, questions of the 2022 survey relating to web sales of goods and services, ICT specialists and skills, ICT security incidents and background information relate to variables for the year 2021.

This periodicity is laid down in Article 6 and Annex II to the EBS Regulation.

(4) A full-time equivalent (FTE) is a unit to measure employed persons or students in a way that makes them comparable although they may work or study a different number of hours per week. The unit is obtained by comparing an employee's or student's average number of hours worked to the average number of hours of a full-time worker or student. A full-time person is therefore counted as one FTE, while a part-time worker / student gets a score in proportion to the hours worked or studied. For example, a part-time worker employed for 20 hours a week where full-time work consists of 40 hours is counted as 0.5 FTE (Glossary: Full-time equivalent (FTE) - Statistics Explained (europa.eu)).

2.2.7. Variables

Ultimately, the attributes of the statistical unit are what we want to observe; the observation variables hold the numerical measures of these attributes. Attributes and observation variables should not be confused. An attribute is some property of the statistical unit and each attribute may have one or more observation variables with qualitative or quantitative information.

For example, for the statistical unit 'enterprise', an attribute can be its size. The observation variable is then the number of employees and self-employed persons in its service.

There are many ways of classifying observation variables; the most relevant one for this survey is the distinction between qualitative and quantitative variables.

Qualitative variables concern non-numerical information. They serve merely as labels or names for identifying attributes of the statistical unit. An example is the 'use (Yes/No) of any type of fixed line connection to the internet' by the enterprise. Sometimes qualitative variables can be turned into numerical ones by coding the non-numeric values. Binary (or dichotomous) variables are an important type of qualitative variable. Binary variables assume only two different values, which are usually turned into numerical ones by attributing the values '0' and '1' in a meaningful way.

Quantitative variables contain information as to how much or how many. An example is the number of persons employed who have access to the internet.

In the survey on 'ICT usage and e-commerce', the observation variables are mainly qualitative (binary variables).

The operational version of the observation variables are the questions in the 2022 model questionnaire that can be found in Annex 1 – Model questionnaire.

The definition of the observation variables or the model questions are discussed in more detail in Section 2.3. below.

2.3. Model questionnaire

2.3.1. Development of model questionnaires

The legal background presented in Section 2.1. provides the context for developing the model questionnaires. The legal basis is output oriented, i.e. the Implementing Act defines the variables and their characteristics but does not impose a specific method for data collection.

In order to reach a higher degree of harmonisation, Eurostat - together with a task force of experts in the survey on ICT usage and e-commerce in enterprises – prepares an annual model questionnaire that is recommended to the NSIs.

The EBS Regulation limits the response burden of the annual Implementing Act for the topic of ICT usage and e-commerce to 73 variables, including background variables. On the other hand, the need for measuring digitalisation is ever increasing. To collect relevant statistics measuring the significant technological changes of the ICT landscape, but at the same time not to increase the burden on respondents, topics and/or variables are replaced or updated to collect more relevant or more in-depth information every year.

In addition to the compulsory data collection, some variables are proposed to be collected by the NSIs on a voluntary basis.

2.3.2. Modules and questions

This chapter refer to the questions in the 2022 model questionnaire ('**MQ**') (See Annex 1 – ***Model questionnaire***). The structure of the chapter follows the model questionnaire, i.e. the explanatory notes are grouped by ***module (title)*** and ***question***. It is recommended to have the model questionnaire at hand while reading this section.

2.3.2.1. GENERAL REMARK: 'USE', 'HAVE' OR 'HAVE ANOTHER ENTERPRISE USE FOR YOU'

In many of the questions and the corresponding notes, reference is made to the use of networks, systems, software, etc. The term **'use'** does not refer to the ownership of such goods and infrastructure. For example, 3D printers or robots may belong to the enterprise, may be leased or may be shared with another organisation. In the case where 3D printers or robots are used by the responding enterprise, but provided or maintained by another enterprise, they should be considered as used by the responding enterprise.

Additionally, enterprises often buy ICT services or services which relate to the use of ICT in the context of the survey (like accounting). In cases where ICT services or other services which include use of ICT are provided totally by another enterprise and the responding enterprise itself is not using ICT for that function, then it should not be counted as use of ICT of the responding enterprise.

In some cases there will be a mixture of ICT usage by the responding enterprise and the ICT service provider (another enterprise). In these cases it should be made clear from the question what kind of activities will be counted as ICT usage of the responding enterprise.

Examples on the interpretation of special cases: In some questions the ICT involvement of the enterprise is not about ICT usage, but rather about whether the enterprise has or offers some digital solutions to its partners (customers or business partners). One example is the question about having a website (or websites). Here the question is about having, not using, and the subject is the solution that is offered to customers regardless of how the website(s) is technically maintained. The main issue about having a website is about control and responsibility for the contents in a separate area on the web. The enterprise's web pages can be maintained and designed by a service provider, but if the responding enterprise 'owns' the contents, it is considered to be its own website. However, not all presence in the web means that the respondent has a website. Presence in certain service catalogues 'yellow pages', address lists etc. are not counted as the enterprise's website. E-commerce systems can also be provided and maintained by service providers. Similarly to the case of the website, if it is the responding enterprise's e-commerce facility, the responding enterprise has control over the content of the site and is the one who is selling. If it is the owner of the products sold, then it is the respondent's e-commerce. Internet market places — where enterprises can sell their products — are a special case. Here the respondent does not own or control the site, but it does control the sale and own the products being sold and therefore it is their e-commerce (if e-commerce is a valid definition in the situation).

2.3.2.2. MODULE A: ACCESS AND USE OF THE INTERNET

Question A1: *How many persons employed have access to the internet for business purposes? (including fixed line and mobile connection)*

If you can't provide this value,

Please indicate an estimate of the percentage of the total number of persons employed who have access to the internet for business purposes.

[Scope: all enterprises]

[Type: numerical, absolute or percentage values]

This variable refers to persons employed (employees and self-employed) who have access for business purposes to the World Wide Web ('**WWW**') from their workstation or from a computer to which they have free access. The following definition of a computer applies: Computers include personal computers, portable computers, tablets, other portable devices such as smartphones.

The aim is to identify enterprises with access to the WWW. The reason for applying this specific internet service is that from the several services that can be run on the internet, the WWW (as well as e-mail) is the most common one. Accessing the internet only through the e-mail service is not considered in this variable, because e-mail is already very common in Europe and it doesn't represent effectively the potential in terms of access to information as the use of the WWW.

This variable can be collected in **absolute** or in **percentage** values. Eurostat recommends using a combination of both, giving the respondent the opportunity to choose to answer in absolute or percentage values.

Independently of how this variable is collected, the background variable *'Average number of persons employed, during the previous year'* (**X2**) is needed for grossing up the overall percentage of persons employed having access to the World Wide Web for business purposes.

Question A2: *Does your enterprise use any type of fixed line connection to the internet? (e.g. ADSL, SDSL, VDSL, fibre optics technology (FTTP), cable technology) (add national examples)*

[Scope: enterprises with access to the internet, i.e. A1 > 0]

[Type: single answer (i.e. Tick only one); binary (Yes/No); filter question]

'Connection' means the type of the 'last mile' connection of the enterprise (e.g. enterprise's computer-mediated network) to the network of the 'internet service provider' (ISP). The last mile is the final segment between an ISP's infrastructure and a subscriber's location for delivering communications (connectivity) to the enterprise.

Note: From the 2020 model questionnaire onwards, the question does not explicitly mention "broadband connection" as few countries mentioned the marginal use of "narrowband" for the connection to the internet. Narrowband connections are not in the scope of this question (all examples mentioned refer to broadband connections). Enterprises that still use narrowband connections to the internet only, should tick "No" to this question.

TYPE OF FIXED INTERNET CONNECTION:

- **DSL connection e.g. xDSL, ADSL, SDSL, VDSL**

  xDSL digital subscriber line (DSL) is a family of technologies that provide digital data transmission over the wires of a local telephone network. DSL service is delivered simultaneously with regular telephone on the same telephone line as it uses a higher frequency band that is separated by filtering. A DSL line can carry both data and voice signals and the data part of the line is continuously connected.

  The 'asymmetric digital subscriber line' (ADSL), where more bandwidth is allocated to download than upload, and the 'high-bit-rate/data digital subscriber line' (HDSL) are considered dominant DSL technologies. 'Symmetric digital subscriber line' (SDSL) refers to either a DSL technology that offers symmetric bandwidth for upload and download or to a particular DSL variant where data are only supported on a single line and does not support analogue calls. 'Very-high-bit-rate digital subscriber line' (VDSL) is a DSL technology that offers faster data transmission. VDSL is capable of supporting e.g. high-definition television, telephone services (voice over IP) and internet access over a single connection.

- **Fibre optics technology (FTTP), cable technology, etc.**

  FTTP refers to 'Fibre to the Premises', also called Fibre to the Home (FTTH). It may be more correct to use FTTP: 'fibre to the premises' referring to both 'home' and 'business'.

- **Other high capacity 'speed' fixed (wired or wireless) connection includes the following types of internet connections:**

  - Cable modem 'cable TV network connection';
  - High capacity leased lines 'frame relay, ATM, digital multiplex';
  - Ethernet LAN connection;
  - Optical fibre connection;
  - Fixed wireless access (FWA) connections, e.g. satellite connection, public Wi-Fi connection,
  - WiMax.

  Cable modem uses modems attached to cable television networks (cable TV lines) for permanent 'fixed' access to the internet. The term cable internet (or simply cable) refers to the delivery of internet service over this infrastructure. A cable modem is a device that enables you to hook up your PC to a local cable TV line. It is considered as one of the high capacity 'speed' permanent 'fixed' internet connections.

A leased line (dedicated line) is a telephone line that has been leased for private use. A leased line is usually contrasted with a switched line or dial-up line. Leased lines are usually available at speeds of 64k, 128k, 256k, 512k, 2 Mb and provided to the customer on X.21 presentation. Frame relay protocol and T-1 and T-3 (in Europe called E1 and E3) lines are used for internet connection via leased lines. Higher speeds are available on alternative interfaces.

High capacity leased line is a permanent telephone connection between two points set up by a telecommunications common carrier. Typically, leased lines are used by businesses to connect geographically distant offices. Unlike normal dial-up connections, a leased line is always active. Because the connection doesn't carry anybody else's communications, the carrier can provide a given level of quality. For example, a T-1 channel is a type of leased line that provides a maximum transmission speed of 1.544 Mbit/s. The connection can be divided into different lines for data and voice communication or the channel can be used for one high-speed data circuit. Dividing the connection is called multiplexing. Increasingly, leased lines are being used by companies,

and even individuals, for internet access because they support faster data transfer rates and are cost-effective if the internet connection is heavily used.

Fixed wireless internet connection (FWA) is a technology which uses radio frequency, infrared, microwave, or other types of electromagnetic or acoustic waves in place of wires, cables, or fibre optics to transmit signals or data (provide internet access) between stationary (fixed) points. It includes e.g. a satellite internet connection (long range wireless transmission) or public Wi-Fi (medium range wireless transmission).

Wi-Fi (or Wi-fi, WiFi, Wifi, wifi), short for 'Wireless Fidelity', is a set of Ethernet standards for wireless local area networks (WLAN) currently based on the IEEE 802.11 specifications. New standards beyond the 802.11 specifications, such as 802.16 have been developed. They offer many improvements, from longer range to greater transfer speeds. Wi-Fi was intended to be used for wireless devices and LANs, but is now often used for internet access (one of the main international standards for wireless broadband internet access and networking, with widespread use in business, homes and public spaces). It is based on radio signals with a frequency of 2.4 GHz and theoretically capable of speeds of over 54 Mbit/s (at close range, some versions of Wi-Fi, running on suitable hardware, can achieve speeds of over 1 Gbit/s). It enables a person with a wireless-enabled computer or personal digital assistant to connect to the internet when close to an access point called a hotspot. Internet connection via mobile telephone networks is not included under this category.

By public Wi-Fi, essentially we are not referring to the enterprise's Wi-Fi (that may be xDSL, cable or fibre optic) but to public Wi-Fi, hotspots, hotzones that have different names in different countries. For example, in Luxembourg it is called HotCity and the coverage is very wide. National examples (i.e. WiFi or WiMax with their national brand names) would help respondents.

Note: In case the enterprises are using only a mobile internet connection, e.g. 4G technology as the only connection in the office (instead of a fixed line connection), then they should answer NO in question A2, because it is mobile broadband technology even though it is used like fixed line connection to the internet only on one address. However, it was considered that a separate question on the use of mobile internet connections was not necessary, as the information can be derived from the information provided by enterprises in questions A1 and A2.

Information about the usage of narrowband connections, e.g. via ISDN connection or dial-up access over normal telephone line is not required since the 2014 model questionnaire.

Question A3: *What is the maximum contracted download speed of the fastest fixed line internet connection of your enterprise?*

(additional categories at national level can be added, if needed)

[Scope: enterprises with fixed line connection to the internet, i.e. A2 = Yes]

[Type: single answer (i.e. Tick only one)]

Maximum contracted download speed means the maximum theoretical speed — according to the ISP's contractual obligations — at which data can be downloaded. The five options offered are measured in Mbit/s (Mb/s or Mbps) or Gbit/s (Gb/s or Gbits). These stand for megabits per second or gigabits per second and are a measure of bandwidth (the total information flow over a given time) on a telecommunications medium. Mbps is not to be confused with MBps (megabytes per second). Often the problem is that speed tests and ISP's use 'bits per second' while download agents/programs use 'bytes per second'. Note that 1 Byte = 8 bits.

The five options offered are: a) less than 30 Mbit/s; b) at least 30 but less than 100 Mbit/s; c) at least 100 but less than 500 Mbit/s; d) at least 500 but less than 1 Gbit/s; e) at least 1 Gbit/s.

Additional categories can be added at national level, if needed.

Note that the actual bandwidth and download speeds experienced are dependent on a combination of factors including the ISP, the equipment and the software used, the internet traffic and the destination server. Hence, it may differ from the contracted download speed which is requested in this question. Respondents are not requested to run a speed test on their equipment in order to respond to the question.

Enterprises (respondents) can obtain the information about the maximum contracted download speed of the fastest fixed line internet connection from their monthly invoices for telecommunication services (internet) or in the contract with telecommunication services (internet) providers.

USE OF A MOBILE CONNECTION TO THE INTERNET FOR BUSINESS PURPOSES

(Scope: enterprises with access to the internet)

The following question refers to the usage of portable devices connecting to the internet through mobile telephone networks for business purposes. This includes the use of devices where the enterprise provides the devices and pays for the subscription and the costs of use fully or at least up to a limit.

In principle, these are portable devices that are provided allowing mobile connection to the internet via mobile telephone networks. In the scope of the survey are enterprises that provide portable devices as part of the employee's equipment, provided that the conditions in the introduction of the module (payment of subscription and usage costs) are fulfilled and the portable devices allow mobile connection to the internet via mobile telephone networks. Additionally, with 'business use' we mean that the purpose of the use is related to work.

Mobile and wireless connection to the internet: Question **A4** clearly refers to 'mobile ([5]) connection to the internet' through mobile telephone networks (either within or outside the premises of the enterprise) which should not be confused with 'wireless connection to the internet' (e.g. Wi-Fi, Bluetooth, to a certain extent WiMAX). The exclusive use of wireless connection to the internet is excluded either within the premises of the enterprise or within the range of a hotspot or hot-zone outside the premises of the enterprise.

From a practical point of view, portable devices can switch between mobile (telephone networks) and wireless connections (Wi-Fi, Bluetooth, and WiMax). However, the intention is to measure enterprise's take up of 'mobile connection of the internet' when portable devices connect to the internet over mobile telephone networks, regardless of the fact that devices may switch/connect to wireless networks and regardless of the technology used (3G or more advanced, but also less than 3G in the absence of adequate signal) for accessing the mobile telephone networks.

Portable devices: The portable devices that allow a mobile connection to the internet refer to laptops, tablet computers or smartphones.

'Other portable devices such as smartphones' qualify as computers and were developed to provide functionalities beyond those of cellular phones (cell phones or mobile phones) which served only one purpose: voice communications and exchange of SMS/MMS. Smartphones and similar devices are equipped with customised software, increased bandwidth efficiency, internet access, digital cameras, portable music players, GPS functions and many more — business or entertainment — options despite their relatively small size.

However, growth in demand for portable devices requiring processors that are more powerful, abundant memory and larger screens has placed low-power portable devices at the centre of interest. Netbooks, notebooks, and tablet computers equipped with built-in card modem (SIM-card) or external dongles (USB modem), have considerably extended the family of 'mobile connectivity' devices to compact size 'portable computers'.

The use of handsets exclusively for voice/SMS/MMS communications (e.g. enterprises requiring that persons employed are available to take business calls at all times and anywhere) are not in the scope of questions **A4** and **A5**. Additionally, M2M (machine-to-machine) communications should not be considered in the scope of the mobile use of the internet.

In certain cases, a portable computer (e.g. laptop or tablet computer) can be connected to a handset (e.g. via Bluetooth, cable) and the handset can be connected to the internet through a mobile connection (via the mobile telephone network). We consider that the portable computer is the device connected to the internet. In this case, the handset is the equivalent to a USB modem or a card modem. Moreover, the portable computer is the device used for accessing the business software application (or any application) via the internet and not the handset.

([5]) The network type referring to the 'Mobile technology' is the wireless wide area network (WWAN). It provides high-speed internet access through portable devices and coverage of the national territory in each country. It is considered to provide full telephone network coverage. The exclusive use of the Wireless Local Area Networks is not in the scope of questions A4.

Question A4: *How many persons employed use a portable device provided by the enterprise, that allows connection to the internet via mobile telephone networks, for business purposes? (e.g. portable computers or other portable devices such as smartphones)*

If you can't provide this value

Please indicate an estimate of the percentage of the total number of persons employed who use a portable device provided by the enterprise, that allows connection to the internet via mobile telephone networks, for business purposes? (e.g. portable computers or other portable devices like smartphones)

[Scope: enterprises with access to the internet, i.e. A1 > 0; optional]

[Type: numerical, absolute or percentage values]

The question refers to enterprises providing portable devices that allow (through a contract/subscription) **mobile** connection to the internet. **Portable computers** using mobile telephone networks may refer to notebooks, netbooks, laptops, tablet computers, etc. while **other portable devices** may refer to smartphones using mobile telephone networks. Mobile connection to the internet refers to connection over mobile telephone networks.

Technically, a connection via **high capacity 'speed' mobile telephone networks** refers to accessing the internet using a long range wireless transmission of the 3rd / 4th or even 5th generation (3G, 4G, 5G) mobile network technologies based on the code division multiple access ('**CDMA**') as UMTS (universal mobile telephone system — Wideband W-CDMA); CDMA2000x; CDMA 2000 1xEV-DO; CDMA 2000 1xEV-DV).

3G (or 3-G) is short for third-generation mobile telephone technology. The services associated with 3G provide the ability to transfer both voice data (a telephone call) and non-voice data (such as downloading information, exchanging e-mail and instant messaging). It includes high-speed mobile networks (e.g. CDMA2000 1X, W-CDMA, CDMA2000 1xEV-DO).

4G is the fourth generation of cellular wireless standards (mobile telephone technology). It is a successor to the 3G and 2G families of standards. The ITU-R organisation specified the international mobile telecommunications advanced requirements for 4G standards, setting peak speed requirements for 4G service at 100 Mbit/s for high mobility communication (such as from trains and cars) and 1 Gbit/s for low mobility communication (such as pedestrians and stationary users).

5G is the fifth generation technology standard for broadband cellular networks, which cellular phone companies began deploying worldwide in 2019, and is the planned successor to the 4G. The main advantage of the new networks is that they will have greater bandwidth, giving higher download speeds, eventually up to 10 gigabits per second (Gbit/s).

UMTS is one of the 3G mobile phone technologies. It uses W-CDMA as the underlying standard. It is standardised by the 3GPP, and represents the European answer to the ITU IMT-2000 requirements for 3G cellular radio systems. It presently delivers packet switched data transmission speeds up to 384 Kbit/s and up to 2 Mbit/s when fully implemented.

CDMA2000 1x is an IMT-2000 3G mobile network technology, based on CDMA that delivers packet switched data transmission speeds of up to 144 kbps. It is also referred to as 1XRTT.

CDMA2000 1xEV-DO is an IMT-2000 3G mobile network technology, based on CDMA that delivers packet switched data transmission speeds of up to 2.4 Mbps.

The concept of 'persons employed' to be used in this variable is the one described in the explanatory note of variable **X2** ('Average Number of number of employees and self-employed persons (Persons Employed)').

This variable can be collected in **absolute** or in **percentage** values. Eurostat recommends using a combination of both, giving the respondent the opportunity to choose either to answer in absolute values or percentage values. The absolute value might be more appropriate for smaller enterprises and the percentage for bigger ones. When the number of persons employed is small, it is easier for respondents to identify which ones use a portable device provided by the enterprise, that allows internet connection via mobile telephone networks, for business purposes, instead of having to calculate the percentages afterwards. Collection in percentage terms may introduce measurement errors, because of the rounding that is necessary to provide an answer in percentages made of integer numbers between 1 and 100. Collection in percentage terms may also introduce other measurement errors as it leads the respondent to make an educated guess of its value introducing the bias usually associated with this type of answer. On the other hand, for bigger enterprises, with high numbers of persons employed, the identification of every worker using a portable device provided by the enterprise, that allows internet connection via mobile telephone networks, for business purposes can be burdensome or not possible and result in non-response. In this case, the collection of this information in percentage terms may be preferable.

Independently of how this variable is collected, the background variable 'number of persons employed' is needed for grossing up the overall percentage of persons employed who use portable devices provided by the enterprise, that allows internet connection via mobile telephone networks, for business purposes. In order to compute the overall percentage, both the total number of persons employed and the total number of persons employed using a portable device provided by the enterprise that allows internet connection via mobile telephone networks, for business purposes need to be grossed up. If collected in percentage terms, the corresponding absolute value needs to be calculated afterwards multiplying the answer with the background variable to gross up the number of persons employed using a portable device provided by the enterprise that allows internet connection via mobile telephone networks, for business purposes.

This question refers to persons employed using portable devices (within or outside the premises) that allow Internet access via mobile phone networks for business purposes, provided by the enterprise permanently or temporary (e.g. when needed or upon request). The question refers to persons (not to devices), hence it is suggested to request an estimate of persons provided with devices.

Portable devices provided when needed or upon request e.g. meetings away from office premises, business trips, participation at conferences, provision of maintenance and on-site support to customers, are in the scope of the question. Cases in which persons employed use portable devices without accessing the Internet (but devices allow for it) are in scope too.

A mobile internet connection for the enterprise owner(s) should be included in A4.

MEETINGS VIA THE INTERNET

(Scope: enterprises with access to the internet, i.e. if A1 >0)

The module aims to collect information about conducting meetings via the internet (remote meetings) by enterprises and their guidelines related to security of such meetings and to the replacing of business travels by favouring the remote meetings.

Telework and virtual meetings, in particular, are indeed very relevant topics, especially in the current situation where the Covid-19 pandemic has forced many enterprises globally to turn to teleworking and/or virtual meetings, in order to maintain their businesses while respecting confinement and social distancing measures imposed by national governments.

These indicators are also relevant in the context of the use of digital technologies to build a smarter and more sustainable economy, in particular in the post-COVID-19-crisis period.

Question A5: *Does your enterprise conduct remote meetings (via e.g. Skype, Zoom, MS Teams, WebEx)?*

[Scope: enterprises with access to the internet, i.e. A1 > 0]

[Type: single answer (i.e. Tick only one); binary (Yes/No); filter question]

Question **A5** is a filter question aiming to measure whether enterprises conduct remote (online) meetings via internet using tools such as Zoom, Skype, MS Teams or others.

The remote meeting can be internal (between persons in the enterprise, whether they are located in the office or outside) or external (with persons from outside the enterprise e.g. business partners).

Remote meetings can be conducted either via video, via audio only or via both, video and audio. Both, remote meetings conducted via dedicated apps or via browsers are included. The video meetings may be conducted via any device, desktop or any portable device, including smartphones.

Question A6: *Does your enterprise have any ICT security guidelines for conducting remote meetings via the internet (e.g. password requirement, end-to-end encryption)?*

[Scope: enterprises that conduct remote meetings, i.e. A5 =Yes]

[Type: single answer (i.e. Tick only one); binary (Yes/No)]

The scope of the question includes any guidelines (instructions or rules) regarding the security measures of the remote meetings conducted via the internet by its employees (e.g. instructions about usage of devices for meetings, using different passwords for different meetings). Such guidelines may refer to for instance to particular requirements for the password, to end-to-end

encryption, to the use of specific tools allowed by the enterprise, to the use of private vs corporate devices or any other security related guidelines.

If a positive answer to question A6 (A6=Yes) then question D3 should be ticked Yes. However, a positive answer to D3 (D3=Yes) does not always imply A6 should be ticked Yes.

Question A7: *Does your enterprise have guidelines to favour remote meetings via internet instead of business travelling?*

[Scope: enterprises that conduct remote meetings, i.e. A5 =Yes]

[Type: single answer (i.e. Tick only one); binary (Yes/No)]

Question A7 aims to measure whether enterprises favour remote meetings held via the internet instead of business travels, regardless of the reason (e.g. economic (costs), environmental (less pollution generated) or any other). The scope of the question also includes a partial approach, meaning that an enterprise should answer 'Yes' to question A7 even if such guidelines are applied only to some of the business travels.

REMOTE ACCESS

(Scope: enterprises with access to the internet, i.e. if A1>0)

This set of questions aims to measure enterprises' readiness, capacity or willingness to make it possible for their employees to work remotely by allowing them a remote access to enterprise's resources (e.g. remote e-mail access, remote access to documents and ICT systems of the enterprise).

The policy interest for indicators relating to the technological readiness of the enterprises to apply teleworking and/or use virtual meetings originates from the recent experience due to the Covid-19 pandemic. However, remote working and virtual meetings are not temporary phenomena. The recent experience has proven that the ever-increasing capabilities of ICT have made in many cases teleworking (full or partial) as efficient as working in the office even in businesses where this was not considered before. Therefore, the voices highlighting the economic (less costs for enterprises), environmental (less commuting) and social (work-life balance) benefits of teleworking have increased substantially. Therefore, there is a need to understand the remote working readiness of European enterprises (in terms of facilities provided to their employees), the percentage of employees that could potentially telework and the uptake of this new way of working in Europe.

Question A8: *Do any of the persons employed have remote access to the following? (via computers or portable devices such as smartphones)*

[Scope: enterprises with access to the internet, i.e. A1 > 0]

[Type: single answer per item (i.e. Tick only one); binary (Yes/No); multiple items may be expected; filter question]

Question A8 measures the technological readiness of the enterprises to apply teleworking by providing their employees with remote access to the enterprise's resources.

The question does not ask about the use, but about the access, so the possibility to remotely connect to enterprise's resources.

The access may be via any device, desktop computer or any portable device, including smartphones. There is no limitation in the scope concerning the ownership of the device, it covers access through a private device (owned by the employee) as well as a corporate device (provided by the enterprise).

a) E-mail system of the enterprise

Enterprises, which provide a remote access to enterprise's e-mail system for their employees, should answer 'Yes' to this answer option.

If the official e-mail system of the enterprise is for instance Gmail (or other), which can be accessed anywhere, then the enterprise should tick 'Yes' to question A8a).

b) Documents of the enterprise (e.g. files, spreadsheets, presentations, charts, photos)

This answer option covers a remote access to enterprise's documents, including spreadsheets, presentations, or any other files. This item should also be ticked 'Yes' if only a limited number of documents can be accessed remotely.

The item does not include in scope cases of accessing the documents (e.g. files, spreadsheets, presentations, charts, photos) via e-mail mailbox (saved in a sent or received email).

c) Business applications or software of the enterprise (e.g. access to accounting, sales, orders, CRM)

Please exclude applications used for internal communication, e.g. Skype, Teams, Yammer.

Answer option c) includes remote access to enterprise's business applications or software used by the enterprise, such as application or software related to accounting, sales or other business software. This item should also be ticked 'Yes' if only a limited number of business applications or software can be accessed remotely.

The use of applications for internal communication, such as Skype, MS Teams, Yammer are excluded from the scope of answer option c).

Question A9: *How many persons employed have remote access to the e-mail system of the enterprise?*

If you can't provide this value, please indicate the percentage of all persons employed who have remote access to the e-mail system of the enterprise.

[Scope: enterprises that provide their the persons employed with remote access to their e-mail system, i.e. A8a =Yes]

[Type: numerical, absolute or percentage values]

Enterprises should indicate a number or a percentage of persons employed that have the remote access to enterprise's e-mail system, regardless whether they use the access or of the frequency of such use.

Question A10: *How many persons employed have remote access to the documents, business applications or software of the enterprise (e.g. files, spreadsheets, presentations, charts, photos, access to accounting, sales, orders, CRM)?*

(via computers or portable devices such as smartphones)

If you can't provide this value, please indicate the percentage of all persons employed who have remote access to the documents, business applications or software of the enterprise.

[Scope: enterprises that provide their the persons employed with remote access to the documents, business applications or software of the enterprise, i.e. A8b =Yes or A8c =Yes]

[Type: numerical, absolute or percentage values]

Enterprises should indicate a number or a percentage of persons employed that have the remote access to the documents, business applications or software of the enterprise, regardless whether they use the access or of the frequency of such use.

Question A11: *Does your enterprise have any ICT security guidelines for remote access? (e.g. requirement to conduct password–secured remote meetings, prohibition of using of public Wi-Fi for work, use of VPN, requirements concerning privacy of data)*

[Scope: enterprises that provide their the persons employed with remote access to their resources, including e-mail, the documents, business applications or software of the enterprise, i.e. A8a =Yes or A8b =Yes or A8c =Yes]

[Type: single answer (i.e. Tick only one); binary (Yes/No)]

The scope of the question includes any guidelines (instructions or rules) regarding the security measures related to the remote access to enterprise's resources (e-mail, documents, business applications or software) for its employees.

Such guidelines may refer to for instance to requirements for conducting only password–secured remote meetings, prohibition of using of public Wi-Fi for work, use of VPN, requirements concerning privacy of data, use of private vs corporate devices or any other security related guidelines.

If a positive answer to question A11 (A11=Yes) then question D3 should be ticked Yes. However, a positive answer to D3 (D3=Yes) does not always imply A11 should be ticked Yes.

2.3.2.3. MODULE B: E-COMMERCE SALES

This module covers e-commerce sales (received orders) which are conducted via web site or apps or as EDI-type sales. Since the 2011 survey the measurement of e-commerce sales is done as a split to web sales and EDI-type sales which are separate sub-modules and comprise mandatory reporting variables.

One important difference in this module compared with most other variables in the questionnaire is that systematically the reference period is the previous calendar year, instead of the current situation. Flow economic variables like turnover and purchases — the main variables to measure in e-commerce — need to be measured for a longer period instead of just one point in time. In order to keep comparability with the main business statistics a calendar year is taken as reference period.

Definition of e-commerce

In order to ensure the broadest international comparability of the enterprise ICT usage statistics, the OECD definition of e-commerce is used as a basis throughout this module but referring merely to sales ('Update of the OECD statistical definition of e-commerce (DSTI/ICCP/IIS(2009)5/FINAL'):

Table 1. The 2009 definition of e-commerce

OECD definition of e-commerce	Guideline for the Interpretation
An **e-commerce transaction** is the sale or purchase of goods or services, conducted over computer networks by methods specifically designed for the purpose of receiving or placing of orders. The goods or services are ordered by those methods, but the payment and the ultimate delivery of the goods or services do not have to be conducted online. An e-commerce transaction can be between enterprises, households, individuals, governments, and other public or private organisations.	**Include:** orders made in Web pages, extranet or EDI.[7] The type is defined by the method of making the order. **Exclude:** orders made by telephone calls, facsimile, or manually typed e-mail.

Table 2. The framework for measurement

Type	Definition of the type of e-commerce
Web e-commerce	Orders made at an online store (webshop) or via web forms on the Internet or extranet regardless of how the web is accessed (computer, laptop, mobile phone etc.)
EDI e-commerce	Orders initiated with EDI. EDI (electronic data interchange) is an e-business tool for exchanging different kinds of business messages. EDI is here used as a generic term for sending or receiving business information in an agreed format which allows its automatic processing (*e.g.* EDIFACT, XML, etc.) and without the individual message being manually typed. "EDI e-commerce" is limited to EDI messages placing an order.

Defining e-commerce sales in the questionnaire

With the implementation of the definition in the questionnaire below the main definition of e-commerce is explained for the respondents.

In e-commerce sales of goods or services, the order is placed via web sites, apps or EDI-type messages by methods specifically designed for the purpose of receiving orders.

The payment may be done online or offline.

e-Commerce does not include orders written in e-mail.

Defining web sales in the questionnaire

In the beginning of the submodule on web sales the concept of web sales is explained for the respondents.

Online store (webshop) is the most obvious and clear example of web-based e-commerce. It is a separate site in the web or a separate part of a website where products are presented and typically ordered via shopping cart functionality.

Web forms are simple forms integrated in the enterprises' website where goods and services can be ordered. In these forms you can type or click the order and send the order by "send" button on the web site.

Extranet is a closed environment for agreed partners or customers where different information between those parties can be accessed or exchanged. If there are sales done in extranet it is counted as web sales. In extranet the actual shopping can be done either in webshop or web forms explained above.

Bookings and binding/fulfilled reservations are considered similar to orders; for some economic sectors (e.g. NACE Rev. 2, sector 55 Accommodation) these terms are more commonly used to describe the 'order'. The questions in this module are about sales (and generated turnover), therefore the scope is by default limited to the fulfilled sales, orders, reservations. Reservations and orders that are not fulfilled are out of scope of this module.

Sales via **apps for mobile devices or computers** are also counted as web sales. 'App' is a short name for 'web application'. There are two types: the browser based and the client based web applications. The former are web applications accessible over a webpage (html and Javascript) and run within the web browser. The latter are installed on a device (e.g. smartphone), run without going through a browser but they use web protocols.

In addition to sales via enterprises own websites or apps, also sales via external **e-commerce marketplace websites or apps** are counted as enterprise's web sales. E-Commerce marketplaces are external websites or apps used by several enterprises for trading (selling) their goods or services to customers.

Defining EDI-type sales in the questionnaire

In the beginning of the submodule on EDI-type sales the concept of EDI-type sales is explained for the respondents.

EDI can be defined as the transfer of structured data, by agreed message standards, from one computer system to another without human intervention. EDI provides a technical basis for automated commercial "conversations" between two entities, either internal or external. The term EDI encompasses the entire electronic data interchange process, including the transmission, message flow, document format, and software used to interpret the documents.

Demand-driven orders concern situations where, e.g. a certain minimum level of inventory has been specified in the system of the buying enterprise, and when the inventory drops below the specified minimum level, the system transmits an EDI message to the selling enterprise for more goods to be delivered.

This is an example of an advanced, but in certain activities common, way of business automation through the automated integration between the systems of two trading partners.

The questions on web sales

Web sales of goods or services

Web sales covers orders, bookings and reservations placed by your customers via

- **your enterprise's websites or apps:**
  - online store (webshop)
  - web forms

- extranet (webshop or web forms)
- booking/reservation applications for services
- apps for mobile devices or computers

- **e-commerce marketplace websites or apps (used by several enterprises for trading goods or services).**

Orders written in e-mail are not counted as web sales.

B1: *During 2021, did your enterprise have web sales of goods or services via:*

[Scope: enterprises with access to the internet, i.e. A1 > 0]

[Type: single answer per item (i.e. Tick only one); binary (Yes/No); multiple items may be expected]

a) your enterprise's websites or apps? (including extranets)

b) e-commerce marketplace websites or apps used by several enterprises for trading goods or services? (e.g. e-Bookers, Booking, hotels.com, eBay, Amazon, Amazon Business, Alibaba, Rakuten, TimoCom)

[Please add national examples of e-commerce marketplaces incl. government marketplaces]

Policy context: Users expressed a need to quantify the use of electronic marketplaces by enterprises (intermediary e-commerce websites or apps) for receiving orders via various web-platforms in the context of enterprises' web sales. The relevant policy initiatives concern market competition issues, dominant position of e-commerce players that are active in marketplaces, and investigation of (discriminatory) business models of various e-commerce marketplaces.

Methodological/explanatory notes on e-commerce marketplaces: The following working definition is proposed: The term 'e-commerce marketplace' refers to websites or apps used by several enterprises for trading products e.g. e-Bookers, Booking, hotels.com, eBay, Amazon, Amazon Business, Alibaba, Rakuten, TimoCom). *Amazon Business* is a marketplace on *Amazon*.com that is addressed to B2B commercial transactions.

TimoCom was added to the list of examples of an e-commerce marketplace in question B1 and B3. TimoCom runs the largest transport platform in Europe (operates in 44 European countries). Services on this platform include: transport orders (to request orders digitally and manage transport orders), freight exchange (to avoid empty runs), vehicle offers, fixed contracts (transport tenders platform), warehousing exchange.

Amadeus is not an example of e-commerce marketplace. It is a platform that connects travel providers and travel sellers all over the globe, offering search, pricing, booking, ticketing, transaction and servicing capabilities. It mainly provides services designed for enterprises within the travel sector and it builds the technology that enables travel agents and websites to book airline, rail, cruise and ferry tickets, hotel rooms, car hire, tour packages and more. Travel agencies can build their services on top of Amadeus, e.g. their own platforms. Amadeus is not a marketplace, but rather an infrastructure.

Note that **e-commerce marketplaces** are different from **e-commerce platforms** e.g. Shopify, WooCommerce, Magento, Bigcommerce, that provide scalable, self-made online solutions for business that would like to set up their own e-commerce website.

The following should **not be considered as e-commerce marketplaces**:

a) a website or app of an enterprise, selling the enterprise's own products;

b) a website or app of one seller acting as distributor, selling other enterprises' specific products;

c) a website that provides e-commerce solutions for other enterprises to install for the enterprises' own e-commerce functionality;

d) a website that focuses on non-trading activities like collaborative design.

The issue of translating accurately the term 'e-commerce marketplaces' in other languages is important. Other alternatives might work better (e.g. internet-based trade platforms) in other languages.

B2: *What was the value of your web sales? (please refer to the provided definition of web sales)*

[Scope: enterprises which had web sales of goods or services, i.e. B1a = Yes or B1b = Yes]

[Type: numerical, absolute or percentage values]

Please answer to a) OR b)

a) What was the value of your web sales of goods or services, in 2021? (National currency, excluding VAT)

b) What percentage of total turnover was generated by web sales of goods or services, in 2021?

If you cannot provide the exact percentage an approximation will suffice.

For turnover the SBS definition is to be used. See background variable X3 in this document.

Collecting electronic orders in percentage values has the advantage of allowing us to obtain an estimate from respondents who don't have any records in the enterprise which can provide this value. Therefore, unless specific records of all these transactions are kept in a centralised form, it may be difficult for the enterprise to provide the value of orders received that were placed via a website or app. Another way of coping with this problem is to allow enterprises to estimate the web sales turnover in monetary terms by indicating that 'an approximation will suffice'.

For enterprises with very small share of e-commerce in turnover there is evidence that respondents round significantly around 1%. Therefore, when collected in this way as percentage figure, a relatively large proportion of the values collected are 1 %. Another challenge of this method is that for big enterprises a value of less than 1% can still be a significant amount in value terms. When answers from big enterprises are involved this can bring a significant instability to the results.

In addition, also larger percentage shares are often reported rounded to multiples of 10% or 5%.

For these reasons the answer should be provided in decimals.

Due to challenges in collecting data in percentage figures the preferred way to collect value of sales via a website or app is in absolute values. Unfortunately, for many enterprises this value is not available. For this reason, the recommended method is to ask the enterprise to answer in precise absolute values if it has the information. Or as an alternative, if such information is not available, ask for an estimate, either in monetary terms or as a percentage of the total turnover.

Please answer to a) OR b)

a) What was the value of your web sales of goods or services, in 2021?	(National currency, excluding VAT) _____
OR **b) What percentage of total turnover was generated by web sales of goods or services, in 2021?** *If you cannot provide the exact percentage an approximation will suffice.*	␣ ␣ ␣ , ␣ %

Currently some countries ask for the absolute value while others ask for the percentage value. The current formulation aims to provide an alternative in order to avoid the bias that might exist from asking only one of the two ways i.e. underestimation in the case of the absolute value and overestimation in the case of percentage values. **It may be preferable to give the option to the enterprises for using the one for which they can provide more accurate answers**.

Eurostat preferred practice is to get the grossed-up value of the percentage, i.e. the percentage of turnover resulting from orders received that were placed via a website or apps.

In a situation, where a company (e.g. airline) gets commissions from sales (e.g. car rental) made from another company (e.g. car rental company) via its (air company's) website or app, the commissions should be counted as e-commerce.

B3: *What was the percentage breakdown of the value of web sales in 2021 for the following: (Please refer to value of web sales you reported in B2) If you cannot provide the exact percentages an approximation will suffice.*

[Scope: enterprises which had web sales of goods or services via own websites or apps and via e-commerce marketplaces, i.e. B1a = Yes and B1b = Yes]

[Type: numerical, percentage values that add up to 100%]

c) **via your enterprise's websites or apps?** (including extranets)

d) **via e-commerce marketplace websites or apps used by several enterprises for trading goods or services?** (e.g. e-Bookers, Booking, hotels.com, eBay, Amazon, Amazon Business, Alibaba, Rakuten, TimoCom) [Please add national examples of e-commerce marketplaces incl. government marketplaces]

In the case of a web questionnaire it is recommended that B1 serves as a 'smart filter'. **B3** should only be answered if both **B1 a) and B1 b)** have been answered with 'Yes'. If only one of the two has been answered with 'Yes' then the respective value for **B3** should be stored as 100 % and the respondent should go to **B4**.

The sum of answer options a) and b) should always result in 100%.

B4: *What was the percentage breakdown of the value of web sales in 2021 by type of customer: (Please refer to value of web sales you reported in B2)*

If you cannot provide the exact percentages an approximation will suffice.

a) **Sales to private consumers (B2C)**

b) **Sales to other enterprises (B2B) and Sales to public sector (B2G)**

Total: 100%

[Scope: enterprises which had web sales of goods or services, i.e. B1a = Yes or B1b = Yes]

[Type: numerical, percentage values that add up to 100%]

For respondents having received orders that were placed via a website or app, a percentage breakdown of the turnover by type of customer is requested. The two most important types of e-commerce occur in business-to-consumer (B2C) and business-to-business (B2B) markets.

a) **Sales to private consumers (B2C)**

The term B2C stands for business-to-consumer and refers to electronic commerce transactions between enterprises and the individuals as the end consumer. Business-to-consumer electronic commerce typically takes the form of websites or apps that offer the possibility to individuals to place order for products.

b) **Sales to other enterprises (B2B) and Sales to public sector (B2G)**

The term B2B stands for business-to-business and refers to electronic commerce transactions between enterprises (different from transactions between enterprises and other groups, like consumers (individuals) and the government). B2B refers to commercial transactions between the responding enterprise and other enterprises (e.g. manufacturer and a wholesaler, a wholesaler and a retailer). Business-to-business electronic commerce typically takes the form of processes between trading partners and is performed in higher volumes than business-to-consumer applications (e.g. use of e-marketplaces or via the respondent's websites using login/password procedures). B2B e-marketplaces connect buyers and sellers through a hub where online transactions can be executed. The distinction of e-commerce between B2B and B2C is important because B2B transactions have advantages for enterprises, e.g. reduction of product cycle times, lowering stock levels and increasing trade volumes.

B2G stands for business-to-government and includes the electronic commercial transactions between the responding enterprise and public authorities that are conducted via a website or apps.

B5: *During 2021, did your enterprise have web sales to customers located in the following geographic areas?*

[Scope: enterprises which have received orders that were placed via a website or apps, i.e. B1 = Yes; optional]

[Type: one single answer per item needed, i.e. Tick only one; binary (Yes/No); multiple items may be expected]

a) Own country

b) Other EU countries

c) Rest of the world

In this question, the respondent enterprise that had web sales (via enterprises websites or apps and/or e-commerce marketplace websites or apps used by several enterprises for trading goods or services), during 2021, is asked about the location of their customers. Three answer options are provided, namely:

a) **Own country**: the customer is located in the same country as the enterprise;

b) **Other EU countries**: the customer is located in one of the other EU countries (any of the 27 EU countries other than the country of the enterprise);

c) **Rest of the world**: the customer is located outside the EU27 member states.

The respondents shall tick all options that apply.

B6: *What was the percentage breakdown of the value of web sales in 2021 to customers located in the following geographic areas?*

(Please refer to value of web sales you reported in B2)

If you cannot provide the exact percentages an approximation will suffice.

[Scope: enterprises received orders placed via a website or apps, i.e. b1 = Yes; optional]

[Type: numerical, percentage values that add up to 100%]

a) Own country	␣ ␣ ␣ , ␣ %
b) Other EU countries	␣ ␣ ␣ , ␣ %
c) Rest of the world	␣ ␣ ␣ , ␣ %

For respondents that had web sales (via enterprises websites or apps and/or e-commerce marketplace websites or apps used by several enterprises for trading goods or services), during 2021, a percentage breakdown of the turnover by location of customer is requested. The same three location categories as in question B5 are used, namely: a) Own country, b) Other EU countries and c) Rest of the world.

The respondent is requested to answer to this question with an approximation, if the exact percentages are not available.

In case of implementing a web questionnaire, it is recommended that **B5** serves as a 'smart filter'. **B6** should only be answered if at least two of the possible responses in question **B5**, **a)**, **b)** or **c)** have been answered with 'Yes', otherwise the next filter instruction before question **B7** should be checked.

B7: *Regarding web sales to other EU countries: did your enterprise experience any of the following difficulties during 2021?*

[Scope: enterprises with web sales to customers in other EU countries, i.e. B7b = Yes; optional]

[Type: single answer per item (i.e. Tick only one); binary (Yes/No); multiple items may be expected]

The set of responses referring to difficulties limiting an enterprise from selling via a website or app has been revised and is addressed only to respondents with web sales to customers in other EU countries. The list is not exhaustive. Besides response a), which explicitly refers to 'costs', all other responses may entail an element of costs, as some costs may occur in overcoming the specific difficulties.

a) High costs of delivering or returning products when selling to other EU countries

The current policy debate is related to delivery operators/delivery costs that in certain cases double when products are sold in other countries. Moreover, the issue may be related to the possible fragmentation of markets by parcel delivery service companies and the creation of oligopolistic delivery markets. In addition, honouring legal obligations for guarantees and returning products might be an issue for enterprises having cross-border web sales.

b) Difficulties related to resolving complaints and disputes when selling to other EU countries

Difficulties may exist regarding the uncertainty of the legal framework for web sales; more specifically with resolving complaints and disputes, related to costs as well as finding the appropriate formal channels for settling conflicts and disputes that might occur with customers in other EU countries.

c) Adapting product labelling for sales to other EU countries

Products in the EU must comply with EU labelling requirements intended to protect consumers' health, safety and interests, and provide product information, content, composition, safe use and special precautions, etc. Besides the costs of adapting to EU labelling, the requirements for EU labelling themselves may be a source of difficulty for enterprises selling cross-border.

d) Lack of knowledge of foreign languages for communicating with customers in other EU countries

This response option refers to difficulties that relate to the lack of knowledge of foreign languages that impede the enterprise from communicating with their customers abroad and are therefore hindering the sales to other EU countries.

e) Restrictions from your business partners on selling to certain EU countries

Restrictions imposed by business partners (e.g. suppliers) on selling in specific EU countries. The issue is related to market segmentation due to copyright restrictions, delivery of content across EU countries, etc.

f) Difficulties related to the VAT system in EU countries (e.g. uncertainty regarding VAT treatment in different countries)

EDI-TYPE SALES

EDI-type sales cover **orders placed** by your customers via EDI-type messages (EDI: Electronic Data interchange) meaning:

- in an **agreed or standard format** suitable for automated processing
- EDI-type order message created from the **business system** of the customer
- including orders transmitted via EDI-service provider
- including automatic system generated **demand driven orders**
- including orders received directly into your **ERP** system.

Examples of EDI : EDIFACT, XML/EDI (e.g. UBL, Rosettanet, [please add national examples])

B8: *During 2021, did your enterprise have EDI-type sales of goods or services?*

[Scope: enterprises with access to the internet, i.e. A1 > 0]

[Type: single answer (i.e. Tick only one); binary (Yes/No); filter question]

B9: *What was the value of your EDI-type sales?*

(please refer to the provided definition of EDI-type sales)

[Scope: enterprises which had EDI-type sales of goods or services, i.e. B8 = Yes]

[Type: numerical, absolute or percentage values]

Please answer to a) OR b)

a) **What was the value of your EDI-type sales of goods or services, in 2021?** (National currency, excluding VAT)

b) **What percentage of total turnover was generated by EDI-type sales of goods or services, in 2021?**

If you cannot provide the exact percentage an approximation will suffice.

For turnover the SBS definition is to be used. See background variable X3 in this document.

See definitional issues on EDI in the beginning of this chapter 1.2.3 and guidelines for some possible interpretation problems presented below.

Guidelines for some specific cases of possible interpretation problems on e-commerce, web or EDI type

1) The following example intends to clarify the distinction between EDI-type sales and web sales in a situation where both technologies are involved in the process.

Case/situation:

The responding enterprise has a website or app with sales functionalities. The customer chooses the product and the transaction is completed by pressing the 'Send' button. The website might create an EDI-type message which is sent to the sales department to prepare electronically the transportation documents and the goods; to the accounting department to prepare the electronic invoice; and to the department responsible for dispatching to prepare the planning of the dispatch of the goods. The same case can be replicated if the customer is not using the enterprise's website or app but the website or app of an online shop which produces the same EDI messages.

Classification/explanation:

According to the e-commerce definition([6]), this is referred to as **web sales** because the order was placed via the enterprise's website or app (or a website of a third party selling on behalf of the enterprise — online store) even if the enterprise received it as an EDI-type message. The reporting enterprise should avoid double counting the sales.

2) Selling credit online via apps, e.g. on mobile phones.

In the example below, we try to clarify the issue of e-commerce in relation to apps when the reporting enterprise sells credit online. More particularly the issue concerns enterprises that sell credit over the internet to customers that have the enterprise's app on their mobile phone, tablet or other device.

There are three distinct cases:

a) Reporting enterprises in the specific economic activities of selling credit to be used for purchasing products from third enterprises: For reporting enterprises whose principle economic activity is selling credit, the fact that they sell credit over the internet should be broadly considered as e-commerce. It should be considered as a commercial transaction, similar to selling vouchers (with/without specifying product) and it would be initially registered as liability towards other enterprises (e.g. retailers, wholesalers, service providers). The 'service fee' should be registered as turnover when the final client eventually uses the credit/

([6]) The type of e-commerce transaction is defined by the method of making the order. This approach should mitigate the interpretation problems where both types, EDI and web, are used in the process. An example is a situation where an order is made by the customer through a web application but the information is transmitted to the seller as an EDI-message. Here the type of selling application is however web, EDI is only a business application to transmit information (DSTI/ICCP/IIS(2009)5/FINAL).

voucher and orders the products. It may be that for taxation purposes there is a 'timing issue' for registering the 'service fee' before the final client uses the credit/voucher.

b) For enterprises that sell credit/vouchers and do not refer to any of their specific products (e.g. gift cards with certain pre-loaded amount): From the accounting perspective, selling credit over the internet is not e-commerce (no specific product is ordered), it should be registered as advance payment and not as turnover. It should be registered as commercial transaction and turnover only when the customer orders specific products via the internet (e-commerce) or otherwise (brick-and-mortar-business).

c) For reporting enterprises that sell credit/vouchers and implicitly refer to single/specific products (e.g. carnet of tickets for the cinema): In principle this should be the same as above. However, in some countries according to the national tax law it may be registered as commercial transaction and turnover because the specific product and its respective price is specified on the credit/voucher.

In the context of the survey, the most important issue however, is to avoid double counting (when selling credit and when receiving orders) and to enable enterprises to respond as accurately as possible depending on how e-commerce has been implemented into their accounting system.

3) Clarification on sales over an extranet: Web sales or EDI-sales

Enterprises (respondents) may receive orders placed over an extranet and usually concern business-to-business transactions. It may not always be sufficiently clear for respondents whether the orders received over an extranet should be considered as web sales or EDI-type sales. If it is unclear, the level of automation for placing the order should be considered and clarifications may be required from the respondents. In fact respondents should know how their customers place orders besides just EDI-type messages.

The OECD definition of e-commerce is based on **the way the order is placed**. If the order is placed via forms/web forms in extranet it is clearly web sales regardless of the fact that an exchange of EDI-type messages follows as explained in case 1) above. The issue to be clarified with the enterprise (respondent) should be exactly on the operation of their partner when placing the order.

Only the description of the actual operation for placing the order would provide the necessary information for web or EDI-type sales and in certain cases the NSI must take a decision. However, it is suggested that 'web sales' are completely excluded before declaring the sales as 'EDI-sales'.

4) Frame agreements

Goods or services that are agreed to be sold in frame agreement but are recalled later via web or EDI-type orders are also included in e-commerce sales. This means a situation where enterprises reach an agreement for an agreed number/amount/volume/limit of products – not necessarily online – for an agreed time frame but the products are recalled electronically later when they are needed. In this case, not the initial sale (frame agreement) should be included as e-commerce but the recall of the products should be (and only this turnover generated by the recalls for the specific reference year).

5) The following seven cases are grouped together. Some of them raise certain issues related to the application of the e-commerce definition.

Examples on what IS e-commerce:

The 1st case is the usual case of an enterprise having web sales.

Case 1) An e-commerce website or app can offer the possibility to fill in a web form (online) hence the order is placed using a website or app.

The 2nd case refers to the use of 'methods specifically designed for the purpose of receiving orders' over a website even though the selling enterprise (responding enterprise) retrieves (downloads) the order on its own initiative.

Case 2) An e-commerce website or app can offer the possibility to fill in a web form (online) hence the order is placed using a website or app and the responding enterprise enters the website and retrieves online the order in any format.

Examples on what is NOT e-commerce:

The following cases are not considered as e-commerce web sales because the web form or the PDF order form is used as a Word document, text document or an e-mail. The website does not provide the means to 'place the order' but in principle to 'construct the order' that is eventually placed differently (e-mail, other electronic message via the website or post). In these cases the orders are not made necessarily on webpages, i.e. they can be made by printing a PDF document which is then 're-introduced' into a computer system and because of this break, there is no e-commerce because there is a human intervention in the process, and a 'break' in the automation.

Case 3) An e-commerce website or app can offer the possibility to fill in a **web form** (online). The form is 'printed' in PDF and sent by the customer to the responding enterprise as an **e-mail attachment**.

Case 4) An e-commerce website can offer the possibility to fill in a **web form** (online). The form is 'printed' in PDF and sent by the customer to the responding enterprise by **post**.

Case 5) An e-commerce website or app can offer the possibility to fill in a **PDF** order form (not necessarily online). The form is 'saved' in PDF, completed and sent by the customer to the responding enterprise as an **e-mail attachment**.

Case 6) An e-commerce website or app can offer the possibility to fill in a **PDF** order form (not necessarily online). The form is 'saved' in PDF, completed and sent by the customer to the responding enterprise via the same **website as an attachment** to a message.

Case 7) An e-commerce website can offer the possibility to fill in a **PDF** order form (not necessarily online). The form is 'saved' in PDF, completed and sent by the customer to the responding enterprise **by post**.

2.3.2.4. MODULE C: ICT SPECIALISTS AND SKILLS

C1: *Does your enterprise employ ICT specialists?*

ICT specialists are employees for whom **ICT is the main job**. For example, to develop, operate or maintain ICT systems or applications.

[Scope: all enterprises]

[Type: single answer (i.e. Tick only one); binary (Yes/No)]

The purpose of this question is to measure if enterprises employ ICT specialist, and hence indirectly the incidence of ICT specialist skills. Skills of ICT specialists refer to skills for developing, operating, maintaining ICT systems or applications.

Additionally, ICT specialists have the relevant skills to specify, design, install, support, manage, evaluate or perform research activities.

Use of the term ICT specialists: In general, 'specialists' are considered professionals in an ICT field e.g. database specialists, ICT support specialists, etc. The task force discussed using alternatively the term 'ICT professionals' that would strictly correspond to the international standard classification of occupations ISCO 08 (25 Information and communications technology professionals, broken down to 251 Software and applications developers and analysts, and 252 Database and network professionals).

However, the scope needs to be wider than the strict definition of ISCO 08 'ICT professionals'. It was confirmed that from the users' point of view a broader scope should be covered. Therefore, note that in the context of the survey the clarification 'ICT is their main job' is important. In particular because respondents would not have the specific classification in mind when answering the questions. The task force recommended using the term 'ICT specialists' that should include the following ISCO 08 codes and groups (occupations)([7]):

133 Information and communications technology service managers
2152 Electronics engineers
2153 Telecommunications engineers

([7]) For more information on ISCO 08 codes and groups: http://www.ilo.org/public/english/bureau/stat/isco/isco08/index.htm

2166 Graphic and multimedia designers
2356 Information technology trainers
2434 Information and communications technology sales professionals
25 Information and communications technology professionals
251 Software and applications developers and analysts
252 Database and network professionals
35 Information and communications technicians
351 Information and communications technology operations and user support technicians
352 Telecommunications and broadcasting technicians
7422 Information and communications technology installers and servicers

In the questions on ICT specialists and skills (C1, C2, C3, C4 and C5), we refer to persons employed by the responding enterprise, excluding those who provide their services as ICT specialists to the responding enterprise on behalf of other enterprise(s), and are either employed by the other enterprise(s) or are self-employed (outsourcing). This is in line with the definition of the 'persons employed' in Commission Regulation (EC) No 250/2009 of 11 March 2009 (p.38-39, Code: 16 11 0; Number of persons employed) that excludes *'... manpower supplied to the responding enterprise by other enterprises, persons carrying out repair and maintenance work in the enquiry [responding] unit on behalf of other enterprises...'.*

C2: *Did your enterprise provide any type of training to develop ICT related skills of the persons employed during 2021?*

a) Training for ICT specialists

Tick No if your enterprise didn't employ ICT specialists during 2021

b) Training for other persons employed

[Scope: all enterprises]

[Type: single answer per item (i.e. Tick only one); binary (Yes/No); multiple items may be expected]

The purpose of this question is to identify enterprises that provide professional ICT training to their persons employed either internally or using external trainers. Training in reply option a) refers exclusively to ICT specialist skills (if the enterprise didn't employ ICT specialists during 2021 respondents should tick 'No'). Reply option b) refers to ICT professional training aiming at developing or upgrading ICT related skills of other persons employed than ICT specialists (skills for the using specific work-related applications (including specialised software tools) or generic software tools).

ICT skills refer to skills related for instance to tasks such as: management of online marketing or e-commerce; management of enterprise's social media profile; programming languages; design or management of websites or apps; management of databases or data analysis; maintenance of computer networks, servers, etc.; IT-security or privacy management; use or design of specific software applications; management of telecommunications systems and networks etc. The upper mentioned list of ICT skills refers merely to some prominent examples and is not exhaustive; other ICT related skills depending on the functions and the needs of the enterprise could be included.

C3: *Did your enterprise recruit or try to recruit ICT specialists during 2021?*

[Scope: all enterprises]

[Type: single answer (i.e. Tick only one); binary (Yes/No); filter question]

The aim of the current and the next question is to identify mismatches or shortages([8]) of ICT specialists in the labour market, in case where the enterprise recruited or tried to recruit personnel for jobs requiring specific ICT specialist skills. If C3 is 'No' respondents should continue with question C6.

([8]) Mismatch between the job seekers' competencies and those required or expected by the employers. Shortages indicate an insufficient number of skilled people in the labour market due to not enough job seekers, too low pay rates offered for them, low unemployment.

C4: *During 2021, did your enterprise have vacancies for ICT specialists that were difficult to fill?*

[Scope: enterprises that recruited or tried to recruit ICT specialists during 2021, i.e. C3 = Yes]

[Type: single answer (i.e. Tick only one); binary (Yes/No)]

The aim of this question is to identify mismatches or shortages in the labour market concerning ICT specialist skills when the response to question C3 is 'Yes'. Question C4 **refers only to difficulties due to external factors**, e.g. general lack of applicants, lack of applicants with skills or experience relevant for the post. The question does not refer to situations when the post could not have been filled due to some internal organisational difficulties during the recruitment.

C5: *Did your enterprise have any of the following difficulties to recruit ICT specialists during 2021?*

[Scope: enterprises that recruited or tried to recruit ICT specialists during 2021 and those vacancies were hard to fill, i.e. C3 = Yes and C4 = Yes; optional]

[Type: single answer per item (i.e. Tick only one); binary (Yes/No); multiple items may be expected]

For enterprises that have had difficulties filling vacancies for jobs requiring ICT specialist skills, the following reasons are collected:

a) Lack of applications

Enterprises tried to recruit personnel with ICT specialist skills and had difficulties because there were not enough candidates/applicants responding to the vacancy announcement. The difference between a) and b) is that the former refers to quantity (no one applied) and the latter refers rather to quality of applications (there were people applying, but the qualifications related to their education/training were not appropriate).

b) Applicants' lack of relevant ICT related qualifications from education and/or training

Enterprises tried to recruit personnel with ICT specialist skills and had difficulties to find candidates with adequate knowledge in the specific ICT field that the enterprise required (qualifications of candidates were not appropriate for the enterprise). One important element in this item is that we refer to formal education. The difference between a) and b) is that the former refers to quantity (not having people applying) and the latter refers to quality (there were people applying, but the qualifications were not appropriate). This item does not include the work experience as part of the skill of the candidates.

c) Applicants' lack of relevant work experience

Enterprises had difficulties in recruiting a person for a job vacancy because there were not enough candidates with the required work experience needed for the vacant position.

d) Applicants' salary expectations too highs

Enterprises found difficulties in recruiting personnel with ICT specialist skills, because the remuneration expected by the candidates was more than what the enterprise was willing to offer for the specific vacant position.

C6: *Who performed your enterprise's ICT functions in 2021? (e.g. maintenance of ICT infrastructure; support for office software; development or support of business management software/systems and/or web solutions; security and data protection)*

[Scope: all enterprises]

[Type: single answer per item (i.e. Tick only one); binary (Yes/No); multiple items may be expected]

a) own employees (incl. those employed in parent or affiliate enterprises)

b) external suppliers

The aim of this question is to obtain information who performed ICT functions in the enterprise.

Note that 'external supplier' refers to any other enterprise that performed the ICT functions mentioned in brackets under the question. Affiliates and parent enterprises are not considered as external suppliers. This complies with the current practices in global value chain statistics.

According to the definitions in the international sourcing survey there are four types of sourcing based on 'location' and 'control'. Accordingly, outsourcing (i.e. external suppliers) includes sourcing to an enterprise that is not affiliated, otherwise it is considered as insourcing (i.e. own staff), hence the proposed clarification would be consistent with global value chains.

ICT functions refer to:

- Maintenance of ICT infrastructure – software components that are necessary to operate the hardware (i.e. operating system software, drivers for peripherals, network software, etc.), as well as updating and upgrading system related software. Maintenance functions also include the repair of broken equipment, and the extension of existing infrastructure in terms of hardware and subsequently of the necessary software.
- Providing support for office software – software dedicated to producing documents, presentations, worksheets, graphs, charts, etc. Support in the context of office automation software might for example refer to installation of office software, training on the effective use of the software, granting access to users for databases.
- Development of business management software/systems – e.g. ERP — enterprise resource planning used to manage resources by sharing information among different functional areas such as accounting, planning, production, marketing; CRM software application for managing information about customers; human resources information management. Development includes providing tailor-made, customised solutions for the responding enterprises as well as customisation of purchased, packaged, off-the-shelf software (e.g. SAP) or software that is provided as a service over the cloud. In addition, all types of maintenance (corrective, adaptive, perfective and preventive) of software solutions due to business evolution — e.g. correction of bugs, updating and extension of software functionalities, customisation and adjustment is part of development. The development/purchase of custom-made (ad hoc solutions) 'business management software/systems' is also in the scope as 'developed by external supplier'.
- Support for business management software/systems – e.g. ERP, CRM, HR, databases. Support refers to providing advice for solving problems, for improving the effectiveness of the use of the solutions, training, etc.
- Development of web solutions – e.g. development of own enterprise's website, apps, e-commerce solutions, etc. Ad hoc programming or introducing links to 'social media on an enterprise's **website** should be considered as development, extending the existing functionalities of the website.
- There are two types of **web applications**: the browser based and the client based web applications. The former are web applications accessible over a webpage (html and Javascript) and run within the web browser. The latter are installed on a device (e.g. smartphone), run without going through a browser but they use web protocols. Having such apps enterprise may e.g. manage its database, use it to scale and automate business growth for sales, marketing, operations (business automation). Using such apps customer may e.g. place an order or buy credit (e-commerce).
- Development of web applications is a process which may include: defining goals and audience scope, technology selection, developing of technical architecture and structure, third party vendors analysis and selection (e.g. SSL certificate, payment gateway) designing layout and interface, quality, security and usability testing.
- Support for web solutions – e.g. support of own enterprise's websites, apps, e-commerce solutions,. excluding hosting your enterprise's website. Support for 'web solutions' includes assistance to update e.g. lists of products, prices and other information of the enterprise, but not extending functionalities of the web solution. Providing support in the context of e-commerce marketplaces could be considered in the cases of training, provision of instructions and guidelines, etc. Hosting an enterprise's website (i.e. provision of servers, computers or computer space, and software tools) or providing the infrastructure by an e-commerce platform is not considered to be on its own merits 'support for web solutions'.
- ICT security and data protection – e.g. security testing, training on security, resolving ICT security incidents, excluding upgrades of pre-packaged software.

In cases where no one carries out the mentioned functions, the enterprise should tick "no" to both questions. Answering "yes" to both questions is possible, in case that the ICT functions are carried out by both own employees and by external suppliers.

2.3.2.5. MODULE D: ICT SECURITY

[Scope: enterprises with access to the internet, i.e. if A1>0]

ICT security means measures, controls and procedures applied on enterprise's ICT systems to ensure integrity, authenticity, availability and confidentiality of enterprise's data and systems.

Security risks, measures implemented and incidents experienced can be classified by the following conceptual approaches:

- CIA security model based on:
  - **Confidentiality** (limited access, restrictions of access to information to prevent the disclosure of information to unauthorized individuals or systems).
  - **Integrity** (the assurance of the accuracy and consistency of systems and data). Integrity is a pre-requisite for ensuring confidentiality. Without it, encryption is useless.
  - **Availability** (making sure that the computing systems, the security controls, and the communication channels are functioning correct) and newly added non-repudiation or authenticity([9]).
- "3 A" basic security tools: Authentication, Authorisation, Auditing.
- Maturity scale: enterprises which are conscious of security risks; enterprises which have implemented some security measures; enterprises which ensure regular maintenance and updates of security policy and measures.

D1: *Does your enterprise apply any of the following ICT security measures on its ICT systems?*

[Scope: enterprises with access to the internet, i.e. if A1>0]

[Type: single answer per item, i.e. Tick only one; binary (Yes/No); multiple items may be expected]

The intention of the questions is to find out what security measures enterprises apply on their own ICT systems in order to ensure integrity, authenticity, availability and confidentiality of data and information systems.

The answer options reflect the information system-related security facilities: identification, authorisation and authentication.

Identification is the ability to identify uniquely a user of a system or an application that is running in the system. It is the process of associating a user with something that has occurred on a server, on a network, or with some other resource. This information is almost always logged. Usually it is a username or some type of very unique identifier assigned to that particular function.

Authentication is the process that determines whether a client really is who they say they are. Authentication can be done with the help of passwords (authentication by knowledge), or with additional devices, such as smart cards, hardware tokens or identity cards (authentication by ownership). The last possibility would be authentication by characteristics, i.e. using biometrical authentication, such as fingerprints scanner or retina patterns. A strong identification is defined by at least a combination of two authentication methods, e.g. passwords and smart cards. The authentication methods can be classified in: a) Static passwords (These do not changed unless they expire or user changes them); b) One-time password (OTP) such as Personal Identification Numbers (PINs) delivered through SMS texts or otherwise c) Digital certificates (e.g. x.509 and such); d) Biometric credential.

Authorization is the process that determines what an authenticated client can and cannot do on a network. In general, identification and authentication of users are used in the context of authorisation.

a) authentication via strong password (e.g. minimum length, use of numbers and special characters, changed periodically)

The strong password may have one or several requirements concerning for instance a minimum length (specified minimum number of characters), characters to be a mix of uppercase, lowercase alphanumeric and special characters, forcing users to change passwords periodically, passwords to be transmitted and stored in encrypted form. The described conditions follow the ISO norm 9594-1.

([9]) https://en.wikipedia.org/wiki/Information_security

Note: In scope is the usage of the authentication via strong password for authentication to any ICT system or software of the enterprise, including remote access (e.g. the enterprise's network, business software, any other applications).

b) authentication via biometric methods used to access the enterprise's ICT system (e.g. authentication based on fingerprints, voice, face)

Authentication via biometric methods involves using some part of a person's physical or behavioural characteristics characteristic to authenticate them. The biometric authentication can be done based on for instance a fingerprint, an iris scan, a retina scan, voice recognition, face recognition or some other physical characteristic. A single characteristic or multiple characteristics could be used, depending on the infrastructure and the level of security desired. With biometric authentication, the physical characteristic being examined is usually mapped to a username. This username is used to make decisions after the person has been authenticated. In some cases, the user must enter the username when attempting to authenticate; in others, a lookup is done on the biometric sample in order to determine the username.

Biometric authentication is performed by doing a comparison of the physical aspect a person presents for authentication against a copy that has been stored. For example, one would place their finger on a fingerprint scanner for comparison against the stored sample. If the fingerprint matches the stored sample, then the authentication is considered to be successful.([10])

Note: Users are users of the IT system. Usage of biometric methods for purpose not related with ICT systems and hardware protection (e.g. access for enterprises premises not related to IT) is not in the scope.

In scope is the usage of the authentication via biometric methods to access the enterprise's ICT system or software, including remote access (e.g. the enterprise's network, business software, any other applications).

c) authentication based on a combination of at least two authentication mechanisms (i.e. combination of e.g. user-defined password, one-time password (OTP), code generated via a security token or received via a smartphone, biometric method (e.g. based on fingerprints, voice, face))

This answer option covers authentication methods where identification is defined by a combination of at least two authentication methods.

Note: In scope is the usage of authentication based on a combination of at least two authentication mechanisms to access any ICT system or software of the enterprise, including remote access (e.g. network, business software, any other applications).

d) Encryption of data, documents or e-mails

Encryption is the process of encoding messages or information in a way that only authorized persons can access it. Encryption does not of itself prevent interference, but denies the message content to the interceptor. In an encryption scheme, the intended information or message, referred to as plaintext, is encrypted using an encryption algorithm, generating cipher text that can be read only after decryption. An authorized recipient can easily decrypt the message with the key provided by the originator to recipients, but not to unauthorized interceptors. The purpose of encryption is to ensure that only somebody who is authorized to access data (e.g. a text message or a file), will be able to read it, using the decryption key. Somebody who is not authorized can be excluded, because he or she does not have the required key, without which it is impossible to read the encrypted information.

e) Data backup to a separate location (including backup to the cloud)

Offsite data backup is part of the off-site data protection strategy of sending critical data from the main site to another location by means of removable storage media, e.g. magnetic type, external hard-disks, or electronically via remote backup services. Off-site data protection is normally part of a contingency plan that describes disaster recovery actions in case of security incidents. Included is the backup of data in the cloud (enterprises purchasing cloud computing services).

f) Network access control (management of user rights in enterprise's network)

Access control to enterprise network enables access and enforces security policy based on the state of the computer and the identity of the user.

Network access control (NAC), also called network admission control, is a method of bolstering the security of a proprietary network by restricting the availability of network resources to endpoint devices that comply with a defined security policy([11]). For

([10]) Biometric Authentication - an overview | ScienceDirect Topics

([11]) https://www.cybertraining365.com/cybertraining/Topics/Network_access_control_(NAC)

example, if a connecting system doesn't have the standard corporate anti-virus package, the user should get a different access control policy than if everything is installed and all the signatures are up-to-date([12]).

Note: Users are users of the IT system.

g) VPN (Virtual Private Network extends a private network across a public network to enable secure exchange of data over public network)

A virtual private network (VPN) extends a private network across a public network, such as the Internet. It enables users to send and receive data across shared or public networks as if their computing devices were directly connected to the private network. Applications running across the VPN may therefore benefit from the functionality, security, and management of the private network. VPNs may allow employees to securely access a corporate intranet while located outside the office. They are used to securely connect geographically separated offices of an organization, creating one cohesive network.

h) ICT security monitoring system that allows to detect suspicious activity in the ICT systems and alerts the enterprise about it, other than standalone anti-virus software

The answer option covers using advanced ICT intrusion detection methods such as Next Generation Intrusion Prevention System (NGIPS), Next Generation Firewall (NGFW), or Intrusion detection system (IDS).

Example of the **Next Generation Intrusion Prevention System (NGIPS)** can be the NSFOCUS Next Generation Intrusion Prevention System provides advanced multi-stage AI analysis for detection and mitigation of tomorrow and beyond unknown and zero-day advanced persistent threats (APTs). NSFOCUS goes beyond signature and behaviour-based detection, using cutting edge Intelligent Detection advanced intelligence heuristics learning technology for network and application threat detection. NGIPS also combines AI with state-of-the-art threat intelligence to detect malicious sites and botnets. An optional virtual sandboxing capability can be added to the NGIPS system using the NSFOCUS Threat Analysis System. The TAS uses multiple innovative detection engines to identify known and zero-day APTs, including IP reputation engines, anti-virus engines, static and dynamic analysis engines and virtual sandbox execution mimicking live hardware environments.([13])

A **next-generation firewall (NGFW)** is a part of the third generation of firewall technology, combining a traditional firewall with other network device filtering functions, such as an application firewall using in-line deep packet inspection (DPI), an intrusion prevention system (IPS). Other techniques might also be employed, such as TLS/SSL encrypted traffic inspection, website filtering, QoS/bandwidth management, antivirus inspection and third-party identity management integration (i.e. LDAP, RADIUS, Active Directory). NGFWs include the typical functions of traditional firewalls such as packet filtering, network- and port-address translation (NAT), stateful inspection, and virtual private network (VPN) support. The goal of next-generation firewalls is to include more layers of the OSI model, improving filtering of network traffic that is dependent on the packet contents.

NGFWs perform deeper inspection compared to stateful inspection performed by the first- and second-generation firewalls. NGFWs use a more thorough inspection style, checking packet payloads and matching signatures for harmful activities such as exploitable attacks and malware.([14])

An **intrusion detection system (IDS; also intrusion protection system or IPS)** is a device or software application that monitors a network or systems for malicious activity or policy violations. Any intrusion activity or violation is typically reported either to an administrator or collected centrally using a security information and event management (SIEM) system. A SIEM system combines outputs from multiple sources and uses alarm filtering techniques to distinguish malicious activity from false alarms.

IDS types range in scope from single computers to large networks. The most common classifications are network intrusion detection systems (NIDS) and host-based intrusion detection systems (HIDS). A system that monitors important operating system files is an example of an HIDS, while a system that analyses incoming network traffic is an example of a NIDS. It is also possible to classify IDS by detection approach. The most well-known variants are signature-based detection (recognizing bad patterns, such as malware) and anomaly-based detection (detecting deviations from a model of "good" traffic, which often relies on machine learning). Another common variant is reputation-based detection (recognizing the potential threat according to the reputation scores). Some IDS products have the ability to respond to detected intrusions. Systems with response capabilities are typically referred to as an intrusion prevention system. Intrusion detection systems can also serve specific purposes by augmenting them with custom tools, such as using a honeypot to attract and characterize malicious traffic.([15])

([12]) https://www.networkworld.com/article/2310210/lan-wan/what-is-nac-anyway-.html

([13]) Next Generation Intrusion Prevention (NGIPS) - NSFOCUS, Inc., a global network and cyber security leader, protects enterprises and carriers from advanced cyber attacks. (nsfocusglobal.com)

([14]) Next-generation firewall - Wikipedia

([15]) Intrusion detection system - Wikipedia

i) Maintaining log files that enable analysis after ICT security incidents

Information system application activities or user activities can be logged and used for analysis in case of security incidents in order to take appropriate actions to prevent these kinds of incidents in future or to quantify occurred damage.

Note: Activities relate to computer activities online.

j) ICT risk assessment, i.e. periodical assessment of probability and consequences of ICT security incidents

Traditional risk assessment includes general ICT-related issues such as accidental outages, hardware failures, and uptime. There are basically three risk management components:

- Evaluation and assessment, to identify assets and evaluate their properties and characteristics.
- Risk assessment, to discover threats and vulnerabilities that pose risk to assets.
- Risk mitigation, to address risk by transferring, eliminating or accepting it.

ICT risk assessments are performed to allow enterprises to assess, identify and modify their overall ICT security.

k) ICT security tests (e.g. performing penetration tests, testing security alert system, review of security measures, testing of backup systems)

The intention of ICT security tests it to test established ICT security measures. A penetration tests for example can help determine whether a system is vulnerable to attack, if the defences were sufficient, and which defences (if any) the test defeated.

D2: *Does your enterprise make persons employed aware of their obligations in ICT security related issues in the following ways?*

[Scope: enterprises with access to the internet, i.e. if A1>0]

[Type: single answer per item, i.e. *Tick only one*; binary (Yes/No); multiple items may be expected]

This question should provide information on methods applied by enterprises to raise awareness on ICT security issues among their persons employed. The reply options distinguish between obligatory and non-obligatory methods of awareness raising. In addition, there is a distinction between legally binding and non-binding commitment. Enterprises might apply different levels of obligations, e.g. between staff working in IT departments and other staff. In this case, the options should refer to all staff.

a) Voluntary training or internally available information (e.g. information on the intranet)

This option covers information offers that can be followed or retrieved by persons employed voluntarily, e.g. ICT security information on the intranet of an enterprise or as information leaflets. Information can be also provided by enterprise ICT department.

b) Compulsory training courses or viewing compulsory material

This option covers compulsory trainings or presentations on the information security policy, precautions or principles. The difference between training and compulsory material (which can be a presentation) lies in the degree of interactivity or active involvement of the trainees. The option includes eLearning techniques with control of participation. Positive replies would indicate a higher level of awareness of the enterprise compared to training on staff initiative.

c) By contract (e.g. contract of employment)

This option focuses on the legal aspects of information security policy. Persons employed could be informed and bound to the information security policy by contract or letter of appointment. Usually, this would be accompanied by complementary actions such as handover of an information document or participation in training activities. The purpose of the formulation of this item is to point to the contract of employment as primary source of making staff aware via contracts. At the same time, other types of contracts, which e.g. might specifically aim at ICT security obligations, should not be excluded from the replies of the enterprises.

D3: *Does your enterprise have document(s) on measures, practices or procedures on ICT security?*

(Documents on ICT security and confidentiality of data cover employee training in ICT use, ICT security measures, the evaluation of ICT security measures, plans for updating ICT security documents, etc.)

[Scope: enterprises with access to the internet, i.e. if A1>0]

[Type: one single answer needed, i.e. *Tick only one*; binary (Yes/No); filter question]

ICT security document(s) refer to document(s) describing how an enterprise plans to maintain security and confidentiality of data. Documents can describe how employees will be trained in the safe usage of ICT, which security measures will be implemented and carried out, procedures for evaluating the effectiveness of ICT security measures, plans for updating the ICT security document(s), etc. Enterprise can have one or more documents regarding ICT security. The measures, practise or procedures should be enforced in the enterprise. The document(s) can be in a paper or electronic form.

The existence of document(s) on measures, practices or procedures on ICT security (an ICT security policy) in an enterprise means that the enterprise is aware of the importance of its ICT and the risks related to them. The enterprise has made the effort to formulate a document(s) by identifying the systems, their risks and how to deal with these risks. Focus is on mentioned measures, practices or procedures on ICT security that are actually applied. A proxy for such kind of document(s) is the term "policy formally defined", i.e. policy that is documented and adopted by the enterprise. Normally, such document(s) on ICT security contains the objectives and aims of measures, practices or procedures. The document should contain or make reference to definitions of the relevant terms related to ICT security. In addition, it should contain documentation or make reference to documentation of the enterprise information systems. A main component would be the assessment of security risks in terms of likelihood of occurrence of incidents and their possible impact on the operations of the enterprise. Ideally, the document should distinguish between different groups of actors and their responsibilities and functions in relation to information system operations and incident handling. Finally, the document(s) should describe security controls and measures as well as contingency planning in case of ICT security incidents.

The degree of documentation might depend on the size of the enterprise and on the results of an ICT security risk assessment. In addition, the document(s) on ICT security might not cover all the above mentioned aspects. It may be possible that enterprises (e.g. small and medium-sized enterprises) don't employ ICT specialists and thus outsource various ICT functions. These external service providers may have such documents or 'formally defined ICT security policy' that addresses different risks and which goal is to protect ICT infrastructure of their business partners.

Concerning "outsourcing" (e.g. in the case of using cloud computing services): an enterprise should report having document(s) on ICT security when a) it is the ICT security policy, formally defined in document(s) on ICT security by the enterprise, or b) the enterprise has a service provision contract or a formal agreement that foresees issues related to the enterprise's ICT security concerning the risks to be addressed and the standards to be followed. In the latter - case (b) - the ICT security policy of the external supplier of ICT services (e.g. provider of cloud computing services, subcontractor ICT functions related to maintenance, development, or support) is directly applied in order to protect the enterprise against ICT security risks according to certain standards. In these cases, enterprises that benefit from the security policy of their service provider should answer with 'Yes' to D3 and the following question.

The existence of such documents in an enterprise means that the enterprise is aware of the importance of its ICT and the risks related to them. It is assumed that the existence of documents on ICT security and the frequency of reviewing these documents is positively correlated to the readiness of the enterprises to report ICT security incidents.

Note: There is a link bet*ween question D3 and questions A6 and A11. Question D3 includes in its scope both A6 (any guidelines (instructions or rules) regarding the security measures of the remote meetings conducted via the internet by its employees) and A11 (any guidelines (instructions or rules) regarding the security measures related to the remote access to enterprise's resources (e-mail, documents, business applications or software) for its employees). Therefore:*

If the answer to question A6 is positive (A6=Yes) then question D3 should be ticked Yes. However, a positive answer to D3 (D3=Yes) does not always imply A6 should be ticked Yes.

If the answer to question A11 is positive (A11=Yes) then question D3 should be ticked Yes. However, a positive answer to D3 (D3=Yes) does not always imply A11 should be ticked Yes.

D4: *When was the document(s) on measures, practices or procedures on ICT security defined or most recently reviewed?*

(Documents on ICT security and confidentiality of data cover employee training in ICT use, ICT security measures, the evaluation of ICT security measures, plans for updating ICT security documents, etc.)

[Scope: enterprises which have document(s) on measures, practices or procedures on ICT security, i.e. D3 = Yes]

[Type: one single answer needed, i.e. *Tick only one*]

This question should provide information on the latest period in time that the document(s) on ICT security was reviewed/defined according to the following responses:

a) within the last 12 months,

b) more than 12 months and up to 24 months ago and

c) more than 24 months ago.

As mentioned above it is assumed that enterprises would be prepared to report ICT security incidents according to the most recent period that the document(s) on ICT security was reviewed/defined.

D5: *During 2021, did your enterprise experience any ICT related security incident leading to the following consequences?*

[Scope: enterprises with access to the internet, i.e. if A1>0]

[Type: single answer per item, i.e. *Tick only one*; binary (Yes/No); multiple items may be expected; filter question]

This question concerns information communication system security related incidents. Enterprises might be reluctant to report on these types of incidents as this is likely to be considered as sensitive information. Therefore it would be important to include a strong statement on data confidentiality when submitting this questionnaire to the enterprise. Moreover, users consider statistics on security related incidents as very important information for policy purposes. The number of questions on this sensitive issue is kept to the absolute minimum and no quantitative information is asked. The options are built around the general elements of information security: availability, integrity and confidentiality.

a) Unavailability of ICT services due to hardware or software failures

This answer option covers cases when the ICT services of the enterprise are unavailable due to failure of the hardware or software.

b) Unavailability of ICT services due to attack from outside, e.g. ransomware attacks, Denial of Service attacks

The distinction of this answer option form item a) is the cause of the unavailability of the ICT services, which in this instance is caused by malicious attacks from outside.

Attacks from outside the enterprise can lead to unavailability of services. Typical example would be a distributed denial of service (DDoS) attack that attempts to make an information system resource unavailable to its intended users. A common method for DDoS attacks involves saturating the target information system with external communication requests so that it cannot respond adequately to legitimate requests.

c) Destruction or corruption of data due to hardware or software failures

This option covers issues of data integrity related to unintended incidents caused by hardware or software failures. Unintended incidents could be crashes of servers or hard disks due to hardware failures or crashes of servers due to software failures, e.g. erroneous updates.

d) Destruction or corruption of data due to infection of malicious software or unauthorised intrusion

This answer option covers issues of data integrity related to attacks with a malicious purpose. In addition, this option comprises as well failures of data integrity due to unauthorised access (internal or external intrusion) to the ICT system of an enterprise. An intrusion is an attempt to bypass security controls on an information system. Means of intrusion can be eavesdropping, viruses, worms, Trojan horses, logic or time bombs, brute force attacks, etc.

e) Disclosure of confidential data due to intrusion, pharming, phishing attack, intentional actions by own employees

This answer option refers only to cases of disclosure of confidential data due to malicious actions.

The data can be information on persons, staff or clients, intellectual property in terms of trade secrets, information or other confidential information such as e.g. business numbers or information on managerial decisions. A possible way for getting access to confidential data could be brute force attacks for disclosing passwords or phishing and pharming techniques.

Phishing is a criminally fraudulent attempt to acquire sensitive information such as usernames, passwords and credit card details by masquerading as a trustworthy entity in an electronic communication. The term "pharming" connotes an attack to redirect the traffic of a website to another, bogus website in order to acquire sensitive information.

Intellectual property is defined as "intangible property that is the result of creativity". These assets can be artistic or commercial. Intellectual property can be protected by law. Types of legal protection include copyrights, patents and trademarks. Under intellectual property law, owners are granted certain exclusive rights to intangible assets. In this case, intellectual property is accessible by third parties but only the owner may exploit the assets. In case of unauthorised exploitation, the right holder can initiate legal actions.

Trade secrets are intellectual properties that are not legally protected. "A trade secret is a formula, practice, process, design, instrument, pattern, or compilation of information which is not generally known or reasonably ascertainable, by which a business can obtain an economic advantage over competitors or customers. In some jurisdictions, such secrets are referred to as 'confidential information' or 'classified information'". The option only refers to intellectual property in terms of trade secrets as they are not protected by law and their disclosure would have negative effects on the economic performance of an enterprise.

f) Disclosure of confidential data due to unintentional actions by own employees

This answer option refers only to cases of disclosure of confidential data was caused by unintentional actions of enterprise's own employees.

Note: 'No' to all items is possible in cases where none of the mentioned consequences were experienced due to any ICT related security incident.

D6: *Who carries out the ICT security related activities (e.g. security testing, ICT training on security, resolving ICT security incidents) in your enterprise? Exclude upgrades of pre-packaged software.*

[Scope: enterprises with access to the internet, i.e. if A1>0]

[Type: single answer per item, i.e. *Tick only one*; binary (Yes/No); multiple items may be expected]

The aim of this question is to gather information about the outsourcing of ICT security related functions.

a) own employees (incl. those employed in parent or affiliate enterprises)

b) external suppliers

Note: In case that an enterprise said that they didn't carry out any ICT security related activities, "no" to both options should be ticked. It is also possible to tick "yes" to both, in case the activity is done by both own employees and by external suppliers.

D7: *Does your enterprise have insurance against ICT security incidents?*

[Scope: enterprises with access to the internet, i.e. if A1>0]

[Type: one single answer needed, i.e. *Tick only one*; binary (Yes/No)]

With the increased usage of ICT in enterprises (collection, storage and usage of different kind of data from customers, etc.) the enterprises are more exposed to different ICT security threats. Such insurance (ICT insurance) help enterprises to limit the burden of possible incidents. Therefore, opting for such insurance additionally shows how proactive enterprises are to limit exposure to consequences of ICT security incidents.

2.3.2.6. MODULE E: USE OF ROBOTICS

[Scope: all enterprises]

A robot is a machine which is programmed to move and perform certain tasks automatically.

E1: *Does your enterprise use any of the following types of robots?*

[Scope: all enterprises]

[Type: single answer per item (i.e. Tick only one); binary (Yes/No); multiple items may be expected; filter question]

The aim of this question is to measure the use of industrial and service robots by enterprises.

Robots consist of several components such as a mechanical structure, sensors, a computing and a control unit; they are often referred to as robotic systems. According to their intended application, robots are classified into industrial or service robots.

a) **Industrial robots** (e.g. robotic welding, laser cutting, spray painting) An industrial robot is an automatically controlled, reprogrammable, multipurpose manipulator programmable in three or more axes, which may be either fixed in place or mobile for use. Most of industrial robots are based on a robotic arm and a series of links and joints with an end effector that carries out the task.

Do not include CNC-machines, 3D printers and devices that are fully controlled by an operator.

According to the International Federation of Robotics (IFR) an industrial([16]) robot is an automatically controlled, reprogrammable, multipurpose manipulator, programmable in three or more axes([17]), which may be either fixed in place or mobile for use in industrial automation applications. Most existing industrial robots are based on the robot arm with a solid base and a series of links and joints with an end effector that carries out the task.

There are also other forms of automation, such as Computer Numerical Control (CNC) technologies. CNC machining uses computer numerical control techniques. But these CNC machine tools are designed to perform very specific tasks and even if numerically controlled, they lack in flexibility and their input/output is simple. Therefore, they should not be included in the definition of industrial robots.

b) **Service robots (e.g. used for surveillance, cleaning, transportation) (Please see the definition of service robots)** A service robot has a degree of autonomy and can operate in complex and dynamic environments that may require interaction with persons, objects or other devices. They use wheels or legs to achieve mobility and are often used in inspection, transport or maintenance tasks.

Examples are: autonomous guided vehicles, inspection and maintenance robots, cleaning robots, etc.

Do not include software robots.

According to the International Federation of Robotics (IFR) service robot is a robot that has a degree of autonomy and performs useful tasks for humans or equipment, excluding industrial automation applications([18]). Depending on their function and use, service robots are categorised to personal service robots (for personal or domestic use that are out of scope) and professional service robots (for business purposes that are in the scope).

Personal service robots are robots that educate, assist, or entertain at home (edutainment = educational entertainment). These include domestic robots that may perform daily chores, assistive robots (for people with disabilities), robots that can serve as companions or pets for entertainment, toy robots, vacuum cleaning and lawn-mowing robots. Personal service robots can be considered in the scope as long as they are used by enterprises to provide their services e.g. enterprises that provide services to people with disabilities.

Professional service robots are a type of robot considered for use outside of a manufacturing facility within a professional setting. They vary greatly in form and function; automate menial, dangerous, time-consuming, or repetitive tasks within a professional

([16]) Industrial robots' characteristics: Executes its tasks without any external commands during the process ("automatically controlled"), can have its motions changed without someone changing its hardware ("reprogrammable"), can be adapted to different operational domains with physical alterations (e.g. changing tools or graspers – "multipurpose").

([17]) Definition by International Federation of Robotics, based on ISO standards, particularly ISO 8373: https://ifr.org/industrial-robots

([18]) Definition by International Federation of Robotics, based on ISO standards, particularly ISO 8373: http://www.ifr.org/service-robots/

setting. Most professional service robots are semi-autonomous or fully autonomous robots with some form of mobility. There are service robots that are intended to interact with people, typically deployed in a retail, hospitality, healthcare, warehouse or fulfilment setting. Others are used in more rugged settings, such as in space and defence, agricultural applications, and demolition, to automate dangerous or laborious tasks([19, 20]).

Industrial robots vs service robots:

The line between industrial and service robots has already become blurred in areas such as the automotive industry, for example. Essentially, respondents would have to identify their robots based on their "use in industrial automation application" and the "level of autonomy and the ability to operate in complex environments that may require interaction with persons, objects or other devices".

Industrial robots perform their tasks in clearly structured environments with external safeguards while service robots usually work in unstructured environments and collaborate directly with humans. Industrial robots follow a strict safety protocol and are made safe by being deactivated when somebody comes close while service robots have to interact with people. The latter require more complex safety concepts in order to ensure safe operation, perhaps even going as far as proximity sensors and tactile skin.

Service robots are characterised by the degree of autonomy that is expressed when interacting with humans, objects or other devices within a varied environment (either a restricted or unrestricted). Therefore, service robots have the necessary:

- Cognitive abilities in order to work in diverse, dynamic and complex environments;
- Improved (dexterous) manipulation capacity taking on a greater diversity of tasks;
- Interaction ability with humans, supporting verbal or nonverbal communications, learning from humans and their own experiences.

Service robots can be distinguished from industrial robots by the environments in which they operate. Service robots operate in human or natural environments where it is often impossible to make adaptations to suit the robot. Service robots need greater sensing, motion and decision-making capability to handle these more open environments. They do not have a specific physical configuration, each is designed to fit its task, working in the air (typically a drone is a flying robot) under water, or on land, using use wheels or legs to achieve mobility with arms and end effectors to physically interact. They can be found in warehouses, hospitals, farms and homes and are often used in inspection and maintenance tasks.

Some examples include: drones used for surveillance of buildings, professional cleaning robots, ground robots or drones for transportation of goods, picking items and packing boxes in warehouses, AUV (autonomous underwater vehicle) for undersea or tank inspection, drones or robots for maintenance tasks on pipes and cables, etc.

In the 2018, some respondents wrongly understood the term 'industrial robots' as robots used in industry – by enterprises in manufacturing activities. Countries experienced that a few enterprises stated that they use service robots as they were providing a service and chose an answer in E2 (2018 MQ) that instead described the activity the robot is used for. For example, an ICT specialist for a pharmacy stated they use a service robot that performs robotic store clerk tasks. The robot they use assists the pharmacists and delivers medicine from the storage. However, according to the definition above, the pharmacy actually used an industrial robot (robot arm) (https://www.youtube.com/watch?v=_7mTmZtSgTg).

Collaborative robots:

According to the International Organization for Standardization (ISO)([21]) a collaborative robot is a robot designed for direct interaction with a human. Collaborative robots (sometimes referred to as cobots) can be both, industrial and service robots. The distinction between industrial and service robots depends on the application, whereas the distinction between collaborative and non-collaborative robots depends on the ability of the robot to interact safely with people for accomplishing tasks together in a shared workspace (there may be physical contact between the robot and its co-workers).

In general, collaborative robots are more frequently service robots (collaborative robots supporting staff for maintenance tasks or in the construction sector) than industrial robots. Nevertheless, collaborative robots are now enabling manufacturers to use robots alongside workers in production lines where some tasks can be automated, but others either cannot, or are more productive when performed by humans. These robots slow down or stop when workers are near, and re-start automatically when

([19]) American Robotic Industries Association (RIA): https://www.robotics.org/service-robots/what-are-professional-service-robots

([20]) International Federation of Robotics: https://ifr.org/img/office/Service_Robots_2016_Chapter_1_2.pdf

([21]) ISO 8373

the worker moves away. Many have force-limiting technologies and other design features that ensure they cannot harm a worker if a collision occurs.([22])

Software robots:

Software robots should not be included in this module, as the current module refers exclusively to robots with mechanical components.

E2: *Please indicate the number of industrial and service robots used by the enterprise*

Please count each individual robot separately in cases where they are integrated into a production line (e.g. one robotic arm counts as one robot).

If you cannot provide the exact number, an approximation will suffice

[Scope: enterprises using industrial or service robots, i.e. E1a = Yes or E1b = Yes; optional]

[Type: numerical, absolute or percentage values]

The question aims to provide an estimate of the number of robots, both industrial or service, used by enterprises.

E3: *Please indicate if the following reasons influenced the decision to use robots in your enterprise:*

[Scope: enterprises using robots, i.e. E1a = Yes or E1b = Yes]

[Type: single answer per item (i.e. Tick only one); binary (Yes/No); multiple items may be expected]

The question aims to measure the type of initial motivation for enterprises to decide to use robots.

a) High cost of labour

b) Difficulties to recruit personnel

c) To enhance safety at work

d) To ensure high precision or standardized quality of processes and/or goods and services produced

e) To expand the range of goods produced or services provided by the enterprise

f) Tax or other government incentives

Note: The list of reasons is not exhaustive (though it's aiming to cover most relevant), therefore it is possible that an enterprise can answer 'Yes' to E1 but "No" in all items in E3.

2.3.2.7. MODULE F: ICT AND THE ENVIRONMENT

[Scope: all enterprises]

The module is related to the Commission priority "A European Green Deal", which is the roadmap for making the EU's economy sustainable. The policy priority is for the moment to focus on three dimension of the positive impact of ICT in the environment (green ICT, ICT for sustainability): enterprises environmental friendly procedures, telework and virtual meetings that could be measured by the following indicators. The latter two are covered in module A with questions related to remote meetings held via the internet and to remote access to enterprise's resources. The first aspect – enterprises environmental friendly procedures, is addressed in module F.

([22]) International Federation of Robotics: https://ifr.org/post/international-federation-of-robotics-publishes-collaborative-industrial-rob

F1: *Does your enterprise apply any measures to affect the following?*

[Scope: all enterprises]

[Type: single answer per item (i.e. Tick only one); binary (Yes/No); multiple items may be expected]

The question aims to measure the application by enterprises of any measures aiming to affect its environmental footprint through limiting the amount of paper used in the enterprise for printing or copying and through limiting or optimising energy consumption of the ICT equipment.

a) Amount of paper used for printing and copying

The goal of the enterprise should be to keep printing and copying as low as possible.

b) Energy consumption of the ICT equipment

The goal of the enterprise should be to keep energy consumption as low as possible.

F2: *Does your enterprise consider environmental impact of ICT services, or ICT equipment when selecting them (e.g. energy consumption)?*

[Scope: all enterprises]

[Type: binary (Yes/No)]

Apart from the example of energy consumption, mentioned in the question, other environmental impacts that could be considered by the enterprise when selecting ICT services or ICT equipment could be:

- machines which are mainly made from easily recyclable and often recycled metal (aluminium) and glass, rather than plastic (e.g. Apple MacBook)
- a take-back program rolled out by Apple, where one can get credit towards new Apple products by recycling old Apple products
- products made entirely with clean energy (e.g. Apple has a publicly stated goal that all of its products will be made entirely with clean energy by 2030)
- using a single colour plastic (black) for the plastic components of devices, which makes it far easier to replace, repair, and recycle the plastics compared to multicolour laptops
- enabling users to download free firmware updates to fix batteries rather than having to replace batteries malfunctioning due to firmware problems (e.g. Lenovo)
- easily repairable and highly sustainable (e.g. Dell's laptop is built so that you can replace the battery, trackpad buttons, display, and keyboard, and upgrade the RAM and the solid-state drive (SSD); ASUS Chromebook has modular components and uses Phillips screws only, meaning these laptops are designed to make it easy to quickly swap old parts out for new. The ZenBook also has easy access to component parts and replacing the battery is also very quick and easy.)
- Apple's stores, offices, and data centres are already powered by 100% renewable electricity and their operations are carbon neutral or Lenovo reduced their Scope 1 and 2 GHG emissions by a whopping 92% relative to 2009/10 and have installed solar panel arrays to help power operations in the US.
- or even minimalist recyclable packaging.

ICT services include external service providers providing ICT services to the enterprise. Therefore, the overall environmental footprint of a service provider can be included as well (e.g. declared carbon neutrality of services or the whole organisation).

F3: *What does your enterprise do with ICT equipment (e.g. computers, monitors, mobile phones) when it is no longer used?*

[Scope: all enterprises]

[Type: single answer per item (i.e. Tick only one); binary (Yes/No); multiple items may be expected]

The question aims to measure the practices related to the way of disposing of an unused ICT equipment.

a) It is disposed of in electronic waste collection/recycling (incl. leaving it to the retailer to dispose of)

b) The ICT equipment is kept in the enterprise (e.g. to be used as spare parts, fear of sensitive information being disclosed)

c) It is sold, returned to a leasing enterprise, or donated

The goal of this item should be to re-use ICT equipment within another organisation, e.g. second life-cycle.

2.3.2.8. MODULE X: BACKGROUND INFORMATION

The background variables have several purposes. Firstly, they are used for breakdowns. That is the case for the 'Main economic activity of the enterprise' and 'Average number of employees and self-employed persons (persons employed)'.

Secondly, they are needed to weight the percentages of turnover from e-commerce. The background variable 'Total turnover' is used for that. The variable 'Average number of employees and self-employed persons (persons employed)' is similarly used to weight the percentage of persons employed using computers, the percentage of persons employed using computers with access to the internet, etc. The number of employees and self-employed persons (persons employed) is also used to weight the qualitative variables.

Thirdly, the background variables are used in the sampling design. Namely, the 'Main economic activity' and the 'Average number of employees and self-employed persons (persons employed)' are used to stratify the sample.

The background variables described so far may be collected through the ICT survey questionnaire or obtained from alternative sources. The alternative sources are mainly the registers and one main business survey, usually used to produce the structural business statistics. It is very important that the background information is at least consistent with the structural business statistics.

X1. Main economic activity of the enterprise

[Scope: all enterprises]

[Type: categorical]

The main (or principal) economic activity is identified as the activity which contributes most to the total value added of the enterprise. The principal activity so identified does not necessarily account for 50 % or more of the enterprise's total value added. The classification of principal activity is determined by reference to NACE, first at the highest level of classification and then at more detailed levels ('top-down' method).

The nomenclature NACE Rev. 2 is available in Eurostat's RAMON database.

With the introduction of Regulation (EU) 2019/2152 of the European Parliament and of the Council of 17 December 2019 on European business statistics (OJ L 327), the NACE breakdown requested for the ICT usage and e-commerce in enterprises survey has changed both for national and European aggregates, from survey year 2021 onwards.

The main economic activity of the enterprise should be classified by NACE Rev. 2 at its highest level of detail (4 digits). Nevertheless, only the following level of detail which is used in the breakdown is strictly necessary.

NACE Rev. 2 groupings		
Aggregates for calculation of **national** NACE Rev. 2 aggregates :		
1	10-33 + 35-39 + 41-43 + 45-47 + 49-53 + 55-56 + 58-63 + 68-75 + 77-82 + 95.1	
2	10 - 33	Manufacturing
3	10 – 18	Manufacture of products based on: food, beverages, tobacco, textile, leather, wood, pulp and paper; publishing and printing
4	19 – 23	Manufacture of coke, refined petroleum products, chemical products, basic pharmaceutical products, rubber and plastics, other non-metallic mineral products.
5	24 – 25	Manufacture of basic metals and fabricated metal products excluding machines and equipment
6	26 – 33	Manufacture of computers, electric and optical products, electrical equipment, machinery and equipment n.e.c, motor vehicles, other transport equipment, furniture, other manufacturing, repair and installation of machinery and equipment
7	35 – 39	Production and distribution of electricity, gas, steam and air conditioning; water supply, sewerage, waste management and remediation activities
8	41 – 43	Construction
9	45 – 47	Wholesale and retail trade; repair of motor vehicles and motorcycles
10	47	Retail trade
11	49 – 53	Transport and storage
12	55	Accommodation
13	55 - 56	Accommodation and food service activities
14	58 – 63	Information and communication
15	68	Real estate activities
16	69 – 75	Professional, scientific and technical activities
17	77 – 82	Administrative and support service activities
	26.1 – 26.4 + 26.8 + 46.5 + 58.2 + 61 + 62.01 + 62.02 + 62.03 + 62.09 + 63.1 + 95.1	Manufacture of electronic components and boards, consumer electronics, magnetic and optical media; wholesale of information and communication equipment; software publishing; telecommunications; computer programming, consultancy and facilities management activities, other information technology and computer service activities; data processing, hosting and related activities, web portals; repair of computers and communication equipment or ICT sector
Aggregates for calculation of **European** NACE Rev. 2 aggregates:		
3a	10 – 12	Manufacture of beverages, food and tobacco products
3b	13 – 15	Manufacture of textiles, wearing apparel, leather and related products
3c	16 – 18	Manufacture of wood and products of wood and cork, except furniture; articles of straw and plaiting materials; paper and paper products; printing and reproduction of recorded media
4a	19	Manufacture of coke and refined petroleum products
4b	20	Manufacture of chemicals and chemical products
4c	21	Manufacture of basic pharmaceutical products and pharmaceutical preparations
4d	22-23	Manufacture of rubber and plastic products; other non-metallic mineral products
6a	26	Manufacture of computer, electronic and optical products
6b	27	Manufacture of electrical equipment, machinery and equipment n.e.c.
6c	28	Manufacture of machinery and equipment n.e.c.
6d	29 – 30	Manufacture of motor vehicles, trailers and semi-trailers; other transport equipment
6e	31 – 33	Manufacture of furniture; other manufacturing; repair and installation of machinery and equipment
7a	35	Electricity, gas, steam and air conditioning supply

7b	36 – 39	Water collection, treatment and supply; sewerage; waste collection, treatment and disposal activities; materials recovery; remediation activities and other waste management services
9a	45	Wholesale and retail trade and repair of motor vehicles and motorcycles
9b	46	Wholesale trade, except of motor vehicles and motorcycles
14a	58 – 60	Publishing activities; motion picture, video and television programme production, sound recording and music publishing activities; programming and broadcasting activities
14b	61	Telecommunications
14c	62 – 63	Computer programming, consultancy and related activities; information service activities
16a	69 – 71	Legal and accounting activities; activities of head offices; management consultancy activities; architectural and engineering activities; technical testing and analysis
16b	72	Scientific research and development
16c	73 – 75	Advertising and market research; other professional, scientific and technical activities; veterinary activities
17a	77-78 + 80-82	Activities for: rental and leasing; employment; security and investigation; services to buildings and landscape; office administrative, office support and other business support
17b	79	Travel agency, tour operator and other reservation service and related activities
18a	95.1	Repair of computers and communication equipment

The NACE Rev. 2 categories are grouped together for dissemination purposes into several aggregates organised in 5 hierarchal levels. At the first level, there are 2 categories distinguishing 'Manufacturing, Energy and Construction' and 'Non-financial services'. At the second level, activities are grouped at the Section level of NACE, making 11 categories. The content of these groupings is described in chapter 3 below.

X2. Average number of employees and self-employed persons (persons employed), during 2021

[Scope: all enterprises]

[Type: numerical]

With the introduction of the Framework Regulation on European Business Statistics the variable "persons employed" is replaced by the variable "employees and self-employed persons". This change in the denomination of the variable does not imply any change in the scope. The two variables represent exactly the same concept. For the sake of user friendliness, the term "employees and self-employed persons" is only used in the introductory part of the questionnaire and in Module X, while in the rest of the questionnaire the term "persons employed" is used.

For the purpose of general harmonisation of enterprise ICT usage statistics and the more general field of business statistics, the concept of employees and self-employed persons used here is the one from the Regulation (EU) 2020/1197 of 30 July 2020 implementing Regulation 2020/2152 on European Business Statistics (p. 92, Variable 120101: Number of employees and self-employed persons):

The **number of employees and self-employed persons** is the sum of the **Number of employees** and **Number of self-employed persons**.

The **number of employees** represents the average number of persons who were, at some time during the reference period, employees of the statistical unit.

Explanatory note:

While the employment relationship, which qualifies the parties (into employee and employer), is defined in specific legislation or contract, the term "employee" usually means a person hired by the statistical unit to provide services to it on a regular basis, in exchange for benefits and where the services provided are not part of an independent business. For the sake of clarity, apprentices, if hired under such conditions, are considered employees.

The average should be calculated as the arithmetic mean of the number of employees over the shortest time periods of equal length fitting into the reference period, for which regular observations are practicable (e.g. daily, weekly, monthly, quarterly).

The **number of self-employed persons** is the average number of persons who were at some time during the reference period the sole owners or joint owners of the statistical unit in which they work. Family workers and outworkers whose income is a function of the value of the outputs of the statistical unit are also included.

Note: In order to check the comparability of data, it is necessary to indicate whether voluntary workers have been included under this heading or not.

The number of employees and self-employed persons should be measured as the yearly average during the previous calendar year. For comparability reasons, the number of employees and self-employed persons should not be confused with the number of employees (that excludes unpaid workers) or the number of employees in FTE units.

The average number of employees and self-employed persons is coded into 5 size categories, of which 3 are compulsory and the other 2 are optional.

Size categories (according to the number of employees and self-employed persons)		
Compulsory		
1	10 to 49	Small enterprises
2	50 to 249	Medium enterprises
3	250 or more	Large enterprises
Optional		
4	Less than 2	Small micro-enterprises
5	2 to 9	Big micro-enterprises

X3. Total turnover (in value terms, excluding VAT), for 2021

[Scope: all enterprises]

[Type: numerical]

This background variable is needed to weight the percentage of turnover resulting from orders received via computer networks (value of web sales and value of EDI-type sales in Module B: e-Commerce sales).

For the purpose of general harmonisation of enterprise ICT usage statistics and the more general field of business statistics, the concept of employees and self-employed persons used here is the one from the Regulation (EU) 2020/1197 of 30 July 2020 (p. 104, Variable 140301: Net turnover) implementing Regulation 2019/2152 (European Business Statistics):

For all activities except for NACE 64, 65 and some activities of NACE 66 net turnover consists of all income arising during the reference period in the course of ordinary activities of the statistical unit, and is presented net of all price reductions, discounts and rebates granted by it.

Income is defined as increases in economic benefits during the reference period in the form of inflows or enhancements of assets or decreases of liabilities that result in increases in equity, other than those relating to contributions from equity participants.

The inflows referred to are arising from contracts with customers and are realized through the satisfaction by the statistical unit of performance obligations as foreseen in said contracts. Usually, a performance obligation is represented by the sale (transfer) of goods or the rendering of services, however, the gross inflows can also contain revenues obtained as a yield on the use by others of the statistical unit's assets.

Excluded from net turnover are:

- all taxes, duties or levies linked directly to revenue;
- any amounts collected on behalf of any principal, if the statistical unit is acting as an agent in its relationship with said principal;
- all income not arising in the course of ordinary activities of the statistical unit. Usually, these types of income are classified as 'Other (operating) income', 'Financial income', 'Extra-ordinary income' or under a similar heading, depending on the respective set of generally accepted accounting standards used to prepare the financial statements.

Infra-annual statistics may not be able to take into account aspects such as annual price reductions, subsidies, rebates and discounts.

3 Data transmission

Once the data have been collected by the NSIs, they must be transmitted to Eurostat. This chapter provides guidance on how to compute aggregates and transmit the data.

3.1. General description

Data files on ICT usage and e-commerce in enterprises transmitted to Eurostat include statistical data elements laid down in the Implementing Act. The Implementing Act lists 70 mandatory variables and 18 optional variables.

Metadata and quality reports complement those data.

3.2. Codification, indicators and breakdown aggregates

NSI have to codify microdata, compute aggregates and break them down into different combinations depending on the enterprises' activity, sector and size (number of employees and self-employed persons). Those steps are necessary prerequisites for transmitting data to Eurostat.

3.2.1. Codification of microdata

The following table provides guidance on how NSI can codify microdata gathered using the model questionnaire in order to develop the indicators that need to be sent to Eurostat.

The use of the following codification is not mandatory but recommended as the scope of the indicators to be transmitted to Eurostat are based on that codification.

Variable name	Code	Description	Filter/Remarks (Standard codification)
		Module A: Access and use of the internet	
		A1: How many persons employed have access to the internet for business purposes?	All enterprises
		(including fixed line and mobile connection)	
EMPIUSEVAL	Nnnnn	Absolute number (use as many digits as necessary)	
	Blank	No answer	

Variable name	Code	Description	Filter/Remarks (Standard codification)
EMPIUSEPCT	Nnn	Percentage (0-100, round to the nearest integer)	
	Blank	No answer	
		Derived value	
EMPIUSE	Nnnnn	Reconstructed absolute number:	
	Blank	IF EMPIUSEVAL<> Blank THEN EMPIUSEVAL	
		ELSEIF EMPIUSEPCT<>Blank AND EMP <> Blank	
		THEN EMPIUSEPCT * EMP / 100	
		ELSE Blank	
		Use of a fixed line connection to the for business purposes	
		A2: Does your enterprise use any type of fixed line connection to the internet? (e.g. ADSL, SDSL, VDSL, fibre optics technology (FTTP), cable technology, etc.)	Enterprises where EMPIUSE > 0
FIXBB	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
		A3: What is the maximum contracted download speed of the fastest fixed line internet connection of your enterprise?	Enterprises where FIXBB=1
ISPDF1	1	a) less than 30 Mbit/s	
	2	b) at least 30 but less than 100 Mbit/s	
	3	c) at least 100 but less than 500 Mbit/s	
	4	d) at least 500 but less than 1 Gbit/s	
	5	e) at least 1 Gbit/s	
	Blank	No answer	
	9	Not applicable (FIXBB=Blank or FIXBB<>1)	
		Use of a mobile connection to the internet for business purposes	
		A4: How many persons employed use a portable device provided by the enterprise, that allows connection to the internet via mobile telephone networks, for business purposes?	Enterprises where EMPIUSE > 0
		(e.g. portable computers, or other portable devices such as smartphones)	
EMPMD2VAL	Nnnnn	Absolute number (use as many digits as necessary)	
(optional)	Blank	No answer or option not included	
	-1	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
EMPMD2PCT	Nnn	Percentage (0-100, round to the nearest integer)	
(optional)	Blank	No answer or option not included	
	-1	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	

Variable name	Code	Description	Filter/Remarks (Standard codification)
		Derived value	
EMPMD2	Nnnnn	Reconstructed absolute number:	
(optional)	Blank	IF EMPIUSE=Blank or EMPIUSE=0 THEN -1	
	-1	ELSEIF EMPMD2VAL<> Blank THEN EMPMD2VAL	
		ELSEIF EMPMD2PCT<>Blank AND EMP <> Blank	
		THEN EMPMD2PCT * EMP / 100	
		ELSE Blank	
		Meetings via the internet	
		A5: Does your enterprise conduct remote meetings (via e.g. Skype, Zoom, MS Teams, WebEx, etc.)?	Enterprises where EMPIUSE > 0
RM	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
		A6: Does your enterprise have any ICT security guidelines for conducting remote meetings via the internet (e.g. password requirement, end-to-end encryption)?	Enterprises where RM=1
RM_SG	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (RM=Blank or RM<>1)	
		A7: Does your enterprise have guidelines to favour remote meetings via the internet instead of business travelling?	Enterprises where RM=1
RM_EG	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (RM=Blank or RM<>1)	
		A8: Do any of the persons employed have remote access to the following? (via computers or portable devices such as smartphones)	Enterprises where EMPIUSE > 0
RA_M		a) E-mail system of the enterprise	
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
RA_D		b) Documents of the enterprise (e.g. files, spreadsheets, presentations, charts, photos)	
	1	Yes	
	0	No	

Variable name	Code	Description	Filter/Remarks (Standard codification)
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
RA_S		c) Business applications or software of the enterprise (e.g. access to accounting, sales, orders, CRM)	
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
		A9: How many persons employed have remote access to the e-mail system of the enterprise?	Enterprises where RA_M=1
		(e.g. via computers, or portable devices such as smartphones)	
EMRA_MVAL	Nnnnn	Absolute number (use as many digits as necessary)	
	Blank	No answer or option not included	
	-1	Not applicable (RA_M=Blank or RA_M<>1)	
EMRA_MPCT	Nnn	Percentage (0-100, round to the nearest integer)	
	Blank	No answer or option not included	
	-1	Not applicable (RA_M=Blank or RA_M<>1)	
		Derived value	
EMRA_M	Nnnnn	Reconstructed absolute number:	
	Blank	IF RA_M=Blank or RA_M<>1 THEN -1	
	-1	ELSEIF EMRA_MVAL<> Blank THEN EMRA_MVAL	
		ELSEIF EMRA_MPCT<>Blank AND EMP <> Blank	
		THEN EMRA_MPCT * EMP / 100	
		ELSE Blank	
		A10: How many persons employed have remote access to the documents, business applications or software of the enterprise?	Enterprises where RA_D=1 or RA_S=1
		(e.g. portable computers, or other portable devices such as smartphones)	
EMRA_DSVAL	Nnnnn	Absolute number (use as many digits as necessary)	
	Blank	No answer or option not included	
	-1	Not applicable ((RA_D=Blank or RA_D<>1) and (RA_S=Blank or RA_S<>1))	
EMRA_DSPCT	Nnn	Percentage (0-100, round to the nearest integer)	
	Blank	No answer or option not included	
	-1	Not applicable ((RA_D=Blank or RA_D<>1) and (RA_S=Blank or RA_S<>1))	

Variable name	Code	Description	Filter/Remarks (Standard codification)
		Derived value	
EMRA_DS	Nnnnn	Reconstructed absolute number:	
	Blank	IF (RA_D=Blank or RA_D<>1) and (RA_S=Blank or RA_S<>1) THEN -1	
	-1	ELSEIF EMRA_DSVAL<> Blank THEN EMRA_DSVAL	
		ELSEIF EMRA_DSPCT<>Blank AND EMP <> Blank	
		THEN EMRA_DSPCT * EMP / 100	
		ELSE Blank	
		A11: Does your enterprise have ICT security guidelines for remote access? (e.g. requirement to conduct password-secured remote meetings, prohibition of using of public Wi-Fi for work, use of VPN, requirements concerning privacy of data)	Enterprises where RA_M=1 or RA_D=1 or RA_S=1
RA_SG	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable ((RA_M=Blank or RA_M<>1) and (RA_D=Blank or RA_D<>1) and (RA_S=Blank or RA_S<>1))	
		Module B: e-Commerce sales	
		Web sales of goods or services	
		B1: During 2021, did your enterprise have web sales of goods or services via:	Enterprises where EMPIUSE > 0
AWS_COWN		a) your enterprise's websites or apps? (including extranets)	
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
AWS_CMP		b) e-commerce marketplace websites or apps used by several enterprises for trading goods or services? (e.g. e-Bookers, Booking, hotels.com, eBay, Amazon, Amazon Business, Alibaba, Rakuten, TimoCom, etc.)	
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
		B2: What was the value of your web sales?	
AWSVALVAL	Nnnnn	a) What was the value of your web sales of goods or services, in 2021? (use as many digits as necessary)	Enterprises where AWS_COWN=1 or AWS_CMP=1
	Blank	No answer	

Variable name	Code	Description	Filter/Remarks (Standard codification)
	-1	Not applicable ((AWS_COWN=Blank or AWS_COWN<>1) and (AWS_CMP=Blank or AWS_CMP<>1))	
AWSVALPCT	Nnn	b) What percentage of the turnover was generated by web sales of goods or services, in 2021? (0-100, please provide at least one decimal)	
	Blank	No answer	
	-1	Not applicable ((AWS_COWN=Blank or AWS_COWN<>1) and (AWS_CMP=Blank or AWS_CMP<>1))	
		Derived values	
AWSVAL	Nnnnn	Reconstructed absolute number:	
	Blank	IF (AWS_COWN=Blank or AWS_COWN<>1) and (AWS_CMP=Blank or AWS_CMP<>1) THEN -1	
	-1	ELSEIF AWSVALVAL <> Blank THEN AWSVALVAL	
		ELSEIF AWSVALPCT <>Blank AND TOVT <> Blank	
		THEN AWSVALPCT * TOVT / 100	
		ELSE Blank	
		B3: What was the percentage breakdown of the value of the web sales in 2021 for the following:	
AWS_COWNPCT		a) via your enterprise's websites or apps? (including extranets)	Enterprises where AWS_COWN=1 and AWS_CMP=1
	Nnn	Percentage (0-100)	
	Blank	No answer	
	-1	Not applicable ((AWS_COWN=Blank or AWS_COWN<>1) or (AWS_CMP=Blank or AWS_CMP<>1))	
AWS_CMPPCT		b) via e-commerce marketplace websites or apps used by several enterprises for trading goods or services? (e.g. e-Bookers, Booking, hotels.com, eBay, Amazon, Amazon Business, Alibaba, Rakuten, TimoCom, etc.)	
	Nnn	Percentage (0-100)	
	Blank	No answer	
	-1	Not applicable ((AWS_COWN=Blank or AWS_COWN<>1) or (AWS_CMP=Blank or AWS_CMP<>1))	
		Derived values	
		The following two variables reconstruct the turnover resulting from the orders received via a website or apps (in monetary terms, excluding VAT) in 2021, via the respective channels (enterprise's website or e-commerce marketplace), based on the replies to questions B1 and B3. The formulae below indicate how they could be calculated:	Enterprises where AWS_COWN=1 or AWS_CMP=1
AWSVAL_COWN	Nnnnn	Reconstructed absolute number:	

Variable name	Code	Description	Filter/Remarks (Standard codification)
	Blank	IF AWS_COWN=1 THEN	
	-1	IF AWS_CMP=Blank or AWS_CMP=0	
		THEN AWSVAL	
		ELSE	
		IF AWS_COWNPCT=Blank	
		THEN Blank	
		ELSE AWSVAL * AWS_COWNPCT / 100	
		ELSEIF AWS_COWN=0 THEN 0	
		ELSEIF AWS_COWN=Blank THEN Blank	
		ELSE -1	
AWSVAL_CMP	Nnnnn	Reconstructed absolute number:	
	Blank	IF AWS_CMP=1 THEN	
	-1	IF AWS_COWN=Blank or AWS_COWN=0	
		THEN AWSVAL	
		ELSE	
		IF AWS_CMPPCT=Blank	
		THEN Blank	
		ELSE AWSVAL * AWS_CMPPCT / 100	
		ELSEIF AWS_CMP=0 THEN 0	
		ELSEIF AWS_CMP=Blank THEN Blank	
		ELSE -1	
		B4: What was the percentage breakdown of the value of the web sales in 2021 by type of customer:	Enterprises where AWS_COWN=1 or AWS_CMP=1
AWSVALCPCT		**a) Sales to private consumers (B2C)**	
	Nnn	Percentage (0-100)	
	Blank	No answer	
	-1	Not applicable ((AWS_COWN=Blank or AWS_COWN<>1) and (AWS_CMP=Blank or AWS_CMP<>1))	
		b) Sales to other enterprises (B2B) and Sales to public sector (B2G)	
AWSVALBGPCT	Nnn	Percentage (0-100)	
	Blank	No answer	
	-1	Not applicable ((AWS_COWN=Blank or AWS_COWN<>1) and (AWS_CMP=Blank or AWS_CMP<>1))	
		Derived values	
AWSVALC	Nnnnn	Reconstructed absolute number:	

Variable name	Code	Description	Filter/Remarks (Standard codification)
	Blank	IF (AWS_COWN=Blank or AWS_COWN<>1) and (AWS_CMP=Blank or AWS_CMP<>1) THEN -1	
	-1	ELSEIF AWSVALCPCT<>Blank AND AWSVAL <> Blank	
		THEN AWSVALCPCT * AWSVAL / 100	
		ELSE Blank	
AWSVALBG	Nnnnn	Reconstructed absolute number:	
	Blank	IF (AWS_COWN=Blank or AWS_COWN<>1) and (AWS_CMP=Blank or AWS_CMP<>1) THEN -1	
	-1	ELSEIF AWSVALBGPCT<>Blank AND AWSVAL <> Blank	
		THEN AWSVALBGPCT * AWSVAL / 100	
		ELSE Blank	
(optional)		B5: During 2021, did your enterprise have web sales to customers located in the following geographic areas?	Enterprises where AWS_COWN=1 or AWS_CMP=1
AWSHM		a) Own country	
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable ((AWS_COWN=Blank or AWS_COWN<>1) and (AWS_CMP=Blank or AWS_CMP<>1))	
AWSEU		b) Other EU countries	
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable ((AWS_COWN=Blank or AWS_COWN<>1) and (AWS_CMP=Blank or AWS_CMP<>1))	
AWSWW		c) Rest of the world	
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable ((AWS_COWN=Blank or AWS_COWN<>1) and (AWS_CMP=Blank or AWS_CMP<>1))	
(optional)		B6: What was the percentage breakdown of the value of web sales in 2021 to customers located in the following geographic areas?	
		(Please refer to value of web sales you reported in B2)	

Variable name	Code	Description	Filter/Remarks (Standard codification)
AWSHM_PCT		a) Own country	Enterprises where at least 2 of AWSHM, AWSEU and AWSWW are 1
	Nnn	Percentage (0-100)	
	Blank	No answer	
	-1	Not applicable (at most 1 of AWSHM, AWSEU and AWSWW is 1, or AWSHM, AWSEU and AWSWW are blank or not applicable)	
AWSEU_PCT		b) Other EU countries	
	Nnn	Percentage (0-100)	
	Blank	No answer	
	-1	Not applicable (at most 1 of AWSHM, AWSEU and AWSWW is 1, or AWSHM, AWSEU and AWSWW are blank or not applicable)	
AWSWW_PCT		c) Rest of the world	
	Nnn	Percentage (0-100)	
	Blank	No answer	
	-1	Not applicable (at most 1 of AWSHM, AWSEU and AWSWW is 1, or AWSHM, AWSEU and AWSWW are blank or not applicable)	
		Derived values	
		The following three variables reconstruct the turnover resulting from the orders received via a website or apps (in monetary terms, excluding VAT) in 2021, broken down by the customer location (home country, other EU country, other non-EU country), based on the replies to questions B5 and B6. The formulae below indicate how they could be calculated:	
AWSVAL_HM	Nnnnn	Reconstructed absolute number:	Enterprises where AWS_COWN=1 or AWS_CMP=1
	Blank	IF AWSHM=1 THEN	
	-1	IF (AWSEU=Blank or AWSEU=0) and (AWSWW=Blank or AWSWW=0)	
		THEN AWSVAL	
		ELSE	
		IF AWSHM_PCT=Blank	
		THEN Blank	
		ELSE AWSVAL * AWSHM_PCT / 100	
		ELSEIF AWSHM=0 THEN 0	
		ELSEIF AWSHM=Blank THEN Blank	
		ELSE -1	

Variable name	Code	Description	Filter/Remarks (Standard codification)
AWSVAL_EU	Nnnnn	Reconstructed absolute number:	
	Blank	IF AWSEU=1 THEN	
	-1	IF (AWSHM=Blank or AWSHM=0) and (AWSWW=Blank or AWSWW=0)	
		THEN AWSVAL	
		ELSE	
		IF AWSEU_PCT=Blank	
		THEN Blank	
		ELSE AWSVAL * AWSEU_PCT / 100	
		ELSEIF AWSEU=0 THEN 0	
		ELSEIF AWSEU=Blank THEN Blank	
		ELSE -1	
AWSVAL_WW	Nnnnn	Reconstructed absolute number:	
	Blank	IF AWSWW=1 THEN	
	-1	IF (AWSHM=Blank or AWSHM=0) and (AWSEU=Blank or AWSEU=0)	
		THEN AWSVAL	
		ELSE	
		IF AWSWW_PCT=Blank	
		THEN Blank	
		ELSE AWSVAL * AWSWW_PCT / 100	
		ELSEIF AWSWW=0 THEN 0	
		ELSEIF AWSWW=Blank THEN Blank	
		ELSE -1	
(optional)		B7: Regarding web sales to other EU countries : did your enterprise experience any of the following difficulties during 2021 ?	Enterprises where AWSEU=1
AWSEU_DHCD		a) High costs of delivering or returning products when selling to other EU countries	
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (AWSEU=Blank or AWSEU<>1)	
AWSEU_DRCD		b) Difficulties related to resolving complaints and disputes when selling to other EU countries	
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (AWSEU=Blank or AWSEU<>1)	

Variable name	Code	Description	Filter/Remarks (Standard codification)
AWSEU_DAPL		c) Adapting product labelling for sales to other EU countries	
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (AWSEU=Blank or AWSEU<>1)	
AWSEU_DFL		d) Lack of knowledge of foreign languages for communicating with customers in other EU countries	
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (AWSEU=Blank or AWSEU<>1)	
AWSEU_DBP		e) Restrictions from your business partners on selling to certain EU countries	
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (AWSEU=Blank or AWSEU<>1)	
AWSEU_DVAT		f) Difficulties related to the VAT system in EU countries (e.g. uncertainty regarding VAT treatment in different countries)	
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (AWSEU=Blank or AWSEU<>1)	
		EDI-type sales	
		B8: During 2021, did your enterprise have EDI-type sales of goods or services?	Enterprises where EMPIUSE > 0
AXSELL	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
		B9: What was the value of your EDI-type sales?	Enterprises where AXSELL=1
AXSVALVAL	Nnnnn	a) What was the value (excluding VAT) of your EDI-type sales of goods or services, in 2021 ? (use as many digits as necessary)	
	Blank	No answer	
	-1	Not applicable (AXSELL=Blank or AXSELL<>1)	

Variable name	Code	Description	Filter/Remarks (Standard codification)
AXSVALPCT	Nnn	b) What percentage of your total turnover was generated by the EDI-type sales of goods or services, in 2021 ? (0-100, please provide at least one decimal)	
	Blank	No answer	
	-1	Not applicable (AXSELL=Blank or AXSELL<>1)	
		Derived value	
AXSVAL	Nnnnn	Reconstructed absolute number:	
	Blank	IF AXSELL<>1 THEN -1	
	-1	ELSEIF AXSVALVAL <> Blank THEN AXSVALVAL	
		ELSEIF AXSVALPCT <>Blank AND TOVT <> Blank	
		THEN AXSVALPCT * TOVT / 100	
		ELSE Blank	
		Module C: ICT specialists and skills	
		C1: Does your enterprise employ ICT specialists?	All enterprises
		ICT specialists are employees for whom ICT is the main job. For example, to develop, operate or maintain ICT systems or applications.	
ITSP2	1	Yes	
	0	No	
	Blank	No answer	
		C2: Did your enterprise provide any type of training to develop ICT related skills of the persons employed, during 2021?	All enterprises
		a) Training for ICT specialists Tick No if your enterprise didn't employ any ICT specialists during 2021	
ITSPT2	1	Yes	
	0	No	
	Blank	No answer	
		b) Training for other persons employed	
ITUST2	1	Yes	
	0	No	
	Blank	No answer	
		C3: Did your enterprise recruit or try to recruit ICT specialists, during 2021?	All enterprises
ITSPRCR2	1	Yes	
	0	No	
	Blank	No answer	
		C4: During 2021, did your enterprise have vacancies for ICT specialists that were difficult to fill?	Enterprises where ITSPRCR2=1
ITSPVAC2	1	Yes	

Variable name	Code	Description	Filter/Remarks (Standard codification)
	0	No	
	Blank	No answer	
	9	Not applicable (ITSPRCR2=Blank or ITSPRCR2<>1)	
(optional)		C5: Did your enterprise have any of the following difficulties to recruit ICT specialists during 2021?	Enterprises where ITSPVAC2=1
		a) Lack of applications	
ITSPDLA	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (ITSPVAC2=Blank or ITSPVAC2<>1)	
		b) Applicants' lack of relevant ICT related qualifications from education and/or training	
ITSPDLET	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (ITSPVAC2=Blank or ITSPVAC2<>1)	
		c) Applicants' lack of relevant work experience	
ITSPDLWE	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (ITSPVAC2=Blank or ITSPVAC2<>1)	
		d) Applicants' salary expectations too high	
ITSPDSAL	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (ITSPVAC2=Blank or ITSPVAC2<>1)	
		C6: Who performed your enterprise's ICT functions in 2021 (e.g. maintenance of ICT infrastructure; support for office software; development or support of business management software/systems and/or web solutions; security and data protection)?	All enterprises
		a) own employees (incl. those employed in parent or affiliate enterprises)	
IT_OWN	1	Yes	
	0	No	
	Blank	No answer	
		b) external suppliers	
IT_EXT	1	Yes	

Variable name	Code	Description	Filter/Remarks (Standard codification)
	0	No	
	Blank	No answer	
		Module D: ICT security	
		D1: Does your enterprise use any of the following ICT security measures?	Enterprises where EMPIUSE > 0
SECMSPSW		a) Authentication via strong password (e.g. minimum length, use of numbers and special characters, change periodically, etc.)	
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
SECMUIBM		b) Authentication via biometric methods used to access the enterprise's ICT system (e.g. authentication based on fingerprints, voice, face)	Enterprises where EMPIUSE > 0
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
SECMDUO		c) Authentication based on a combination of at least two authentication mechanisms (i.e. combination of e.g. user-defined password, one-time password (OTP), code generated via a security token or received via a smartphone, biometric method (e.g. based on fingerprints, voice, face))	Enterprises where EMPIUSE > 0
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
SECMDENC		d) Encryption of data, documents or e-mails	Enterprises where EMPIUSE > 0
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
SECMOSBU		e) Data backup to a separate location (including backup to the cloud)	Enterprises where EMPIUSE > 0
	1	Yes	
	0	No	
	Blank	No answer	

Variable name	Code	Description	Filter/Remarks (Standard codification)
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
SECMNAC		f) Network access control (management of user rights in the enterprise's network)	Enterprises where EMPIUSE > 0
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
SECMVPN		g) VPN (Virtual Private Network extends a private network across a public network to enable secure exchange of data over public network)	Enterprises where EMPIUSE > 0
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
SECMSMS		h) ICT security monitoring system that allows to detect suspicious activity in the ICT systems and alerts the enterprises about it, other than standalone anti-virus software	Enterprises where EMPIUSE > 0
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
SECMLOG		i) Maintaining log files that enable analysis after ICT security incidents	Enterprises where EMPIUSE > 0
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
SECMRASS		j) ICT risk assessment, i.e. periodically assessment of probability and consequences of ICT security incidents	Enterprises where EMPIUSE > 0
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
SECMTST		k) ICT security tests (e.g. performing penetration tests, testing security alert system, review of security measures, testing of backup systems)	Enterprises where EMPIUSE > 0
	1	Yes	
	0	No	

Variable name	Code	Description	Filter/Remarks (Standard codification)
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
SECM_CNT		Derived value: ICT security measures	Enterprises where EMPIUSE > 0
	0-11	Give one point for each of the following 11 conditions, if true:	
		SECMSPSW=1, SECMUIBM=1, SECMDUO=1, SECMDENC=1, SECMOSBU=1, SECMNAC=1, SECMVPN=1, SECMSMS=1, SECMLOG=1, SECMRASS=1, SECMTST=1	
	-1	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
		D2: Does your enterprise make persons employed aware of their obligations in ICT security related issues in the following ways?	Enterprises where EMPIUSE > 0
SECAWVTGI		a) Voluntary training or internally available information (e.g. information on the intranet)	
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
SECAWCTP		b) Compulsory training courses or viewing compulsory material	Enterprises where EMPIUSE > 0
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
SECAWCONT		c) By contract (e.g. contract of employment)	Enterprises where EMPIUSE > 0
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
SECPOL2		D3: Does your enterprise have document(s) on measures, practices or procedures on ICT security?	Enterprises where EMPIUSE > 0
		Documents on ICT security and confidentiality of data cover employee training in ICT use, ICT security measures, the evaluation of ICT security measures, plans for updating ICT security documents, etc.	
	1	Yes	
	0	No	
	Blank	No answer	

Variable name	Code	Description	Filter/Remarks (Standard codification)
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
		D4: When were your enterprise's document(s) on measures, practices or procedures on ICT security, defined or most recently reviewed?	Enterprises where SECPOL2=1
		Documents on ICT security and confidentiality of data cover employee training in ICT use, ICT security measures, the evaluation of ICT security measures, plans for updating ICT security documents, etc.	
SECPREV	1	a) within the last 12 months	
	2	b) more than 12 months and up to 24 months ago	
	3	c) more than 24 months ago	
	Blank	No answer	
	9	Not applicable (SECPOL2=Blank or SECPOL2<>1)	
		D5: During 2021, did your enterprise experience any ICT related security incident leading to the following consequences?	Enterprises where EMPIUSE > 0
SEC2IUSVF		a) Unavailability of ICT services due to hardware or software failures	
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
SEC2IUSVA		b) Unavailability of ICT services due to attack from outside, e.g. ransomware attacks, Denial of Service attacks	
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
SEC2IDCDF		c) Destruction or corruption of data due to hardware or software failures	Enterprises where EMPIUSE > 0
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
SEC2IDCDA		d) Destruction or corruption of data due to infection of malicious software or unauthorised intrusion	Enterprises where EMPIUSE > 0
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	

Variable name	Code	Description	Filter/Remarks (Standard codification)
SEC2ICNFA		e) Disclosure of confidential data due to intrusion, pharming, phishing attack, intentional actions by own employees	Enterprises where EMPIUSE > 0
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
SEC2ICNFF		f) Disclosure of confidential data due to unintentional actions by own employees	Enterprises where EMPIUSE > 0
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
		D6: Who carries out the ICT security related activities (e.g. security testing, ICT training on security, resolving ICT security incidents) in your enterprise? Exclude upgrades of pre-packaged software	Enterprises where EMPIUSE > 0
ITSEC3OWN		a) Own employees (incl. those employed in parent or affiliate enterprises)	
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
ITSEC3EXT		b) external suppliers	Enterprises where EMPIUSE > 0
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
SECINS		D7: Does your enterprise have insurance against ICT security incidents?	Enterprises where EMPIUSE > 0
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable (EMPIUSE = Blank or EMPIUSE = 0)	
		Module E: Use of robotics	
		E1: Does your enterprise use any of the following types of robots?	All enterprises

Variable name	Code	Description	Filter/Remarks (Standard codification)
RBTI		a) Industrial robots (e.g. robotic welding, laser cutting, spray painting, etc.) (See the definition of industrial robots)	
	1	Yes	
	0	No	
	Blank	No answer	
RBTS		b) Service robots (e.g. used for surveillance, cleaning, transportation, etc.) (See the definition of service robots)	
	1	Yes	
	0	No	
	Blank	No answer	
(optional)		E2: Please indicate the number of industrial and service robots used by the enterprise	Enterprises where RBTI=1 or RBTS=1
RBTISVAL	Nnnnn	Absolute number (use as many digits as necessary)	
	Blank	No answer or option not provided	
	-1	Not applicable ((RBTI=Blank or RBTI<>1) and (RBTS=Blank or RBTS<>1))	
		E3: Please indicate if the following reasons influenced the decision to use robots in your enterprise:	Enterprises where RBTI=1 or RBTS=1
RBTWHCL		a) High cost of labour	
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable ((RBTI=Blank or RBTI<>1) and (RBTS=Blank or RBTS<>1))	
RBTWDR		b) Difficulties to recruit personnel	
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable ((RBTI=Blank or RBTI<>1) and (RBTS=Blank or RBTS<>1))	
RBTWES		c) To enhance safety at work	
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable ((RBTI=Blank or RBTI<>1) and (RBTS=Blank or RBTS<>1))	
RBTWHP		d) To ensure high precision or standardised quality of processes and/or goods and services produced	
	1	Yes	
	0	No	

Variable name	Code	Description	Filter/Remarks (Standard codification)
	Blank	No answer	
	9	Not applicable ((RBTI=Blank or RBTI<>1) and (RBTS=Blank or RBTS<>1))	
RBTWER		e) To expand the range of goods produced or services provided by the enterprise	
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable ((RBTI=Blank or RBTI<>1) and (RBTS=Blank or RBTS<>1))	
RBTWTI		f) Tax or other government incentives	
	1	Yes	
	0	No	
	Blank	No answer	
	9	Not applicable ((RBTI=Blank or RBTI<>1) and (RBTS=Blank or RBTS<>1))	
		Module F: ICT and the environment	
		F1: Does your enterprise apply any measures to affect the following?	All enterprises
ENVPAP1		a) Amount of paper used for printing and copying	
	1	Yes	
	0	No	
	Blank	No answer	
ENVREICT1		b) Energy consumption of ICT equipment	
	1	Yes	
	0	No	
	Blank	No answer	
ENVCEI		F2: Does your enterprise consider environmental impact of ICT services, or ICT equipment when selecting them (e.g. energy consumption, etc.)?	All enterprises
	1	Yes	
	0	No	
	Blank	No answer	
		F3: What does your enterprise do with ICT equipment (e.g. computers, monitors, mobile phones) when it is no longer used?	All enterprises
ENV_DREC		a) It is disposed of in electronic waste collection/recycling (incl. Leaving it to the retailer to dispose of)	
	1	Yes	
	0	No	
	Blank	No answer	

Variable name	Code	Description	Filter/Remarks (Standard codification)
ENV_DKPT		b) The ICT equipment is kept in the enterprise (e.g. to be used as spare parts, fear of sensitive information being disclosed)	
	1	Yes	
	0	No	
	Blank	No answer	
ENV_DSRD		c) It is sold, returned to a leasing enterprise, or donated	
	1	Yes	
	0	No	
	Blank	No answer	
		Module X: Background Information	
		X1: Main economic activity of the enterprise, during 2021 (Nace rev 2)	All enterprises
NACE2	xx.xx	Nace code of the enterprise, 4 digits	
		X2: Average number of persons employed, during 2021	All enterprises
EMPL	Nnnnnn	Number of employed persons (use as many digits as necessary)	
		X3: Total turnover (in monetary terms, excluding VAT), for 2021	All enterprises
TOVT	Nnnnnn	Total turnover (use as many digits as necessary)	
		Y1: Enterprise ID	All enterprises
ENT_ID	XxNnnnnnn	Unique id of the enterprise (2 letters for country code, then 7 digits)	
		Y2: Enterprise weight	All enterprises
ENT_WGHT	Nnnnnn. nnnnnn	Grossing up factor of the enterprise (6 digits, decimal point, 6 digits)	
DI4_INDEX	0-12	Derived value: digital intensity index, v4	
		Give one point for each of the following 12 conditions, if true:	
		EMPIUSE<>Blank and EMPL<>Blank and EMPIUSE > 0.50 * EMPL	
		ITSP2=1	
		ISPDF1=2 or ISPDF1=3 or ISPDF1=4 or ISPDF1=5	
		RM=1	
		SECAWVTGI=1 or SECAWCTP=1 or SECAWCONT=1	
		ITSPT2=1 or ITUST2=1	
		SECM_CNT between 3 and 11	
		SECPOL2=1	
		RA_M=1 or RA_D=1 or RA_S=1	
		RBTI=1 or RBTS=1	

Variable name	Code	Description	Filter/Remarks (Standard codification)
		(AWSVAL<>Blank and AWSVAL>=TOVT*0.01) or (AXSVAL<>Blank and AXSVAL>=TOVT*0.01) or (AWSVAL<>Blank and AWSVAL<>-1 and AXSVAL<>Blank and AXSVAL<>-1 and (AWSVAL+AXSVAL)>=TOVT*0.01)	
		TOVT<>Blank and AWSVAL<>Blank and AWSVALC<>Blank AND (AWSVAL>0.01 * TOVT) and AWSVALC>0.1 * AWSVAL	

3.2.2. Digital intensity index

The last variable of the table above is the digital intensity index (codified as DI4_INDEX). It measures the use of different digital technologies at enterprise level. The digital intensity index score of an enterprise is determined by how many of the selected digital technologies it uses and is between 0 and 12.

The index is used to calculate certain aggregates such as the number of enterprises that use ICT security measures according to their digital intensity index.

The table below provides guidance on how to calculate it.

DI4_ INDEX	0-12	Derived value: digital intensity index	Description (references to MQ 2022 see Section 3.2.1)
		Give one point for each of the following 12 conditions, if true:	
		EMPIUSE<>Blank and EMPL<>Blank and EMPIUSE > 0.50 * EMPL	Enterprises where over 50% of the employees had access to the internet for business purposes
		ITSP2=1	Employ ICT specialists
		ISPDF1=2 or ISPDF1=3 or ISPDF1=4 or ISPDF1=5	The maximum contracted download speed of the fastest fixed line internet connection is at least 30 Mb/s
		RM=1	Enterprises that conducted remote meetings (via e.g. Skype, Zoom, MS Teams, WebEx, etc.)
		SECAWVTGI=1 or SECAWCTP=1 or SECAWCONT=1	Enterprises that make persons employed aware of their obligations in ICT security-related matters
		ITSPT2=1 or ITUST2=1	Any type of training provided in 2021 to develop the ICT skills of the persons employed, during 2021
		SECM_CNT between 3 and 11	Use of at least 3 ICT security measures
		SECPOL2=1	Enterprise with document(s) on ICT security measures, practices or procedures
		RA_M=1 or RA_D=1 or RA_S=1	Any of the persons employed with remote access to any of the following: email, documents, business apps
		RBTI=1 or RBTS=1	Use of industrial or service robots
		(AWSVAL<>Blank and AWSVAL>=TOVT*0.01) or (AXSVAL<>Blank and AXSVAL>=TOVT*0.01) or (AWSVAL<>Blank and AWSVAL<>-1 and AXSVAL<>Blank and AXSVAL<>-1 and (AWSVAL+AXSVAL)>=TOVT*0.01)	Used any computer networks for sales (at least 1%)
		TOVT<>Blank and AWSVAL<>Blank and AWSVALC<>Blank AND (AWSVAL>0.01 * TOVT) and AWSVALC>0.1 * AWSVAL	Enterprises with web sales of over 1% of the total turnover and B2C web sales over 10% of web sales

3.2.3. Indicator coding and scope

Indicators have to be computed by NSI using the microdata gathered. The indicators are aggregates of microdata. The table below presents, among other indicators (column Variable codes), their description and the questions of the model questionnaire they are derived from. The indicators' scope can be computed using the codification of microdata presented above in Section 3.2.1.

Some indicators computed by Eurostat are also presented in the table for information.

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
back	ENT_SAMPLE	Number of enterprises in final (net) sample – non-raised figures	Count (ENT_ID) unraised	FALSE	2021
back	ENT	Number of enterprises in population (surveyed size and industry groups corresponding to raised figures)	Count (ENT_ID)	FALSE	2021
back	EMPL	Average number of employed persons in population (surveyed size and industry groups corresponding to raised figures)	∑ (EMPL)	FALSE	2021
back	TOVT	Total turnover in population, in value terms, excluding VAT (surveyed size and industry groups corresponding to raised figures)	∑ (TOVT)	FALSE	2021
Derived from A1	E_IUSE	Enterprises where some persons employed have access to the internet for business purposes	Count (ENT_ID) where EMPIUSE<>Blank and EMPIUSE>0	FALSE	2021
Derived from A1	E_IUSE_GT10	Enterprises where more than 10% of the persons employed have access to the internet for business purposes	Count (ENT_ID) where EMPIUSE<>Blank and EMPL<>Blank and EMPIUSE > 0.10 * EMPL	FALSE	2021
Derived from A1	E_IUSE_GT50	Enterprises where more than 50% of the persons employed have access to the internet for business purposes	Count (ENT_ID) where EMPIUSE<>Blank and EMPL<>Blank and EMPIUSE > 0.50 * EMPL	FALSE	2021
Derived from A1	E_IUSE_GE10A	Enterprises where at least 10 persons employed have access to the internet for business purposes	Count (ENT_ID) where EMPIUSE<>Blank and EMPIUSE >= 10	FALSE	2021
A2	E_FIXBB	Use any type of fixed line connection to the internet	Count (ENT_ID) where FIXBB=1	FALSE	2021
A2	E_FIXBBX	Don't use any type of fixed line connection to the internet	Count (ENT_ID) where FIXBB=0	FALSE	2021
A2	E_FIXBBZ	Don't know if they use any type of fixed line connection to the internet	Count (ENT_ID) where FIXBB=Blank	TRUE	2021

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
A3a	E_ISPDF_LT30	The maximum contracted download speed of the fastest fixed line internet connection is less than 30 Mb/s	Count (ENT_ID) where ISPDF1=1	FALSE	2021
A3b	E_ISPDF1_30_100	The maximum contracted download speed of the fastest fixed line internet connection is at least 30 Mb/s but less than 100 Mb/s	Count (ENT_ID) where ISPDF1=2	FALSE	2021
A3c	E_ISPDF_100_500	The maximum contracted download speed of the fastest fixed line internet connection is at least 100 Mb/s but less than 500 Mb/s	Count (ENT_ID) where ISPDF1=3	FALSE	2021
A3d	E_ISPDF_500_1G	The maximum contracted download speed of the fastest fixed line internet connection is at least 500 Mb/s but less than 1 Gb/s	Count (ENT_ID) where ISPDF1=4	FALSE	2021
A3e	E_ISPDF_GE1G	The maximum contracted download speed of the fastest fixed line internet connection is at least 1 Gb/s	Count (ENT_ID) where ISPDF1=5	FALSE	2021
Derived from A3b to A3e	E_ISPDF1_GE30	The maximum contracted download speed of the fastest fixed line internet connection is at least 30 Mb/s	Count (ENT_ID) where ISPDF1=2 or ISPDF1=3 or ISPDF1=4 or ISPDF1=5	FALSE	2021
Derived from A3c to A3e	E_ISPDF1_GE100	The maximum contracted download speed of the fastest fixed line internet connection is at least 100 Mb/s	Count (ENT_ID) where ISPDF1=3 or ISPDF1=4 or ISPDF1=5	FALSE	2021
Derived from A4	E_EMPMD2_GT0	Enterprises where some employed persons use a portable device provided by the enterprise, that allows internet connection via mobile telephone networks, for business purposes	Count (ENT_ID) where EMPMD2<>Blank and EMPMD2>0	TRUE	2021
Derived from A4	E_EMPMD2_GT10	Enterprises where more than 10% of the employed persons use a portable device provided by the enterprise, that allows internet connection via mobile telephone networks, for business purposes	Count (ENT_ID) where EMPMD2<>Blank and EMPL<>Blank and (EMPMD2>EMPL * 0.1)	TRUE	2021

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
Derived from A4	E_EMPMD2_GT20	Enterprises where more than 20% of the employed persons use a portable device provided by the enterprise, that allows internet connection via mobile telephone networks, for business purposes	Count (ENT_ID) where EMPMD2<>Blank and EMPL<>Blank and (EMPMD2>EMPL * 0.2)	TRUE	2021
Derived from A4	E_EMPMD2_GT50	Enterprises where more than 50% of the employed persons use a portable device provided by the enterprise, that allows internet connection via mobile telephone networks, for business purposes	Count (ENT_ID) where EMPMD2<>Blank and EMPL<>Blank and (EMPMD2>EMPL * 0.5)	TRUE	2021
Derived from A4	E_PMD	Provide portable devices that allow a mobile connection to the internet using mobile telephone networks, for business purposes	Count (ENT_ID) where EMPMD2>0	TRUE	2021
Derived from A4	E_PMDX	Does not provide portable devices that allow a mobile connection to the internet using mobile telephone networks, for business purposes	Count (ENT_ID) where EMPMD2=0 or EMPMD2=Blank	TRUE	2021
Derived from A2 and A4	E_BROAD3	Connect to the Internet via fixed or mobile broadband (as of 2018)	Count (ENT_ID) where FIXBB=1 or EMPMD2>0	TRUE	2021
Derived from A2 and A4	E_BROAD3X	Connect to the Internet but not via fixed or mobile broadband (as of 2018)	Count (ENT_ID) where (FIXBB=0 or FIXBB=Blank) and (EMPMD2=0 or EMPMD2=Blank)	TRUE	2021
A5	E_RM	Enterprises which conducted remote meetings (via e.g. Skype, Zoom, MS Teams, WebEx, etc.)	Count (ENT_ID) where RM=1	FALSE	NEW
A5	E_RMX	Enterprises which did not conduct remote meetings (via e.g. Skype, Zoom, MS Teams, WebEx, etc.)	Count (ENT_ID) where RM=0	FALSE	NEW
A6	E_RM_SG	Enterprises which have ICT security guidelines for conducting remote meetings via the internet (e.g. password requirement, end-to-end encryption)	Count (ENT_ID) where RM_SG=1	FALSE	NEW
A6	E_RM_SGX	Enterprises which do not have ICT security guidelines for conducting remote meetings via the internet (e.g. password requirement, end-to-end encryption)	Count (ENT_ID) where RM_SG=0	FALSE	NEW

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
A7	E_RM_EG	Enterprises which have guidelines for favouring remote meetings via the internet instead of business traveling	Count (ENT_ID) where RM_EG=1	FALSE	NEW
A7	E_RM_EGX	Enterprises which do not have guidelines for favouring remote meetings via the internet instead of business traveling	Count (ENT_ID) where RM_EG=0	FALSE	NEW
A8a	E_RA_M	Enterprises with employed persons with remote access to the email system of the enterprise	Count (ENT_ID) where RA_M=1	FALSE	NEW
A8a	E_RA_MX	Enterprises with employed persons with no remote access to the email system of the enterprise	Count (ENT_ID) where RA_M=0	FALSE	NEW
A8b	E_RA_D	Enterprises with employed persons with remote access to the documents of the enterprise (e.g. files, spreadsheets, presentations, charts, photos)	Count (ENT_ID) where RA_D=1	FALSE	NEW
A8b	E_RA_DX	Enterprises with employed persons with no remote access to the documents of the enterprise (e.g. files, spreadsheets, presentations, charts, photos)	Count (ENT_ID) where RA_D=0	FALSE	NEW
A8c	E_RA_S	Enterprises with employed persons with remote access to the business applications or software of the enterprise (e.g. access to accounting, sales, orders, CRM)	Count (ENT_ID) where RA_S=1	FALSE	NEW
A8c	E_RA_SX	Enterprises with employed persons with no remote access to the business applications or software of the enterprise (e.g. access to accounting, sales, orders, CRM)	Count (ENT_ID) where RA_S=0	FALSE	NEW
Derived A8a to A8c	E_RA	Enterprises with employed persons with remote access to the email system or documents, business applications or software of the enterprise	Count (ENT_ID) where RA_M=1 or RA_D=1 or RA_S=1	FALSE	NEW derived variable
Derived A8a to A8c	E_RA_ALL	Enterprises with employed persons with remote access to the email system and documents and business applications or software of the enterprise	Count (ENT_ID) where RA_M=1 and RA_D=1 and RA_S=1	FALSE	NEW derived variable

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
Derived A8b to A8c	E_RA_DS	Enterprises with employed persons with remote access to the documents, business applications or software of the enterprise	Count (ENT_ID) where RA_D=1 or RA_S=1	FALSE	NEW derived variable
A9	E_RA_MGE10	Enterprises with at least 10% of the employed persons with remote access to the email system of the enterprise	Count (ENT_ID) where EMRA_M<>Blank and EMRA_M<>-1 and EMRA_M * 100 >= EMPL * 10	FALSE	NEW
A9	E_RA_MGE25	Enterprises with at least 25% of the employed persons with remote access to the email system of the enterprise	Count (ENT_ID) where EMRA_M<>Blank and EMRA_M<>-1 and EMRA_M * 100 >= EMPL * 25	FALSE	NEW
A9	E_RA_MGE50	Enterprises with at least 50% of the employed persons with remote access to the email system of the enterprise	Count (ENT_ID) where EMRA_M<>Blank and EMRA_M<>-1 and EMRA_M * 100 >= EMPL * 50	FALSE	NEW
A10	E_RA_DSGE10	Enterprises with at least 10% of the employed persons with remote access to the documents, business applications or software of the enterprise	Count (ENT_ID) where EMRA_DS<>Blank and EMRA_DS<>-1 and EMRA_DS * 100 >= EMPL * 10	FALSE	NEW
A10	E_RA_DSGE25	Enterprises with at least 25% of the employed persons with remote access to the documents, business applications or software of the enterprise	Count (ENT_ID) where EMRA_DS<>Blank and EMRA_DS<>-1 and EMRA_DS * 100 >= EMPL * 25	FALSE	NEW
A10	E_RA_DSGE50	Enterprises with at least 50% of the employed persons with remote access to the documents, business applications or software of the enterprise	Count (ENT_ID) where EMRA_DS<>Blank and EMRA_DS<>-1 and EMRA_DS * 100 >= EMPL * 50	FALSE	NEW
A11	E_RA_SG	Enterprises with ICT security guidelines for remote access	Count (ENT_ID) where RA_SG=1	FALSE	NEW
A11	E_RA_SGX	Enterprises with no ICT security guidelines for remote access	Count (ENT_ID) where RA_SG=0	FALSE	NEW
B1a	E_AWS_COWN	Enterprises which sold via their own websites or apps	Count (ENT_ID) where AWS_COWN=1	FALSE	2021
B1a	E_AWS_COWNX	Enterprises which did not sell via their own websites or apps	Count (ENT_ID) where AWS_COWN=0	FALSE	2021
B1b	E_AWS_CMP	Enterprises which sold via an e-commerce marketplace	Count (ENT_ID) where AWS_CMP=1	FALSE	2021
B1b	E_AWS_CMPX	Enterprises which did not sell via an e-commerce marketplace	Count (ENT_ID) where AWS_CMP=0	FALSE	2021

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
Derived from B1a and B1b	E_AWS_CBOTH	Enterprises which sold via their own websites or apps and via an e-commerce marketplace	Count (ENT_ID) where AWS_ COWN=1 and AWS_CMP=1	FALSE	2021
Derived from B1a and B1b	E_AWSELL	Have received orders via websites or apps (web sales)	Count (ENT_ID) where (AWS_ COWN=1 or AWS_CMP=1)	FALSE	2021
Derived from B1a and B1b	E_AWSELLX	Have not received orders via websites or apps	Count (ENT_ID) where (AWS_ COWN=0 and AWS_CMP=0)	FALSE	2021
B2	E_AWSVALS	Sales via websites or apps, excluding VAT (<1% of turnover)	∑ (AWSVAL) where AWSVAL <> Blank and AWSVAL <> -1 and AWSVAL < TOVT * 1%	FALSE	2021
B2	E_AWSVALB	Sales via websites or apps, excluding VAT (>= 1% of turnover)	∑ (AWSVAL) where AWSVAL <> Blank and AWSVAL <> -1 and AWSVAL >= TOVT * 1%	FALSE	2021
B2	E_AWSVAL	Total sales via websites or apps, excluding VAT	∑ (AWSVAL) where AWSVAL <> Blank and AWSVAL <> -1	FALSE	2021
B2	E_WSEL0	Sales via websites or apps 0+ %	Count (ENT_ID) where AWSVAL <> Blank and AWSVAL <> -1 and AWSVAL>=0	FALSE	2021
B2	E_WSEL1	Sales via websites or apps 1+ %	Count (ENT_ID) where AWSVAL <> Blank and AWSVAL <> -1 and AWSVAL>=TOVT * 1%	FALSE	2021
B2	E_WSEL2	Sales via websites or apps 2+ %	Count (ENT_ID) where AWSVAL <> Blank and AWSVAL <> -1 and AWSVAL>=TOVT * 2%	FALSE	2021
B2	E_WSEL5	Sales via websites or apps 5+%	Count (ENT_ID) where AWSVAL <> Blank and AWSVAL <> -1 and AWSVAL>=TOVT * 5%	FALSE	2021
B2	E_WSEL10	Sales via websites or apps 10+ %	Count (ENT_ID) where AWSVAL <> Blank and AWSVAL <> -1 and AWSVAL>=TOVT * 10%	FALSE	2021
B2	E_WSEL25	Sales via websites or apps 25+ %	Count (ENT_ID) where AWSVAL <> Blank and AWSVAL <> -1 and AWSVAL>=TOVT * 25%	FALSE	2021
B2	E_WSEL50	Sales via websites or apps 50+ %	Count (ENT_ID) where AWSVAL <> Blank and AWSVAL <> -1 and AWSVAL>=TOVT * 50%	FALSE	2021
B2	E_WSELZ	Don't know the % of sales via websites or apps	Count (ENT_ID) where AWSVAL=Blank	TRUE	2021
B3a	E_AWSVAL_ COWN	Sales via their own websites or apps	∑(AWSVAL_COWN) where AWSVAL_COWN <> Blank and AWSVAL_COWN <> -1	FALSE	2021
B3b	E_AWSVAL_CMP	Sales via an e-commerce marketplace	∑(AWSVAL_CMP) where AWSVAL_ CMP <> Blank and AWSVAL_CMP <> -1	FALSE	2021
Derived from B1b, B2 and B3b	E_AWS_CMP_ GE20	Enterprises which sold via an e-commerce marketplace for at least 20% of the web sales	Count (ENT_ID) where AWS_ CMP=1 and (AWSVAL_CMP >= AWSVAL * 0.20)	FALSE	2021
Derived from B1b, B2 and B3b	E_AWS_CMP_ GE50	Enterprises which sold via an e-commerce marketplace for at least 50% of the web sales	Count (ENT_ID) where AWS_ CMP=1 and (AWSVAL_CMP >= AWSVAL * 0.50)	FALSE	2021

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
Derived from B1b, B2 and B3b	T_AWS_CMP_GE20	Turnover of the enterprises where web sales via an e-commerce marketplace were at least 20% of the web sales	∑ (TOVT) where AWS_CMP=1 and (AWSVAL_CMP >= AWSVAL * 0.20)	FALSE	2021
Derived from B1b, B2 and B3b	T_AWS_CMP_GE50	Turnover of the enterprises where web sales via an e-commerce marketplace were at least 50% of the web sales	∑ (TOVT) where AWS_CMP=1 and (AWSVAL_CMP >= AWSVAL * 0.50)	FALSE	2021
B4a	E_AWSVAL_B2C	Sales via websites or apps - B2C	∑ (AWSVALC) where AWSVALC<>Blank and AWSVALC<>-1	FALSE	2021
B4b	E_AWSVAL_B2BG	Sales via websites or apps - B2B and B2G	∑ (AWSVALBG) where AWSVALBG<>Blank and AWSVALBG<>-1	FALSE	2021
Derived from B4a	E_AWS_B2C	Enterprises which sold via websites or apps - B2C	Count (ENT_ID) where AWSVALC<>Blank and AWSVALC>0	FALSE	2021
Derived from B4b	E_AWS_B2BG	Enterprises which sold via websites or apps - B2B and B2G	Count (ENT_ID) where AWSVALBG<>Blank and AWSVALBG>0	FALSE	2021
Derived from B1b and B4a	E_AWS_B2C_CMP	Enterprises which sold via websites or apps - B2C and via an e-commerce marketplace	Count (ENT_ID) where (AWSVALC<>Blank and AWSVALC>0) and AWS_CMP=1	FALSE	2021
Derived from B2 and B4a	E_AWSVAL_B2C_GE10WS	Enterprises where B2C sales via websites or apps were 10% or more of the total web sales	Count (ENT_ID) where AWSVALC<>Blank AND AWSVALC>0 and AWSVAL<>Blank and AWSVAL<>-1 and AWSVALC>=0.1 * AWSVAL	FALSE	2021
Derived from B2 and B4a	E_AWSVAL_B2C_GE5WS	Enterprises where B2C sales via websites or apps were 5% or more of the total web sales	Count (ENT_ID) where AWSVALC<>Blank AND AWSVALC>0 and AWSVAL<>Blank and AWSVAL<>-1 and AWSVALC>=0.05 * AWSVAL	FALSE	2021
Derived from B2 and B4a	E_AWS_B2C_GT1WS	Enterprises where B2C sales via websites or apps were more than 1% of the total web sales	Count (ENT_ID) where AWSVALC<>Blank AND AWSVALC>0 and AWSVAL<>Blank and AWSVAL<>-1 and AWSVALC>0.01 * AWSVAL	FALSE	2021
Derived from B2 and B4a	E_AWSVAL_GT1_B2C_GT10WS	Web sales to consumers of the enterprises where web sales were more than 1% of the total turnover and B2C web sales more than 10% of the web sales	∑ (AWSVALC) where TOVT<>Blank and AWSVAL<>Blank and AWSVALC<>Blank AND (AWSVAL>0.01 * TOVT) and AWSVALC>0.1 * AWSVAL	FALSE	2021
Derived from B2 and B4a	E_AWS_GT1_B2C_GT10WS	Enterprises where web sales were more than 1% of the total turnover and B2C web sales more than 10% of the web sales	Count (ENT_ID) where TOVT<>Blank and AWSVAL<>Blank and AWSVALC<>Blank AND AWSVALC>0 AND (AWSVAL>0.01 * TOVT) and AWSVALC>0.1 * AWSVAL	FALSE	2021

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
Derived from B2 and B4a	T_AWS_GT1_ B2C_GT10WS	Turnover of the enterprises where web sales were more than 1% of the total turnover and B2C web sales more than 10% of the web sales	∑ (TOVT) where TOVT<>Blank and AWSVAL<>Blank and AWSVALC<>Blank AND AWSVALC>0 AND (AWSVAL>0.01 * TOVT) and AWSVALC>0.1 * AWSVAL	FALSE	2021
Derived from B1b, B2 and B4a	E_AWSVAL_B2C_ GE10WS_CMP	Enterprises where B2C sales via websites or apps were 10% or more of the total web sales and which sold via an e-commerce marketplace	Count (ENT_ID) where AWSVALC<>Blank AND AWSVALC>0 and AWSVAL<>Blank and AWSVAL<>-1 and AWSVALC>=0.1 * AWSVAL and AWS_CMP=1	FALSE	2021
B5a	E_AWSHM	Received orders placed via a website or apps from customers in own country	Count (ENT_ID) where AWSHM=1	TRUE	2021
B5b	E_AWSEU	Received orders placed via a website or apps from customers in other EU countries	Count (ENT_ID) where AWSEU=1	TRUE	2021
B5c	E_AWSWW	Received orders placed via a website or apps from customers in the rest of the world	Count (ENT_ID) where AWSWW=1	TRUE	2021
Derived from B5b and B5c	E_AWSFOR	Received orders placed via a website or apps from customers in foreign countries (EU or rest of the world)	Count (ENT_ID) where AWSEU=1 or AWSWW=1	TRUE	2021
Derived from B3a and B5a	E_AWSVAL_HM_ COWN	Sales via their own websites or apps from customers in the own country	∑(AWSVAL_COWN) where AWSVAL_COWN <> Blank and AWSVAL_COWN <> -1 and AWSHM=1	TRUE	NEW derived variable
Derived from B3b and B5a	E_AWSVAL_HM_ CMP	Sales via an e-commerce marketplace from customers in the own country	∑(AWSVAL_CMP) where AWSVAL_ CMP <> Blank and AWSVAL_CMP <> -1 and AWSHM=1	TRUE	NEW derived variable
Derived from B3a and B5b	E_AWSVAL_EU_ COWN	Sales via their own websites or apps from customers in other EU countries	∑(AWSVAL_COWN) where AWSVAL_COWN <> Blank and AWSVAL_COWN <> -1 and AWSEU=1	TRUE	NEW derived variable
Derived from B3b and B5b	E_AWSVAL_EU_ CMP	Sales via an e-commerce marketplace from customers in other EU countries	∑(AWSVAL_CMP) where AWSVAL_ CMP <> Blank and AWSVAL_CMP <> -1 and AWSEU=1	TRUE	NEW derived variable
Derived from B3a and B5c	E_AWSVAL_WW_ COWN	Sales via their own websites or apps from customers located in the rest of the world	∑(AWSVAL_COWN) where AWSVAL_COWN <> Blank and AWSVAL_COWN <> -1 and AWSWW=1	TRUE	NEW derived variable
Derived from B3b and B5c	E_AWSVAL_WW_ CMP	Sales via an e-commerce marketplace from customers located in the rest of the world	∑(AWSVAL_CMP) where AWSVAL_ CMP <> Blank and AWSVAL_CMP <> -1 and AWSWW=1	TRUE	NEW derived variable
B6a	E_AWSVAL_HM	Sales via a website or apps - from customers located in the own country	∑(AWSVAL_HM) where AWSVAL_ HM <> Blank and AWSVAL_HM <> -1	TRUE	NEW derived
B6b	E_AWSVAL_EU	Sales via a website or apps - from customers located in other EU countries	∑(AWSVAL_EU) where AWSVAL_EU <> Blank and AWSVAL_EU <> -1	TRUE	NEW derived

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
B6c	E_AWSVAL_WW	Sales via a website or apps - from customers located in the rest of the world	∑(AWSVAL_WW) where AWSVAL_WW <> Blank and AWSVAL_WW <> -1	TRUE	NEW derived
Derived from B2, B5b, B5c, B6b and B6c	E_AWSFOR_GE20	Received orders placed via a website or apps from customers in foreign countries, with an export turnover at least 20% of the web sales	Count (ENT_ID) where (AWSEU=1 or AWSWW=1) and (AWSVAL_EU + AWSVAL_WW >= 0.20 * AWSVAL)	TRUE	NEW derived
Derived from B2, B5b, B5c, B6b and B6c	E_AWSFOR_GE50	Received orders placed via a website or apps from customers in foreign countries, with an export turnover at least 50% of the web sales	Count (ENT_ID) where (AWSEU=1 or AWSWW=1) and (AWSVAL_EU + AWSVAL_WW >= 0.50 * AWSVAL)	TRUE	NEW derived
Derived from B1, B2, B5b, B5c, B6b and B6c	E_AWSFOR_GE20_CMP	Sold via an e-commerce marketplace and received orders placed via a website or apps from customers in foreign countries, with an export turnover at least 20% of the web sales	Count (ENT_ID) where AWS_CMP=1 and (AWSEU=1 or AWSWW=1) and (AWSVAL_EU + AWSVAL_WW >= 0.20 * AWSVAL)	TRUE	NEW derived
Derived from B1, B2, B5b, B5c, B6b and B6c	E_AWSFOR_GE50_CMP	Sold via an e-commerce marketplace and received orders placed via a website or apps from customers in foreign countries, with an export turnover at least 50% of the web sales	Count (ENT_ID) where AWS_CMP=1 and (AWSEU=1 or AWSWW=1) and (AWSVAL_EU + AWSVAL_WW >= 0.50 * AWSVAL)	TRUE	NEW derived
B7a	E_AWSEU_DHCD	Difficulties when selling to other EU countries via a website or apps - high costs of delivering or returning products	Count (ENT_ID) where AWSEU_DHCD=1	TRUE	NEW derived
B7a	E_AWSEU_DHCDX	Difficulties when selling to other EU countries via a website or apps - not the high costs of delivering or returning products	Count (ENT_ID) where AWSEU_DHCD=0	TRUE	NEW derived
B7b	E_AWSEU_DRCD	Difficulties when selling to other EU countries via a website or apps - related to resolving complaints and disputes	Count (ENT_ID) where AWSEU_DRCD=1	TRUE	NEW derived
B7b	E_AWSEU_DRCDX	Difficulties when selling to other EU countries via a website or apps - not related to resolving complaints and disputes	Count (ENT_ID) where AWSEU_DRCD=0	TRUE	NEW derived
B7c	E_AWSEU_DAPL	Difficulties when selling to other EU countries via a website or apps - adapting product labelling	Count (ENT_ID) where AWSEU_DAPL=1	TRUE	NEW derived

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
B7c	E_AWSEU_DAPLX	Difficulties when selling to other EU countries via a website or apps - not adapting product labelling	Count (ENT_ID) where AWSEU_ DAPL=0	TRUE	NEW derived
B7d	E_AWSEU_DFL	Difficulties when selling to other EU countries via a website or apps - lack of knowledge of foreign languages	Count (ENT_ID) where AWSEU_ DFL=1	TRUE	NEW derived
B7d	E_AWSEU_DFLX	Difficulties when selling to other EU countries via a website or apps - not the lack of knowledge of foreign languages	Count (ENT_ID) where AWSEU_ DFL=0	TRUE	NEW derived
B7e	E_AWSEU_DBP	Difficulties when selling to other EU countries via a website or apps - restrictions from business partners	Count (ENT_ID) where AWSEU_ DBP=1	TRUE	NEW derived
B7e	E_AWSEU_DBPX	Difficulties when selling to other EU countries via a website or apps - not the restrictions from business partners	Count (ENT_ID) where AWSEU_ DBP=0	TRUE	NEW derived
B7f	E_AWSEU_DVAT	Difficulties when selling to other EU countries via a website or apps - difficulties related to the VAT system in EU countries	Count (ENT_ID) where AWSEU_ DVAT=1	TRUE	NEW derived
B7f	E_AWSEU_DVATX	Difficulties when selling to other EU countries via a website or apps - not the difficulties related to the VAT system in EU countries	Count (ENT_ID) where AWSEU_ DVAT=0	TRUE	NEW derived
Derived from B7a to B7f	E_AWSEU_DANY	Difficulties when selling to other EU countries via a website or apps - any	Count (ENT_ID) where AWSEU_ DHCD=1 or AWSEU_DRCD=1 or AWSEU_DAPL=1 or AWSEU_DFL=1 or AWSEU_DBP=1 or AWSEU_ DVAT=1	TRUE	NEW derived
Derived from B7a to B7f	E_AWSEU_ DNONE	Difficulties when selling to other EU countries via a website or apps - none	Count (ENT_ID) where AWSEU_ DHCD=0 and AWSEU_DRCD=0 and AWSEU_DAPL=0 and AWSEU_ DFL=0 and AWSEU_DBP=0 and AWSEU_DVAT=0	TRUE	NEW derived
Derived from B3a and B7a	E_AWSVAL_EU_ COWN_DHCD	Sales via their own websites or apps and difficulties when selling to other EU countries via a website or apps - high costs of delivering or returning products	∑(AWSVAL_COWN) where AWSVAL_COWN<>Blank and AWSVAL_COWN<>-1 and AWSEU_ DHCD=1	TRUE	NEW derived variable
Derived from B3a and B7a	E_AWSVAL_EU_ COWN_DHCDX	Sales via their own websites or apps and difficulties when selling to other EU countries via a website or apps - not the high costs of delivering or returning products	∑(AWSVAL_COWN) where AWSVAL_COWN<>Blank and AWSVAL_COWN<>-1 and AWSEU_ DHCD=0	TRUE	NEW derived variable

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
Derived from B3a and B7Derived from B3a and B	E_AWSVAL_EU_COWN_DRCD	Sales via their own websites or apps and difficulties when selling to other EU countries via a website or apps - related to resolving complaints and disputes	∑(AWSVAL_COWN) where AWSVAL_COWN<>Blank and AWSVAL_COWN<>-1 and AWSEU_DRCD=1	TRUE	NEW derived variable
Derived from B3a and B7Derived from B3a and B	E_AWSVAL_EU_COWN_DRCDX	Sales via their own websites or apps and difficulties when selling to other EU countries via a website or apps - not related to resolving complaints and disputes	∑(AWSVAL_COWN) where AWSVAL_COWN<>Blank and AWSVAL_COWN<>-1 and AWSEU_DRCD=0	TRUE	NEW derived variable
Derived from B3a and B7c	E_AWSVAL_EU_COWN_DAPL	Sales via their own websites or apps and difficulties when selling to other EU countries via a website or apps - adapting product labelling	∑(AWSVAL_COWN) where AWSVAL_COWN<>Blank and AWSVAL_COWN<>-1 and AWSEU_DAPL=1	TRUE	NEW derived variable
Derived from B3a and B7c	E_AWSVAL_EU_COWN_DAPLX	Sales via their own websites or apps and difficulties when selling to other EU countries via a website or apps - not adapting product labelling	∑(AWSVAL_COWN) where AWSVAL_COWN<>Blank and AWSVAL_COWN<>-1 and AWSEU_DAPL=0	TRUE	NEW derived variable
Derived from B3a and B7d	E_AWSVAL_EU_COWN_DFL	Sales via their own websites or apps and difficulties when selling to other EU countries via a website or apps - lack of knowledge of foreign languages	∑(AWSVAL_COWN) where AWSVAL_COWN<>Blank and AWSVAL_COWN<>-1 and AWSEU_DFL=1	TRUE	NEW derived variable
Derived from B3a and B7d	E_AWSVAL_EU_COWN_DFLX	Sales via their own websites or apps and difficulties when selling to other EU countries via a website or apps - not the lack of knowledge of foreign languages	∑(AWSVAL_COWN) where AWSVAL_COWN<>Blank and AWSVAL_COWN<>-1 and AWSEU_DFL=0	TRUE	NEW derived variable
Derived from B3a and B7e	E_AWSVAL_EU_COWN_DBP	Sales via their own websites or apps and difficulties when selling to other EU countries via a website or apps - restrictions from business partners	∑(AWSVAL_COWN) where AWSVAL_COWN<>Blank and AWSVAL_COWN<>-1 and AWSEU_DBP=1	TRUE	NEW derived variable
Derived from B3a and B7e	E_AWSVAL_EU_COWN_DBPX	Sales via their own websites or apps and difficulties when selling to other EU countries via a website or apps - not the restrictions from business partners	∑(AWSVAL_COWN) where AWSVAL_COWN<>Blank and AWSVAL_COWN<>-1 and AWSEU_DBP=0	TRUE	NEW derived variable
Derived from B3a and B7f	E_AWSVAL_EU_COWN_DVAT	Sales via their own websites or apps and difficulties when selling to other EU countries via a website or apps - difficulties related to the VAT system in EU countries	∑(AWSVAL_COWN) where AWSVAL_COWN<>Blank and AWSVAL_COWN<>-1 and AWSEU_DVAT=1	TRUE	NEW derived variable

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
Derived from B3a and B7f	E_AWSVAL_EU_ COWN_DVATX	Sales via their own websites or apps and difficulties when selling to other EU countries via a website or apps - not the difficulties related to the VAT system in EU countries	∑(AWSVAL_COWN) where AWSVAL_COWN<>Blank and AWSVAL_COWN<>-1 and AWSEU_ DVAT=0	TRUE	NEW derived variable
Derived from B3b and B7a	E_AWSVAL_EU_ CMP_DHCD	Sales via an e-commerce marketplace and difficulties when selling to other EU countries via a website or apps - high costs of delivering or returning products	∑(AWSVAL_CMP) where AWSVAL_ CMP<>Blank and AWSVAL_ CMP<>-1 and AWSEU_DHCD=1	TRUE	NEW derived variable
Derived from B3b and B7a	E_AWSVAL_EU_ CMP_DHCDX	Sales via an e-commerce marketplace and difficulties when selling to other EU countries via a website or apps - not the high costs of delivering or returning products	∑(AWSVAL_CMP) where AWSVAL_ CMP<>Blank and AWSVAL_ CMP<>-1 and AWSEU_DHCD=0	TRUE	NEW derived variable
Derived from B3b and B7Derived from B3b and B	E_AWSVAL_EU_ CMP_DRCD	Sales via an e-commerce marketplace and difficulties when selling to other EU countries via a website or apps - related to resolving complaints and disputes	∑(AWSVAL_CMP) where AWSVAL_ CMP<>Blank and AWSVAL_ CMP<>-1 and AWSEU_DRCD=1	TRUE	NEW derived variable
Derived from B3b and B7Derived from B3b and B	E_AWSVAL_EU_ CMP_DRCDX	Sales via an e-commerce marketplace and difficulties when selling to other EU countries via a website or apps - not related to resolving complaints and disputes	∑(AWSVAL_CMP) where AWSVAL_ CMP<>Blank and AWSVAL_ CMP<>-1 and AWSEU_DRCD=0	TRUE	NEW derived variable
Derived from B3b and B7c	E_AWSVAL_EU_ CMP_DAPL	Sales via an e-commerce marketplace and difficulties when selling to other EU countries via a website or apps - adapting product labelling	∑(AWSVAL_CMP) where AWSVAL_ CMP<>Blank and AWSVAL_ CMP<>-1 and AWSEU_DAPL=1	TRUE	NEW derived variable
Derived from B3b and B7c	E_AWSVAL_EU_ CMP_DAPLX	Sales via an e-commerce marketplace and difficulties when selling to other EU countries via a website or apps - not adapting product labelling	∑(AWSVAL_CMP) where AWSVAL_ CMP<>Blank and AWSVAL_ CMP<>-1 and AWSEU_DAPL=0	TRUE	NEW derived variable
Derived from B3b and B7d	E_AWSVAL_EU_ CMP_DFL	Sales via an e-commerce marketplace and difficulties when selling to other EU countries via a website or apps - lack of knowledge of foreign languages	∑(AWSVAL_CMP) where AWSVAL_ CMP<>Blank and AWSVAL_ CMP<>-1 and AWSEU_DFL=1	TRUE	NEW derived variable

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
Derived from B3b and B7d	E_AWSVAL_EU_CMP_DFLX	Sales via an e-commerce marketplace and difficulties when selling to other EU countries via a website or apps - not the lack of knowledge of foreign languages	∑(AWSVAL_CMP) where AWSVAL_CMP<>Blank and AWSVAL_CMP<>-1 and AWSEU_DFL=0	TRUE	NEW derived variable
Derived from B3b and B7e	E_AWSVAL_EU_CMP_DBP	Sales via an e-commerce marketplace and difficulties when selling to other EU countries via a website or apps - restrictions from business partners	∑(AWSVAL_CMP) where AWSVAL_CMP<>Blank and AWSVAL_CMP<>-1 and AWSEU_DBP=1	TRUE	NEW derived variable
Derived from B3b and B7e	E_AWSVAL_EU_CMP_DBPX	Sales via an e-commerce marketplace and difficulties when selling to other EU countries via a website or apps - not the restrictions from business partners	∑(AWSVAL_CMP) where AWSVAL_CMP<>Blank and AWSVAL_CMP<>-1 and AWSEU_DBP=0	TRUE	NEW derived variable
Derived from B3b and B7f	E_AWSVAL_EU_CMP_DVAT	Sales via an e-commerce marketplace and difficulties when selling to other EU countries via a website or apps - difficulties related to the VAT system in EU countries	∑(AWSVAL_CMP) where AWSVAL_CMP<>Blank and AWSVAL_CMP<>-1 and AWSEU_DVAT=1	TRUE	NEW derived variable
Derived from B3b and B7f	E_AWSVAL_EU_CMP_DVATX	Sales via an e-commerce marketplace and difficulties when selling to other EU countries via a website or apps - not the difficulties related to the VAT system in EU countries	∑(AWSVAL_CMP) where AWSVAL_CMP<>Blank and AWSVAL_CMP<>-1 and AWSEU_DVAT=0	TRUE	NEW derived variable
B8	E_AXSELL	Have received orders via EDI-type messages	Count (ENT_ID) where AXSELL=1	FALSE	2021
B8	E_AXSELLX	Have not received orders via EDI-type messages	Count (ENT_ID) where AXSELL=0	FALSE	2021
B8	E_AXSELLZ	Do not know if have received orders via EDI-type messages	Count (ENT_ID) where AXSELL=Blank	TRUE	2021
Derived from B1 and B8	E_AESELL	Have received orders via computer networks	Count (ENT_ID) where (AWS_COWN=1 or AWS_CMP=1) or AXSELL=1	FALSE	2021
Derived from B2 and B8	E_WSEL1Q	Sales via websites or apps 1+ % and no orders received via EDI-type messages	Count (ENT_ID) where AWSVAL <> Blank and AWSVAL <> -1 and AWSVAL>=TOVT * 1% and (AXSELL=0 or AXSELL=Blank)	FALSE	2021
B9	E_AXSVALS	Total sales via EDI type messages, excluding VAT(<1% of turnover)	∑ (AXSVAL) where AXSVAL <> Blank and AXSVAL <> -1 and AXSVAL<TOVT * 1%	FALSE	2021
B9	E_AXSVALB	Total sales via EDI type messages, excluding VAT(>=1% of turnover)	∑ (AXSVAL) where AXSVAL <> Blank and AXSVAL <> -1 and AXSVAL>=TOVT * 1%	FALSE	2021
B9	E_AXSVAL	Total sales via EDI type messages, excluding VAT	∑ (AXSVAL]) where AXSVAL <> Blank and AXSVAL <> -1	FALSE	2021

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
B9	E_XSEL0	Sales via EDI-type messages 0+ %	Count (ENT_ID) where AXSVAL <> Blank and AXSVAL <> -1 and AXSVAL>=0	FALSE	2021
B9	E_XSEL1	Sales via EDI-type messages 1+ %	Count (ENT_ID) where AXSVAL <> Blank and AXSVAL <> -1 and AXSVAL>=TOVT * 1%	FALSE	2021
B9	E_XSEL2	Sales via EDI-type messages 2+ %	Count (ENT_ID) where AXSVAL <> Blank and AXSVAL <> -1 and AXSVAL>=TOVT * 2%	FALSE	2021
B9	E_XSEL5	Sales via EDI-type messages 5+%	Count (ENT_ID) where AXSVAL <> Blank and AXSVAL <> -1 and AXSVAL>=TOVT * 5%	FALSE	2021
B9	E_XSEL10	Sales via EDI-type messages 10+ %	Count (ENT_ID) where AXSVAL <> Blank and AXSVAL <> -1 and AXSVAL>=TOVT * 10%	FALSE	2021
B9	E_XSEL25	Sales via EDI-type messages 25+ %	Count (ENT_ID) where AXSVAL <> Blank and AXSVAL <> -1 and AXSVAL>=TOVT * 25%	FALSE	2021
B9	E_XSEL50	Sales via EDI-type messages 50+ %	Count (ENT_ID) where AXSVAL <> Blank and AXSVAL <> -1 and AXSVAL>=TOVT * 50%	FALSE	2021
B9	E_XSELZ	Don't know the % of sales via EDI-type messages	Count (ENT_ID) where AXSVAL=Blank	TRUE	2021
Derived from B2 and B9	E_ESELL	Used any computer networks for sales (at least 1%) – continuation with previous years	Count (ENT_ID) where (AWSVAL<>Blank and AWSVAL>=TOVT*1%) or (AXSVAL<>Blank and AXSVAL>=TOVT*1%) or (AWSVAL<>Blank and AWSVAL<>-1 and AXSVAL<>Blank and AXSVAL<>-1 and (AWSVAL+AXSVAL)>=TOVT*1%)	FALSE	2021
Derived from B2 and B9	E_ETURN	Total electronic sales, excluding VAT	∑ (AWSVAL) where AWSVAL <> Blank and AWSVAL <> -1 + ∑ (AXSVAL) where AXSVAL <> Blank and AXSVAL <> -1	FALSE	2021
Derived from B2, B4a and B9	E_AWSVAL_B2C_GE10EC	Enterprises where B2C sales via websites or apps were 10% or more of the e-commerce turnover	Count (ENT_ID) where AWSVALC<>Blank AND AWSVALC>0 and AWSVAL<>Blank and AXSVAL<>Blank and ((AXSVAL = -1 and AWSVALC>=0.1 * AWSVAL) or (AXSVAL <> -1 and AWSVALC>=0.1 * (AWSVAL+AXSVAL)))	FALSE	2021
C1	E_ITSP2	Employ ICT specialists	Count(ENT_ID) where ITSP2=1	FALSE	2020
C1	E_ITSP2X	Don't employ ICT specialists	Count(ENT_ID) where ITSP2=0	FALSE	2020
C2a	E_ITSPT2	Have provided training to develop ICT skills of personnel: for ICT specialists	Count(ENT_ID) where ITSPT2=1	FALSE	2020
C2a	E_ITSPT2X	Have not provided training to develop ICT skills of personnel: for ICT specialists	Count(ENT_ID) where ITSPT2=0	FALSE	2020

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
C2b	E_ITUST2	Have provided training to develop ICT skills of personnel: for other persons employed	Count(ENT_ID) where ITUST2=1	FALSE	2020
C2b	E_ITUST2X	Have not provided training to develop ICT skills of personnel: for other persons employed	Count(ENT_ID) where ITUST2=0	FALSE	2020
Derived from C2a and C2b	E_ITT2	Have provided training to develop ICT skills of personnel	Count(ENT_ID) where ITSPT2=1 or ITUST2=1	FALSE	2020
Derived from C1 and C2a	E_ITSP2_ITT2	Employ ICT specialists and have provided training to develop ICT skills of personnel	Count(ENT_ID) where ITSP2=1 and (ITSPT2=1 or ITUST2=1)	FALSE	2020
Derived from C1 and C2b	E_ITSP2X_ITT2	Don't employ ICT specialists, but have provided training to develop ICT skills of personnel	Count(ENT_ID) where ITSP2=0 and ITUST2=1	FALSE	2020
C3	E_ITSPRCR2	Have recruited/tried to recruit ICT specialists	Count(ENT_ID) where ITSPRCR2=1	FALSE	2020
C3	E_ITSPRCR2X	Have not recruited/tried to recruit ICT specialists	Count(ENT_ID) where ITSPRCR2=0	FALSE	2020
Derived from C1 and C3	E_ITSP2_OR_RCR2	Employ ICT specialists or have recruited/tried to recruit ICT specialists	Count(ENT_ID) where ITSP2=1 or ITSPRCR2=1	FALSE	2020
C4	E_ITSPVAC2	Had hard-to-fill vacancies for ICT specialists	Count(ENT_ID) where ITSPVAC2=1	FALSE	2020
C4	E_ITSPVAC2X	Had no hard-to-fill vacancies for ICT specialists	Count(ENT_ID) where ITSPVAC2=0	FALSE	2020
Derived from C1 and C4	E_ITSP2_VAC2	Employ ICT specialists and had hard-to-fill vacancies for ICT specialists	Count(ENT_ID) where ITSP2=1 and ITSPVAC2=1	FALSE	2020
C5a	E_ITSPDLA	Enterprises had the following difficulty to recruit ICT specialists: Lack of applications	Count(ENT_ID) where ITSPDLA=1	TRUE	2020
C5a	E_ITSPDLAX	Enterprises did not have the following difficulty to recruit ICT specialists: Lack of applications	Count(ENT_ID) where ITSPDLA=0	TRUE	2020
C5b	E_ITSPDLET	Enterprises had the following difficulty to recruit ICT specialists: Applicants' lack of relevant ICT qualifications from education and/or training	Count(ENT_ID) where ITSPDLET=1	TRUE	2020
C5b	E_ITSPDLETX	Enterprises did not have the following difficulty to recruit ICT specialists: Applicants' lack of relevant ICT qualifications from education and/or training	Count(ENT_ID) where ITSPDLET=0	TRUE	2020

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
C5c	E_ITSPDLWE	Enterprises had the following difficulty to recruit ICT specialists: Applicants' lack of relevant work experience	Count(ENT_ID) where ITSPDLWE=1	TRUE	2020
C5c	E_ITSPDLWEX	Enterprises did not have the following difficulty to recruit ICT specialists: Applicants' lack of relevant work experience	Count(ENT_ID) where ITSPDLWE=0	TRUE	2020
C5d	E_ITSPDSAL	Enterprises had the following difficulty to recruit ICT specialists: Applicants' salary expectation too high	Count(ENT_ID) where ITSPDSAL=1	TRUE	2020
C5d	E_ITSPDSALX	Enterprises did not have the following difficulty to recruit ICT specialists: Applicants' salary expectation too high	Count(ENT_ID) where ITSPDSAL=0	TRUE	2020
C6a	E_IT_OWN	ICT functions were performed by own employees (incl. those employed in parent or affiliate enterprises)	Count(ENT_ID) where IT_OWN=1	FALSE	2020
C6a	E_IT_OWNX	ICT functions were not performed by own employees (incl. those employed in parent or affiliate enterprises)	Count(ENT_ID) where IT_OWN=0	FALSE	2020
C6b	E_IT_EXT	ICT functions were performed by external suppliers	Count(ENT_ID) where IT_EXT=1	FALSE	2020
C6b	E_IT_EXTX	ICT functions were not performed by external suppliers	Count(ENT_ID) where IT_EXT=0	FALSE	2020
Derived from C6a and C6b	E_IT_OWNQ	ICT functions were entirely performed by own employees (incl. those employed in parent or affiliate enterprises)	Count(ENT_ID) where IT_OWN=1 and IT_EXT=0	FALSE	2020
Derived from C6a and C6b	E_IT_EXTQ	ICT functions were entirely performed by external suppliers	Count(ENT_ID) where IT_OWN=0 and IT_EXT=1	FALSE	2020
Derived from C1 and C6a	E_IT_OWN_ITSP2	Employ ICT specialists and ICT functions were performed by own employees (incl. those employed in parent or affiliate enterprises)	Count(ENT_ID) where IT_OWN=1 AND ITSP2=1	FALSE	2020
Derived from C1 and C6b	E_IT_EXT_ITSP2	Employ ICT specialists and ICT functions were performed by external suppliers	Count(ENT_ID) where IT_EXT=1 AND ITSP2=1	FALSE	2020
Derived from C2a and C2b, C6b	E_IT_EXT_ITT2	Provided training to develop ICT skills of personnel and ICT functions were performed by external suppliers	Count(ENT_ID) where IT_EXT=1 AND (ITSPT2=1 or ITUST2=1)	FALSE	2020

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
D1a	E_SECMSPSW	ICT security measure used: strong password authentication, i.e. minimum length of 8 mixed characters, periodical change	Count(ENT_ID) where SECMSPSW=1	FALSE	2019
D1a	E_SECMSPSWX	ICT security measure not used: strong password authentication, i.e. minimum length of 8 mixed characters, periodical change	Count(ENT_ID) where SECMSPSW=0	FALSE	2019
D1b	E_SECMUIBM	ICT security measure used: user identification and authentication via biometric methods implemented by the enterprise (e.g. based on fingerprints, voice, faces)	Count(ENT_ID) where SECMUIBM=1	FALSE	2019
D1b	E_SECMUIBMX	ICT security measure not used: user identification and authentication via biometric methods implemented by the enterprise (e.g. based on fingerprints, voice, faces)	Count(ENT_ID) where SECMUIBM=0	FALSE	2019
D1c	E_SECMDUO	ICT security measure used: at least two authentication mechanisms (i.e. combination of e.g. user-defined password, one-time password (OTP), code generated via a security token or received via a smartphone, biometric method faces)	Count(ENT_ID) where SECMDUO=1	FALSE	NEW
D1c	E_SECMDUOX	ICT security measure not used: at least two authentication mechanisms (i.e. combination of e.g. user-defined password, one-time password (OTP), code generated via a security token or received via a smartphone, biometric method (e.g. based on fingerprints,	Count(ENT_ID) where SECMDUO=0	FALSE	NEW
D1d	E_SECMDENC	ICT security measure used: encryption techniques for data, documents or e-mails	Count(ENT_ID) where SECMDENC=1	FALSE	2019
D1d	E_SECMDENCX	ICT security measure not used: encryption techniques for data, documents or e-mails	Count(ENT_ID) where SECMDENC=0	FALSE	2019
D1e	E_SECMOSBU	ICT security measure used: data backup to a separate location (including backup to the cloud)	Count(ENT_ID) where SECMOSBU=1	FALSE	2019

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
D1e	E_SECMOSBUX	ICT security measure not used: data backup to a separate location (including backup to the cloud)	Count(ENT_ID) where SECMOSBU=0	FALSE	2019
D1f	E_SECMNAC	ICT security measure used: network access control (management of access by devices and users to the enterprise's network)	Count(ENT_ID) where SECMNAC=1	FALSE	2019
D1f	E_SECMNACX	ICT security measure not used: network access control (management of access by devices and users to the enterprise's network)	Count(ENT_ID) where SECMNAC=0	FALSE	2019
D1g	E_SECMVPN	ICT security measure used: VPN (Virtual Private Network extends a private network across a public network to enable secure exchange of data over public network)	Count(ENT_ID) where SECMVPN=1	FALSE	2019
D1g	E_SECMVPNX	ICT security measure not used: VPN (Virtual Private Network extends a private network across a public network to enable secure exchange of data over public network)	Count(ENT_ID) where SECMVPN=0	FALSE	2019
D1h	E_SECMSMS	ICT security measure used: monitoring system that allows to detect suspicious activity in the ICT systems and alerts the enterprises about it, other than standalone anti-virus software	Count(ENT_ID) where SECMSMS=1	FALSE	NEW
D1h	E_SECMSMSX	ICT security measure not used: monitoring system that allows to detect suspicious activity in the ICT systems and alerts the enterprises about it, other than standalone anti-virus software	Count(ENT_ID) where SECMSMS=0	FALSE	NEW
D1i	E_SECMLOG	ICT security measure used: maintaining log files for analysis after security incidents	Count(ENT_ID) where SECMLOG=1	FALSE	2019
D1i	E_SECMLOGX	ICT security measure not used: maintaining log files for analysis after security incidents	Count(ENT_ID) where SECMLOG=0	FALSE	2019

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
D1j	E_SECMRASS	ICT security measure used: ICT risk assessment, i.e. periodically assessment of probability and consequences of ICT security incidents	Count(ENT_ID) where SECMRASS=1	FALSE	2019
D1j	E_SECMRASSX	ICT security measure not used: ICT risk assessment, i.e. periodically assessment of probability and consequences of ICT security incidents	Count(ENT_ID) where SECMRASS=0	FALSE	2019
D1k	E_SECMTST	ICT security measure used: ICT security tests (e.g. performing penetration tests, testing security alert system, review of security measures, testing of backup systems)	Count(ENT_ID) where SECMTST=1	FALSE	2019
D1k	E_SECMTSTX	ICT security measure not used: ICT security tests (e.g. performing penetration tests, testing security alert system, review of security measures, testing of backup systems)	Count(ENT_ID) where SECMTST=0	FALSE	2019
Derived from D1a to D1k	E_SECMGE1	Use any ICT security measure	Count(ENT_ID) where SECM_CNT>=1	FALSE	NEW derived variable
Derived from D1a to D1k	E_SECMGE3	Use at least 3 ICT security measures	Count(ENT_ID) where SECM_CNT>=3	FALSE	NEW derived variable
Derived from D1a to D1k	E_SECMGE5	Use at least 5 ICT security measures	Count(ENT_ID) where SECM_CNT>=5	FALSE	NEW derived variable
Derived from D1a to D1k	E_SECMGE7	Use at least 7 ICT security measures	Count(ENT_ID) where SECM_CNT>=7	FALSE	NEW derived variable
Derived from D1a to D1k	E_SECMALL	Use all ICT security measures	Count(ENT_ID) where SECM_CNT=11	FALSE	NEW derived variable
D2a	E_SECAWVTGI	Make persons employed aware of their obligations in ICT security related issues by voluntary training or internally available information (e.g. information on the intranet)	Count(ENT_ID) where SECAWVTGI=1	FALSE	2019
D2a	E_SECAWVTGIX	Don't make persons employed aware of their obligations in ICT security related issues by voluntary training or internally available information (e.g. information on the intranet)	Count(ENT_ID) where SECAWVTGI=0	FALSE	2019

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
D2b	E_SECAWCTP	Make persons employed aware of their obligations in ICT security related issues by compulsory training courses or viewing compulsory material	Count(ENT_ID) where SECAWCTP=1	FALSE	2019
D2b	E_SECAWCTPX	Don't make persons employed aware of their obligations in ICT security related issues by compulsory training courses or viewing compulsory material	Count(ENT_ID) where SECAWCTP=0	FALSE	2019
D2c	E_SECAWCONT	Make persons employed aware of their obligations in ICT security related issues by contract (e.g. contract of employment)	Count(ENT_ID) where SECAWCONT=1	FALSE	2019
D2c	E_SECAWCONTX	Don't make persons employed aware of their obligations in ICT security related issues by contract (e.g. contract of employment)	Count(ENT_ID) where SECAWCONT=0	FALSE	2019
Derived from D2a to D2c	E_SECAWANY	Make persons employed aware of their obligations in ICT security related issues	Count(ENT_ID) where SECAWVTGI=1 or SECAWCTP=1 or SECAWCONT=1	FALSE	2019
Derived from D2a to D2c	E_SECAWNONE	Don't make persons employed aware of their obligations in ICT security related issues	Count(ENT_ID) where SECAWVTGI=0 and SECAWCTP=0 and SECAWCONT=0	FALSE	2019
Derived from C2a and D2a	E_SECAWVTGI_ ITSPT2	Make persons employed aware of their obligations in ICT security related issues by voluntary training or internally available information and have provided training to develop ICT skills for ICT specialists	Count(ENT_ID) where SECAWVTGI=1 and ITSPT2=1	FALSE	2019
Derived from C2b and D2a	E_SECAWVTGI_ ITUST2	Make persons employed aware of their obligations in ICT security related issues by voluntary training or internally available information and have provided training to develop ICT skills for other persons employed	Count(ENT_ID) where SECAWVTGI=1 and ITUST2=1	FALSE	2019
Derived from C2a and D2b	E_SECAWCTP_ ITSPT2	Make persons employed aware of their obligations in ICT security related issues by compulsory training courses or viewing compulsory material and have provided training to develop ICT skills for ICT specialists	Count(ENT_ID) where SECAWCTP=1 and ITSPT2=1	FALSE	2019

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
Derived from C2b and D2b	E_SECAWCTP_ ITUST2	Make persons employed aware of their obligations in ICT security related issues by compulsory training courses or viewing compulsory material and have provided training to develop ICT skills for other persons employed	Count(ENT_ID) where SECAWCTP=1 and ITUST2=1	FALSE	2019
Derived from C2a and D2c	E_SECAWCONT_ ITSPT2	Make persons employed aware of their obligations in ICT security related issues by contract and have provided training to develop ICT skills for ICT specialists	Count(ENT_ID) where SECAWCONT=1 and ITSPT2=1	FALSE	2019
Derived from C2b and D2c	E_SECAWCONT_ ITUST2	Make persons employed aware of their obligations in ICT security related issues by contract and have provided training to develop ICT skills for other persons employed	Count(ENT_ID) where SECAWCONT=1 and ITUST2=1	FALSE	2019
Derived from C2a and D2	E_SECAWANY_ ITSPT2	Make persons employed aware of their obligations in ICT security related issues and have provided training to develop ICT skills for ICT specialists	Count(ENT_ID) where (SECAWVTGI=1 or SECAWCTP=1 or SECAWCONT=1) and ITSPT2=1	FALSE	2019
Derived from C2b and D2	E_SECAWANY_ ITUST2	Make persons employed aware of their obligations in ICT security related issues and have provided training to develop ICT skills for other persons employed	Count(ENT_ID) where (SECAWVTGI=1 or SECAWCTP=1 or SECAWCONT=1) and ITUST2=1	FALSE	2019
D3	E_SECPOL2	Have document(s) on measures, practices or procedures on ICT security	Count(ENT_ID) where SECPOL2=1	FALSE	2019
D3	E_SECPOL2X	Have no document(s) on measures, practices or procedures on ICT security	Count(ENT_ID) where SECPOL2=0	FALSE	2019
Derived from C1 and D3	E_SECPOL2_ ITSP2	Employ ICT specialists and have document(s) on measures, practices or procedures on ICT security	Count(ENT_ID) where ITSP2=1 and SECPOL2=1	FALSE	2019
Derived from D2a to D2c and D3	E_SECAWANY_ POL2	Make persons employed aware of their obligations in ICT security related issues and have document(s) on measures, practices or procedures on ICT security	Count(ENT_ID) where (SECAWVTGI=1 or SECAWCTP=1 or SECAWCONT=1) and SECPOL2=1	FALSE	2019
D4a	E_SECPREV_CY	The document(s) on measures, practices or procedures were defined or most recently reviewed: within the last 12 months	Count(ENT_ID) where SECPREV=1	FALSE	2019

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
D4b	E_SECPREV_1_2	The document(s) on measures, practices or procedures were defined or most recently reviewed: more than 12 months and up to 24 months ago	Count(ENT_ID) where SECPREV=2	FALSE	2019
D4c	E_SECPREV_MT2	The document(s) on measures, practices or procedures were defined or most recently reviewed: more than 24 months ago	Count(ENT_ID) where SECPREV=3	FALSE	2019
Derived from D4a and D4b	E_SECPREV_LE2	The document(s) on measures, practices or procedures were defined or most recently reviewed: within the last 24 months	Count(ENT_ID) where SECPREV=1 or SECPREV=2	FALSE	2019
D5a	E_SEC2IUSVF	Have experienced at least once problems due to ICT security incident: unavailability of ICT services due to hardware or software failures	Count(ENT_ID) where SEC2IUSVF=1	FALSE	NEW
D5a	E_SEC2IUSVFX	Have not experienced at least once problems due to ICT security incident: unavailability of ICT services due to hardware or software failures	Count(ENT_ID) where SEC2IUSVF=0	FALSE	NEW
D5b	E_SEC2IUSVA	Have experienced at least once problems due to ICT security incident: unavailability of ICT services (e.g. Ransomware attacks, Denial of Service attacks)	Count(ENT_ID) where SEC2IUSVA=1	FALSE	NEW
D5b	E_SEC2IUSVAX	Have not experienced at least once problems due to ICT security incident: unavailability of ICT services (e.g. Ransomware attacks, Denial of Service attacks)	Count(ENT_ID) where SEC2IUSVA=0	FALSE	NEW
Derived from D5a and D5b	E_SEC2IUSV	Have experienced at least once problems due to ICT security incident: unavailability of ICT services (e.g. Denial of Service attacks, ransomware attacks, hardware or software failures - excluding mechanical failure, theft)	Count(ENT_ID) where SEC2IUSVF=1 or SEC2IUSVA=1	FALSE	2019
D5c	E_SEC2IDCDF	Have experienced at least once problems due to ICT security incident: destruction or corruption of data due to hardware or software failures	Count(ENT_ID) where SEC2IDCDF=1	FALSE	NEW

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
D5c	E_SEC2IDCDFX	Have not experienced at least once problems due to ICT security incident: destruction or corruption of data due to hardware or software failures	Count(ENT_ID) where SEC2IDCDF=0	FALSE	NEW
D5d	E_SEC2IDCDA	Have experienced at least once problems due to ICT security incident: destruction or corruption of data due to infection of malicious software or unauthorised intrusion	Count(ENT_ID) where SEC2IDCDA=1	FALSE	NEW
D5d	E_SEC2IDCDAX	Have not experienced at least once problems due to ICT security incident: destruction or corruption of data due to infection of malicious software or unauthorised intrusion	Count(ENT_ID) where SEC2IDCDA=0	FALSE	NEW
Derived from D5c and D5d	E_SEC2IDCD	Have experienced at least once problems due to ICT security incident: destruction or corruption of data (e.g. due to infection of malicious software or unauthorised intrusion, hardware or software failures)	Count(ENT_ID) where SEC2IDCDF=1 or SEC2IDCDA=1	FALSE	2019
D5e	E_SEC2ICNFA	Have experienced at least once problems due to ICT security incident: disclosure of confidential data due to intrusion, pharming, phishing attack, intentional actions by own employees	Count(ENT_ID) where SEC2ICNFA=1	FALSE	NEW
D5e	E_SEC2ICNFAX	Have not experienced at least once problems due to ICT security incident: disclosure of confidential data due to intrusion, pharming, phishing attack, intentional actions by own employees	Count(ENT_ID) where SEC2ICNFA=0	FALSE	NEW
D5f	E_SEC2ICNFF	Have experienced at least once problems due to ICT security incident: disclosure of confidential data due to unintentional actions by own employees	Count(ENT_ID) where SEC2ICNFF=1	FALSE	NEW
D5f	E_SEC2ICNFFX	Have not experienced at least once problems due to ICT security incident: disclosure of confidential data due to unintentional actions by own employees	Count(ENT_ID) where SEC2ICNFF=0	FALSE	NEW

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
Derived from D5e and D5f	E_SEC2ICNF	Have experienced at least once problems due to ICT security incident: disclosure of confidential data (e.g. due to intrusion, pharming, phishing attack, actions by own employees (intentionally or unintentionally))	Count(ENT_ID) where SEC2ICNFA=1 or SEC2ICNFF=1	FALSE	2019
Derived from D5a to D5f	E_SEC2IANY	Have experienced at least once any problem due to ICT security incident: unavailibility of ICT services, destruction or corruption of data, disclosure of confidential data (for any reason)	Count(ENT_ID) where SEC2IUSVF=1 or SEC2IUSVA=1 or SEC2IDCDF=1 or SEC2IDCDA=1 or SEC2ICNFA=1 or SEC2ICNFF=1	FALSE	NEW
Derived from D5a to D5f	E_SEC2IGE3	Have experienced at least once 3 or more problems due to ICT security incident: unavailibility of ICT services, destruction or corruption of data, disclosure of confidential data (for any reason)	Count(ENT_ID) where EC2IDCDA+SEC2ICNFA+SEC2ICNFF between 3 and 6	FALSE	NEW
D6a	E_ITSEC3OWN	The ICT security related activities (e.g. security testing, ICT training on security, resolving ICT security incidents) are carried out by the own employees (incl. those employed in parent or affiliate enterprises)	Count(ENT_ID) where ITSEC3OWN=1	FALSE	2019
D6a	E_ITSEC3OWNX	The ICT security related activities (e.g. security testing, ICT training on security, resolving ICT security incidents) are not carried out by the own employees (incl. those employed in parent or affiliate enterprises)	Count(ENT_ID) where ITSEC3OWN=0	FALSE	2019
D6b	E_ITSEC3EXT	The ICT security related activities (e.g. security testing, ICT training on security, resolving ICT security incidents) are carried out by external suppliers	Count(ENT_ID) where ITSEC3EXT=1	FALSE	2019
D6b	E_ITSEC3EXTX	The ICT security related activities (e.g. security testing, ICT training on security, resolving ICT security incidents) are not carried out by external suppliers	Count(ENT_ID) where ITSEC3EXT=0	FALSE	2019

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
Derived from D6a and D6b	E_ITSEC3	The ICT security related activities (e.g. security testing, ICT training on security, resolving ICT security incidents) are carried out by own employees or external suppliers	Count(ENT_ID) where ITSEC3OWN=1 or ITSEC3EXT=1	FALSE	2019
Derived from C6a and D6a	E_IT_OWN_ SEC3OWN	Own employees perform ICT functions, including the ICT security related activities	Count(ENT_ID) where IT_OWN=1 and ITSEC3OWN=1	FALSE	2019
Derived from C6a and D6b	E_IT_OWN_ SEC3EXT	Own employees perform ICT functions, but external suppliers carry out the ICT security related activities	Count(ENT_ID) where IT_OWN=1 and ITSEC3EXT=1	FALSE	2019
Derived from C6b and D6a	E_IT_EXT_ SEC3OWN	External suppliers perform ICT functions, but own employees carry out the ICT security related activities	Count(ENT_ID) where IT_EXT=1 and ITSEC3OWN=1	FALSE	2019
Derived from C6b and D6b	E_IT_EXT_ SEC3EXT	External suppliers perform ICT functions, including the ICT security related activities	Count(ENT_ID) where IT_EXT=1 and ITSEC3EXT=1	FALSE	2019
Derived from D3 and D6a	E_ITSEC3OWN_ POL2	Have document(s) on measures, practices or procedures on ICT security and the ICT security related activities are carried out by own employees	Count(ENT_ID) where ITSEC3OWN=1 and SECPOL2=1	FALSE	2019
Derived from D3 and D6b	E_ITSEC3EXT_ POL2	Have document(s) on measures, practices or procedures on ICT security and the ICT security related activities are carried out by external suppliers	Count(ENT_ID) where ITSEC3EXT=1 and SECPOL2=1	FALSE	2019
Derived from D3, D6a and D6b	E_ITSEC3_POL2	Have document(s) on measures, practices or procedures on ICT security and the ICT security related activities are carried out by own employees or external suppliers	Count(ENT_ID) where (ITSEC3OWN=1 or ITSEC3EXT=1) and SECPOL2=1	FALSE	2019
D7	E_SECINS	Have insurance against ICT security incidents	Count(ENT_ID) where SECINS=1	FALSE	2019
D7	E_SECINSX	Have no insurance against ICT security incidents	Count(ENT_ID) where SECINS=0	FALSE	2019
E1a	E_RBTI	Use industrial robots	Count (ENT_ID) where RBTI=1	FALSE	2020
E1a	E_RBTIX	Don't use industrial robots	Count (ENT_ID) where RBTI=0	FALSE	2020
E1b	E_RBTS	Use service robots	Count (ENT_ID) where RBTS=1	FALSE	2020
E1b	E_RBTSX	Don't use service robots	Count (ENT_ID) where RBTS=0	FALSE	2020
Derived from E1a to E1b	E_RBT	Use industrial or service robots	Count (ENT_ID) where RBTI=1 or RBTS=1	FALSE	2020
E2	E_RBT_LT5	The enterprise uses less than 5 industrial or service robots	Count (ENT_ID) where RBTISVAL<>Blank and RBTISVAL<5 and RBTISVAL<>-1	TRUE	NEW

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
E2	E_RBT_5_10	The enterprise uses between 5 and 10 industrial or service robots	Count (ENT_ID) where RBTISVAL<>Blank and RBTISVAL>=5 and RBTISVAL<=10	TRUE	NEW
E2	E_RBT_GT10	The enterprise uses more than 10 industrial or service robots	Count (ENT_ID) where RBTISVAL<>Blank and RBTISVAL>10	TRUE	NEW
E3a	E_RBTWHCL	The enterprises uses robots, partly because the high cost of labour	Count (ENT_ID) where RBTWHCL=1	FALSE	NEW
E3a	E_RBTWHCLX	The enterprises uses robots, not because the high cost of labour	Count (ENT_ID) where RBTWHCL=0	FALSE	NEW
E3b	E_RBTWDR	The enterprises uses robots, partly because of difficulties to recruit personnel	Count (ENT_ID) where RBTWDR=1	FALSE	NEW
E3b	E_RBTWDRX	The enterprises uses robots, not because of difficulties to recruit personnel	Count (ENT_ID) where RBTWDR=0	FALSE	NEW
E3c	E_RBTWES	The enterprises uses robots, partly to enhance safety at work	Count (ENT_ID) where RBTWES=1	FALSE	NEW
E3c	E_RBTWESX	The enterprises uses robots, not to enhance safety at work	Count (ENT_ID) where RBTWES=0	FALSE	NEW
E3d	E_RBTWHP	The enterprises uses robots, partly to ensure high precision or standardized quality of processes and/ or goods and services produced	Count (ENT_ID) where RBTWHP=1	FALSE	NEW
E3d	E_RBTWHPX	The enterprises uses robots, not to ensure high precision or standardized quality of processes and/or goods and services produced	Count (ENT_ID) where RBTWHP=0	FALSE	NEW
E3e	E_RBTWER	The enterprises uses robots, partly to expand the range of goods produced or services provided by the enterprise	Count (ENT_ID) where RBTWER=1	FALSE	NEW
E3e	E_RBTWERX	The enterprises uses robots, not to expand the range of goods produced or services provided by the enterprise	Count (ENT_ID) where RBTWER=0	FALSE	NEW
E3f	E_RBTWTI	The enterprises uses robots, partly because of tax or other government incentives	Count (ENT_ID) where RBTWTI=1	FALSE	NEW
E3f	E_RBTWTIX	The enterprises uses robots, not because of tax or other government incentives	Count (ENT_ID) where RBTWTI=0	FALSE	NEW
F1a	E_ENVPAP1	The enterprises applies some measures, affecting the amount of paper used for printing and copying	Count (ENT_ID) where ENVPAP1=1	FALSE	NEW

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
F1a	E_ENVPAP1X	The enterprises applies no measures, affecting the amount of paper used for printing and copying	Count (ENT_ID) where ENVPAP1=0	FALSE	NEW
F1b	E_ENVREICT1	The enterprises applies some measures, affecting the energy consumption of the ICT equipment	Count (ENT_ID) where ENVREICT1=1	FALSE	NEW
F1b	E_ENVREICT1X	The enterprises applies no measures, affecting the energy consumption of the ICT equipment	Count (ENT_ID) where ENVREICT1=0	FALSE	NEW
Derived from F1	E_ENVPE	The enterprises apply some measures, affecting the paper or energy consumption of the ICT equipment	Count (ENT_ID) where ENVPAP1=1 or ENVREICT1=1	FALSE	NEW derived variable
F2	E_ENVCEI	The enterprises considered the environmental impact of ICT services, or ICT equipment, before selecting them	Count (ENT_ID) where ENVCEI=1	FALSE	NEW
F2	E_ENVCEIX	The enterprises did not consider the environmental impact of ICT services, or ICT equipment, before selecting them	Count (ENT_ID) where ENVCEI=0	FALSE	NEW
Derived from F1 and F2	E_ENVPECEI	The enterprises considered the environmental impact of ICT services, or ICT equipment, before selecting them, and apply some measures, affecting the paper or energy consumption of the ICT equipment	Count (ENT_ID) where (ENVPAP1=1 or ENVREICT1=1) and ENVCEI=1	FALSE	NEW derived variable
F3a	E_ENV_DREC	When the ICT equipment of the enterprise is no longer used, it is disposed of in electronic waste collection/ recycling	Count (ENT_ID) where ENV_ DREC=1	FALSE	NEW
F3a	E_ENV_DRECX	When the ICT equipment of the enterprise is no longer used, it is not disposed of in electronic waste collection/ recycling	Count (ENT_ID) where ENV_ DREC=0	FALSE	NEW
F3b	E_ENV_DKPT	When the ICT equipment of the enterprise is no longer used, it is kept in the enterprise	Count (ENT_ID) where ENV_ DKPT=1	FALSE	NEW
F3b	E_ENV_DKPTX	When the ICT equipment of the enterprise is no longer used, it is not kept in the enterprise	Count (ENT_ID) where ENV_ DKPT=0	FALSE	NEW

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
F3c	E_ENV_DSRD	When the ICT equipment of the enterprise is no longer used, it is sold, returned to a leasing enterprise, or donated	Count (ENT_ID) where ENV_ DSRD=1	FALSE	NEW
F3c	E_ENV_DSRDX	When the ICT equipment of the enterprise is no longer used, it is not sold, returned to a leasing enterprise, or donated	Count (ENT_ID) where ENV_ DSRD=0	FALSE	NEW
A1	P_IUSE	Persons employed have access to the internet for business purposes	∑ (EMPIUSE) where EMPIUSE<>Blank and EMPIUSE<>-1	FALSE	2021
Derived from A1 (Eurostat computed)1	P_IUSEX	Persons employed who do not have access to the internet for business purposes	∑ (EMPL) - ∑ (EMPIUSE) where EMPIUSE<>Blank and EMPIUSE<>-1	FALSE	2021
A4	P_EMPMD2	Persons employed, who use a portable device provided by the enterprise that allows internet connection via mobile telephone networks, for business purposes	∑ (EMPMD2) where EMPMD2<>Blank and EMPMD2<>-1	TRUE	2021
Derived from A4	P_PMD	Persons employed by enterprises which provide portable devices that allow a mobile connection to the internet using mobile telephone networks, for business purposes	∑ (EMPL) where EMPMD2>0	TRUE	2021
Derived from A4	P_PMDX	Persons employed by enterprises which do not provide portable devices that allow a mobile connection to the internet using mobile telephone networks, for business use	∑ (EMPL) where EMPMD2=0 or EMPMD2=Blank	TRUE	2021
Derived from A4	P_EMPMD2X	Persons employed, who don't use a portable device provided by the enterprise that allows internet connection via mobile telephone networks, for business purposes	∑ (EMPL) where EMPMD2>0 - ∑ (EMPMD2) where EMPMD2<>Blank and EMPMD2>0	TRUE	2021
Derived from B1	P_AWSELL	Persons employed by enterprises which have received orders via websites or apps	∑ (EMPL) where (AWS_COWN=1 or AWS_CMP=1)	FALSE	2021
Derived from B8	P_AXSELL	Persons employed by enterprises which have received orders via EDI-type messages	∑ (EMPL) where AXSELL=1	FALSE	2021
Derived from B1 and B8	P_AESELL	Persons employed by enterprises which have received orders via computer networks	∑ (EMPL) where (AWS_COWN=1 or AWS_CMP=1) or AXSELL=1	FALSE	2021

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
Derived, see section 3.2.1 and Section 3.2.2	E_DI4_VLO	Enterprises with very low digital intensity index	Count (ENT_ID) where DI4_ INDEX>=0 and DI4_INDEX<=3	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_DI4_LO	Enterprises with low digital intensity index	Count (ENT_ID) where DI4_ INDEX>=4 and DI4_INDEX<=6	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_DI4_HI	Enterprises with high digital intensity index	Count (ENT_ID) where DI4_ INDEX>=7 and DI4_INDEX<=9	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_DI4_VHI	Enterprises with very high digital intensity index	Count (ENT_ID) where DI4_ INDEX>=10 and DI4_INDEX<=12	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECMGE1_VLO	Enterprises with very low digital intensity index, which use any ICT security measure	Count (ENT_ID) where SECM_ CNT>=1 and DI4_INDEX>=0 and DI4_INDEX<=3	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECMGE1_LO	Enterprises with low digital intensity index, which use any ICT security measure	Count (ENT_ID) where SECM_ CNT>=1 and DI4_INDEX>=4 and DI4_INDEX<=6	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECMGE1_HI	Enterprises with high digital intensity index, which use any ICT security measure	Count (ENT_ID) where SECM_ CNT>=1 and DI4_INDEX>=7 and DI4_INDEX<=9	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECMGE1_VHI	Enterprises with very high digital intensity index, which use any ICT security measure	Count (ENT_ID) where SECM_ CNT>=1 and DI4_INDEX>=10 and DI4_INDEX<=12	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECMGE3_VLO	Enterprises with very low digital intensity index, which use 3 or more ICT security measures	Count (ENT_ID) where SECM_ CNT>=3 and DI4_INDEX>=0 and DI4_INDEX<=3	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECMGE3_LO	Enterprises with low digital intensity index, which use 3 or more ICT security measures	Count (ENT_ID) where SECM_ CNT>=3 and DI4_INDEX>=4 and DI4_INDEX<=6	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECMGE3_HI	Enterprises with high digital intensity index, which use 3 or more ICT security measures	Count (ENT_ID) where SECM_ CNT>=3 and DI4_INDEX>=7 and DI4_INDEX<=9	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECMGE3_VHI	Enterprises with very high digital intensity index, which use 3 or more ICT security measures	Count (ENT_ID) where SECM_ CNT>=3 and DI4_INDEX>=10 and DI4_INDEX<=12	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECMGE5_VLO	Enterprises with very low digital intensity index, which use 5 or more ICT security measures	Count (ENT_ID) where SECM_ CNT>=5 and DI4_INDEX>=0 and DI4_INDEX<=3	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECMGE5_LO	Enterprises with low digital intensity index, which use 5 or more ICT security measures	Count (ENT_ID) where SECM_ CNT>=5 and DI4_INDEX>=4 and DI4_INDEX<=6	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECMGE5_HI	Enterprises with high digital intensity index, which use 5 or more ICT security measures	Count (ENT_ID) where SECM_ CNT>=5 and DI4_INDEX>=7 and DI4_INDEX<=9	FALSE	NEW derived variable

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
Derived, see section 3.2.1 and Section 3.2.2	E_SECMGE5_VHI	Enterprises with very high digital intensity index, which use 5 or more ICT security measures	Count (ENT_ID) where SECM_CNT>=5 and DI4_INDEX>=10 and DI4_INDEX<=12	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECMGE7_VLO	Enterprises with very low digital intensity index, which use 7 or more ICT security measures	Count (ENT_ID) where SECM_CNT>=7 and DI4_INDEX>=0 and DI4_INDEX<=3	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECMGE7_LO	Enterprises with low digital intensity index, which use 7 or more ICT security measures	Count (ENT_ID) where SECM_CNT>=7 and DI4_INDEX>=4 and DI4_INDEX<=6	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECMGE7_HI	Enterprises with high digital intensity index, which use 7 or more ICT security measures	Count (ENT_ID) where SECM_CNT>=7 and DI4_INDEX>=7 and DI4_INDEX<=9	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECMGE7_VHI	Enterprises with very high digital intensity index, which use 7 or more ICT security measures	Count (ENT_ID) where SECM_CNT>=7 and DI4_INDEX>=10 and DI4_INDEX<=12	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECAWANY_VLO	Enterprises with very low digital intensity index, which make persons employed aware of their obligations in ICT security related issues	Count (ENT_ID) where (SECAWVTGI=1 or SECAWCTP=1 or SECAWCONT=1) and DI4_INDEX>=0 and DI4_INDEX<=3	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECAWANY_LO	Enterprises with low digital intensity index, which make persons employed aware of their obligations in ICT security related issues	Count (ENT_ID) where (SECAWVTGI=1 or SECAWCTP=1 or SECAWCONT=1) and DI4_INDEX>=4 and DI4_INDEX<=6	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECAWANY_HI	Enterprises with high digital intensity index, which make persons employed aware of their obligations in ICT security related issues	Count (ENT_ID) where (SECAWVTGI=1 or SECAWCTP=1 or SECAWCONT=1) and DI4_INDEX>=7 and DI4_INDEX<=9	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECAWANY_VHI	Enterprises with very high digital intensity index, which make persons employed aware of their obligations in ICT security related issues	Count (ENT_ID) where (SECAWVTGI=1 or SECAWCTP=1 or SECAWCONT=1) and DI4_INDEX>=10 and DI4_INDEX<=12	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECPOL2_VLO	Enterprises with very low digital intensity index, in which have document(s) on measures, practices or procedures on ICT security	Count (ENT_ID) where SECPOL2=1 and DI4_INDEX>=0 and DI4_INDEX<=3	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECPOL2_LO	Enterprises with low digital intensity index, in which have document(s) on measures, practices or procedures on ICT security	Count (ENT_ID) where SECPOL2=1 and DI4_INDEX>=4 and DI4_INDEX<=6	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECPOL2_HI	Enterprises with high digital intensity index, in which have document(s) on measures, practices or procedures on ICT security	Count (ENT_ID) where SECPOL2=1 and DI4_INDEX>=7 and DI4_INDEX<=9	FALSE	NEW derived variable

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
Derived, see section 3.2.1 and Section 3.2.2	E_SECPOL2_VHI	Enterprises with very high digital intensity index, in which have document(s) on measures, practices or procedures on ICT security	Count (ENT_ID) where SECPOL2=1 and DI4_INDEX>=10 and DI4_INDEX<=12	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECPREV_CY_VLO	Enterprises with very low digital intensity index, in which the document(s) on measures, practices or procedures were defined or most recently reviewed within the last 12 months	Count (ENT_ID) where SECPREV=1 and DI4_INDEX>=0 and DI4_INDEX<=3	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECPREV_CY_LO	Enterprises with low digital intensity index, in which the document(s) on measures, practices or procedures were defined or most recently reviewed within the last 12 months	Count (ENT_ID) where SECPREV=1 and DI4_INDEX>=4 and DI4_INDEX<=6	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECPREV_CY_HI	Enterprises with high digital intensity index, in which the document(s) on measures, practices or procedures were defined or most recently reviewed within the last 12 months	Count (ENT_ID) where SECPREV=1 and DI4_INDEX>=7 and DI4_INDEX<=9	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECPREV_CY_VHI	Enterprises with very high digital intensity index, in which the document(s) on measures, practices or procedures were defined or most recently reviewed within the last 12 months	Count (ENT_ID) where SECPREV=1 and DI4_INDEX>=10 and DI4_INDEX<=12	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECINS_VLO	Enterprises with very low digital intensity index, which have insurance against ICT security incidents	Count (ENT_ID) where SECINS=1 and DI4_INDEX>=0 and DI4_INDEX<=3	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECINS_LO	Enterprises with low digital intensity index, which have insurance against ICT security incidents	Count (ENT_ID) where SECINS=1 and DI4_INDEX>=4 and DI4_INDEX<=6	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECINS_HI	Enterprises with high digital intensity index, which have insurance against ICT security incidents	Count (ENT_ID) where SECINS=1 and DI4_INDEX>=7 and DI4_INDEX<=9	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_SECINS_VHI	Enterprises with very high digital intensity index, which have insurance against ICT security incidents	Count (ENT_ID) where SECINS=1 and DI4_INDEX>=10 and DI4_INDEX<=12	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_ENVPE_VLO	Enterprises with very low digital intensity index, which apply some measures, affecting the paper or energy consumption of the ICT equipment	Count (ENT_ID) where (ENVPAP1=1 or ENVREICT1=1) and DI4_INDEX>=0 and DI4_INDEX<=3	FALSE	NEW derived variable

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
Derived, see section 3.2.1 and Section 3.2.2	E_ENVPE_LO	Enterprises with low digital intensity index, which apply some measures, affecting the paper or energy consumption of the ICT equipment	Count (ENT_ID) where (ENVPAP1=1 or ENVREICT1=1) and DI4_ INDEX>=4 and DI4_INDEX<=6	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_ENVPE_HI	Enterprises with high digital intensity index, which apply some measures, affecting the paper or energy consumption of the ICT equipment	Count (ENT_ID) where (ENVPAP1=1 or ENVREICT1=1) and DI4_ INDEX>=7 and DI4_INDEX<=9	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_ENVPE_VHI	Enterprises with very high digital intensity index, which apply some measures, affecting the paper or energy consumption of the ICT equipment	Count (ENT_ID) where (ENVPAP1=1 or ENVREICT1=1) and DI4_ INDEX>=10 and DI4_INDEX<=12	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_ENVCEI_VLO	Enterprises with very low digital intensity index, which considered the environmental impact of ICT services, or ICT equipment, before selecting them	Count (ENT_ID) where ENVCEI=1 and DI4_INDEX>=0 and DI4_ INDEX<=3	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_ENVCEI_LO	Enterprises with low digital intensity index, which considered the environmental impact of ICT services, or ICT equipment, before selecting them	Count (ENT_ID) where ENVCEI=1 and DI4_INDEX>=4 and DI4_ INDEX<=6	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_ENVCEI_HI	Enterprises with high digital intensity index, which considered the environmental impact of ICT services, or ICT equipment, before selecting them	Count (ENT_ID) where ENVCEI=1 and DI4_INDEX>=7 and DI4_ INDEX<=9	FALSE	NEW derived variable
Derived, see section 3.2.1 and Section 3.2.2	E_ENVCEI_VHI	Enterprises with very high digital intensity index, which considered the environmental impact of ICT services, or ICT equipment, before selecting them	Count (ENT_ID) where ENVCEI=1 and DI4_INDEX>=10 and DI4_ INDEX<=12	FALSE	NEW derived variable
Derived from F1 and F2	E_ENVPECEI_VLO	Enterprises with very low digital intensity index, which considered the environmental impact of ICT services, or ICT equipment, before selecting them, and apply some measures, affecting the paper or energy consumption of the ICT equipment	Count (ENT_ID) where (ENVPAP1=1 or ENVREICT1=1) and ENVCEI=1 and DI4_INDEX>=0 and DI4_ INDEX<=3	FALSE	NEW derived variable

Model questionnaire 2022	Variable codes (CAPITAL LETTERS)	Description	Scope defined on the basis of Section 3.2.1 of the Word document	Optional	Notes / Source (if not previous year)
Derived from F1 and F2	E_ENVPECEI_LO	Enterprises with low digital intensity index, which considered the environmental impact of ICT services, or ICT equipment, before selecting them, and apply some measures, affecting the paper or energy consumption of the ICT equipment	Count (ENT_ID) where (ENVPAP1=1 or ENVREICT1=1) and ENVCEI=1 and DI4_INDEX>=4 and DI4_ INDEX<=6	FALSE	NEW derived variable
Derived from F1 and F2	E_ENVPECEI_HI	Enterprises with high digital intensity index, which considered the environmental impact of ICT services, or ICT equipment, before selecting them, and apply some measures, affecting the paper or energy consumption of the ICT equipment	Count (ENT_ID) where (ENVPAP1=1 or ENVREICT1=1) and ENVCEI=1 and DI4_INDEX>=7 and DI4_ INDEX<=9	FALSE	NEW derived variable
Derived from F1 and F2	E_ENVPECEI_VHI	Enterprises with very high digital intensity index, which considered the environmental impact of ICT services, or ICT equipment, before selecting them, and apply some measures, affecting the paper or energy consumption of the ICT equipment	Count (ENT_ID) where (ENVPAP1=1 or ENVREICT1=1) and ENVCEI=1 and DI4_INDEX>=10 and DI4_ INDEX<=12	FALSE	NEW derived variable

3.2.4. Activity and employee number codes

Once the indicators have been computed, they must be broken down by economic activity, sector and size using the codes below.

It is mandatory to transmit the data according to the breakdowns in Sections 3.2.4.1. to 3.2.4.5. However, the breakdowns in Sections 3.2.4.6. to 3.2.4.8. are optional.

Some breakdowns computed by Eurostat are also presented in the tables below for information.

3.2.4.1. ECONOMIC ACTIVITY BREAKDOWN

The economic activities to be covered are the following:

NACE category	Description
Section C	Manufacturing
Section D, E	Electricity, gas and steam, water supply, sewerage and waste management
Section F	Construction
Section G	Wholesale and retail trade; repair of motor vehicles and motorcycles
Section H	Transportation and storage
Section I	Accommodation and food service activities
Section J	Information and communication
Section L	Real estate activities
Section M	Professional, scientific and technical activities
Section N	Administrative and support activities
Group 95.1	Repair of computers and communication equipment

The following activity and number_employees codes should be used for all indicators.

For the possible calculation of **national** aggregates, the economic activities are to be subdivided into the following sections using the codes for **enterprises with 10 or more employees and self-employed persons**:

ACTIVITY	NUMBER_ EMPLOYEES	Explanation
C10T18	EGE10	10 or more employees and self-employed persons in NACE Section C10_18
C19T23	EGE10	10 or more employees and self-employed persons in NACE Section C19_23
C24_25	EGE10	10 or more employees and self-employed persons in NACE Section C24_25
C26T33	EGE10	10 or more employees and self-employed persons in NACE Section C26_33
C10T33	EGE10	[10_C10_18]+[10_C19_23]+[10_C24_25]+[10_C26_33]
D35TE39	EGE10	10 or more employees and self-employed persons in NACE Section D35_E39
C10TE39 Eurostat computed	EGE10	[10_C10_18]+[10_C19_23]+[10_C24_25]+[10_C26_33]+[10_D35_E39]
F41T43	EGE10	10 or more employees and self-employed persons in NACE Section F41_43
G45T47	EGE10	10 or more employees and self-employed persons in NACE Section G45_47
G47	EGE10	10 or more employees and self-employed persons in NACE Section G47
H49T53	EGE10	10 or more employees and self-employed persons in NACE Section H49_53
I55	EGE10	10 or more employees and self-employed persons in NACE Section I55
I55_56	EGE10	10 or more employees and self-employed persons in NACE Section I55_56

J58T63	EGE10	10 or more employees and self-employed persons in NACE Section J58_63
L68	EGE10	10 or more employees and self-employed persons in NACE Section L68
M69T75	EGE10	10 or more employees and self-employed persons in NACE Section M69_75
N77T82	EGE10	10 or more employees and self-employed persons in NACE Section N77_82 (including N79)
ICT_T	EGE10	10 or more employees and self-employed persons in NACE groups 26.1-26.4, 26.8, 46.5, 58.2, 61, 62, 63.1, 95.1

For the possible calculation of **European** aggregates, the economic activities are to be subdivided into the following sections using the codes for **enterprises with 10 or more employees and self-employed persons**:

ACTIVITY	NUMBER_ EMPLOYEES	Explanation
C10T12	EGE10	10 or more employees and self-employed persons in NACE section C10_12
C13T15	EGE10	10 or more employees and self-employed persons in NACE section C13_15
C16T18	EGE10	10 or more employees and self-employed persons in NACE section C16_18
C19	EGE10	10 or more employees and self-employed persons in NACE section C19
C20	EGE10	10 or more employees and self-employed persons in NACE section C20
C21	EGE10	10 or more employees and self-employed persons in NACE section C21
C22_23	EGE10	10 or more employees and self-employed persons in NACE section C22_23
C26	EGE10	10 or more employees and self-employed persons in NACE section C26
C27	EGE10	10 or more employees and self-employed persons in NACE section C27
C28	EGE10	10 or more employees and self-employed persons in NACE section C28
C27_28 Eurostat computed	EGE10	10 or more employees and self-employed persons in NACE section C27_28
C29_30	EGE10	10 or more employees and self-employed persons in NACE section C29_30
C31T33	EGE10	10 or more employees and self-employed persons in NACE section C31_33
D35	EGE10	10 or more employees and self-employed persons in NACE section D35
E36T39	EGE10	10 or more employees and self-employed persons in NACE section E36_39
G45	EGE10	10 or more employees and self-employed persons in NACE section G45
G46	EGE10	10 or more employees and self-employed persons in NACE section G46
J58T60	EGE10	10 or more employees and self-employed persons in NACE section J58_60
J61	EGE10	10 or more employees and self-employed persons in NACE section J61
J62_63	EGE10	10 or more employees and self-employed persons in NACE section J62_63
M69T71	EGE10	10 or more employees and self-employed persons in NACE section M69_71
M72	EGE10	10 or more employees and self-employed persons in NACE section M72
M73T75	EGE10	10 or more employees and self-employed persons in NACE section M73_75
N77T82X79	EGE10	10 or more employees and self-employed persons in NACE section N77_82_X79
N79	EGE10	10 or more employees and self-employed persons in NACE section N79
S951	EGE10	10 or more employees and self-employed persons in NACE group S951

3.2.4.2. ENTERPRISE SIZE CLASS

These activity and number_employees codes should be applied to all variables.

ACTIVITY	NUMBER_ EMPLOYEES	Explanation
C10TS951XK	EGE10	10 or more employees and self-employed persons in NACE sections [C10TE39]+[F41T43] +[G45T47]+[H49T53]+[I55_56]+ [J58T63]+[L68]+ [M69T75]+[N77T82]+[S951]
C10TS951XK	E10T49	10 - 49 employees and self-employed persons (small enterprises) in given NACE sections
C10TS951XK	E50T249	50 - 249 employees and self-employed persons (medium enterprises) in given NACE sections
C10TS951XK	EGE250	250 or more employees and self-employed persons (large enterprises) in given NACE sections
C10TS951XK *Eurostat computed*	E10T249	C10TS951XK [E10T49] + C10TS951XK [E50T249]

3.2.4.3. SECTOR ENTERPRISE SIZE CLASS

These activities and number_employees codes should be applied to all variables.

ACTIVITY	NUMBER_ EMPLOYEES	Explanation
C10TF43	EGE10	10 or more employees and self-employed persons in NACE sections C to F
G45TS951XK	EGE10	10 or more employees and self-employed persons in NACE sections G to N, S951, except K
C10TF43	E10T49	10 - 49 employees and self-employed persons (small enterprises) in NACE sections C to F
G45TS951XK	E10T49	10 - 49 employees and self-employed persons (small enterprises) in NACE sections G to N, S951, except K
C10TF43	E50T249	50 - 249 employees and self-employed persons (medium enterprises) in NACE sections C to F
G45TS951XK	E50T249	50 - 249 employees and self-employed persons (medium enterprises) in NACE sections G to N, S951, except K
C10TF43	EGE250	250 or more employees and self-employed persons (large enterprises) in NACE sections C to F
G45TS951XK	EGE250	250 or more employees and self-employed persons (large enterprises) in NACE sections G to N, S951, except K
C10TF43 *Eurostat computed*	E10T249	C10TF43 [E10T49] + C10TF43 [E50T249]
G45TS951XK *Eurostat computed*	E10T249	G45TS951XK [E10T49]+ G45TS951XK [E50T249]

3.2.4.4. ECONOMIC ACTIVITY BREAKDOWNS FOR MICRO-ENTERPRISES

The results of the statistics compiled for micro-enterprises are to be broken down in accordance with the NACE Rev. 2. sections, divisions and group for the following size class breakdowns: 0-9 employees and self-employed persons, 2-9 and 0-1 employees and self-employed persons, or only 2-9 employees and self-employed persons.

The economic activities are to be subdivided into the following sections using the codes for enterprises with 0-9 employees and self-employed persons.

These activities and number_employees codes should be used for all variables.

ACTIVITY	NUMBER_ EMPLOYEES	Explanation
C10TS951XK	E0T9	0-9 employees and self-employed persons in NACE sections 10-33, 35-39, 41-43, 45-47, 49-53, 55-56, 58-63, 68-75, 77-82, 95.1
C10T18	E0T9	0-9 employees and self-employed persons in NACE section C10_18
C19T23	E0T9	0-9 employees and self-employed persons in NACE section C19_23
C24_25	E0T9	0-9 employees and self-employed persons in NACE section C24_25
C26T33	E0T9	0-9 employees and self-employed persons in NACE section C26_33
C10T33	E0T9	[C10T18]+[C19T23]+[C24_25]+[C26T33]
D35TE39	E0T9	0-9 employees and self-employed persons in NACE section D35_E39
C10TE39 *Eurostat computed*	E0T9	[C10_18]+[C19_23]+[C24_25]+[C26_33]+[D35_E39]
F41T43	E0T9	0-9 employees and self-employed persons in NACE section F41_43
G45T47	E0T9	0-9 employees and self-employed persons in NACE section G45_47
G47	E0T9	0-9 employees and self-employed persons in NACE section G47
H49T53	E0T9	0-9 employees and self-employed persons in NACE section H49_53
I55	E0T9	0-9 employees and self-employed persons in NACE section I55
I55_56	E0T9	0-9 employees and self-employed persons in NACE section I55_56
J58T63	E0T9	0-9 employees and self-employed persons in NACE section J58_63
L68	E0T9	0-9 employees and self-employed persons in NACE section L68
L68TM75	E0T9	0-9 employees and self-employed persons in NACE section L68_M75
M69T75	E0T9	0-9 employees and self-employed persons in NACE section M69_75
N77T82	E0T9	0-9 employees and self-employed persons in NACE section N77_82 (including N79)
S951	E0T9	0-9 employees and self-employed persons in NACE group S951
ICT_T	E0T9	0-9 employees and self-employed persons in NACE 26.1-26.4, 26.8, 46.5, 58.2, 61, 62, 63.1, 95.1

3.2.4.5. SECTOR ENTERPRISE SIZE CLASSES FOR ENTERPRISES WITH 0-9 EMPLOYEES AND SELF-EMPLOYED PERSONS

These activities and number_employees codes should be used for all variables.

The breakdowns for enterprises with 0-9 employees and self-employed persons are for NSI providing the breakdown.

ACTIVITY	NUMBER_ EMPLOYEES	Explanation
C10TF43	*E0T9*	*0-9 employees and self-employed persons (very small enterprises) in NACE sections C to F*
G45TS951XK	*E0T9*	*0-9 employees and self-employed persons (very small enterprises) in NACE sections G to N, S951, except K*

3.2.4.6. OPTIONAL SECTOR BREAKDOWNS BY SIZE CLASS FOR ENTERPRISES WITH 0-1 AND 2-9 EMPLOYEES AND SELF-EMPLOYED PERSONS

These activity and number_employees codes should be used for all variables.

The breakdowns for enterprises with 0-1 and 2-9 employees and self-employed persons are for NSI providing the breakdown.

ACTIVITY	NUMBER_ EMPLOYEES	Explanation
C10TS951XK	*E0T1*	*0-1 employees and self-employed persons (micro enterprises) in given NACE sections*
C10TS951XK	*E2T9*	*2-9 employees and self-employed persons (mini enterprises) in given NACE sections*
C10TF43	*E0T1*	*0-1 employees and self-employed persons (micro enterprises) in NACE sections C to F*
C10TF43	*E2T9*	*2-9 employees and self-employed persons (mini enterprises) in NACE sections C to F*
G45TS951XK	*E0T1*	*0-1 employees and self-employed persons (micro enterprises) in NACE sections G to N, S951, except K*
G45TS951XK	*E2T9*	*2-9 employees and self-employed persons (mini enterprises) in NACE sections G to N, S951, except K*

3.2.4.7. OPTIONAL BREAKDOWNS BY ECONOMIC ACTIVITY FOR ENTERPRISES WITH 0-1 EMPLOYEES AND SELF-EMPLOYED PERSONS

These activity and number_employees codes should be used for all variables.

The breakdowns for enterprises with 0-1 employees and self-employed persons are for NSI providing the breakdown.

ACTIVITY	NUMBER_ EMPLOYEES	Explanation
C10TS951XK	*E0T1*	*0-1 employees and self-employed persons in NACE sections 10-33, 35-39, 41-43, 45-47, 49-53, 55-56, 58-63, 68-75, 77-82, 95.1*
C10T18	*E0T1*	*0-1 employees and self-employed persons in NACE section C10_18*
C19T23	*E0T1*	*0-1 employees and self-employed persons in NACE section C19_23*
C24_25	*E0T1*	*0-1 employees and self-employed persons in NACE section C24_25*
C26T33	*E0T1*	*0-1 employees and self-employed persons in NACE section C26_33*
C10T33	*E0T1*	*[C10T18]+[C19T23]+[C24_25]+[C26T33]*

D35TE39	*E0T1*	*0-1 employees and self-employed persons in NACE section D35_E39*
C10TE39 Eurostat computed	*E0T1*	*[C10_18]+[C19_23]+[C24_25]+[C26_33]+[D35_E39]*
F41T43	*E0T1*	*0-1 employees and self-employed persons in NACE section F41_43*
G45T47	*E0T1*	*0-1 employees and self-employed persons in NACE section G45_47*
G47	*E0T1*	*0-1 employees and self-employed persons in NACE section G47*
H49T53	*E0T1*	*0-1 employees and self-employed persons in NACE section H49_53*
I55	*E0T1*	*0-1 employees and self-employed persons in NACE section I55*
I55_56	*E0T1*	*0-1 employees and self-employed persons in NACE section I55_56*
J58T63	*E0T1*	*0-1 employees and self-employed persons in NACE section J58_63*
L68	*E0T1*	*0-1 employees and self-employed persons in NACE section L68*
L68TM75	*E0T1*	*0-1 employees and self-employed persons in NACE section L68_M75*
M69T75	*E0T1*	*0-1 employees and self-employed persons in NACE section M69_75*
N77T82	*E0T1*	*0-1 employees and self-employed persons in NACE section N77_82 (including N79)*
S951	*E0T1*	*0-1 employees and self-employed persons in NACE group S951*
ICT_T	*E0T1*	*0-1 employees and self-employed persons in NACE 26.1-26.4, 26.8, 46.5, 58.2, 61, 62, 63.1, 95.1*

3.2.4.8. OPTIONAL BREAKDOWNS BY ECONOMIC ACTIVITY FOR ENTERPRISES WITH 2-9 EMPLOYEES AND SELF-EMPLOYED PERSONS

These activity and number_employees codes should be used for all variables.

The breakdowns for enterprises with 2-9 employees and self-employed persons are for NSI providing the breakdown.

ACTIVITY	NUMBER_ EMPLOYEES	Explanation
C10TS951XK	E2T9	2-9 employees and self-employed persons in NACE sections 10-33, 35-39, 41-43, 45-47, 49-53, 55-56, 58-63, 68-75, 77-82, 95.1
C10T18	E2T9	2-9 employees and self-employed persons in NACE section C10_18
C19T23	E2T9	2-9 employees and self-employed persons in NACE section C19_23
C24_25	E2T9	2-9 employees and self-employed persons in NACE section C24_25
C26T33	E2T9	2-9 employees and self-employed persons in NACE section C26_33
C10T33	E2T9	[C10T18]+[C19T23]+[C24_25]+[C26T33]
D35TE39	E2T9	2-9 employees and self-employed persons in NACE section D35_E39
C10TE39 Eurostat computed	E2T9	[C10_18]+[C19_23]+[C24_25]+[C26_33]+[D35_E39]
F41T43	E2T9	2-9 employees and self-employed persons in NACE section F41_43
G45T47	E2T9	2-9 employees and self-employed persons in NACE section G45_47
G47	E2T9	2-9 employees and self-employed persons in NACE section G47

H49T53	E2T9	2-9 employees and self-employed persons in NACE section H49_53
I55	E2T9	2-9 employees and self-employed persons in NACE section I55
I55_56	E2T9	2-9 employees and self-employed persons in NACE section I55_56
J58T63	E2T9	2-9 employees and self-employed persons in NACE section J58_63
L68	E2T9	2-9 employees and self-employed persons in NACE section L68
L68TM75	E2T9	2-9 employees and self-employed persons in NACE section L68_M75
M69T75	E2T9	2-9 employees and self-employed persons in NACE section M69_75
N77T82	E2T9	2-9 employees and self-employed persons in NACE section N77_82 (including N79)
S951	E2T9	2-9 employees and self-employed persons in NACE group S951
ICT_T	E2T9	2-9 employees and self-employed persons in NACE 26.1-26.4, 26.8, 46.5, 58.2, 61, 62, 63.1, 95.1

3.3. Transmission format for the ICT usage and e-commerce in enterprises survey

Once microdata have been collected and aggregates computed, the data can be transmitted to Eurostat.

The purpose of this section is to describe how the ICT enterprise survey data should be compiled and sent to Eurostat.

The 2022 results must be transmitted to Eurostat as a single txt (tab-delimited) file following the Statistical Data and Metadata eXchange (**SDMX**) CSV format.

Each data transmission is assumed to be **a full transmission**. New transmissions will **replace** previous transmissions.

For the content validation tool and Eurostat to be able to process the data, they must be transmitted in the format described below. Extra columns or codes will not be recognised. Comments fields should be used to indicate clearly any deviations Eurostat should be aware of – this is critical for ensuring the fullest comparability of the data for Eurostat's users. **Non-comparable data will not be published.**

The examples given in this section are laid out as they are for ease of reading only.

3.3.1. SDMX

SDMX is an international initiative aimed at standardising and modernising ('industrialising') the mechanisms and processes for exchanging statistical data and metadata among international organisations and their member countries.

SDMX is sponsored by seven international organisations including the Bank for International Settlements (BIS), the European Central Bank (ECB), Eurostat (Statistical Office of the European Union), the International Monetary Fund (IMF), the Organisation for Economic Co-operation and Development (OECD), the United Nations Statistical Division (UNSD), and the World Bank.

SDMX has three key components.

- A model — the information model — to describe data and metadata

The SDMX information model describes statistics in a standard way. It identifies objects and their relationships. A description is necessary to represent data, in order to make them meaningful. The descriptors are modelled according to whether they are dimensions (identifying and describing data), attributes (providing additional information about the data) or measures (representing the phenomenon to be measured). The structural descriptors are brought together in the Data Structure Definition

(DSD). This identifies the dimensions, attributes and measures of a data set, associating them with common code lists and concepts. The DSD provides all the information necessary to fully describe the data transmitted([23]).

- A standard for automated communication called Content-oriented Guidelines

The Content-oriented Guidelines (COGs) are a set of recommendations within the scope of the SDMX standard that are designed to maximise interoperability. They are intended to be applicable to all statistical domains.

The COGs focus on harmonising specific concepts and terminology that are common to a large number of statistical domains. Such harmonisation helps achieve an even more efficient exchange of comparable data and metadata, and builds on existing experience from implementation.

The COGs cover cross-domain concepts, code lists, subject-matter domains, a glossary, and implementation-specific guidelines([24]).

- An IT architecture and set of tools for data and metadata exchange

To support more automated and efficient data and metadata exchange, standard tools and an IT architecture are required. In practice, this means that SDMX promotes the use of standard SDMX-compliant formats. It provides the necessary tools to support the Model, create SDMX-compliant files, store SDMX-related artefacts, map and transcode from existing databases, and validate the structure (and in future the content) of data files. It also provides the necessary architecture to connect IT systems to the SDMX world, enabling data to be shared more easily([25]).

The SDMX standard thus provides essential support for statisticians, in that it: maximises the amount of information made available to users; enables the process to be automated; and allows web-service queries.

3.3.2. SDMX format for the ICT usage and e-commerce in enterprises survey

The first line contains the column headers. They must be in uppercase characters and separated by a tab.

Column 1 - DATAFLOW

The dataflow column should contain ESTAT:INFOSOC_ENT_A(1.0). This value should be repeated for each line of the file.

Column 2 - FREQ

The freq column should contain A, as our survey is annual.

Column 3 – TIME_PERIOD

The reference year of the survey is indicated using four digits, e.g. 2022.

Column 4 – REF_AREA

The country code must be indicated. This code should follow the two-alpha ISO code.

The codes to be used for the Member States, candidate countries and other participating countries are as follows: BE, BG, CZ, DK, DE, EE, IE, EL, ES, FR, HR, IT, CY, LV, LT, LU, HU, MT, NL, AT, PL, PT, RO, SI, SK, FI, SE, IS, NO, ME, MK, AL, RS, TR, BA.

Column 5 – TABLE_IDENTIFIER

The following code must be used.

ENT2 – Enterprise/ecommerce ICT survey.

Column 6 – EMBARGO_TIME

YYYY-MM-DD – example: 2022-10-31. This means that data must not be published before 31 October 2022. Leave empty if there is no embargo date. This value should be repeated for each line of the file.

([23]) More details on the SDMX information model can be found in the Technical specifications.

([24]) For more information see the recommended practices offered by the SDMX Content-Oriented Guidelines.

([25]) For more information see IT architecture and set of tools - SDMX InfoSpace - Eurostat (europa.eu).

Column 7 – INDICATOR – The variables, their codes and descriptions

Section 3.2.3. above lists the variables to be collected. Variables in italics are optional. Variable codes are the codes Eurostat uses for its database and publications. Data should be delivered to Eurostat using these codes in upper case. There is no given order necessary for the variables. If a variable is not collected, it should be removed from the data set or the value entry should be left blank. In this case, add a note of explanation in a separate file.

Scope of the observation variables by module

This shows the observation variables. Their exact scope has been defined based on Section 3.2.1 Codification of microdata, where the filters to be applied are given.

Column 8 – UNIT_MEASURE and Column 18 – UNIT_MULT

The codes are as follows:

UNIT_MEASURE	UNIT_MULT	Explanation
PS	0	Persons – use these codes when referring to employed persons (employees or self-employed)
PN	0	Pure number – use these codes when referring to enterprises
EUR	6	Million euros – use these codes to report amounts, in million euros. Use these codes if your country belongs to the Eurozone.
XDC	6	Million national currency – use these codes to report amounts, in million national currency. Use these codes if your country does not belong to the Eurozone.

Column 9 – ACTIVITY

The codes are as follows.

C10T12	Manufacture of beverages, food and tobacco products
C10T18	Manufacture of products based on: food, beverages, tobacco, textile, leather, wood, pulp and paper; publishing and printing
C10T33	Manufacturing
C10TE39	Manufacturing, electricity, gas, steam and air conditioning; water supply, sewerage, waste management and remediation activities
C10TF43	Manufacturing, electricity, gas, steam and air conditioning supply; water supply and construction
C10TS951XK	All enterprises, without the financial sector
C13T15	Manufacture of textiles, wearing apparel, leather and related products
C16T18	Manufacture of wood and products of wood and cork, except furniture; articles of straw and plaiting materials; paper and paper products; printing and reproduction of recorded media
C19	Manufacture of coke and refined petroleum products
C19T23	Manufacture of coke, refined petroleum, chemical and basic pharmaceutical products, rubber and plastics, other non-metallic mineral products
C20	Manufacture of chemicals and chemical products
C21	Manufacture of basic pharmaceutical products and pharmaceutical preparations
C22_23	Manufacture of rubber and plastics products, and other non-metallic mineral products
C24_25	Manufacture of basic metals and fabricated metal products excluding machines and equipment
C26	Manufacture of computer, electronic and optical products
C26T33	Manufacture of computers, electric and optical products, electrical equipment, machinery and equipment n.e.c., motor vehicles, oth. transport equipment, furniture, oth. manufacturing, repair and installation of machinery and equipment
C27	Manufacture of electrical equipment
C27_28	Manufacture of electrical equipment, machinery and equipment n.e.c.
C28	Manufacture of machinery and equipment n.e.c.

C29_30	Manufacture of motor vehicles, trailers and semi-trailers, other transport equipment
C31T33	Manufacture of furniture and other manufacturing; repair and installation of machinery and equipment
D35	Electricity, gas, steam and air conditioning supply
D35TE39	Electricity, gas, steam and air conditioning; water supply, sewerage, waste management and remediation activities
E36T39	Water supply, sewerage, waste management and remediation
F41T43	Construction
G45	Trade of motor vehicles and motorcycles
G45T47	Wholesale and retail trade; repair of motor vehicles and motorcycles
G45TS951XK	Services, without the financial sector
G46	Wholesale trade, except of motor vehicles and motorcycles
G47	Retail trade, except of motor vehicles and motorcycles
H49T53	Transport and storage
I55	Accommodation
I55_56	Accommodation and food service activities
ICT_T	Nace 26.1-26.4, 26.8, 46.5, 58.2, 61, 62, 63.1, 95.1
J58T60	Publishing activities; motion picture, video and television programme production, sound recording and music publishing; programming and broadcasting
J58T63	Information and communication
J61	Telecommunications
J62_63	Computer programming, consultancy and related activities, information service activities
L68	Real estate activities
L68TM75	Real estate; professional, scientific and technical service activities
M69T71	Legal, accounting, management, architecture, engineering, technical testing and analysis activities
M69T75	Professional, scientific and technical service activities
M72	Scientific research and development
M73T75	Other professional, scientific and technical activities
N77T82	Administrative and support service activities
N77T82X79	Activities for rental and leasing, employment, security and investigation, building and landscape services, office administrative, office support and other business support
N79	Travel agency; tour operator reservation service and related activities
S951	Repair of computers and communication equipment

Column 10 – NUMBER_EMPLOYEES

The codes are as follows.

NUMBER_EMPLOYEES	Explanations
E0T1	From 0 to 1
E0T9	From 0 to 9
E10T249	From 10 to 249
E10T49	From 10 to 49
E2T9	From 2 to 9
E50T249	From 50 to 249
EGE10	10 or more
EGE250	250 or more

Column 11 - REGIONAL

The regional column should contain _Z

Column 12 – CUST_BREAKDOWN

The cust_breakdown column should contain _T

Column 13 – OBS_VALUE

All variables should be grossed up to the enterprise population, EXCEPT for:

- variables starting with P which should be **grossed up** to the population of employees and self-employed persons
- currency or monetary variables: **grossed up** to turnover (sales variables);
- sample values (these remain **non-raised** figures).

For the values in this txt file **a dot (.) should be used as decimal point**. Thousand separators should not be used. To avoid small differences at the crosschecking stage, values must not be rounded up to integer figures. Decimal figures should be reported instead.

Any non-numerical cell entry will be interpreted as a missing value. If a variable is not collected and is not removed from the data set, the value entry should be left blank and an explanation provided in a separate file.

Column 14 – OBS_STATUS and Column 15 – OBS_STATUS_1

These columns make it possible to flag the data. Each column can contain only one flag. Put the first flag, if any, in OBS_STATUS. Then put the second flag, if any, in OBS_STATUS_1. The codes to be used are as follows.

OBS_STATUS	Explanations
A	Normal value (no flag)
B	Break in series
U	Low reliability

Column 16 – CONF_STATUS

These columns make it possible to define the confidentiality status. The codes to be used are as follows.

CONF_STATUS	Explanations
F	Free for publication
C	Confidential

Column 17 – COMMENT_OBS

This column makes it possible to put in a footnote. It may contain several footnotes, separated by a '@' character. A footnote that applies to many cells must be repeated for each cell. Right now, the maximum length of the combined footnotes is 255 characters. Longer comments should be put in a separate file.

Column 18 – UNIT_MULT

This column is a unit multiplier. Use 0 if the UNIT is PS or PN. Use 6 if the unit is EUR or XDC.

Column 19 – DECIMALS

This column is there to indicate how many of the OBS_VALUE decimals are significant. Right now, this column is not used. It should be set to 0

.

3.3.3. Example

This is an example of a file that could be sent. The data is made up.

DATAFLOW	FREQ	TIME_PERIOD	REF_AREA	TABLE_IDENTIFIER	EMBARGO_TIME
ESTAT:INFOSOC_ENT_A(1.0)	A	2022	XY	ENT2	2022-10-11
ESTAT:INFOSOC_ENT_A(1.0)	A	2022	XY	ENT2	2022-10-11
ESTAT:INFOSOC_ENT_A(1.0)	A	2022	XY	ENT2	2022-10-11

INDICATOR	UNIT_MEASURE	ACTIVITY	NUMBER_EMPLOYEES	REGIONAL	CUST_BREAKDOWN
EMPL	PS	C10T12	EGE10	_Z	_T
EMPL	PS	C10T18	EGE10	_Z	_T
EMPL	PS	C10T33	EGE10	_Z	_T

OBS_VALUE	OBS_STATUS	OBS_STATUS_1	CONF_STATUS	COMMENT_OBS	UNIT_MULT	DECIMALS
1	U	A	F	Note 1	0	0
2	B	A	C	Note 1@Note 2	0	0
3	U	B	F	Note 2	0	0

3.4. Data confidentiality

Confidentiality is a fundamental principle of European statistics, as defined by Regulation (EC) 223/2009, Commission Regulation (EU) No 557/2013 and the European Statistics Code of Practice (ESCoP).

Recital 24 of Regulation (EC) 223/2009 on European statistics makes provision for the establishment of common principles and guidelines ensuring the confidentiality of data used for the production of European statistics and access to those confidential data, taking due account of technical developments and the requirements of users in a democratic society.

For that purpose, Article 20(4) of Regulation (EC) 223/2009 requires the following.

> '*Within their respective spheres of competence, the NSIs and other national authorities and the Commission (Eurostat) shall take all necessary regulatory, administrative, technical and organisational measures to ensure the physical and logical protection of confidential data (statistical disclosure control).*'

'Confidential data' means:

> '*data which allow statistical units to be identified, either directly or indirectly, thereby disclosing individual information. Confidentiality aims at protecting data from unauthorised disclosure that could be prejudicial or harmful to the interest of the source or other relevant parties. To determine whether a statistical unit is identifiable, account shall be taken of all relevant means that might reasonably be used by a third party to identify the statistical unit'* (Article 3(4) of Regulation (EC) 223/2009).

In practice, for Eurostat not to publish confidential data, compilers need to indicate during data transmission which data are confidential, using the c-flag.

It is recommended to use flags wisely and sparingly. Most cells should not be flagged.

Depending on the status of national confidentiality, there are several implications for how European aggregates are to be published.

Data used for the production of statistics by national and EU authorities are considered confidential if statistical units can be identified, directly or indirectly, and if information about individuals or businesses can be disclosed as a result.

- Direct identification means identification of the respondent (statistical unit) from their formal identifiers (e.g. name, address, identification number).

- Indirect identification means inferring a respondent's identity through a combination of variables or characteristics (e.g. age, gender, education).

Statistical disclosure control can be ensured through physical protection and statistical disclosure control (SDC). For further details, refer to the Eurostat website.

Confidentiality rules are based on the number of enterprises. Two criteria, relevant for confidential disclosure, are proposed at national level:

- criterion A – data refer to less than three statistical units;
- criterion B – one or a few enterprises contribute to over 85 % of the total volume of aggregated data.

Data compilers should explain the national confidentiality rules in the metadata and quality reports.

3.5. Transmission deadlines

The Implementing Act states that:

- the transmission deadline for the data relating to ICT usage and e-commerce in enterprises survey is 5 October of the survey year, i.e. 5 October 2022 for survey year 2022.
- the annual metadata report for survey year 2022 must be transmitted to Eurostat by 31 May 2022.
- the annual quality report for survey year 2022 must be transmitted to Eurostat by 5 November 2022.

3.6. Transmission channels

The transmission and delivery of data sets is managed by EDAMIS (Electronic Data Files Administration and Management Information System), adopted as the unique entry point for the transmission of data to Eurostat

The EDAMIS portal is accessible via the following link: https://webgate.ec.europa.eu/edamis4

EDAMIS is made available through different networks: the internet and secure European networks like TESTA (Trans European Services for Telematics between Administrations) and CCN (Common Communication Network).

Information on networks, comparison between the different transmission methods and step-by-step instructions for submitting files are provided in EDAMIS short and extensive user guides developed by Eurostat.

3.7. Data revisions

Revisions are broadly defined as any change to the value of a statistic released to the public. They can occur when new observations (one additional month or quarter) become available and some past values are modified or when the current and/or some past values are modified. Data are generally revised to incorporate new, improved information. Revisions are therefore inevitable whenever statistics are produced that report promptly on economic developments despite the fact that some relevant information is still missing.

Further guidance on data revision principles can be found in the European Statistics Code of Practice.

3.8. Support for data providers

Specific support is available here: ESTAT-ICT-SURVEYS@ec.europa.eu.

4 Data quality

Assessing data quality is a crucial step in providing users with high-quality statistics.

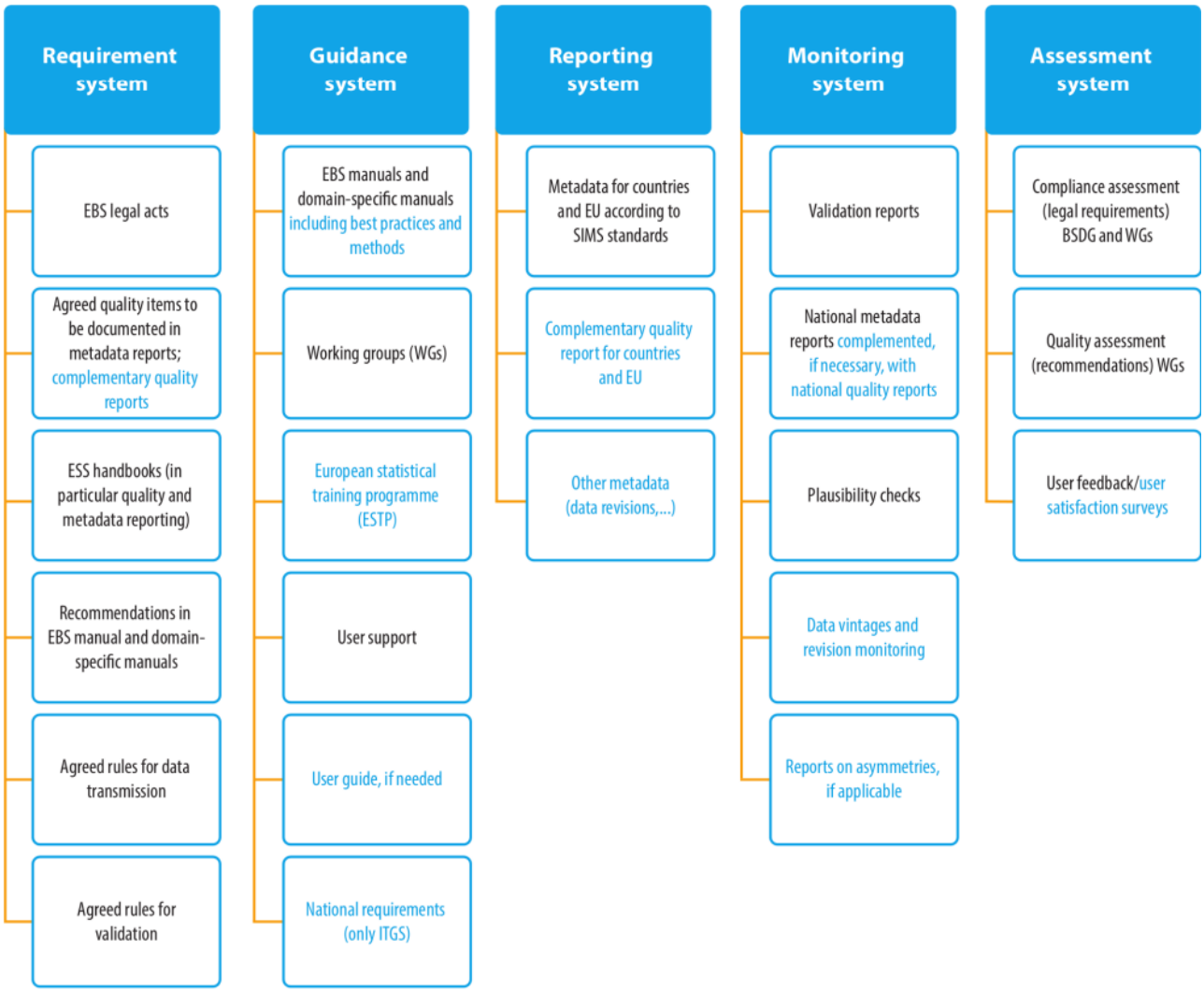
Consequently, Eurostat has a quality framework in place to assess data on ICT usage and e-commerce in enterprises. It carries out a number of checks on the data submitted to Eurostat based on validation rules. National statistical institutes (NSIs) are required to send quality and metadata reports to assess the overall quality of their data.

4.1. Quality framework

4.1.1. European business statistics quality framework

Efforts were made to standardise the quality framework for business and trade statistics under the European Business Statistics (EBS) Regulation. As shown below, the core EBS quality framework involves different measures that ensure high-quality statistics and allow users to understand the quality issues for the statistics concerned.

The core set of measures are written in black and ensure the quality of business and trade statistics. These should eventually be in place for all business and trade statistics. Measures written in blue are considered optional depending on the needs of the individual domains.



4.1.2. Implementing the framework for data on ICT usage and e-commerce in enterprises

The table below explains how the EBS quality framework is applied when collecting data on ICT usage and e-commerce in enterprises.

REQUIREMENT SYSTEM The requirements system comprises all legal requirements, standards and rules agreed at working-group level.	
European business statistics legal acts	See Section 2.1 – Legislative background
Quality items to be documented in metadata reports	12.3.1. Data completeness – rate (rates are not requested but deviation from question / item in model questionnaire have to be provided) 14.2.1. Punctuality – delivery (Number of days between the delivery date of data and the target date on which they were scheduled for delivery)
European statistical system handbooks, particularly the handbook quality and metadata reporting	European statistical system handbook for quality and metadata reports
Recommendations	See Chapter 2 – Data compilation
Rules for submitting data	See Chapter 3 – Data transmission to Eurostat

Rules for validating data	See Annex 3 – Validation rules
GUIDANCE SYSTEM The guidance system provides further advice to help compilers improve and ensure the quality of data.	
European business statistics manuals and domain-specific manuals, including best practices and methods	European business statistics manual
Expert groups	Information Society Statistics Task Force Information Society Statistics Working Group
European statistical training programme courses	Not applicable
User support	Questions to be addressed to ESTAT-ICT-SURVEYS@ec.europa.eu.
REPORTING SYSTEM The reporting system is used by data providers to report on the quality of the European business and trade statistics sent to Eurostat.	
Metadata for countries and EU according to the single integrated metadata structure reporting standards	Metadata are available via the following link: ESS Metadata Handler EU metadata are available via the following link: Eurostat metadata
MONITORING SYSTEM The monitoring system comprises all measures Eurostat uses to keep track of the quality of European business and trade statistics.	
Validation reports	Countries contacted in case of issues.
National metadata reports complemented with national quality reports if necessary	Metadata collected according to the single integrated metadata structure.
Plausibility checks	Checks for consistency within data sets, cross-country data and time series analyses.
ASSESSMENT SYSTEM The assessment system describes measurements Eurostat uses to analyse how European statistical system countries comply with legal requirements. It also analyses the quality of national data submitted to Eurostat.	
Compliance assessment (legal requirements)	Annual compliance assessment.
Quality assessment	Annual quality reviews before publication, recommendations issued in this manual, experience of NSIs taken into account when preparing the model questionnaire.
User feedback / user satisfaction surveys	Feedback collected from regular users and via questions sent out by user support

4.2. Metadata and quality reports

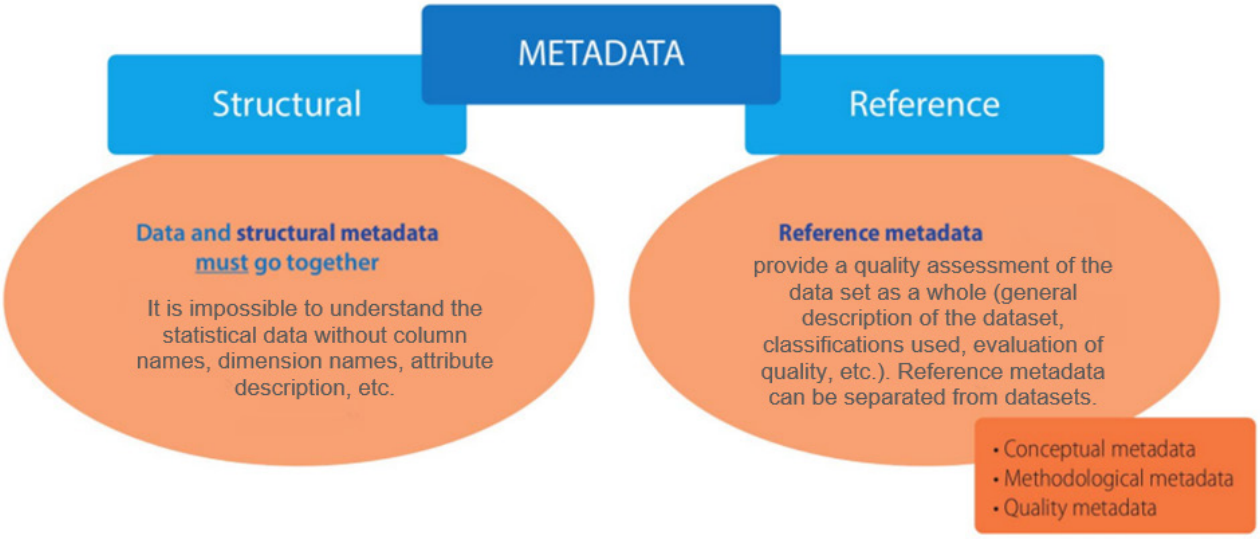
Metadata, also described as «data about data», provide information about data and are essential for their understanding. They allow users to make comparisons between data and assess the quality of data. Metadata can be expressed as text (for example descriptions), values (for example percentage rates) and codes (from controlled vocabularies such as code lists).

There are two types of metadata: structural metadata and reference metadata.

Structural metadata cover the information that is used to identify and describe the data. Some examples of types of structural metadata are: variable names; variable codes; classifications used; technical descriptions of a data set (e.g. data formats, time dimensions, etc.); and data set locations. Structural metadata need to be linked with data so that they can be searched for and identified.

Reference metadata describe the contents and quality of statistical data. According to the latest version of the *European statistical system handbook for quality and metadata reports*, metadata are subdivided into:

- conceptual metadata – these explain the concepts used;
- methodological metadata – these refer to methods used in preparing the statistical data;
- quality metadata – these refer to and explain quality dimensions of the statistical outputs.



Several tools have been developed to produce high-quality and standardised metadata within the European statistical system (**ESS**). The single integrated metadata structure (**SIMS**) was created to support quality reporting on European statistics. It provides a standard, integrated and comprehensible framework for metadata and quality reporting in the ESS. It was formed by integrating and standardising two reporting structures. In particular, the Euro-SDMX metadata structure and the ESS standard for quality reports structure([26]). It is a template for the ESS reference metadata report structure and quality report, which contain information about quality concepts at different levels of detail.

([26]) More information and a visualisation of this structure is available in the European Statistical System (ESS) handbook for quality and metadata reports — 2020 edition, p 238-241.

4.2.1. Metadata and quality report on ICT usage and e-commerce in enterprises

For the ICT usage and e-commerce survey, the EBS Regulation asks reporting countries to submit quality and metadata reports to Eurostat each year. The information needed for data treatment should be included in the metadata report and all remaining information should be included in the quality report. The content of those reports is then combined into one national reference metadata report for each country.

The deadlines to submit the quality and metadata reports are laid down in the Implementing Act. The deadline to send Eurostat the metadata report is before the quality report.

The current structure of the reference metadata report is the following:

Contact: information about the organisation, contact name and details (address, email, telephone number) of the person in charge in the organisation.

Metadata update: dates when the metadata have been certified, posted and updated.

Statistical presentation: description of the data and classifications used (e.g. NACE Rev. 2); statistical concepts and definitions; coverage of the statistical domain; statistical population and statistical units data refer to; time coverage and reference area.

Unit of measure: for the survey on ICT usage and e-commerce in enterprises, the percentage of enterprises, of turnover, and of employees and self-employed persons is used.

Reference period: the reference period is usually the survey year, but for certain variables it is the year before the survey year.

Institutional mandate: information about complementary national legislation constituting the legal basis for the survey.

Confidentiality: this includes confidentiality policy – provisions concerning confidentiality in legal acts; and data treatment – rules applied to keep confidential data undisclosed.

Release policy: this covers the data release schedule/calendar and where this calendar can be found. The release policy refers to several principles as laid down in the Regulation on European statistics and in the European statistics code of practice. For example, objectivity, impartiality, confidentiality and accessibility.

Frequency of dissemination: data on ICT usage and e-commerce in enterprises are disseminated annually.

Accessibility and clarity: this refers to various formats used in the dissemination data on ICT usage and e-commerce in enterprises at national level. For example, news releases, publications and online databases.

Quality management: quality assurance and quality assessment describe the systems and frameworks in place to manage the quality of surveys and processes on ICT usage and e-commerce in enterprises.

Relevance: the main national users and their needs are taken into account when developing the survey on ICT usage and e-commerce in enterprises. User satisfaction is also taken into account either through a survey or other methods.

Accuracy: accuracy of data is the closeness of computations or estimates to the exact or true values that the statistics were intended to measure. It is assessed based on overall comments on accuracy and the amount of sampling and non-sampling errors. These include: coverage errors; measurement errors; non-response errors; processing errors; and model assumption errors.

Timeliness and punctuality: Timeliness refers to the time elapsed between the event or phenomenon the data describe taking place and the time at which the data becomes available. Punctuality refers to the time lag between the actual delivery of the data and the target date that they should have been delivered. For example, 5 October 2022.

Coherence and comparability: European statistics should be coherent, maintaining internal consistency over time. It should also be possible to compare statistics between regions and countries, as well as combine and make joint use of related data from different sources. Information on geographical and intertemporal comparability, and cross-domain coherence are provided in the metadata report.

Cost and burden: provides information on the cost of collecting and producing data on ICT usage and e-commerce in enterprises, and the burden on respondents.

Data revision: data revision is any change in a value of a statistic released to the public. This includes data revision policy applicable to data output and how it can be implemented practically.

Statistical processing: information about: data on ICT usage and e-commerce in enterprises source data (e.g. frame population and sampling); data collection frequency; type of data collection (e.g. paper, web, electronic); data validation; and data compilation.

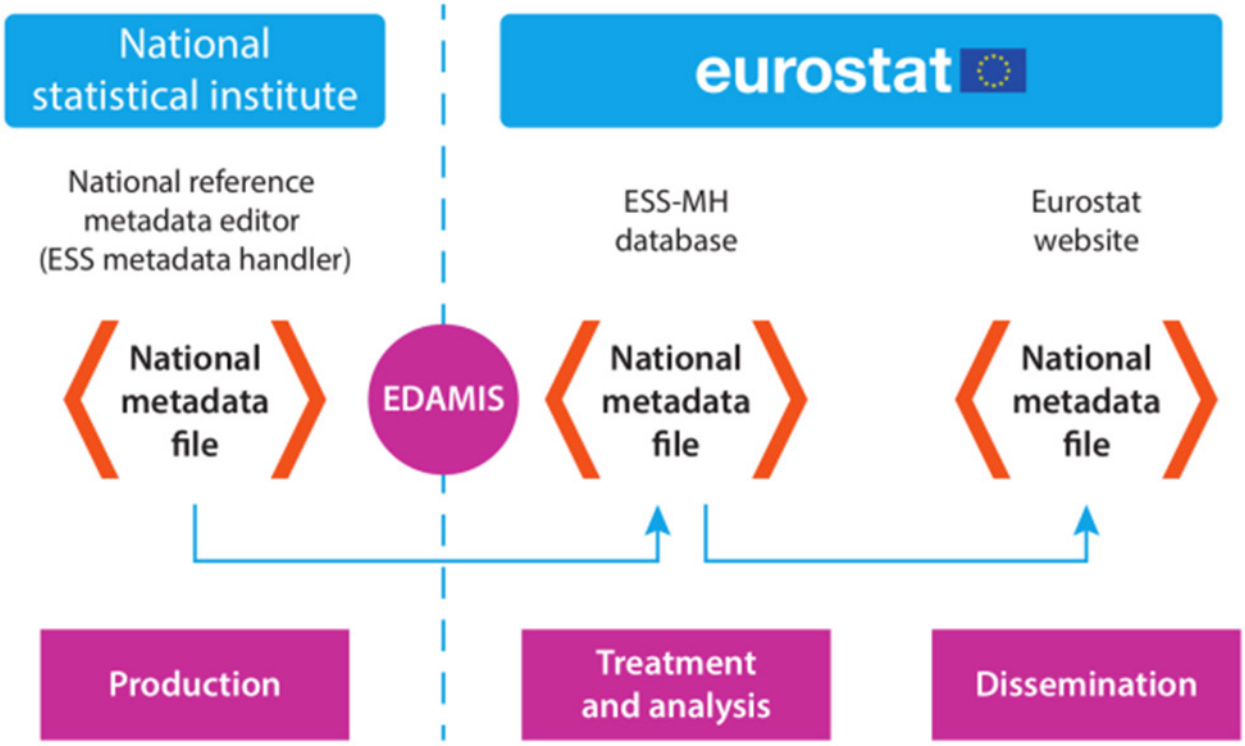
Comments: contains problems encountered, lessons learnt, any other comments, and the list of annexes.

Related metadata: not applicable for this survey.

Annexes: links to annexes.

4.2.2. European statistical system metadata handler

Reporting countries should deliver the metadata report using the metadata handler. The European statistical system metadata handler is a web-based application that supports the production, exchange and dissemination of reference metadata in the ESS. This metadata handler accommodates SDMX-compliant files based on SIMS. It supports standardising reference metadata and quality reports in the ESS. The diagram below presents the high-level business process to report SDMX-compliant reference metadata. It also presents use of the metadata handler.



Eurostat and NSIs use this application to produce metadata files. The application is accessible through a password system([27]).

Information about the metadata file on ICT usage and e-commerce in enterprises is provided below:

File name: INFOSOC_ETNSI_ A_CC_YEAR_0000
Domain: INFOSOC
Metadata flow: INFOSOC_ETNSI_ A
Typology: simsie - Sims structure for INFOSOC enterprises
Country: CC (country code)
Organisation – provider: name of the organisation providing the metadata file
Reference year: YEAR
Period: A0
Status: Draft; Ready for validation; Validated; Ready for publication, Published
Modified on: dd/mm/yyyy hh:mm:ss
By: username
Published on: dd/mm/yyyy hh:mm:ss
Owner: username

([27]) For any issues, contact: ESTAT-DATA-METADATA-SERVICES@ec.europa.eu

The main application features of the metadata file for users are:

copy an existing file to create a new one;

recall the file to make changes;

download;

view history;

preview;

print.

After the changes have been made, the file is sent to the domain manager at Eurostat for validation. The domain manager will approve the file if all information is clear. If not, they can ask for clarifications. Reporting countries are asked to correct or add missing information. The file is then submitted again for approval.

The template of the national reference metadata report is provided in Annex 4 – metadata reporting template.

4.3. Data validation by Eurostat

Although reporting countries are responsible for the quality of the data provided, Eurostat carries out a series of checks to ensure the accuracy of data submission format and the absence of errors. The validation process is currently structured according to the validation levels classification established by the ESS.

Validation level 0: consistency with expected IT structural requirements;

Validation level 1: consistency within the data set;

Validation level 2: consistency with other data sets within the same domain and the same data source;

Validation level 3: consistency within the same domain between different data sources;

Validation level 4: consistency between separate domains in the same data provider;

Validation level 5: consistency with data of other data providers;

Only levels 0 to 3 are currently used to validate data on ICT usage and e-commerce in enterprises. Checks with the highest priority include: format checks; checks on the completeness of the file and uniqueness of records (level 0); and checks on data consistency (level 1). Failure to pass these levels will result in the file being rejected. The other checks may result in a list of warnings for which the reporting country is asked either to send revised data or to confirm the data correctness according to the type of warning spotted. A description of the different data checks is provided below. The rules applied are included in Annex 3 – validation rules.

Validation level 0: consistency with expected IT structural requirements

The first step is to check whether the file complies with the structure and format required by the submission format presented in Section 3.3.2. The checks performed at this stage refer to the:

validity of format: data are expected to be sent in the sole SDMX-TXT format as defined in Chapter 3. The number of columns in the file should be in line with the submission format presented in Section 3.3.2.

validity of codes: these checks are performed on each dimension and attribute at record level. Their aim is to make sure that each reported code belongs to the code list related to that particular dimension or attribute.

Complying with the submission format is the highest priority. Failing to pass checks at this level will result in the file being rejected.

Validation level 1: consistency within the data set

The next step in the validation process is to analyse the content of the file. The checks are divided into the three categories below:

completeness of the file: this check verifies that the number of records in the file is equal to the total number expected for this data set.

inter-record consistency checks: these verify the consistency between the observation value of two or more records. These records can be linked by an equality or an inequality. The link is described in a consistency rule. Typically, the consistency of the total with the sum of details will be verified through these types of checks.

consistency checks on ratios: ICT data are shared on the Eurostat website as percentages. Checks are run on these percentages to assess their plausibility by comparing them with a configurable range defined for every unit.

Validation level 2: consistency with other data sets within the same domain and the same data source

In this step, two series of checks are performed:

variation over previous reference years: data provided for a new reference year are compared with those from previous years. The variation should fall within a pre-defined range.

consistency checks on reference data and flags are carried out and compared with the information in the quality report provided by the NSI.

If the variation of the data falls outside the pre-defined range when compared with previous reference years, Eurostat will contact the country concerned and ask them to clarify and confirm the accuracy of the data. Eurostat will also contact countries if there is a discrepancy in the reference data.

Validation level 3: consistency within the same domain and a different data source

Data on ICT usage and e-commerce in enterprises are compared with similar data reported by other countries. The comparison is carried out at the level of main indicators, enterprise sizes and NACE activities, and is based on the most recent detailed data submitted to Eurostat.

If there is significant inconsistency between the two sources, Eurostat will contact the reporting countries to ask them to provide clarifications and possible corrections.

5 Data dissemination

Once Eurostat has received and validated the data transferred by the NSIs, the European aggregates are calculated and the complete database with the results from the surveys is published online.

5.1. Data description

Eurostat publishes the 'ICT usage and e-commerce in enterprises' data gathered by the NSIs on the basis of the model questionnaire along with EU metadata. The results of the surveys are published as ratios (e.g. the percentage of companies with e-commerce sales that represent at least 1% of turnover).

A ratio is the result of the division of a numerator and a denominator. Numerators and denominators are aggregated variables.

For example, we compute a ratio by dividing the aggregated variable E_IUSE (enterprises where persons employed have access to the internet) by the aggregated variable ENT (total enterprises), and the result is E_IUSE with unit PC_ENT (percentage of all enterprises).

Similarly, we compute EU ratios by dividing the sum (over all Member States) of the aggregated variable E_IUSE by the sum of the aggregated variable ENT.

Given that data published in this domain are based on model questionnaires that change every year, Eurostat provides, on a dedicated webpage, a table that lists the available ratios, enterprise sizes and activities (NACE Rev. 2) per year."

In addition, Eurostat publishes country-specific notes that provide a snapshot of the metadata provided by each NSI.

5.2. Confidentiality and flags

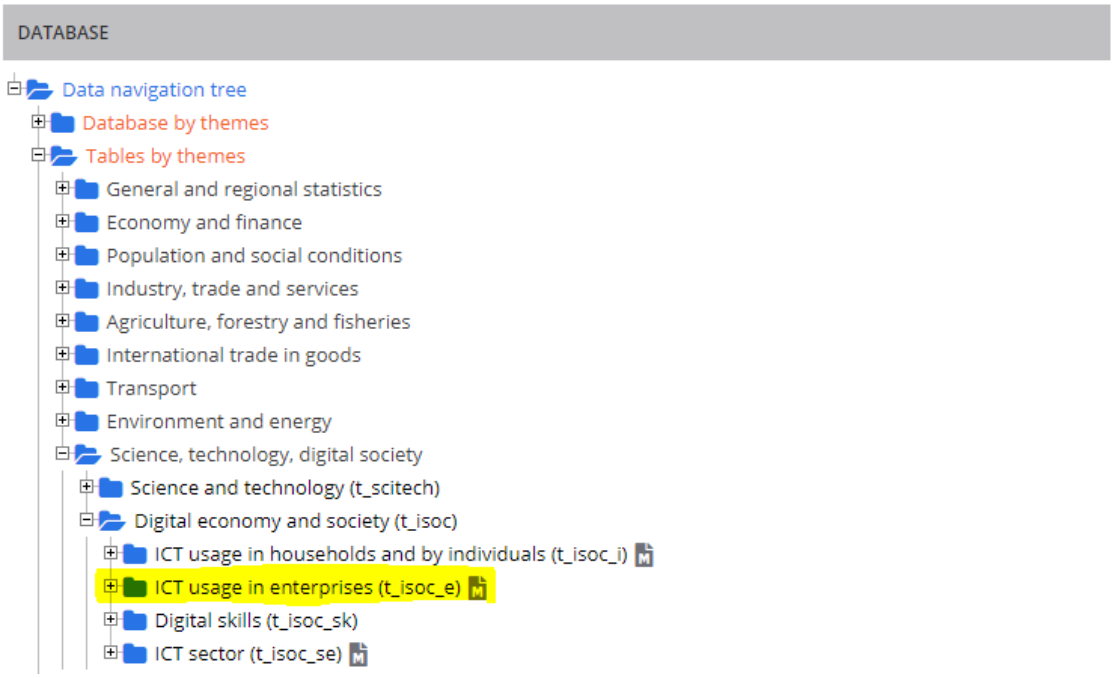
The aggregated data received from the NSIs also contain some flags to indicate confidentiality, statistical reliability, and break in series. Then, the ratios are computed and they inherit the flags. Data flagged as unreliable are not published at national level, but are taken into account for calculating the EU aggregates. Data flagged as confidential are neither published at national level nor taken into account for EU aggregates.

5.3. Dissemination channels

ICT usage and e-commerce in enterprises data are accessible on Eurostat's website through different paths: the data navigation tree, the 'Statistics Explained' articles, the news items and the dedicated webpage.

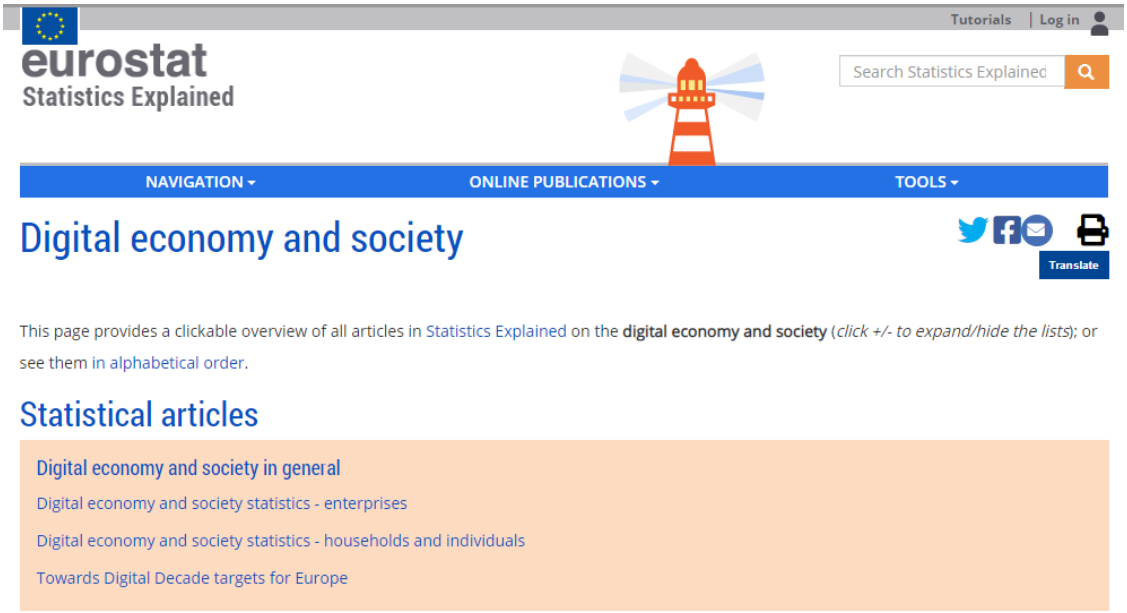
Eurostat navigation tree

ICT usage and e-commerce in enterprises data are published on Eurostat's website under the 'ICT usage in enterprises' sub-branch of the 'science, technology, digital society' heading.



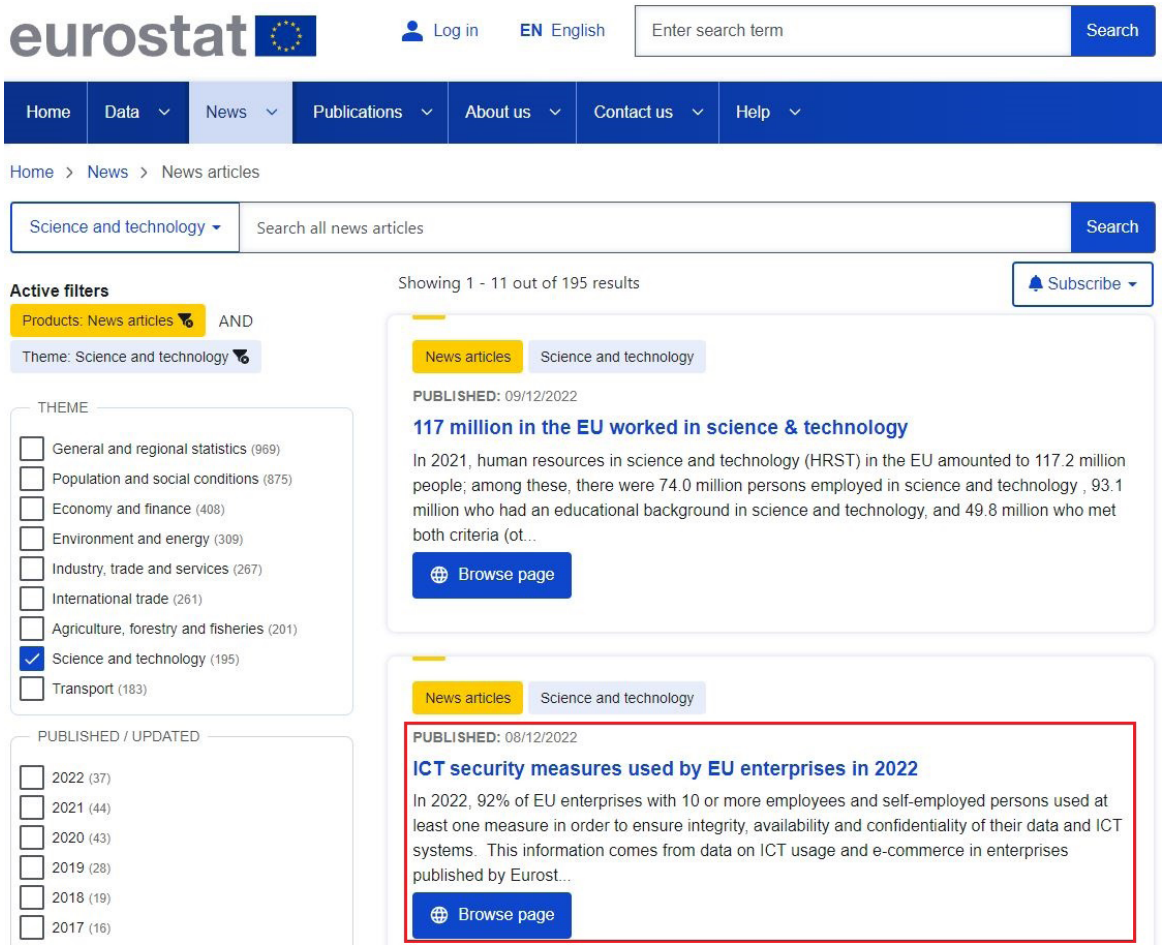
Statistics Explained

'Statistics Explained' is an official Eurostat website presenting statistical topics in an easily understandable way. The Digital economy and society page contains the links to the main statistical articles related to ICT data for enterprises, household and individuals.



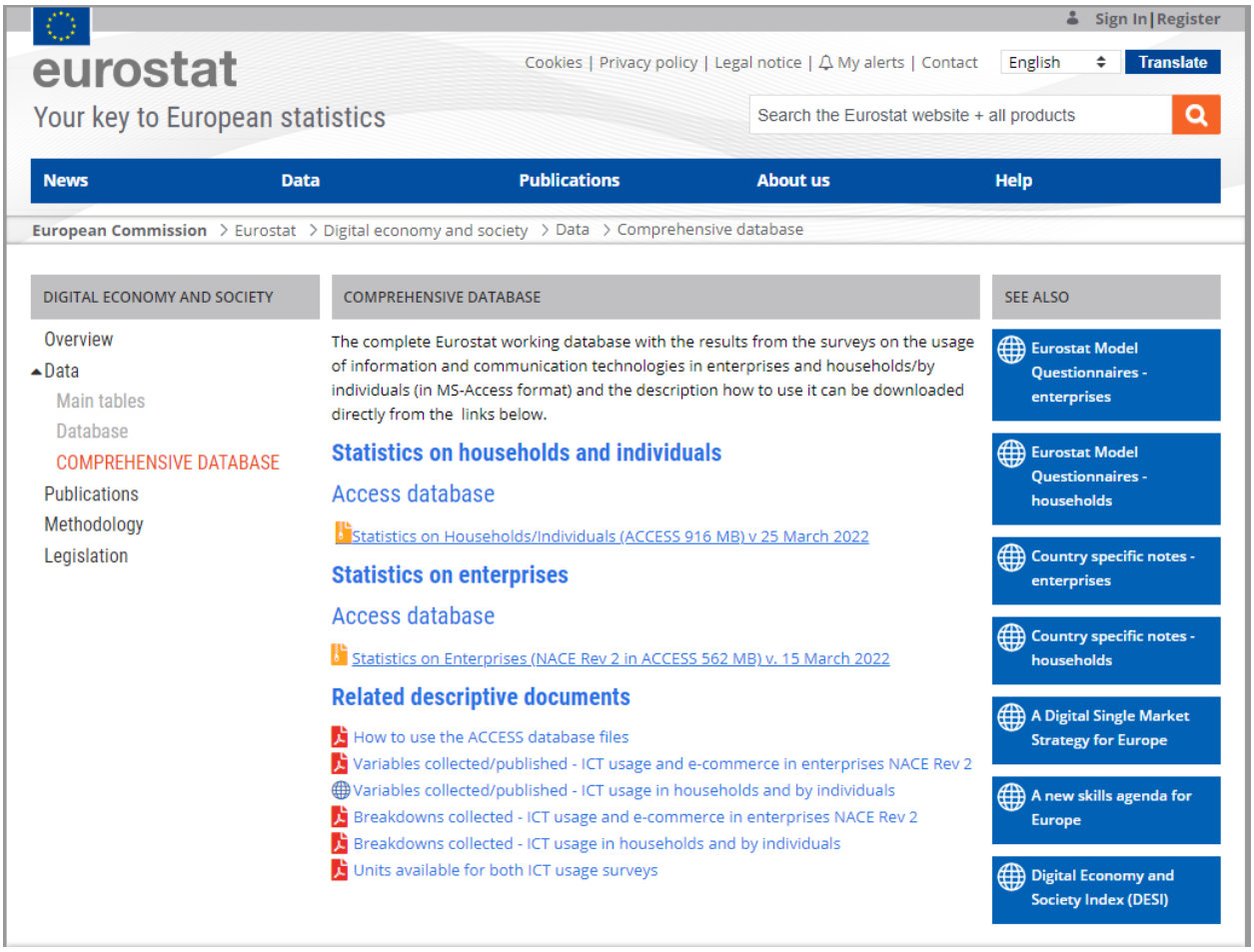
News Items

News items are displayed in reverse chronological order on the News page (accessible by clicking on 'News' in the drop-down menu anywhere in the Eurostat portal and then on News articles). They provide short texts and visuals on our data, including first data releases. From the menu on the right, the theme of interest can be selected and articles on ICT in enterprises (among other things) can be viewed.



Dedicated webpage

In addition, the complete Eurostat working database is available online along with information on the variables and breakdowns collected over time, a description of how to use the database, model questionnaires, country-specific notes, and other related information.



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Annexes

Annexes

Annex 1 - Model questionnaire

Sampling unit:	Enterprise.
Scope / Target Population:	**Economic activity:** Enterprises classified in the following categories of NACE Rev. 2: - Section C – *"Manufacturing"*; - Section D, E – *"Electricity, gas, steam and air conditioning supply"* "*Water supply, sewerage, waste management and remediation activities";* - Section F – *"Construction"*; - Section G – *"Wholesale and retail trade; repair of motor vehicles and motorcycles"*; - Section H – *"Transportation and storage"*; - Section I – *"Accommodation and food service activities"*; - Section J – *"Information and communication"*; - Section L – *"Real estate activities"*; - Section M – *"Professional, scientific and technical activities"*; - Section N – *"Administrative and support service activities";* - Group 95.1 – "*Repair of computers and communication equipment*" **Enterprise size:** Enterprises with 10 or more employees and self-employed persons[1]. Optional: enterprises with number of employees and self-employed persons between 0 and 9. **Geographic scope:** Enterprises located in any part of the territory of the country.
Reference period:	Where not specified respondents should consider as reference their current situation (survey period in 2022).Year 2021 for the value or % of sales data and where specified.
Recommended survey period:	First quarter 2022.
Questionnaire:	The layout of the national questionnaire should be defined by the country. However, countries should follow the order of the list of variables enclosed, if possible. The background information (Module X) should be placed at the end of the questionnaire. This information can be obtained in 3 different ways: from national registers, from Structural Business Statistics or collected directly with the ICT usage survey. Every effort should be made to obtain them from the most recent SBS survey. Countries can include additional questions.
Target respondent:	A decision maker with major responsibility for ICT-related issues in the enterprise (the ICT manager or a senior professional in the ICT department).

[1] With the introduction of the Framework Regulation on European Business Statistics the variable "persons employed" is replaced by the variable "employees and self-employed persons". This change in the denomination of the variable does not imply any change in the scope. The two variables represent exactly the same concept. For the sake of user friendliness, the term "employees and self-employed persons" is only used in the introductory part of the questionnaire and in Module X, while in the rest of the questionnaire the term "persons employed" is used.

	In smaller enterprises, the respondent should be someone at the level of managing director or the owner. In any case the respondent should not be someone with responsibilities only in accounting.
Sample size, stratification:	The sampling design and the resulting sample size should be appropriate for obtaining accurate, reliable and representative results on the variables and items in the model questionnaire. This objective should be achieved for the overall proportions as well as for the proportions for the different breakdowns of the population defined below: NACE and size class. NACE breakdown and enterprise size class breakdown are not required to be cross-tabulated. This requirement aims at ensuring the collection of a complete dataset – without empty, confidential or unreliable cells – for these indicators – with an exception for those broken down by economic activity for the calculation of **European** NACE aggregates.
NACE breakdown:	**(To be applied to: all variables; enterprises with 10 or more employees and self-employed persons; whole territory of the country.)** Data should be broken down by the following NACE Rev. 2 aggregates for possible calculation of **national** NACE Rev. 2 aggregates: 1 10-33, 35-39, 41-43, 45-47, 49-53, 55-56, 58-63, 68-75, 77-82, 95.1 2 10 - 33 3 10 - 18 4 19 - 23 5 24 - 25 6 26 - 33 7 35 - 39 8 41 - 43 9 45 - 47 10 47 11 49 - 53 12 55 13 55 - 56 14 58 - 63 15 68 16 69 - 75 17 77 - 82 18 26.1 - 26.4, 26.8, 46.5, 58.2, 61, 62, 63.1, 95.1 Breakdowns for which national data should be provided with the purpose of possible calculation of **European** NACE aggregates. The production and transmission of these aggregates with an accuracy that allows the release at national level is optional. The production and transmission of these aggregates with an accuracy that may not allow the release at national level (use of flag u: unreliable) but are accurate enough to be combined with other countries' aggregates to be released at European level is mandatory.) 3a 10 - 12 3b 13 - 15 3c 16 - 18 4a 19 4b 20 4c 21

	4d 22 - 23 6a 26 6b 27 6c 28 6d 29 - 30 6e 31 - 33 7a 35 7b 36 - 39 9a 45 9b 46 14a 58 - 60 14b 61 14c 62 - 63 16a 69 - 71 16b 72 16c 73 - 75 17a 77 - 78 + 80 - 82 17b 79 18a 95.1
Size class breakdown:	**(To be applied to: all variables; aggregate of all mandatory NACE aggregates [1 to 18 defined above]; whole territory of the country.)** Data should be broken down by the following size classes according to the number of employees and self-employed persons: 1 10 or more 2 10 - 49 (small enterprises) 3 50 - 249 (medium enterprises) 4 250 or more (large enterprises) **Optional:** 5 0 - 9 6 0 - 1 7 2 - 9
Weighting of results:	Results should in general be weighted by number of enterprises. Turnover weighting should be used for sales related questions. Quantitative variables in the e-Commerce module related to sales should be weighted by total turnover. Weighting by the number of employees and self-employed persons should be applied for variables related to questions A1, A4, and for other variables e.g. % sending orders via a website or EDI-type messages, etc., as specified in the transmission format document.
Treatment of non-response/'Do not know':	**Unit non-response:** The non-respondent units should be assumed to resemble those who have responded to the survey and be treated as non-selected units. For this, the weighting or the grossing up factors should be adjusted: the design weight N_h / n_h is replaced by N_h / m_h where N_h is the size of stratum h, n_h is the sample size in stratum h and m_h is the number of respondents in stratum h. **Item non-response:** Logical corrections should be made, when information can be deduced from other variables, and priority given to further contacts with enterprises to

	collect the missing information. For the categorical variables (e.g. the YES/NO questions), respondents with item non response or 'do not know' should not be imputed with values from respondents who answered the question. Numerical variables shouldn't be imputed (see also Methodological Manual).
Tabulation of results:	For the categorical variables, estimates should be made for the total number of enterprises for each response category, tabulated using the breakdowns specified above. For the quantitative variables (turnover, sales and number of employees and self-employed persons), when collected in absolute or percentage terms (and not in percentage classes), estimates should be made for the total values in absolute terms, tabulated using breakdowns as specified in the transmission format document.
Data transmission:	Results are to be sent to Eurostat following the transmission format described in a forthcoming Eurostat document.

Disclaimer: References to third-party brands, products and trademarks are for the sake of clarification and are not intended to promote the use of such products.

Ict-Ent 2022 - Model Questionnaire V 1.2 – Response burden

Module	Description	Mandatory questions	Optional questions
A	**Access and use of the internet**	**12**	**1**
	Access to the internet	*1*	*0*
	Use of a fixed line connection to the internet for business purposes	*2*	*0*
	Use of a mobile connection to the internet for business purposes	*0*	*1*
	Meetings via the internet	*3*	*0*
	Remote access	*6*	*0*
B	**e-Commerce sales**	**9**	**12**
	Web sales of goods or services	*7*	*12*
	EDI-type sales	*2*	*0*
C	**ICT specialists and skills**	**7**	**4**
D	**ICT security**	**25**	**0**
E	**Use of Robotics**	**8**	**1**
F	**ICT and the environment**	**6**	**0**
	Total number of questions/responses	**67**	**18**
X	**Background characteristics**	**3**	**0**
	Total number of questions/responses with background characteristics	**70**	**18**

COMMUNITY SURVEY ON ICT USAGE AND E-COMMERCE IN ENTERPRISES

2022

MODEL QUESTIONNAIRE VERSION 1.2

(Questions related to Monitoring the *"Digital Economy & Society 2016-2021"* are marked with an asterisk *)

Module A: Access and use of the internet

(Scope: all enterprises)

A1 *[2]	**How many persons employed have access to the internet for business purposes?** (including fixed line and mobile connection) (Filter question)	*(Number)*
	If you can't provide this value, **please indicate an estimate of the percentage of the total number of persons employed who have access to the internet for business purposes**	%
		If the value=0, go to **C1**

Use of a fixed line connection to the internet for business purposes

A2. *[3]	**Does your enterprise use any type of fixed line connection to the internet?** (e.g. ADSL, SDSL, VDSL, fiber optics technology (FTTP), cable technology, etc.) *(Add national examples)* (Filter question)	Yes ☐	No ☐ ->go to **A4** (if optional included) else go to **A5**

A3. *[3]	**What is the maximum contracted download speed of the fastest fixed line internet connection of your enterprise?** ***(additional categories at national level can be added, if needed)*** *(Tick only one)*	
	a) less than 30 Mbit/s	☐
	b) at least 30 but less than 100 Mbit/s	☐
	c) at least 100 Mbit/s but less than 500 Mbit/s	☐
	d) at least 500 Mbit/s but less than 1 Gbit/s	☐
	e) at least 1 Gbit/s	☐

Use of a mobile connection to the internet for business purposes

[2] For indicators on connectivity of the monitoring framework 2016-2021 – annual or biennial
[3] For indicator E1 on connectivity of the monitoring framework 2016-2021 – annual or biennial

	The following question refers to the usage of portable devices connecting to the internet through mobile telephone networks for business purposes. This includes the use of devices where the enterprise provides the devices and pays for the subscription and the costs of use fully or at least up to a limit.	
A4. *[4]	**How many persons employed use a portable device provided by the enterprise, that allows connection to the internet via mobile telephone networks, for business purposes?** (e.g. portable computers or other portable devices such as smartphones) If you can't provide this value, **please indicate an estimate of the percentage of the total number of persons employed who use a portable device provided by the enterprise, that allows connection to the internet via mobile telephone networks, for business purposes** (e.g. portable computers, or other portable devices such as smartphones) ***- Optional***	*(Number)* ␣ ␣ ␣ %

Meetings via the internet

(Scope: enterprises with access to the internet, i.e. if A1>0)

A5. **Does your enterprise conduct remote meetings (via e.g. Skype, Zoom, MS Teams, WebEx, etc.)?**	Yes	No
	☐	☐ **-> go to A8**

A6. **Does your enterprise have any ICT security guidelines for conducting remote meetings via the internet (e.g. password requirement, end-to-end encryption)?**	Yes	No
	☐	☐

A7. **Does your enterprise have guidelines to favour remote meetings via internet instead of business travelling?**	Yes	No
	☐	☐

[4] For indicator E3 on connectivity of the monitoring framework 2016-2021 – annual

Remote access

(Scope: enterprises with access to the internet, i.e. if A1>0)

		Yes	No
A8.	**Do any of the persons employed have remote access to the following?** (via computers or portable devices such as smartphones)		
	a) E-mail system of the enterprise	☐	☐
	b) Documents of the enterprise (e.g. files, spreadsheets, presentations, charts, photos)	☐	☐
	c) Business applications or software of the enterprise (e.g. access to accounting, sales, orders, CRM) *Please exclude applications used for internal communication, e.g. Skype, Teams, Yammer*	☐	☐

(If NO to A8a, A8b and A8c) and (A1>0) -> go to B1

If YES to A8a then go to A9

A9.	**How many persons employed have remote access to the e-mail system of the enterprise?** (via computers or portable devices such as smartphones)	*(Number)*
	If you can't provide this value, **please indicate the percentage of all persons employed who have remote access to the e-mail system of the enterprise**	☐☐☐ %

If YES to A8b or A8c then go to A10

A10.	**How many persons employed have remote access to the documents, business applications or software of the enterprise** (e.g. files, spreadsheets, presentations, charts, photos, access to accounting, sales, orders, CRM)**?** (via computers or portable devices such as smartphones)	*(Number)*
	If you can't provide this value, **please indicate the percentage of all persons employed who have remote access to the documents, business applications or software of the enterprise**	☐☐☐ %

A11.	**Does your enterprise have any ICT security guidelines for remote access?** ***(e.g. requirement to conduct password–secured remote meetings, prohibition of using of public Wi-Fi for work, use of VPN, requirements concerning privacy of data)***	Yes ☐	No ☐

Module B: e-Commerce sales

(Scope: enterprises with access to the internet, i.e. if A1>0)

In e-commerce sales of goods or services, the order is placed via web sites, apps or EDI-type messages by methods specifically designed for the purpose of receiving orders.

The payment may be done online or offline.

e-Commerce **does not include** orders written in e-mail.

Please report **web and EDI-type sales separately**. They are defined by the method of placing the order**:**

- WEB sales: the **customer** places the order on a website or through an app;
- EDI type sales: **an EDI-type order message is created from the business system of the customer.**

Web sales of goods or services

Web sales cover orders, bookings and reservations placed by your customers via

- your enterprise's **websites or apps:**
  - online store (webshop);
  - web forms;
  - extranet (webshop or web forms) ;
  - booking/reservation applications for services;
  - apps for mobile devices or computers;
- **e-commerce marketplace websites or apps** (used by several enterprises for trading goods or services).

Orders written in e-mail are **not** counted as web sales.

B1. *5	During 2021, did your enterprise have web sales of goods or services via:	Yes	No
	a) your enterprise's websites or apps? (including extranets)	☐	☐
	b) e-commerce marketplace websites or apps used by several enterprises for trading goods or services? **(**e.g. e-Bookers, Booking, hotels.com, eBay, Amazon, Amazon Business, Alibaba, Rakuten, TimoCom etc.) *[Please add national examples of e-commerce marketplaces incl. government marketplaces]*	☐	☐

[5] For indicator E19 (annual; included in DESI), E21 (annual or biennial) on e-commerce of the monitoring framework 2016-2021

If both B1 a) and B1 b) = "No" then go to B8		
B2. *6	**What was the value of your web sales?** (please refer to the provided definition of web sales) Please answer to a) OR b)	
	a) What was the value of your web sales of goods or services, in 2021?	(National currency, excluding VAT) _____
	OR **b) What percentage of total turnover was generated by web sales of goods or services, in 2021?** *If you cannot provide the exact percentage an approximation will suffice.*	⊔ ⊔ ⊔ , ⊔ %

Question B3 should be answered only if both B1 a) and B1 b) = "Yes"		
B3. *6	**What was the percentage breakdown of the value of web sales in 2021 for the following:** (Please refer to value of web sales you reported in B2) *If you cannot provide the exact percentages an approximation will suffice.*	
	a) via your enterprise's websites or apps? (including extranets)	⊔ ⊔ ⊔ %
	b) via e-commerce marketplace websites or apps used by several enterprises for trading goods or services? **(**e.g. e-Bookers, Booking, hotels.com, eBay, Amazon, Amazon Business, Alibaba, Rakuten, TimoCom etc.) *[Please add national examples of e-commerce marketplaces incl. government marketplaces]*	⊔ ⊔ ⊔ %
	TOTAL	**1 0 0** %

B4. *6	**What was the percentage breakdown of the value of web sales in 2021 by type of customer:** (Please refer to value of web sales you reported in B2) *If you cannot provide the exact percentages an approximation will suffice.*	
	a) Sales to private consumers (**B2C**)	⊔ ⊔ ⊔ %
	b) Sales to other enterprises (**B2B**) and Sales to public sector (**B2G**)	⊔ ⊔ ⊔ %
	TOTAL	**1 0 0** %

[6] For indicator E20 on e-commerce of the monitoring framework 2016-2021 – annual; included in DESI

B5. *7	During 2021, did your enterprise have web sales to customers located in the following geographic areas? *-optional*	Yes	No
	a) Own country	☐	☐
	b) Other EU countries	☐	☐
	c) Rest of the world	☐	☐

The following question (B6) should only be answered if at least two of the above possible responses in question B5 a) , b) or c) are answered with "Yes", otherwise check next filter instruction before question B7

B6. *7	**What was the percentage breakdown of the value of web sales in 2021 to customers located in the following geographic areas?** *-optional* (Please refer to value of web sales you reported in B2) *If you cannot provide the exact percentages an approximation will suffice.*	
	a) Own country	⊔ ⊔ ⊔ %
	b) Other EU countries	⊔ ⊔ ⊔ %
	c) Rest of the world	⊔ ⊔ ⊔ %
	TOTAL	**1 0 0** %

The following question (B7) should only be answered if B5b)=”Yes” otherwise go to B8.

B7. *8	**Regarding web sales to other EU countries: did your enterprise experience any of the following difficulties during 2021?** *–optional*	Yes	No
	a) High costs of delivering or returning products when selling to other EU countries	☐	☐
	b) Difficulties related to resolving complaints or disputes when selling to other EU countries	☐	☐
	c) Adapting product labelling for sales to other EU countries	☐	☐
	d) Lack of knowledge of foreign languages for communicating with customers in other EU countries	☐	☐

[7] For indicators on e-commerce of the monitoring framework 2016-2021 – biennial; included in DESI;
[8] For indicators on e-commerce of the monitoring framework 2016-2021 – annual or biennial;

	e) Restrictions from your business partners to sell to certain EU countries	☐	☐
	f) Difficulties related to the VAT system in other EU countries (e.g. uncertainty regarding VAT treatment in different countries)	☐	☐

EDI-type sales

EDI-type sales cover **orders placed** by customers via EDI-type messages (EDI: Electronic Data interchange) meaning:

- in an **agreed or standard format** suitable for automated processing;
- EDI-type order message created from the **business system** of the customer;
- including orders transmitted via EDI-service provider;
- including automatic system generated **demand driven orders**;
- including orders received directly into your **ERP** system.

Examples of EDI: EDIFACT, XML/EDI (e.g. UBL, Rosettanet, *[please add national examples]*).

B8. *[9]	**During 2021, did your enterprise have EDI-type sales of goods or services?** (Filter question)	Yes ☐	No ☐ -> go to **C1**

B9. *[10]	**What was the value of your EDI-type sales?** (please refer to the provided definition of EDI-type sales) Please answer to a) OR b)	
	a) What was the value of your EDI-type sales of goods or services, in 2021?	(National currency, excluding VAT) _____
	OR **b) What percentage of total turnover was generated by EDI-type sales of goods or services, in 2021?** *If you cannot provide the exact percentage an approximation will suffice.*	⊔ ⊔ ⊔ , ⊔ %

[9] For indicator E19 on e-commerce of the monitoring framework 2016-2021 – annual; included in DESI;
[10] For indicator E20 on e-commerce of the monitoring framework 2016-2021 – annual; included in DESI;

	Module C: ICT specialists and skills (Scope: all enterprises)		
C1. *11	**Does your enterprise employ ICT specialists?** ICT specialists are persons employed for whom **ICT is the main job.** For example, to develop, operate or maintain ICT systems or applications.	Yes ☐	No ☐
C2. *12	**Did your enterprise provide any type of training to develop ICT related skills of the persons employed, during 2021?**	Yes	No
	a) Training for ICT specialists *Tick "No" if your enterprise didn't employ ICT specialists during 2021.*	☐	☐
	b) Training for other persons employed	☐	☐
C3. *13	**Did your enterprise recruit or try to recruit ICT specialists during 2021?** (Filter question)	Yes ☐	No ☐ ->go to **C6**
C4. *16	**During 2021, did your enterprise have vacancies for ICT specialists that were difficult to fill?**	Yes ☐	No ☐ ->go to **C6**
C5.	***Optional*** **Did your enterprise have any of the following difficulties to recruit ICT specialists during 2021?**	Yes	No
	a) Lack of applications	☐	☐
	b) Applicants' lack of relevant ICT related qualifications from education and/or training;	☐	☐
	c) Applicants' lack of relevant work experience	☐	☐
	d) Applicants' salary expectations too high	☐	☐
C6. *14	**Who performed your enterprise's ICT functions in 2021** (e.g. maintenance of ICT infrastructure; support for office software; development or support of business management software/systems and/or web solutions; security and data protection)**?**	Yes	No
	a) own employees (incl. those employed in parent or affiliate enterprises)	☐	☐
	b) external suppliers	☐	☐

If A1=0 then go to E1

[11] For indicator E27 on human capital of the monitoring framework 2016-2021 – annual (or biennial)
[12] For indicator E29 on human capital of the monitoring framework 2016-2021 – annual (or biennial)
[13] For indicator E28 on human capital of the monitoring framework 2016-2021 – annual (or biennial)
[14] For indicator E30 on human capital of the monitoring framework 2016-2021 – annual (or biennial)

Module D: ICT Security

(Scope: enterprises with access to the internet, i.e. if A1>0)

ICT security means measures, controls and procedures applied on enterprise's ICT systems to ensure integrity, authenticity, availability and confidentiality of enterprise's data and systems.

D1.	**Does your enterprise apply any of the following ICT security measures on its ICT systems?**	Yes	No
	a) authentication via **strong password** (e.g. minimum length, use of numbers and special characters, changed periodically, etc.)	☐	☐
	b) authentication via **biometric methods** used to access the enterprise's ICT system (e.g. authentication based on fingerprints, voice, face)	☐	☐
	c) authentication **based on** a combination of **at least two authentication mechanisms** (i.e. combination of e.g. user-defined password, one-time password (OTP), code generated via a security token or received via a smartphone, biometric method (e.g. based on fingerprints, voice, face))	☐	☐
	d) Encryption of data, documents or e-mails	☐	☐
	e) Data backup to a separate location (including backup to the cloud)	☐	☐
	f) Network access control (management of user rights in enterprise's network)	☐	☐
	g) VPN (Virtual Private Network extends a private network across a public network to enable secure exchange of data over public network)	☐	☐
	h) ICT security monitoring system that allows to detect suspicious activity in the ICT systems and alerts the enterprise about it, other than standalone anti-virus software	☐	☐
	i) Maintaining log files that enable analysis after ICT security incidents	☐	☐
	j) ICT risk assessment, i.e. periodical assessment of probability and consequences of ICT security incidents	☐	☐
	k) ICT security tests (e.g. performing penetration tests, testing security alert system, review of security measures, testing of backup systems)	☐	☐

D2.	**Does your enterprise make persons employed aware of their obligations in ICT security related issues in the following ways?**	Yes	No
	a) Voluntary training or internally available information (e.g. information on the intranet)	☐	☐
	b) Compulsory training courses or viewing compulsory material	☐	☐
	c) By contract (e.g. contract of employment)	☐	☐

D3.	**Does your enterprise have document(s) on measures, practices or procedures on ICT security?** (Filter question) (Documents on ICT security and confidentiality of data cover employee training in ICT use, ICT security measures, the evaluation of ICT security measures, plans for updating ICT security documents, etc.)	Yes☐	No☐ ->go to **D5**

D4. *15	When were your enterprise's document(s) on measures, practices or procedures on ICT security, defined or most recently reviewed? (Documents on ICT security and confidentiality of data cover employee training in ICT use, ICT security measures, the evaluation of ICT security measures, plans for updating ICT security documents, etc.) *(Tick only one)*	
	*16a) within the last 12 months	☐
	b) more than 12 months and up to 24 months ago	☐
	c) more than 24 months ago	☐

D5.*17	During 2021, did your enterprise experience any ICT related security incident leading to the following consequences?	Yes	No
	a) Unavailability of ICT services due to hardware or software failures	☐	☐
	b) Unavailability of ICT services due to attack from outside, e.g. ransomware attacks, Denial of Service attacks	☐	☐
	c) Destruction or corruption of data due to hardware or software failures	☐	☐
	d) Destruction or corruption of data due to infection of malicious software or unauthorised intrusion	☐	☐
	e) Disclosure of confidential data due to intrusion, pharming, phishing attack, intentional actions by own employees	☐	☐
	f) Disclosure of confidential data due to unintentional actions by own employees	☐	☐

D6.	Who carries out the ICT security related activities (e.g. security testing, ICT training on security, resolving ICT security incidents) in your enterprise? Exclude upgrades of pre-packaged software	Yes	No
	a) own employees (incl. those employed in parent or affiliate enterprises)	☐	☐
	b) external suppliers	☐	☐

D7.	Does your enterprise have insurance against ICT security incidents?	Yes	No
		☐	☐

[15] For indicators on trust, security and privacy of the monitoring framework 2016-2021 – triennial;
[16] Formulation in the national questionnaires should correspond to: a) <= 12 months; b) > 12 months and <= 24 months; and c) more than 24 months
[17] For indicators on trust, security and privacy of the monitoring framework 2016-2021 – triennial;

Module E: Use of robotics

(Scope: all enterprises)

A robot is a machine which is programmed to move and perform certain tasks automatically.

E1.	**Does your enterprise use any of the following types of robots?** (Filter question)	Yes	No
	a) **Industrial robots** (e.g. robotic welding, laser cutting, spray painting, etc.) *An industrial robot is an automatically controlled, reprogrammable, multipurpose manipulator programmable in three or more axes, which may be either fixed in place or mobile for use. Most of industrial robots are based on a robotic arm and a series of links and joints with an end effector that carries out the task.* *Do not include CNC-machines, 3D printers and devices that are fully controlled by an operator.*	☐	☐
	b) **Service robots** (e.g. used for surveillance, cleaning, transportation, etc.) *A service robot has a degree of autonomy and can operate in complex and dynamic environments that may require interaction with persons, objects or other devices. They use wheels or legs to achieve mobility and are often used in inspection, transport or maintenance tasks.* *Examples are: autonomous guided vehicles, inspection and maintenance robots, cleaning robots, etc.* *Do not include software robots.*	☐	☐

If E1a) and E1b) = "No" then go to F1

E2.	**Please indicate the number of industrial and service robots used by the enterprise** - ***Optional*** Please count each individual robot separately in cases where they are integrated into a production line (e.g. one robotic arm counts as one robot). ***If you cannot provide the exact number, an approximation will suffice***	(Number)

E3.	**Please indicate if the following reasons influenced the decision to use robots in your enterprise:**	Yes	No
	a) High cost of labour	☐	☐
	b) Difficulties to recruit personnel	☐	☐
	c) To enhance safety at work	☐	☐
	d) To ensure high precision or standardized quality of processes and/or goods and services produced	☐	☐
	e) To expand the range of goods produced or services provided by the enterprise	☐	☐
	f) Tax or other government incentives	☐	☐

Module F: ICT and the environment

(Scope: all enterprises)

F1.	Does your enterprise apply any measures to affect the following?	Yes	No
	a) Amount of paper used for printing and copying	☐	☐
	b) **Energy consumption of the ICT equipment**	☐	☐

F2.	Does your enterprise consider environmental impact of ICT services, or ICT equipment when selecting them (e.g. energy consumption, etc.)?	Yes	No
		☐	☐

F3.	What does your enterprise do with ICT equipment (e.g. computers, monitors, mobile phones) when it is no longer used?	Yes	No
	a) It is disposed of in electronic waste collection/recycling (incl. leaving it to the retailer to dispose of)	☐	☐
	b) The ICT equipment is kept in the enterprise (e.g. to be used as spare parts, fear of sensitive information being disclosed)	☐	☐
	c) It is sold, returned to a leasing enterprise, or donated	☐	☐

Module X: Background information*[18]

(X1-X3) available in some countries from SBS, the business register or administrative data and thus not to be included; latest available information should be provided

X1.	**Main economic activity of the enterprise, during 2021**	…
X2.	**Average number of employees and self-employed persons (persons employed), during 2021**	…
X3.	**Total turnover (in monetary terms, excluding VAT), for 2021**	…

[18] For indicators E31, E32, E33 (background characteristics) of the monitoring framework 2016-2021

Community Survey on ICT Usage and e-Commerce in Enterprises
Glossary

App(s)

A mobile app, short for mobile application or just app, is application software designed for a specific purpose (e.g. entertainment, shopping, etc.), downloaded and used on computers depending on their operating system. (e.g. portable devices such as tablets, Smartphones, etc.)

Further information: http://en.wikipedia.org/wiki/Mobile_app; http://www.techopedia.com/definition/2953/mobile-application-mobile-app

Authentication methods

Authentication is a way to ascertain that a user is who they claim to be. This is usually performed by presenting one or more challenges to the user. There are three broad categories of challenges:

1) Something the user knows. The user is asked for a secret, known only to her. Typical examples are passwords and PINs, but can also take the form of security questions.

2) Something the user has. The user is in possession of a unique token, like a key. In the case of computer tokens, this can take the form of an NFC tag, or a device.

3) Something the user is. Aka biometrics. The user is asked to present a part of her body that forms unique and repeatable patterns, like fingerprints, voice, or face recognition.

Source:https://www.enisa.europa.eu/topics/csirts-in-europe/glossary/authentication-methods

Biometric authentication

Biometric authentication is a security process that relies on the unique biological characteristics of an individual to verify that he is who is says he is. Biometric authentication systems compare a biometric data capture to stored, confirmed authentic data in a database. If both samples of the biometric data match, authentication is confirmed. Typically, biometric authentication is used to manage access to physical and digital resources such as buildings, rooms and computing devices. Types of biometric authentication technologies:
Retina scans produce an image of the blood vessel pattern in the light-sensitive surface lining the individual's inner eye.

Iris recognition is used to identify individuals based on unique patterns within the ring-shaped region surrounding the pupil of the eye.

Fingerscanning, the digital version of the ink-and-paper fingerprinting process, works with details in the pattern of raised areas and branches in a human finger image.

Finger vein ID is based on the unique vascular pattern in an individual's finger.

Facial recognition systems work with numeric codes called faceprints, which identify 80 nodal points on a human face.

Voice identification systems rely on characteristics created by the shape of the speaker's mouth and throat, rather than more variable conditions.

Source: https://searchsecurity.techtarget.com/definition/biometric-authentication

Business process

A business process or business method is a collection of related, structured activities or tasks that produce a specific service or product (serve a particular goal) for a particular customer or customers. Business processes can be of three types: *Management processes* (e.g. corporate governance, strategic management), *Operational processes* (e.g. purchasing, manufacturing, marketing and sales etc) and *Supporting processes* (e.g. accounting, recruitment, technical support etc).

Source: http://en.wikipedia.org/wiki/Business_process

CRM

Customer Relationship Management (CRM) is a management methodology which places the customer at the centre of the business activity, based in an intensive use of information technologies to collect, integrate, process and analyse information related to the customers.

One can distinguish between:

1. Operational CRM – Integration of the front office business processes that are in contact with the customer.

2. Analytical CRM – Analysis, through data mining, of the information available in the enterprise on its customers. This aims to gather in depth knowledge of the customer and how to answer to its needs.

Denial of service attack

A denial-of-service attack (DoS attack) or distributed denial-of-service attack (DDoS attack) is an attempt to make a computer resource unavailable to its intended users. Although the means to carry out, motives for, and targets of a DoS attack may vary, it generally consists of the concerted efforts of a person or persons to prevent an internet site or service from functioning efficiently or at all, temporarily or indefinitely. Perpetrators of DoS attacks typically target sites or services hosted on high-profile web servers such as banks, credit card payment gateways, and even root name servers.

One common method of attack involves saturating the target (victim) machine with external communications requests, such that it cannot respond to legitimate traffic, or responds so slowly as to be rendered effectively unavailable. In general terms, DoS attacks are implemented by either forcing the targeted computer(s) to reset, or consuming its resources so that it can no longer provide its intended service or obstructing the communication media between the intended users and the victim so that they can no longer communicate adequately.

DSL

Digital Subscriber Line (DSL) is a family of technologies that provides digital data transmission over the wires of a local telephone network. DSL is widely understood to mean Asymmetric Digital Subscriber Line (ADSL), the most commonly installed technical varieties of DSL. DSL service is delivered simultaneously with regular telephone on the same telephone line as it uses a higher frequency band that is separated by filtering.

Source: http://en.wikipedia.org/wiki/DSL

EDI, EDI-type

Electronic Data Interchange (EDI) refers to the structured transmission of data or documents between organizations or enterprises by electronic means. It also refers specifically to a family of standards (EDI-type) and EDI-type messages suitable for automated processing.

Source: http://en.wikipedia.org/wiki/Electronic_Data_Interchange

EDI e-commerce

Orders initiated with EDI-type messages. EDI (electronic data interchange) is an e-business tool for exchanging different kinds of business messages. EDI is here used as a generic term for sending or receiving business information in an agreed format suitable for automated processing (e.g. EDIFACT, XML, etc.) and without the individual message being manually typed. "EDI e-commerce" is limited to EDI messages placing an order.

Source: OECD, DSTI/ICCP/IIS(2009)5/FINAL

Electronic commerce (e-Commerce)

An e-commerce transaction is the sale or purchase of goods or services, conducted over computer networks by methods specifically designed for the purpose of receiving or placing of orders. The goods or services are ordered by those methods, but the payment and the ultimate delivery of the goods or services do not have to be conducted online. An e-commerce transaction can be between enterprises, households, individuals, governments, and other public or private organisations. e-Commerce comprises orders made in Web pages or apps, extranet or EDI and excludes orders made by telephone calls, facsimile, or manually typed e-mail. The type is defined by the method of making the order.

Source: OECD, DSTI/ICCP/IIS(2009)5/FINAL

E-mail

Electronic transmission of messages, including text and attachments, from one computer to another located within or outside of the organisation. This includes electronic mail by internet or other computer networks.

ERP

Enterprise Resource Planning (ERP) consists of one or of a set of software applications that integrate information and processes across the several business functions of the enterprise. Typically ERP integrates planning, procurement, sales, marketing, customer relationship, finance and human resources.

ERP software can be customised or package software. These latter are single-vendor, enterprise wide, software packages, but they are built in a modular way allowing enterprises to customise the system to their specific activity implementing only some of those modules.

ERP systems typically have the following characteristics:

1. are designed for client server environment (traditional or web-based);
2. integrate the majority of a business's processes;
3. process a large majority of an organization's transactions;
4. use enterprise-wide database that stores each piece of data only once;
5. allow access to the data in real time.

Extranet

A closed network that uses internet protocols to securely share enterprise's 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 enterprise's Intranet. It can also be a private part of the enterprise's website, where business partners can navigate after being authenticated in a login page.

Internet

The internet is a global system of interconnected computer networks that use the standard internet Protocol Suite (TCP/IP) to serve billions of users worldwide. It is a network of networks that consists of millions of private, public, academic, business, and government networks of local to global scope that are linked by a broad array of electronic and optical networking technologies. The internet carries a vast array of information resources and services, most notably the inter-linked hypertext documents of the World Wide Web (WWW) and the infrastructure to support electronic mail.

Source: http://en.wikipedia.org/wiki/internet

Relates to internet Protocol based networks: www, Extranet over the internet, EDI over the internet, internet-enabled mobile phones.

Intrusion

An intrusion is an attempt to bypass security controls on a information system. Means of intrusion can be eavesdropping, viruses, worms, trojan horses, logic or time bombs, brute force attacks, etc.

Intrusion detection is a process with the purpose of detecting intrusions or attempts of intrusions into a computer or network to compromise the confidentiality, integrity or availability by observation of system, application and user activity as well as network traffic. Intrusion detection systems take preventive actions against intrusions without direct human intervention.

Malicious software

Malicious software, also known as "malware" is any piece of software that performs undesirable operations such as data theft or some other type of computer compromise.

Source:https://www.enisa.europa.eu/topics/csirts-in-europe/glossary/malware

Marketplace(s) (e-Commerce marketplaces)

The term "e-commerce marketplaces" refers to websites or apps used by several enterprises for trading products e.g. Booking, eBay, Amazon, Amazon Business, Alibaba, Rakuten, etc.). e-Commerce marketplaces are different from e-commerce platforms. The latter provide scalable, self-made online solutions for business that would like to set up their own e-commerce website.

Online payment	An online payment is an integrated ordering-payment transaction
Pharming	The term "pharming" connotes an attack to redirect the traffic of a website to another, bogus website in order to acquire sensitive information.
Phishing	Phishing is a criminally fraudulent attempt to acquire sensitive information such as usernames, passwords and credit card details by masquerading as a trustworthy entity in an electronic communication.
Ransomware	Ransomware is a type of malware (like Viruses, Trojans, etc.) that infect the computer systems of users and manipulates the infected system in a way, that the victim can not (partially or fully) use it and the data stored on it. The victim usually shortly after receives a blackmail note by pop-up, pressing the victim to pay a ransom (hence the name) to regain full access to system and files. Source:https://www.enisa.europa.eu/topics/csirts-in-europe/glossary/ransomware
Robots - Robotics	According to their intended application, robots may be industrial or service robots. An industrial robot is an automatically controlled, reprogrammable, multipurpose manipulator programmable in three or more axes, which may be either fixed in place or mobile for use in industrial automation applications. A service robot is a machine that has a degree of autonomy and is able to operate in complex and dynamic environment that may require interaction with persons, objects or other devices, excluding its use in industrial automation applications.
Robotic process automation (Artificial Intelligence based)	Artificial Intelligence based robotic process automation refers to software that automates business processes (e.g. workflows automation) based on Artificial Intelligence technologies.
Sales via website (web sales)	Web sales are sales made via an online store (web shop), via web forms on a website or extranet, or apps. Web sales are distinguished from EDI sales. In particular, the type of e-commerce transaction is defined by the method of making the order. This approach should mitigate the interpretation problems where both types, EDI and Web, are used in the process. An example is a situation where an order is made by the customer through a web application but the information is transmitted to the seller as an EDI-type message. Here the type of selling application is however web; EDI is only a business application to transmit information about the sale. Web sales can be done by mobile phones using an internet browser. Source: OECD, DSTI/ICCP/IIS(2009)5/FINAL
Speech recognition	Speech recognition is the ability of a machine or program to identify words and phrases in spoken language and convert them to a machine-readable format.
VPN	A virtual private network (VPN) extends a private network across a public network, and enables users to send and receive data across shared or public networks as if their computing devices were directly connected to the private network. Applications running on a computing device, e.g., a laptop, desktop, smartphone, across a VPN may therefore benefit from the functionality, security, and management of the private network. Encryption is a common, though not an inherent, part of a VPN connection. Source: https://en.wikipedia.org/wiki/Virtual_private_network
Web e-commerce	Web (e-commerce) sales are sales made via an online store (web shop), via web forms on a website or extranet, or apps regardless of how the web is accessed (computer, laptop, mobile phone etc.) Source: OECD, DSTI/ICCP/IIS(2009)5/FINAL

Website	Location on the World Wide Web identified by a Web address. Collection of Web files on a particular subject that includes a beginning file called a home page. Information is encoded with specific languages (Hypertext mark-up language (HTML), XML, Java) readable with a Web browser, like Netscape's Navigator or Microsoft's internet Explorer.
Wi-Fi	Wi-Fi (or Wi-fi, WiFi, Wifi, wifi), short for 'Wireless Fidelity', is a set of ethernet standards for wireless local area networks (WLAN) currently based on the IEEE 802.11 specifications. New standards beyond the 802.11 specifications, such as 802.16 have been developed. Wi-Fi was intended to be used for wireless devices and LANs, but is now often used for internet access (one of the main international standards for wireless broadband internet access and networking, with widespread use in business, homes and public spaces). It is based on radio signals with a frequency of 2.4 GHz and theoretically capable of speeds of over 54 Mbit/s. It enables a person with a wireless-enabled computer or personal digital assistant to connect to the internet when close to an access point called a hotspot.
xDSL	Digital Subscriber Line. DSL technologies are designed to increase bandwidth available over standard copper telephone wires. Includes IDSL, HDSL, SDSL, ADSL, RADSL, VDSL, DSL-Lite.
XML	The Extensible Markup Language is a markup language for documents containing structured information. Structured information contains both content (words, pictures, etc.) and some indication of what role that content plays (for example, content in a section heading has a different meaning from content in a footnote, which means something different than content in a figure caption or content in a database table, etc.). Almost all documents have some structure. A markup language is a mechanism to identify structures in a document. The XML specification defines a standard way to add markup to documents. Source: http://www.xml.com/

Annex 2 - Validations rules

Survey	Country	KeyName	KeyGroup	Message
SDMXE	*	ACTIVITY	bynaceeu	c10t12 <= c10t18
SDMXE	*	ACTIVITY	bynaceeu	c10t12 <= c10ts951xk
SDMXE	*	ACTIVITY	bynaceeu	c10t12 >= 0
SDMXE	*	ACTIVITY	bynaceeu	c13t15 <= c10t18
SDMXE	*	ACTIVITY	bynaceeu	c13t15 <= c10ts951xk
SDMXE	*	ACTIVITY	bynaceeu	c13t15 >= 0
SDMXE	*	ACTIVITY	bynaceeu	c16t18 <= c10t18
SDMXE	*	ACTIVITY	bynaceeu	c16t18 <= c10ts951xk
SDMXE	*	ACTIVITY	bynaceeu	c16t18 >= 0
SDMXE	*	ACTIVITY	bynaceeu	c19 <= c10ts951xk
SDMXE	*	ACTIVITY	bynaceeu	c19 <= c19t23
SDMXE	*	ACTIVITY	bynaceeu	c19 >= 0
SDMXE	*	ACTIVITY	bynaceeu	c19t23 = c19 + c20 + c21 + c22_23
SDMXE	*	ACTIVITY	bynaceeu	c20 <= c10ts951xk
SDMXE	*	ACTIVITY	bynaceeu	c20 <= c19t23
SDMXE	*	ACTIVITY	bynaceeu	c20 >= 0
SDMXE	*	ACTIVITY	bynaceeu	c21 <= c10ts951xk
SDMXE	*	ACTIVITY	bynaceeu	c21 <= c19t23
SDMXE	*	ACTIVITY	bynaceeu	c21 >= 0
SDMXE	*	ACTIVITY	bynaceeu	c22_23 <= c10ts951xk
SDMXE	*	ACTIVITY	bynaceeu	c22_23 <= c19t23
SDMXE	*	ACTIVITY	bynaceeu	c22_23 >= 0
SDMXE	*	ACTIVITY	bynaceeu	c26 <= c10ts951xk
SDMXE	*	ACTIVITY	bynaceeu	c26 <= c26t33
SDMXE	*	ACTIVITY	bynaceeu	c26 >= 0
SDMXE	*	ACTIVITY	bynaceeu	c27 <= c10ts951xk
SDMXE	*	ACTIVITY	bynaceeu	c27 <= c27_28
SDMXE	*	ACTIVITY	bynaceeu	c27 >= 0
SDMXE	*	ACTIVITY	bynaceeu	c27_28 <= c10ts951xk
SDMXE	*	ACTIVITY	bynaceeu	c27_28 <= c26t33
SDMXE	*	ACTIVITY	bynaceeu	c27_28 = c27 + c28
SDMXE	*	ACTIVITY	bynaceeu	c27_28 >= 0
SDMXE	*	ACTIVITY	bynaceeu	c28 <= c10ts951xk
SDMXE	*	ACTIVITY	bynaceeu	c28 <= c27_28
SDMXE	*	ACTIVITY	bynaceeu	c28 >= 0
SDMXE	*	ACTIVITY	bynaceeu	c29_30 <= c10ts951xk
SDMXE	*	ACTIVITY	bynaceeu	c29_30 <= c26t33
SDMXE	*	ACTIVITY	bynaceeu	c29_30 >= 0
SDMXE	*	ACTIVITY	bynaceeu	c31t33 <= c10ts951xk
SDMXE	*	ACTIVITY	bynaceeu	c31t33 <= c26t33
SDMXE	*	ACTIVITY	bynaceeu	c31t33 >= 0
SDMXE	*	ACTIVITY	bynaceeu	d35 <= c10ts951xk

Survey	Country	KeyName	KeyGroup	Message
SDMXE	*	ACTIVITY	bynaceeu	d35 <= d35te39
SDMXE	*	ACTIVITY	bynaceeu	d35 >= 0
SDMXE	*	ACTIVITY	bynaceeu	d35te39 = d35 + e36t39
SDMXE	*	ACTIVITY	bynaceeu	e36t39 <= c10ts951xk
SDMXE	*	ACTIVITY	bynaceeu	e36t39 <= d35te39
SDMXE	*	ACTIVITY	bynaceeu	e36t39 >= 0
SDMXE	*	ACTIVITY	bynaceeu	g45 <= c10ts951xk
SDMXE	*	ACTIVITY	bynaceeu	g45 <= g45t47
SDMXE	*	ACTIVITY	bynaceeu	g45 >= 0
SDMXE	*	ACTIVITY	bynaceeu	g46 <= c10ts951xk
SDMXE	*	ACTIVITY	bynaceeu	g46 <= g45t47
SDMXE	*	ACTIVITY	bynaceeu	g46 >= 0
SDMXE	*	ACTIVITY	bynaceeu	g47 <= c10ts951xk
SDMXE	*	ACTIVITY	bynaceeu	g47 <= g45t47
SDMXE	*	ACTIVITY	bynaceeu	g47 >= 0
SDMXE	*	ACTIVITY	bynaceeu	j58t60 <= c10ts951xk
SDMXE	*	ACTIVITY	bynaceeu	j58t60 <= j58t63
SDMXE	*	ACTIVITY	bynaceeu	j58t60 >= 0
SDMXE	*	ACTIVITY	bynaceeu	j61 <= c10ts951xk
SDMXE	*	ACTIVITY	bynaceeu	j61 <= j58t63
SDMXE	*	ACTIVITY	bynaceeu	j61 >= 0
SDMXE	*	ACTIVITY	bynaceeu	j62_63 <= c10ts951xk
SDMXE	*	ACTIVITY	bynaceeu	j62_63 <= j58t63
SDMXE	*	ACTIVITY	bynaceeu	j62_63 >= 0
SDMXE	*	ACTIVITY	bynaceeu	m69t71 <= c10ts951xk
SDMXE	*	ACTIVITY	bynaceeu	m69t71 <= m69t75
SDMXE	*	ACTIVITY	bynaceeu	m69t71 >= 0
SDMXE	*	ACTIVITY	bynaceeu	m69t75 = m69t71 + m72 + m73t75
SDMXE	*	ACTIVITY	bynaceeu	m72 <= c10ts951xk
SDMXE	*	ACTIVITY	bynaceeu	m72 <= m69t75
SDMXE	*	ACTIVITY	bynaceeu	m72 >= 0
SDMXE	*	ACTIVITY	bynaceeu	m73t75 <= c10ts951xk
SDMXE	*	ACTIVITY	bynaceeu	m73t75 <= m69t75
SDMXE	*	ACTIVITY	bynaceeu	m73t75 >= 0
SDMXE	*	ACTIVITY	bynaceeu	n77t82x79 <= c10ts951xk
SDMXE	*	ACTIVITY	bynaceeu	n77t82x79 <= n77t82
SDMXE	*	ACTIVITY	bynaceeu	n77t82x79 >= 0
SDMXE	*	ACTIVITY	bynacenat	c10t18 <= c10t33
SDMXE	*	ACTIVITY	bynacenat	c10t18 <= c10ts951xk
SDMXE	*	ACTIVITY	bynacenat	c10t18 = c10t12 + c13t15 + c16t18
SDMXE	*	ACTIVITY	bynacenat	c10t18 >= 0
SDMXE	*	ACTIVITY	bynacenat	c10t33 <= c10tf43
SDMXE	*	ACTIVITY	bynacenat	c10t33 <= c10ts951xk
SDMXE	*	ACTIVITY	bynacenat	c10t33 = c10t18 + c19t23 + c24_25 + c26t33

Survey	Country	KeyName	KeyGroup	Message
SDMXE	*	ACTIVITY	bynacenat	c10t33 >= 0
SDMXE	*	ACTIVITY	bynacenat	c10te39 <= c10ts951xk
SDMXE	*	ACTIVITY	bynacenat	c10te39 = c10t33 + d35te39
SDMXE	*	ACTIVITY	bynacenat	c10te39 >= 0
SDMXE	*	ACTIVITY	bynacenat	c10tf43 <= c10ts951xk
SDMXE	*	ACTIVITY	bynacenat	c10tf43 = c10t33 + d35te39 + f41t43
SDMXE	*	ACTIVITY	bynacenat	c10tf43 >= 0
SDMXE	*	ACTIVITY	bynacenat	c10ts951xk >= 0
SDMXE	*	ACTIVITY	bynacenat	c19t23 <= c10t33
SDMXE	*	ACTIVITY	bynacenat	c19t23 <= c10ts951xk
SDMXE	*	ACTIVITY	bynacenat	c19t23 >= 0
SDMXE	*	ACTIVITY	bynacenat	c24_25 <= c10t33
SDMXE	*	ACTIVITY	bynacenat	c24_25 <= c10ts951xk
SDMXE	*	ACTIVITY	bynacenat	c24_25 >= 0
SDMXE	*	ACTIVITY	bynacenat	c26t33 <= c10t33
SDMXE	*	ACTIVITY	bynacenat	c26t33 <= c10ts951xk
SDMXE	*	ACTIVITY	bynacenat	c26t33 = c26 + c27_28 + c29_30 + c31t33
SDMXE	*	ACTIVITY	bynacenat	c26t33 >= 0
SDMXE	*	ACTIVITY	bynacenat	d35te39 <= c10tf43
SDMXE	*	ACTIVITY	bynacenat	d35te39 <= c10ts951xk
SDMXE	*	ACTIVITY	bynacenat	d35te39 >= 0
SDMXE	*	ACTIVITY	bynacenat	f41t43 <= c10tf43
SDMXE	*	ACTIVITY	bynacenat	f41t43 <= c10ts951xk
SDMXE	*	ACTIVITY	bynacenat	f41t43 >= 0
SDMXE	*	ACTIVITY	bynacenat	g45t47 <= c10ts951xk
SDMXE	*	ACTIVITY	bynacenat	g45t47 <= g45ts951xk
SDMXE	*	ACTIVITY	bynacenat	g45t47 = g45 + g46 + g47
SDMXE	*	ACTIVITY	bynacenat	g45t47 >= 0
SDMXE	*	ACTIVITY	bynacenat	h49t53 <= c10ts951xk
SDMXE	*	ACTIVITY	bynacenat	h49t53 <= g45ts951xk
SDMXE	*	ACTIVITY	bynacenat	h49t53 >= 0
SDMXE	*	ACTIVITY	bynacenat	i55 <= c10ts951xk
SDMXE	*	ACTIVITY	bynacenat	i55 <= g45ts951xk
SDMXE	*	ACTIVITY	bynacenat	i55 <= i55_56
SDMXE	*	ACTIVITY	bynacenat	i55 >= 0
SDMXE	*	ACTIVITY	bynacenat	i55_56 <= c10ts951xk
SDMXE	*	ACTIVITY	bynacenat	i55_56 <= g45ts951xk
SDMXE	*	ACTIVITY	bynacenat	i55_56 >= 0
SDMXE	*	ACTIVITY	bynacenat	ict_t <= c10ts951xk
SDMXE	*	ACTIVITY	bynacenat	ict_t <= c26t33 + g45t47 + j58t63 + s951
SDMXE	*	ACTIVITY	bynacenat	ict_t >= 0
SDMXE	*	ACTIVITY	bynacenat	j58t63 <= c10ts951xk
SDMXE	*	ACTIVITY	bynacenat	j58t63 <= g45ts951xk
SDMXE	*	ACTIVITY	bynacenat	j58t63 = j58t60 + j61 + j62_63

Survey	Country	KeyName	KeyGroup	Message
SDMXE	*	ACTIVITY	bynacenat	j58t63 >= 0
SDMXE	*	ACTIVITY	bynacenat	l68 <= c10ts951xk
SDMXE	*	ACTIVITY	bynacenat	l68 <= g45ts951xk
SDMXE	*	ACTIVITY	bynacenat	l68 >= 0
SDMXE	*	ACTIVITY	bynacenat	l68tm75 <= c10ts951xk
SDMXE	*	ACTIVITY	bynacenat	l68tm75 <= g45ts951xk
SDMXE	*	ACTIVITY	bynacenat	l68tm75 = l68 + m69t75
SDMXE	*	ACTIVITY	bynacenat	l68tm75 >= 0
SDMXE	*	ACTIVITY	bynacenat	m69t75 <= c10ts951xk
SDMXE	*	ACTIVITY	bynacenat	m69t75 <= g45ts951xk
SDMXE	*	ACTIVITY	bynacenat	m69t75 >= 0
SDMXE	*	ACTIVITY	bynacenat	n77t82 <= c10ts951xk
SDMXE	*	ACTIVITY	bynacenat	n77t82 <= g45ts951xk
SDMXE	*	ACTIVITY	bynacenat	n77t82 = n77t82x79 + n79
SDMXE	*	ACTIVITY	bynacenat	n77t82 >= 0
SDMXE	*	ACTIVITY	bynacenat	n79 <= n77t82
SDMXE	*	ACTIVITY	bynacenat	n79 >= 0
SDMXE	*	ACTIVITY	bynacenat	s951 <= c10ts951xk
SDMXE	*	ACTIVITY	bynacenat	s951 <= g45ts951xk
SDMXE	*	ACTIVITY	bynacenat	s951 >= 0
SDMXE	*	ACTIVITY	total	c10ts951xk = c10t18 + c19t23 + c24_25 + c26t33 + d35te39 + f41t43 + g45t47 + h49t53 + i55_56 + j58t63 + l68 + m69t75 + n77t82 + s951
SDMXE	*	ACTIVITY	total	c10ts951xk = c10tf43 + g45ts951xk
SDMXE	*	ACTIVITY	total	g45ts951xk = g45t47 + h49t53 + i55_56 + j58t63 + l68 + m69t75 + n77t82 + s951
SDMXE	*	ACTIVITY	total	g45ts951xk >= 0
SDMXE	*	INDICATOR	a01	e_iuse <= ent
SDMXE	*	INDICATOR	a01	e_iuse_ge10a <= e_iuse
SDMXE	*	INDICATOR	a01	e_iuse_gt10 <= e_iuse
SDMXE	*	INDICATOR	a01	e_iuse_gt50 <= e_iuse_gt10
SDMXE	*	INDICATOR	a02	e_fixbb <= e_iuse
SDMXE	*	INDICATOR	a02	e_fixbbx <= e_iuse
SDMXE	*	INDICATOR	a02	e_fixbbz <= e_iuse
SDMXE	*	INDICATOR	a02	e_iuse = e_fixbb + e_fixbbx + e_fixbbz
SDMXE	*	INDICATOR	a02	e_iuse >= e_fixbb + e_fixbbx + e_fixbbz
SDMXE	*	INDICATOR	a03	e_fixbb = e_ispdf_lt30 + e_ispdf1_30_100 + e_ispdf_100_500 + e_ispdf_500_1g + e_ispdf_ge1g
SDMXE	*	INDICATOR	a03	e_fixbb >= e_ispdf_lt30 + e_ispdf1_30_100 + e_ispdf_100_500 + e_ispdf_500_1g + e_ispdf_ge1g
SDMXE	*	INDICATOR	a03	e_ispdf_100_500 <= e_fixbb
SDMXE	*	INDICATOR	a03	e_ispdf_500_1g <= e_fixbb
SDMXE	*	INDICATOR	a03	e_ispdf_ge1g <= e_fixbb
SDMXE	*	INDICATOR	a03	e_ispdf_lt30 <= e_fixbb
SDMXE	*	INDICATOR	a03	e_ispdf1_30_100 <= e_fixbb
SDMXE	*	INDICATOR	a03	e_ispdf1_ge100 <= e_fixbb

Survey	Country	KeyName	KeyGroup	Message
SDMXE	*	INDICATOR	a03	e_ispdf1_ge100 = e_ispdf_100_500 + e_ispdf_500_1g + e_ispdf_ge1g
SDMXE	*	INDICATOR	a03	e_ispdf1_ge30 <= e_fixbb
SDMXE	*	INDICATOR	a03	e_ispdf1_ge30 = e_ispdf1_30_100 + e_ispdf_100_500 + e_ispdf_500_1g + e_ispdf_ge1g
SDMXE	*	INDICATOR	a04	e_empmd2_gt0 <= e_iuse
SDMXE	*	INDICATOR	a04	e_empmd2_gt0 <= e_pmd
SDMXE	*	INDICATOR	a04	e_empmd2_gt0 = e_pmd
SDMXE	*	INDICATOR	a04	e_empmd2_gt10 <= e_empmd2_gt0
SDMXE	*	INDICATOR	a04	e_empmd2_gt10 <= e_iuse
SDMXE	*	INDICATOR	a04	e_empmd2_gt20 <= e_empmd2_gt10
SDMXE	*	INDICATOR	a04	e_empmd2_gt20 <= e_iuse
SDMXE	*	INDICATOR	a04	e_empmd2_gt50 <= e_empmd2_gt20
SDMXE	*	INDICATOR	a04	e_empmd2_gt50 <= e_iuse
SDMXE	*	INDICATOR	a04	e_iuse = e_pmd + e_pmdx
SDMXE	*	INDICATOR	a04	e_iuse >= e_pmd + e_pmdx
SDMXE	*	INDICATOR	a04	e_pmd <= e_iuse
SDMXE	*	INDICATOR	a04	e_pmdx <= e_iuse
SDMXE	*	INDICATOR	a04a02	e_broad3 <= e_fixbb + e_pmd
SDMXE	*	INDICATOR	a04a02	e_broad3 <= e_iuse
SDMXE	*	INDICATOR	a04a02	e_broad3x <= e_iuse
SDMXE	*	INDICATOR	a04a02	e_fixbb <= e_broad3
SDMXE	*	INDICATOR	a04a02	e_iuse = e_broad3 + e_broad3x
SDMXE	*	INDICATOR	a04a02	e_iuse >= e_broad3 + e_broad3x
SDMXE	*	INDICATOR	a04a02	e_pmd <= e_broad3
SDMXE	*	INDICATOR	a05	e_iuse = e_rm + e_rmx
SDMXE	*	INDICATOR	a05	e_iuse >= e_rm + e_rmx
SDMXE	*	INDICATOR	a05	e_rm <= e_iuse
SDMXE	*	INDICATOR	a05	e_rmx <= e_iuse
SDMXE	*	INDICATOR	a06	e_rm = e_rm_sg + e_rm_sgx
SDMXE	*	INDICATOR	a06	e_rm >= e_rm_sg + e_rm_sgx
SDMXE	*	INDICATOR	a06	e_rm_sg <= e_rm
SDMXE	*	INDICATOR	a06	e_rm_sgx <= e_rm
SDMXE	*	INDICATOR	a07	e_rm = e_rm_eg + e_rm_egx
SDMXE	*	INDICATOR	a07	e_rm >= e_rm_eg + e_rm_egx
SDMXE	*	INDICATOR	a07	e_rm_eg <= e_rm
SDMXE	*	INDICATOR	a07	e_rm_egx <= e_rm
SDMXE	*	INDICATOR	a08	e_iuse = e_ra_d + e_ra_dx
SDMXE	*	INDICATOR	a08	e_iuse = e_ra_m + e_ra_mx
SDMXE	*	INDICATOR	a08	e_iuse = e_ra_s + e_ra_sx
SDMXE	*	INDICATOR	a08	e_iuse >= e_ra_d + e_ra_dx
SDMXE	*	INDICATOR	a08	e_iuse >= e_ra_m + e_ra_mx
SDMXE	*	INDICATOR	a08	e_iuse >= e_ra_s + e_ra_sx
SDMXE	*	INDICATOR	a08	e_ra <= e_iuse
SDMXE	*	INDICATOR	a08	e_ra <= e_ra_m + e_ra_d + e_ra_s

Survey	Country	KeyName	KeyGroup	Message
SDMXE	*	INDICATOR	a08	e_ra_all <= e_iuse
SDMXE	*	INDICATOR	a08	e_ra_all <= e_ra_d
SDMXE	*	INDICATOR	a08	e_ra_all <= e_ra_m
SDMXE	*	INDICATOR	a08	e_ra_all <= e_ra_s
SDMXE	*	INDICATOR	a08	e_ra_d <= e_iuse
SDMXE	*	INDICATOR	a08	e_ra_d <= e_ra
SDMXE	*	INDICATOR	a08	e_ra_d <= e_ra_ds
SDMXE	*	INDICATOR	a08	e_ra_ds <= e_ra_d + e_ra_s
SDMXE	*	INDICATOR	a08	e_ra_dx <= e_iuse
SDMXE	*	INDICATOR	a08	e_ra_m <= e_iuse
SDMXE	*	INDICATOR	a08	e_ra_m <= e_ra
SDMXE	*	INDICATOR	a08	e_ra_mx <= e_iuse
SDMXE	*	INDICATOR	a08	e_ra_s <= e_iuse
SDMXE	*	INDICATOR	a08	e_ra_s <= e_ra
SDMXE	*	INDICATOR	a08	e_ra_s <= e_ra_ds
SDMXE	*	INDICATOR	a08	e_ra_sx <= e_iuse
SDMXE	*	INDICATOR	a09	e_ra_mge10 <= e_ra_m
SDMXE	*	INDICATOR	a09	e_ra_mge25 <= e_ra_m
SDMXE	*	INDICATOR	a09	e_ra_mge25 <= e_ra_mge10
SDMXE	*	INDICATOR	a09	e_ra_mge50 <= e_ra_m
SDMXE	*	INDICATOR	a09	e_ra_mge50 <= e_ra_mge25
SDMXE	*	INDICATOR	a10	e_ra_dsge10 <= e_ra_ds
SDMXE	*	INDICATOR	a10	e_ra_dsge25 <= e_ra_ds
SDMXE	*	INDICATOR	a10	e_ra_dsge25 <= e_ra_dsge10
SDMXE	*	INDICATOR	a10	e_ra_dsge50 <= e_ra_ds
SDMXE	*	INDICATOR	a10	e_ra_dsge50 <= e_ra_dsge25
SDMXE	*	INDICATOR	a11	e_ra = e_ra_sg + e_ra_sgx
SDMXE	*	INDICATOR	a11	e_ra >= e_ra_sg + e_ra_sgx
SDMXE	*	INDICATOR	a11	e_ra_sg <= e_ra
SDMXE	*	INDICATOR	a11	e_ra_sgx <= e_ra
SDMXE	*	INDICATOR	b1	e_aws_cboth <= e_aws_cmp
SDMXE	*	INDICATOR	b1	e_aws_cboth <= e_aws_cown
SDMXE	*	INDICATOR	b1	e_aws_cboth <= e_iuse
SDMXE	*	INDICATOR	b1	e_aws_cmp <= e_awsell
SDMXE	*	INDICATOR	b1	e_aws_cmp <= e_iuse
SDMXE	*	INDICATOR	b1	e_aws_cmpx <= e_iuse
SDMXE	*	INDICATOR	b1	e_aws_cown <= e_awsell
SDMXE	*	INDICATOR	b1	e_aws_cown <= e_iuse
SDMXE	*	INDICATOR	b1	e_aws_cownx <= e_iuse
SDMXE	*	INDICATOR	b1	e_awsell <= e_aws_cmp + e_aws_cown
SDMXE	*	INDICATOR	b1	e_awsell <= e_iuse
SDMXE	*	INDICATOR	b1	e_awsell = e_aws_cmp + e_aws_cown - e_aws_cboth
SDMXE	*	INDICATOR	b1	e_awsellx <= e_iuse
SDMXE	*	INDICATOR	b1	e_iuse = e_aws_cmp + e_aws_cmpx

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SDMXE	*	INDICATOR	b1	e_iuse = e_aws_cown + e_aws_cownx
SDMXE	*	INDICATOR	b1	e_iuse = e_awsell + e_awsellx
SDMXE	*	INDICATOR	b1	e_iuse >= e_aws_cmp + e_aws_cmpx
SDMXE	*	INDICATOR	b1	e_iuse >= e_aws_cown + e_aws_cownx
SDMXE	*	INDICATOR	b1	e_iuse >= e_awsell + e_awsellx
SDMXE	*	INDICATOR	b2	e_awsell = e_wsel0 + e_wselz
SDMXE	*	INDICATOR	b2	e_awsell >= e_wsel0 + e_wselz
SDMXE	*	INDICATOR	b2	e_awsval <= tovt
SDMXE	*	INDICATOR	b2	e_awsval = e_awsvalb + e_awsvals
SDMXE	*	INDICATOR	b2	e_awsvalb <= tovt
SDMXE	*	INDICATOR	b2	e_awsvals <= tovt
SDMXE	*	INDICATOR	b2	e_wsel0 <= e_awsell
SDMXE	*	INDICATOR	b2	e_wsel1 <= e_wsel0
SDMXE	*	INDICATOR	b2	e_wsel10 <= e_wsel5
SDMXE	*	INDICATOR	b2	e_wsel2 <= e_wsel1
SDMXE	*	INDICATOR	b2	e_wsel25 <= e_wsel10
SDMXE	*	INDICATOR	b2	e_wsel5 <= e_wsel2
SDMXE	*	INDICATOR	b2	e_wsel50 <= e_wsel25
SDMXE	*	INDICATOR	b2	e_wselz <= e_awsell
SDMXE	*	INDICATOR	b3	e_awsval = e_awsval_cown + e_awsval_cmp
SDMXE	*	INDICATOR	b3	e_awsval >= e_awsval_cown + e_awsval_cmp
SDMXE	*	INDICATOR	b3	e_awsval_cmp <= e_awsval
SDMXE	*	INDICATOR	b3	e_awsval_cown <= e_awsval
SDMXE	*	INDICATOR	b3b2b1	e_aws_cmp_ge20 <= e_aws_cmp
SDMXE	*	INDICATOR	b3b2b1	e_aws_cmp_ge50 <= e_aws_cmp
SDMXE	*	INDICATOR	b3b2b1	e_aws_cmp_ge50 <= e_aws_cmp_ge20
SDMXE	*	INDICATOR	b3b2b1	t_aws_cmp_ge20 <= tovt
SDMXE	*	INDICATOR	b3b2b1	t_aws_cmp_ge50 <= t_aws_cmp_ge20
SDMXE	*	INDICATOR	b3b2b1	t_aws_cmp_ge50 <= tovt
SDMXE	*	INDICATOR	b4	e_aws_b2bg <= e_awsell
SDMXE	*	INDICATOR	b4	e_aws_b2c <= e_awsell
SDMXE	*	INDICATOR	b4	e_awsell <= e_aws_b2c + e_aws_b2bg
SDMXE	*	INDICATOR	b4	e_awsell >= (e_aws_b2c + e_aws_b2bg) / 2
SDMXE	*	INDICATOR	b4	e_awsval = e_awsval_b2c + e_awsval_b2bg
SDMXE	*	INDICATOR	b4	e_awsval >= e_awsval_b2c + e_awsval_b2bg
SDMXE	*	INDICATOR	b4	e_awsval_b2bg <= e_awsval
SDMXE	*	INDICATOR	b4	e_awsval_b2bg <= e_eturn
SDMXE	*	INDICATOR	b4	e_awsval_b2bg <= tovt
SDMXE	*	INDICATOR	b4	e_awsval_b2c <= e_awsval
SDMXE	*	INDICATOR	b4	e_awsval_b2c <= e_eturn
SDMXE	*	INDICATOR	b4	e_awsval_b2c <= tovt
SDMXE	*	INDICATOR	b4b1	e_aws_b2c_cmp <= e_aws_b2c
SDMXE	*	INDICATOR	b4b1	e_aws_b2c_cmp <= e_aws_cmp
SDMXE	*	INDICATOR	b4b2	e_aws_b2c_gt1ws <= e_aws_b2c

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SDMXE	*	INDICATOR	b4b2	e_aws_b2c_gt1ws <= e_awsell
SDMXE	*	INDICATOR	b4b2	e_aws_gt1_b2c_gt10ws <= e_aws_b2c
SDMXE	*	INDICATOR	b4b2	e_aws_gt1_b2c_gt10ws <= e_awsval_b2c_ge10ws
SDMXE	*	INDICATOR	b4b2	e_awsval_b2c_ge10ws <= e_aws_b2c
SDMXE	*	INDICATOR	b4b2	e_awsval_b2c_ge10ws <= e_awsell
SDMXE	*	INDICATOR	b4b2	e_awsval_b2c_ge10ws <= e_awsval_b2c_ge5ws
SDMXE	*	INDICATOR	b4b2	e_awsval_b2c_ge5ws <= e_aws_b2c
SDMXE	*	INDICATOR	b4b2	e_awsval_b2c_ge5ws <= e_aws_b2c_gt1ws
SDMXE	*	INDICATOR	b4b2	e_awsval_b2c_ge5ws <= e_awsell
SDMXE	*	INDICATOR	b4b2	e_awsval_gt1_b2c_gt10ws <= e_awsval_b2c
SDMXE	*	INDICATOR	b4b2	e_awsval_gt1_b2c_gt10ws <= t_aws_gt1_b2c_gt10ws
SDMXE	*	INDICATOR	b4b2	t_aws_gt1_b2c_gt10ws <= tovt
SDMXE	*	INDICATOR	b4b2b1	e_awsval_b2c_ge10ws_cmp <= e_aws_cmp
SDMXE	*	INDICATOR	b4b2b1	e_awsval_b2c_ge10ws_cmp <= e_awsval_b2c_ge10ws
SDMXE	*	INDICATOR	b5	e_awseu <= e_awsell
SDMXE	*	INDICATOR	b5	e_awseu <= e_awsfor
SDMXE	*	INDICATOR	b5	e_awsfor <= e_awseu + e_awsww
SDMXE	*	INDICATOR	b5	e_awshm <= e_awsell
SDMXE	*	INDICATOR	b5	e_awsww <= e_awsell
SDMXE	*	INDICATOR	b5	e_awsww <= e_awsfor
SDMXE	*	INDICATOR	b5b3	e_awsval_eu_cmp <= e_awsval_cmp
SDMXE	*	INDICATOR	b5b3	e_awsval_eu_cown <= e_awsval_cown
SDMXE	*	INDICATOR	b5b3	e_awsval_hm_cmp <= e_awsval_cmp
SDMXE	*	INDICATOR	b5b3	e_awsval_hm_cown <= e_awsval_cown
SDMXE	*	INDICATOR	b5b3	e_awsval_ww_cmp <= e_awsval_cmp
SDMXE	*	INDICATOR	b5b3	e_awsval_ww_cown <= e_awsval_cown
SDMXE	*	INDICATOR	b6	e_awsval = e_awsval_hm + e_awsval_eu + e_awsval_ww
SDMXE	*	INDICATOR	b6	e_awsval >= e_awsval_hm + e_awsval_eu + e_awsval_ww
SDMXE	*	INDICATOR	b6	e_awsval_eu <= e_awsval
SDMXE	*	INDICATOR	b6	e_awsval_hm <= e_awsval
SDMXE	*	INDICATOR	b6	e_awsval_ww <= e_awsval
SDMXE	*	INDICATOR	b6b5b2	e_awsfor_ge20 <= e_awsfor
SDMXE	*	INDICATOR	b6b5b2	e_awsfor_ge50 <= e_awsfor
SDMXE	*	INDICATOR	b6b5b2	e_awsfor_ge50 <= e_awsfor_ge20
SDMXE	*	INDICATOR	b6b5b2b1	e_awsfor_ge20_cmp <= e_aws_cmp
SDMXE	*	INDICATOR	b6b5b2b1	e_awsfor_ge20_cmp <= e_awsfor_ge20
SDMXE	*	INDICATOR	b6b5b2b1	e_awsfor_ge50_cmp <= e_aws_cmp
SDMXE	*	INDICATOR	b6b5b2b1	e_awsfor_ge50_cmp <= e_awsfor_ge50
SDMXE	*	INDICATOR	b7	e_awseu = e_awseu_dany + e_awseu_dnone
SDMXE	*	INDICATOR	b7	e_awseu = e_awseu_dapl + e_awseu_daplx
SDMXE	*	INDICATOR	b7	e_awseu = e_awseu_dbp + e_awseu_dbpx
SDMXE	*	INDICATOR	b7	e_awseu = e_awseu_dfl + e_awseu_dflx
SDMXE	*	INDICATOR	b7	e_awseu = e_awseu_dhcd + e_awseu_dhcdx
SDMXE	*	INDICATOR	b7	e_awseu = e_awseu_drcd + e_awseu_drcdx

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SDMXE	*	INDICATOR	b7	e_awseu >= e_awseu_dany + e_awseu_dnone
SDMXE	*	INDICATOR	b7	e_awseu >= e_awseu_dapl + e_awseu_daplx
SDMXE	*	INDICATOR	b7	e_awseu >= e_awseu_dbp + e_awseu_dbpx
SDMXE	*	INDICATOR	b7	e_awseu >= e_awseu_dfl + e_awseu_dflx
SDMXE	*	INDICATOR	b7	e_awseu >= e_awseu_dhcd + e_awseu_dhcdx
SDMXE	*	INDICATOR	b7	e_awseu >= e_awseu_dnone + e_awseu_dapl
SDMXE	*	INDICATOR	b7	e_awseu >= e_awseu_dnone + e_awseu_dbp
SDMXE	*	INDICATOR	b7	e_awseu >= e_awseu_dnone + e_awseu_dfl
SDMXE	*	INDICATOR	b7	e_awseu >= e_awseu_dnone + e_awseu_dhcd
SDMXE	*	INDICATOR	b7	e_awseu >= e_awseu_dnone + e_awseu_drcd
SDMXE	*	INDICATOR	b7	e_awseu >= e_awseu_dnone + e_awseu_dvat
SDMXE	*	INDICATOR	b7	e_awseu >= e_awseu_drcd + e_awseu_drcdx
SDMXE	*	INDICATOR	b7	e_awseu >= e_awseu_dvat + e_awseu_dvatx
SDMXE	*	INDICATOR	b7	e_awseu_dany <= e_awseu
SDMXE	*	INDICATOR	b7	e_awseu_dany <= e_awseu_dapl + e_awseu_dbp + e_awseu_dfl + e_awseu_dhcd + e_awseu_drcd + e_awseu_dvat
SDMXE	*	INDICATOR	b7	e_awseu_dapl <= e_awseu
SDMXE	*	INDICATOR	b7	e_awseu_dapl <= e_awseu_dany
SDMXE	*	INDICATOR	b7	e_awseu_daplx <= e_awseu
SDMXE	*	INDICATOR	b7	e_awseu_dbp <= e_awseu
SDMXE	*	INDICATOR	b7	e_awseu_dbp <= e_awseu_dany
SDMXE	*	INDICATOR	b7	e_awseu_dbpx <= e_awseu
SDMXE	*	INDICATOR	b7	e_awseu_dfl <= e_awseu
SDMXE	*	INDICATOR	b7	e_awseu_dfl <= e_awseu_dany
SDMXE	*	INDICATOR	b7	e_awseu_dflx <= e_awseu
SDMXE	*	INDICATOR	b7	e_awseu_dhcd <= e_awseu
SDMXE	*	INDICATOR	b7	e_awseu_dhcd <= e_awseu_dany
SDMXE	*	INDICATOR	b7	e_awseu_dhcdx <= e_awseu
SDMXE	*	INDICATOR	b7	e_awseu_dnone <= e_awseu
SDMXE	*	INDICATOR	b7	e_awseu_drcd <= e_awseu
SDMXE	*	INDICATOR	b7	e_awseu_drcd <= e_awseu_dany
SDMXE	*	INDICATOR	b7	e_awseu_drcdx <= e_awseu
SDMXE	*	INDICATOR	b7	e_awseu_dvat <= e_awseu
SDMXE	*	INDICATOR	b7	e_awseu_dvat <= e_awseu_dany
SDMXE	*	INDICATOR	b7	e_awseu_dvatx <= e_awseu
SDMXE	*	INDICATOR	b7b3	e_awsval_eu_cmp_dapl <= e_awsval_cmp
SDMXE	*	INDICATOR	b7b3	e_awsval_eu_cmp_daplx <= e_awsval_cmp
SDMXE	*	INDICATOR	b7b3	e_awsval_eu_cmp_dbp <= e_awsval_cmp
SDMXE	*	INDICATOR	b7b3	e_awsval_eu_cmp_dbpx <= e_awsval_cmp
SDMXE	*	INDICATOR	b7b3	e_awsval_eu_cmp_dfl <= e_awsval_cmp
SDMXE	*	INDICATOR	b7b3	e_awsval_eu_cmp_dflx <= e_awsval_cmp
SDMXE	*	INDICATOR	b7b3	e_awsval_eu_cmp_dhcd <= e_awsval_cmp
SDMXE	*	INDICATOR	b7b3	e_awsval_eu_cmp_dhcdx <= e_awsval_cmp
SDMXE	*	INDICATOR	b7b3	e_awsval_eu_cmp_drcd <= e_awsval_cmp

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SDMXE	*	INDICATOR	b7b3	e_awsval_eu_cmp_drcdx <= e_awsval_cmp
SDMXE	*	INDICATOR	b7b3	e_awsval_eu_cmp_dvat <= e_awsval_cmp
SDMXE	*	INDICATOR	b7b3	e_awsval_eu_cmp_dvatx <= e_awsval_cmp
SDMXE	*	INDICATOR	b7b3	e_awsval_eu_cown_dapl <= e_awsval_cown
SDMXE	*	INDICATOR	b7b3	e_awsval_eu_cown_daplx <= e_awsval_cown
SDMXE	*	INDICATOR	b7b3	e_awsval_eu_cown_dbp <= e_awsval_cown
SDMXE	*	INDICATOR	b7b3	e_awsval_eu_cown_dbpx <= e_awsval_cown
SDMXE	*	INDICATOR	b7b3	e_awsval_eu_cown_dfl <= e_awsval_cown
SDMXE	*	INDICATOR	b7b3	e_awsval_eu_cown_dflx <= e_awsval_cown
SDMXE	*	INDICATOR	b7b3	e_awsval_eu_cown_dhcd <= e_awsval_cown
SDMXE	*	INDICATOR	b7b3	e_awsval_eu_cown_dhcdx <= e_awsval_cown
SDMXE	*	INDICATOR	b7b3	e_awsval_eu_cown_drcd <= e_awsval_cown
SDMXE	*	INDICATOR	b7b3	e_awsval_eu_cown_drcdx <= e_awsval_cown
SDMXE	*	INDICATOR	b7b3	e_awsval_eu_cown_dvat <= e_awsval_cown
SDMXE	*	INDICATOR	b7b3	e_awsval_eu_cown_dvatx <= e_awsval_cown
SDMXE	*	INDICATOR	b8	e_axsell <= e_iuse
SDMXE	*	INDICATOR	b8	e_axsellx <= e_iuse
SDMXE	*	INDICATOR	b8	e_axsellz <= e_iuse
SDMXE	*	INDICATOR	b8	e_iuse = e_axsell + e_axsellx + e_axsellz
SDMXE	*	INDICATOR	b8	e_iuse >= e_axsell + e_axsellx + e_axsellz
SDMXE	*	INDICATOR	b8b1	e_aesell <= e_awsell + e_axsell
SDMXE	*	INDICATOR	b8b1	e_aesell <= e_iuse
SDMXE	*	INDICATOR	b8b1	e_awsell <= e_aesell
SDMXE	*	INDICATOR	b8b1	e_axsell <= e_aesell
SDMXE	*	INDICATOR	b8b2	e_wsel1q <= e_axsellx
SDMXE	*	INDICATOR	b8b2	e_wsel1q <= e_wsel1
SDMXE	*	INDICATOR	b9	e_axsell = e_xsel0 + e_xselz
SDMXE	*	INDICATOR	b9	e_axsell >= e_xsel0 + e_xselz
SDMXE	*	INDICATOR	b9	e_axsval <= tovt
SDMXE	*	INDICATOR	b9	e_axsval = e_axsvalb + e_axsvals
SDMXE	*	INDICATOR	b9	e_axsvalb <= e_axsval
SDMXE	*	INDICATOR	b9	e_axsvalb <= tovt
SDMXE	*	INDICATOR	b9	e_axsvals <= e_axsval
SDMXE	*	INDICATOR	b9	e_axsvals <= tovt
SDMXE	*	INDICATOR	b9	e_xsel0 <= e_axsell
SDMXE	*	INDICATOR	b9	e_xsel1 <= e_xsel0
SDMXE	*	INDICATOR	b9	e_xsel10 <= e_xsel5
SDMXE	*	INDICATOR	b9	e_xsel2 <= e_xsel1
SDMXE	*	INDICATOR	b9	e_xsel25 <= e_xsel10
SDMXE	*	INDICATOR	b9	e_xsel5 <= e_xsel2
SDMXE	*	INDICATOR	b9	e_xsel50 <= e_xsel25
SDMXE	*	INDICATOR	b9	e_xselz <= e_axsell
SDMXE	*	INDICATOR	b9b2	e_awsval <= e_eturn
SDMXE	*	INDICATOR	b9b2	e_awsvalb <= e_eturn

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SDMXE	*	INDICATOR	b9b2	e_awsvals <= e_eturn
SDMXE	*	INDICATOR	b9b2	e_axsval <= e_eturn
SDMXE	*	INDICATOR	b9b2	e_axsvalb <= e_eturn
SDMXE	*	INDICATOR	b9b2	e_axsvals <= e_eturn
SDMXE	*	INDICATOR	b9b2	e_esell <= e_aesell
SDMXE	*	INDICATOR	b9b2	e_eturn <= tovt
SDMXE	*	INDICATOR	b9b2	e_eturn = e_awsval + e_axsval
SDMXE	*	INDICATOR	b9b2	e_eturn = e_awsvals + e_awsvalb + e_axsvals + e_axsvalb
SDMXE	*	INDICATOR	b9b4b2	e_awsval_b2c_ge10ec <= e_aws_b2c
SDMXE	*	INDICATOR	back	empl <= 25000000
SDMXE	*	INDICATOR	back	ent <= 5000000
SDMXE	*	INDICATOR	back	ent_sample <= ent
SDMXE	*	INDICATOR	back	tovt <= 10000000
SDMXE	*	INDICATOR	c1	e_itsp2 <= ent
SDMXE	*	INDICATOR	c1	e_itsp2x <= ent
SDMXE	*	INDICATOR	c1	ent = e_itsp2 + e_itsp2x
SDMXE	*	INDICATOR	c1	ent >= e_itsp2 + e_itsp2x
SDMXE	*	INDICATOR	c2	e_itspt2 <= e_itt2
SDMXE	*	INDICATOR	c2	e_itspt2 <= ent
SDMXE	*	INDICATOR	c2	e_itspt2x <= ent
SDMXE	*	INDICATOR	c2	e_itt2 <= e_itspt2 + e_itust2
SDMXE	*	INDICATOR	c2	e_itt2 <= ent
SDMXE	*	INDICATOR	c2	e_itust2 <= e_itt2
SDMXE	*	INDICATOR	c2	e_itust2 <= ent
SDMXE	*	INDICATOR	c2	e_itust2x <= ent
SDMXE	*	INDICATOR	c2	ent = e_itspt2 + e_itspt2x
SDMXE	*	INDICATOR	c2	ent = e_itust2 + e_itust2x
SDMXE	*	INDICATOR	c2	ent >= e_itspt2 + e_itspt2x
SDMXE	*	INDICATOR	c2	ent >= e_itust2 + e_itust2x
SDMXE	*	INDICATOR	c2c1	e_itsp2_itt2 <= e_itsp2
SDMXE	*	INDICATOR	c2c1	e_itsp2_itt2 <= e_itt2
SDMXE	*	INDICATOR	c2c1	e_itsp2_itt2 <= ent
SDMXE	*	INDICATOR	c2c1	e_itsp2x_itt2 <= e_itsp2x
SDMXE	*	INDICATOR	c2c1	e_itsp2x_itt2 <= e_itust2
SDMXE	*	INDICATOR	c2c1	e_itsp2x_itt2 <= ent
SDMXE	*	INDICATOR	c2c1	e_itspt2 <= e_itsp2
SDMXE	*	INDICATOR	c3	e_itsprcr2 <= ent
SDMXE	*	INDICATOR	c3	e_itsprcr2x <= ent
SDMXE	*	INDICATOR	c3	ent = e_itsprcr2 + e_itsprcr2x
SDMXE	*	INDICATOR	c3	ent >= e_itsprcr2 + e_itsprcr2x
SDMXE	*	INDICATOR	c3c1	e_itsp2 <= e_itsp2_or_rcr2
SDMXE	*	INDICATOR	c3c1	e_itsp2_or_rcr2 <= e_itsp2 + e_itsprcr2
SDMXE	*	INDICATOR	c3c1	e_itsprcr2 <= e_itsp2_or_rcr2
SDMXE	*	INDICATOR	c4	e_itsprcr2 = e_itspvac2 + e_itspvac2x

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SDMXE	*	INDICATOR	c4	e_itsprcr2 >= e_itspvac2 + e_itspvac2x
SDMXE	*	INDICATOR	c4	e_itspvac2 <= e_itsprcr2
SDMXE	*	INDICATOR	c4	e_itspvac2x <= e_itsprcr2
SDMXE	*	INDICATOR	c4c1	e_itsp2_vac2 <= e_itsp2
SDMXE	*	INDICATOR	c4c1	e_itsp2_vac2 <= e_itsprcr2
SDMXE	*	INDICATOR	c4c1	e_itsp2_vac2 <= e_itspvac2
SDMXE	*	INDICATOR	c5	e_itspdla <= e_itspvac2
SDMXE	*	INDICATOR	c5	e_itspdlax <= e_itspvac2
SDMXE	*	INDICATOR	c5	e_itspdlet <= e_itspvac2
SDMXE	*	INDICATOR	c5	e_itspdletx <= e_itspvac2
SDMXE	*	INDICATOR	c5	e_itspdlwe <= e_itspvac2
SDMXE	*	INDICATOR	c5	e_itspdlwex <= e_itspvac2
SDMXE	*	INDICATOR	c5	e_itspdsal <= e_itspvac2
SDMXE	*	INDICATOR	c5	e_itspdsalx <= e_itspvac2
SDMXE	*	INDICATOR	c5	e_itspvac2 = e_itspdla + e_itspdlax
SDMXE	*	INDICATOR	c5	e_itspvac2 = e_itspdlet + e_itspdletx
SDMXE	*	INDICATOR	c5	e_itspvac2 = e_itspdlwe + e_itspdlwex
SDMXE	*	INDICATOR	c5	e_itspvac2 = e_itspdsal + e_itspdsalx
SDMXE	*	INDICATOR	c5	e_itspvac2 >= e_itspdla + e_itspdlax
SDMXE	*	INDICATOR	c5	e_itspvac2 >= e_itspdlet + e_itspdletx
SDMXE	*	INDICATOR	c5	e_itspvac2 >= e_itspdlwe + e_itspdlwex
SDMXE	*	INDICATOR	c5	e_itspvac2 >= e_itspdsal + e_itspdsalx
SDMXE	*	INDICATOR	c6	e_it_ext <= ent
SDMXE	*	INDICATOR	c6	e_it_extq <= ent
SDMXE	*	INDICATOR	c6	e_it_extx <= ent
SDMXE	*	INDICATOR	c6	e_it_own <= ent
SDMXE	*	INDICATOR	c6	e_it_ownq <= ent
SDMXE	*	INDICATOR	c6	e_it_ownx <= ent
SDMXE	*	INDICATOR	c6	ent = e_it_ext + e_it_extx
SDMXE	*	INDICATOR	c6	ent = e_it_own + e_it_ownx
SDMXE	*	INDICATOR	c6	ent >= e_it_ext + e_it_extx
SDMXE	*	INDICATOR	c6	ent >= e_it_extq + e_it_own
SDMXE	*	INDICATOR	c6	ent >= e_it_own + e_it_ownx
SDMXE	*	INDICATOR	c6	ent >= e_it_ownq + e_it_ext
SDMXE	*	INDICATOR	c6c1	e_it_ext_itsp2 <= e_it_ext
SDMXE	*	INDICATOR	c6c1	e_it_ext_itsp2 <= e_itsp2
SDMXE	*	INDICATOR	c6c1	e_it_ext_itsp2 <= ent
SDMXE	*	INDICATOR	c6c1	e_it_own_itsp2 <= e_it_own
SDMXE	*	INDICATOR	c6c1	e_it_own_itsp2 <= e_itsp2
SDMXE	*	INDICATOR	c6c1	e_it_own_itsp2 <= ent
SDMXE	*	INDICATOR	c6c2	e_it_ext_itt2 <= e_it_ext
SDMXE	*	INDICATOR	c6c2	e_it_ext_itt2 <= e_itt2
SDMXE	*	INDICATOR	c6c2	e_it_ext_itt2 <= ent
SDMXE	*	INDICATOR	d1	e_iuse = e_secmdenc + e_secmdencx

Survey	Country	KeyName	KeyGroup	Message
SDMXE	*	INDICATOR	d1	e_iuse = e_secmduo + e_secmduox
SDMXE	*	INDICATOR	d1	e_iuse = e_secmlog + e_secmlogx
SDMXE	*	INDICATOR	d1	e_iuse = e_secmnac + e_secmnacx
SDMXE	*	INDICATOR	d1	e_iuse = e_secmosbu + e_secmosbux
SDMXE	*	INDICATOR	d1	e_iuse = e_secmrass + e_secmrassx
SDMXE	*	INDICATOR	d1	e_iuse = e_secmsms + e_secmsmsx
SDMXE	*	INDICATOR	d1	e_iuse = e_secmspsw + e_secmspswx
SDMXE	*	INDICATOR	d1	e_iuse = e_secmtst + e_secmtstx
SDMXE	*	INDICATOR	d1	e_iuse = e_secmuibm + e_secmuibmx
SDMXE	*	INDICATOR	d1	e_iuse = e_secmvpn + e_secmvpnx
SDMXE	*	INDICATOR	d1	e_iuse >= e_secmdenc + e_secmdencx
SDMXE	*	INDICATOR	d1	e_iuse >= e_secmduo + e_secmduox
SDMXE	*	INDICATOR	d1	e_iuse >= e_secmlog + e_secmlogx
SDMXE	*	INDICATOR	d1	e_iuse >= e_secmnac + e_secmnacx
SDMXE	*	INDICATOR	d1	e_iuse >= e_secmosbu + e_secmosbux
SDMXE	*	INDICATOR	d1	e_iuse >= e_secmrass + e_secmrassx
SDMXE	*	INDICATOR	d1	e_iuse >= e_secmsms + e_secmsmsx
SDMXE	*	INDICATOR	d1	e_iuse >= e_secmspsw + e_secmspswx
SDMXE	*	INDICATOR	d1	e_iuse >= e_secmtst + e_secmtstx
SDMXE	*	INDICATOR	d1	e_iuse >= e_secmuibm + e_secmuibmx
SDMXE	*	INDICATOR	d1	e_iuse >= e_secmvpn + e_secmvpnx
SDMXE	*	INDICATOR	d1	e_secmall <= e_iuse
SDMXE	*	INDICATOR	d1	e_secmall <= e_secmge7
SDMXE	*	INDICATOR	d1	e_secmdenc <= e_iuse
SDMXE	*	INDICATOR	d1	e_secmdenc <= e_secmge1
SDMXE	*	INDICATOR	d1	e_secmdencx <= e_iuse
SDMXE	*	INDICATOR	d1	e_secmduo <= e_iuse
SDMXE	*	INDICATOR	d1	e_secmduo <= e_secmge1
SDMXE	*	INDICATOR	d1	e_secmduox <= e_iuse
SDMXE	*	INDICATOR	d1	e_secmge1 <= e_secmspsw + e_secmuibm + e_secmduo + e_secmdenc + e_secmosbu + e_secmnac + e_secmvpn + e_secmsms + e_secmlog + e_secmrass + e_secmtst
SDMXE	*	INDICATOR	d1	e_secmge3 <= e_iuse
SDMXE	*	INDICATOR	d1	e_secmge3 <= e_secmge1
SDMXE	*	INDICATOR	d1	e_secmge5 <= e_iuse
SDMXE	*	INDICATOR	d1	e_secmge5 <= e_secmge3
SDMXE	*	INDICATOR	d1	e_secmge7 <= e_iuse
SDMXE	*	INDICATOR	d1	e_secmge7 <= e_secmge5
SDMXE	*	INDICATOR	d1	e_secmlog <= e_iuse
SDMXE	*	INDICATOR	d1	e_secmlog <= e_secmge1
SDMXE	*	INDICATOR	d1	e_secmlogx <= e_iuse
SDMXE	*	INDICATOR	d1	e_secmnac <= e_iuse
SDMXE	*	INDICATOR	d1	e_secmnac <= e_secmge1
SDMXE	*	INDICATOR	d1	e_secmnacx <= e_iuse
SDMXE	*	INDICATOR	d1	e_secmosbu <= e_iuse

Survey	Country	KeyName	KeyGroup	Message
SDMXE	*	INDICATOR	d1	e_secmosbu <= e_secmge1
SDMXE	*	INDICATOR	d1	e_secmosbux <= e_iuse
SDMXE	*	INDICATOR	d1	e_secmrass <= e_iuse
SDMXE	*	INDICATOR	d1	e_secmrass <= e_secmge1
SDMXE	*	INDICATOR	d1	e_secmrassx <= e_iuse
SDMXE	*	INDICATOR	d1	e_secmsms <= e_iuse
SDMXE	*	INDICATOR	d1	e_secmsms <= e_secmge1
SDMXE	*	INDICATOR	d1	e_secmsmsx <= e_iuse
SDMXE	*	INDICATOR	d1	e_secmspsw <= e_iuse
SDMXE	*	INDICATOR	d1	e_secmspsw <= e_secmge1
SDMXE	*	INDICATOR	d1	e_secmspswx <= e_iuse
SDMXE	*	INDICATOR	d1	e_secmtst <= e_iuse
SDMXE	*	INDICATOR	d1	e_secmtst <= e_secmge1
SDMXE	*	INDICATOR	d1	e_secmtstx <= e_iuse
SDMXE	*	INDICATOR	d1	e_secmuibm <= e_iuse
SDMXE	*	INDICATOR	d1	e_secmuibm <= e_secmge1
SDMXE	*	INDICATOR	d1	e_secmuibmx <= e_iuse
SDMXE	*	INDICATOR	d1	e_secmvpn <= e_iuse
SDMXE	*	INDICATOR	d1	e_secmvpn <= e_secmge1
SDMXE	*	INDICATOR	d1	e_secmvpnx <= e_iuse
SDMXE	*	INDICATOR	d2	e_iuse = e_secawany + e_secawnone
SDMXE	*	INDICATOR	d2	e_iuse = e_secawcont + e_secawcontx
SDMXE	*	INDICATOR	d2	e_iuse = e_secawctp + e_secawctpx
SDMXE	*	INDICATOR	d2	e_iuse = e_secawvtgi + e_secawvtgix
SDMXE	*	INDICATOR	d2	e_iuse >= e_secawany + e_secawnone
SDMXE	*	INDICATOR	d2	e_iuse >= e_secawcont + e_secawcontx
SDMXE	*	INDICATOR	d2	e_iuse >= e_secawcont + e_secawnone
SDMXE	*	INDICATOR	d2	e_iuse >= e_secawctp + e_secawctpx
SDMXE	*	INDICATOR	d2	e_iuse >= e_secawctp + e_secawnone
SDMXE	*	INDICATOR	d2	e_iuse >= e_secawvtgi + e_secawnone
SDMXE	*	INDICATOR	d2	e_iuse >= e_secawvtgi + e_secawvtgix
SDMXE	*	INDICATOR	d2	e_secawany <= e_iuse
SDMXE	*	INDICATOR	d2	e_secawany <= e_secawvtgi + e_secawctp + e_secawcont
SDMXE	*	INDICATOR	d2	e_secawcont <= e_iuse
SDMXE	*	INDICATOR	d2	e_secawcont <= e_secawany
SDMXE	*	INDICATOR	d2	e_secawcontx <= e_iuse
SDMXE	*	INDICATOR	d2	e_secawctp <= e_iuse
SDMXE	*	INDICATOR	d2	e_secawctp <= e_secawany
SDMXE	*	INDICATOR	d2	e_secawctpx <= e_iuse
SDMXE	*	INDICATOR	d2	e_secawnone <= e_iuse
SDMXE	*	INDICATOR	d2	e_secawvtgi <= e_iuse
SDMXE	*	INDICATOR	d2	e_secawvtgi <= e_secawany
SDMXE	*	INDICATOR	d2	e_secawvtgix <= e_iuse
SDMXE	*	INDICATOR	d2c2	e_secawany_itspt2 <= e_itspt2

Survey	Country	KeyName	KeyGroup	Message
SDMXE	*	INDICATOR	d2c2	e_secawany_itspt2 <= e_iuse
SDMXE	*	INDICATOR	d2c2	e_secawany_itspt2 <= e_secawany
SDMXE	*	INDICATOR	d2c2	e_secawany_itust2 <= e_itust2
SDMXE	*	INDICATOR	d2c2	e_secawany_itust2 <= e_iuse
SDMXE	*	INDICATOR	d2c2	e_secawany_itust2 <= e_secawany
SDMXE	*	INDICATOR	d2c2	e_secawcont_itspt2 <= e_itspt2
SDMXE	*	INDICATOR	d2c2	e_secawcont_itspt2 <= e_iuse
SDMXE	*	INDICATOR	d2c2	e_secawcont_itspt2 <= e_secawcont
SDMXE	*	INDICATOR	d2c2	e_secawcont_itust2 <= e_itust2
SDMXE	*	INDICATOR	d2c2	e_secawcont_itust2 <= e_iuse
SDMXE	*	INDICATOR	d2c2	e_secawcont_itust2 <= e_secawcont
SDMXE	*	INDICATOR	d2c2	e_secawctp_itspt2 <= e_itspt2
SDMXE	*	INDICATOR	d2c2	e_secawctp_itspt2 <= e_iuse
SDMXE	*	INDICATOR	d2c2	e_secawctp_itspt2 <= e_secawctp
SDMXE	*	INDICATOR	d2c2	e_secawctp_itust2 <= e_itust2
SDMXE	*	INDICATOR	d2c2	e_secawctp_itust2 <= e_iuse
SDMXE	*	INDICATOR	d2c2	e_secawctp_itust2 <= e_secawctp
SDMXE	*	INDICATOR	d2c2	e_secawvtgi_itspt2 <= e_itspt2
SDMXE	*	INDICATOR	d2c2	e_secawvtgi_itspt2 <= e_iuse
SDMXE	*	INDICATOR	d2c2	e_secawvtgi_itspt2 <= e_secawvtgi
SDMXE	*	INDICATOR	d2c2	e_secawvtgi_itust2 <= e_itust2
SDMXE	*	INDICATOR	d2c2	e_secawvtgi_itust2 <= e_iuse
SDMXE	*	INDICATOR	d2c2	e_secawvtgi_itust2 <= e_secawvtgi
SDMXE	*	INDICATOR	d3	e_iuse = e_secpol2 + e_secpol2x
SDMXE	*	INDICATOR	d3	e_iuse >= e_secpol2 + e_secpol2x
SDMXE	*	INDICATOR	d3	e_secpol2 <= e_iuse
SDMXE	*	INDICATOR	d3	e_secpol2x <= e_iuse
SDMXE	*	INDICATOR	d3c1	e_secpol2_itsp2 <= e_itsp2
SDMXE	*	INDICATOR	d3c1	e_secpol2_itsp2 <= e_iuse
SDMXE	*	INDICATOR	d3c1	e_secpol2_itsp2 <= e_secpol2
SDMXE	*	INDICATOR	d3d2	e_secawany_pol2 <= e_iuse
SDMXE	*	INDICATOR	d3d2	e_secawany_pol2 <= e_secawany
SDMXE	*	INDICATOR	d3d2	e_secawany_pol2 <= e_secpol2
SDMXE	*	INDICATOR	d4	e_secpol2 = e_secprev_cy + e_secprev_1_2 + e_secprev_mt2
SDMXE	*	INDICATOR	d4	e_secpol2 >= e_secprev_cy + e_secprev_1_2 + e_secprev_mt2
SDMXE	*	INDICATOR	d4	e_secprev_1_2 <= e_secpol2
SDMXE	*	INDICATOR	d4	e_secprev_1_2 <= e_secprev_le2
SDMXE	*	INDICATOR	d4	e_secprev_cy <= e_secpol2
SDMXE	*	INDICATOR	d4	e_secprev_cy <= e_secprev_le2
SDMXE	*	INDICATOR	d4	e_secprev_le2 <= e_secpol2
SDMXE	*	INDICATOR	d4	e_secprev_le2 = e_secprev_cy + e_secprev_1_2
SDMXE	*	INDICATOR	d4	e_secprev_mt2 <= e_secpol2
SDMXE	*	INDICATOR	d5	e_iuse = e_sec2icnfa + e_sec2icnfax
SDMXE	*	INDICATOR	d5	e_iuse = e_sec2icnff + e_sec2icnffx

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SDMXE	*	INDICATOR	d5	e_iuse = e_sec2idcda + e_sec2idcdax
SDMXE	*	INDICATOR	d5	e_iuse = e_sec2idcdf + e_sec2idcdfx
SDMXE	*	INDICATOR	d5	e_iuse = e_sec2iusva + e_sec2iusvax
SDMXE	*	INDICATOR	d5	e_iuse = e_sec2iusvf + e_sec2iusvfx
SDMXE	*	INDICATOR	d5	e_iuse >= e_sec2icnfa + e_sec2icnfax
SDMXE	*	INDICATOR	d5	e_iuse >= e_sec2icnff + e_sec2icnffx
SDMXE	*	INDICATOR	d5	e_iuse >= e_sec2idcda + e_sec2idcdax
SDMXE	*	INDICATOR	d5	e_iuse >= e_sec2idcdf + e_sec2idcdfx
SDMXE	*	INDICATOR	d5	e_iuse >= e_sec2iusva + e_sec2iusvax
SDMXE	*	INDICATOR	d5	e_iuse >= e_sec2iusvf + e_sec2iusvfx
SDMXE	*	INDICATOR	d5	e_sec2iany <= e_iuse
SDMXE	*	INDICATOR	d5	e_sec2iany <= e_sec2icnfa + e_sec2icnff + e_sec2idcda + e_sec2idcdf + e_sec2iusva + e_sec2iusvf
SDMXE	*	INDICATOR	d5	e_sec2icnf <= e_iuse
SDMXE	*	INDICATOR	d5	e_sec2icnf <= e_sec2icnff + e_sec2icnfa
SDMXE	*	INDICATOR	d5	e_sec2icnfa <= e_iuse
SDMXE	*	INDICATOR	d5	e_sec2icnfa <= e_sec2iany
SDMXE	*	INDICATOR	d5	e_sec2icnfa <= e_sec2icnf
SDMXE	*	INDICATOR	d5	e_sec2icnfax <= e_iuse
SDMXE	*	INDICATOR	d5	e_sec2icnff <= e_iuse
SDMXE	*	INDICATOR	d5	e_sec2icnff <= e_sec2iany
SDMXE	*	INDICATOR	d5	e_sec2icnff <= e_sec2icnf
SDMXE	*	INDICATOR	d5	e_sec2icnffx <= e_iuse
SDMXE	*	INDICATOR	d5	e_sec2idcd <= e_iuse
SDMXE	*	INDICATOR	d5	e_sec2idcd <= e_sec2idcdf + e_sec2idcda
SDMXE	*	INDICATOR	d5	e_sec2idcda <= e_iuse
SDMXE	*	INDICATOR	d5	e_sec2idcda <= e_sec2iany
SDMXE	*	INDICATOR	d5	e_sec2idcda <= e_sec2idcd
SDMXE	*	INDICATOR	d5	e_sec2idcdax <= e_iuse
SDMXE	*	INDICATOR	d5	e_sec2idcdf <= e_iuse
SDMXE	*	INDICATOR	d5	e_sec2idcdf <= e_sec2iany
SDMXE	*	INDICATOR	d5	e_sec2idcdf <= e_sec2idcd
SDMXE	*	INDICATOR	d5	e_sec2idcdfx <= e_iuse
SDMXE	*	INDICATOR	d5	e_sec2ige3 <= e_iuse
SDMXE	*	INDICATOR	d5	e_sec2ige3 <= e_sec2iany
SDMXE	*	INDICATOR	d5	e_sec2iusv <= e_iuse
SDMXE	*	INDICATOR	d5	e_sec2iusv <= e_sec2iusvf + e_sec2iusva
SDMXE	*	INDICATOR	d5	e_sec2iusva <= e_iuse
SDMXE	*	INDICATOR	d5	e_sec2iusva <= e_sec2iany
SDMXE	*	INDICATOR	d5	e_sec2iusva <= e_sec2iusv
SDMXE	*	INDICATOR	d5	e_sec2iusvax <= e_iuse
SDMXE	*	INDICATOR	d5	e_sec2iusvf <= e_iuse
SDMXE	*	INDICATOR	d5	e_sec2iusvf <= e_sec2iany
SDMXE	*	INDICATOR	d5	e_sec2iusvf <= e_sec2iusv

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SDMXE	*	INDICATOR	d5	e_sec2iusvfx <= e_iuse
SDMXE	*	INDICATOR	d6	e_itsec3 <= e_itsec3own + e_itsec3ext
SDMXE	*	INDICATOR	d6	e_itsec3 <= e_iuse
SDMXE	*	INDICATOR	d6	e_itsec3ext <= e_itsec3
SDMXE	*	INDICATOR	d6	e_itsec3ext <= e_iuse
SDMXE	*	INDICATOR	d6	e_itsec3extx <= e_iuse
SDMXE	*	INDICATOR	d6	e_itsec3own <= e_itsec3
SDMXE	*	INDICATOR	d6	e_itsec3own <= e_iuse
SDMXE	*	INDICATOR	d6	e_itsec3ownx <= e_iuse
SDMXE	*	INDICATOR	d6	e_iuse = e_itsec3ext + e_itsec3extx
SDMXE	*	INDICATOR	d6	e_iuse = e_itsec3own + e_itsec3ownx
SDMXE	*	INDICATOR	d6	e_iuse >= e_itsec3ext + e_itsec3extx
SDMXE	*	INDICATOR	d6	e_iuse >= e_itsec3own + e_itsec3ownx
SDMXE	*	INDICATOR	d6c6	e_it_ext_sec3ext <= e_it_ext
SDMXE	*	INDICATOR	d6c6	e_it_ext_sec3ext <= e_itsec3ext
SDMXE	*	INDICATOR	d6c6	e_it_ext_sec3ext <= e_iuse
SDMXE	*	INDICATOR	d6c6	e_it_ext_sec3own <= e_it_ext
SDMXE	*	INDICATOR	d6c6	e_it_ext_sec3own <= e_itsec3own
SDMXE	*	INDICATOR	d6c6	e_it_ext_sec3own <= e_iuse
SDMXE	*	INDICATOR	d6c6	e_it_own_sec3ext <= e_it_own
SDMXE	*	INDICATOR	d6c6	e_it_own_sec3ext <= e_itsec3ext
SDMXE	*	INDICATOR	d6c6	e_it_own_sec3ext <= e_iuse
SDMXE	*	INDICATOR	d6c6	e_it_own_sec3own <= e_it_own
SDMXE	*	INDICATOR	d6c6	e_it_own_sec3own <= e_itsec3own
SDMXE	*	INDICATOR	d6c6	e_it_own_sec3own <= e_iuse
SDMXE	*	INDICATOR	d6d3	e_itsec3_pol2 <= e_itsec3
SDMXE	*	INDICATOR	d6d3	e_itsec3_pol2 <= e_iuse
SDMXE	*	INDICATOR	d6d3	e_itsec3_pol2 <= e_secpol2
SDMXE	*	INDICATOR	d6d3	e_itsec3ext_pol2 <= e_itsec3ext
SDMXE	*	INDICATOR	d6d3	e_itsec3ext_pol2 <= e_iuse
SDMXE	*	INDICATOR	d6d3	e_itsec3ext_pol2 <= e_secpol2
SDMXE	*	INDICATOR	d6d3	e_itsec3own_pol2 <= e_itsec3own
SDMXE	*	INDICATOR	d6d3	e_itsec3own_pol2 <= e_iuse
SDMXE	*	INDICATOR	d6d3	e_itsec3own_pol2 <= e_secpol2
SDMXE	*	INDICATOR	d7	e_iuse = e_secins + e_secinsx
SDMXE	*	INDICATOR	d7	e_iuse >= e_secins + e_secinsx
SDMXE	*	INDICATOR	d7	e_secins <= e_iuse
SDMXE	*	INDICATOR	d7	e_secinsx <= e_iuse
SDMXE	*	INDICATOR	e1	e_rbt <= e_rbts + e_rbti
SDMXE	*	INDICATOR	e1	e_rbti <= e_rbt
SDMXE	*	INDICATOR	e1	e_rbti <= ent
SDMXE	*	INDICATOR	e1	e_rbtix <= ent
SDMXE	*	INDICATOR	e1	e_rbts <= e_rbt
SDMXE	*	INDICATOR	e1	e_rbts <= ent

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SDMXE	*	INDICATOR	e1	e_rbtsx <= ent
SDMXE	*	INDICATOR	e1	ent = e_rbti + e_rbtix
SDMXE	*	INDICATOR	e1	ent = e_rbts + e_rbtsx
SDMXE	*	INDICATOR	e1	ent >= e_rbti + e_rbtix
SDMXE	*	INDICATOR	e1	ent >= e_rbts + e_rbtsx
SDMXE	*	INDICATOR	e2	e_rbt = e_rbt_lt5 + e_rbt_5_10 + e_rbt_gt10
SDMXE	*	INDICATOR	e2	e_rbt >= e_rbt_lt5 + e_rbt_5_10 + e_rbt_gt10
SDMXE	*	INDICATOR	e2	e_rbt_5_10 <= e_rbt
SDMXE	*	INDICATOR	e2	e_rbt_gt10 <= e_rbt
SDMXE	*	INDICATOR	e2	e_rbt_lt5 <= e_rbt
SDMXE	*	INDICATOR	e3	e_rbt = e_rbtwdr + e_rbtwdrx
SDMXE	*	INDICATOR	e3	e_rbt = e_rbtwer + e_rbtwerx
SDMXE	*	INDICATOR	e3	e_rbt = e_rbtwes + e_rbtwesx
SDMXE	*	INDICATOR	e3	e_rbt = e_rbtwhcl + e_rbtwhclx
SDMXE	*	INDICATOR	e3	e_rbt = e_rbtwhp + e_rbtwhpx
SDMXE	*	INDICATOR	e3	e_rbt = e_rbtwti + e_rbtwtix
SDMXE	*	INDICATOR	e3	e_rbt >= e_rbtwdr + e_rbtwdrx
SDMXE	*	INDICATOR	e3	e_rbt >= e_rbtwer + e_rbtwerx
SDMXE	*	INDICATOR	e3	e_rbt >= e_rbtwes + e_rbtwesx
SDMXE	*	INDICATOR	e3	e_rbt >= e_rbtwhcl + e_rbtwhclx
SDMXE	*	INDICATOR	e3	e_rbt >= e_rbtwhp + e_rbtwhpx
SDMXE	*	INDICATOR	e3	e_rbt >= e_rbtwti + e_rbtwtix
SDMXE	*	INDICATOR	e3	e_rbtwdr <= e_rbt
SDMXE	*	INDICATOR	e3	e_rbtwdrx <= e_rbt
SDMXE	*	INDICATOR	e3	e_rbtwer <= e_rbt
SDMXE	*	INDICATOR	e3	e_rbtwerx <= e_rbt
SDMXE	*	INDICATOR	e3	e_rbtwes <= e_rbt
SDMXE	*	INDICATOR	e3	e_rbtwesx <= e_rbt
SDMXE	*	INDICATOR	e3	e_rbtwhcl <= e_rbt
SDMXE	*	INDICATOR	e3	e_rbtwhclx <= e_rbt
SDMXE	*	INDICATOR	e3	e_rbtwhp <= e_rbt
SDMXE	*	INDICATOR	e3	e_rbtwhpx <= e_rbt
SDMXE	*	INDICATOR	e3	e_rbtwti <= e_rbt
SDMXE	*	INDICATOR	e3	e_rbtwtix <= e_rbt
SDMXE	*	INDICATOR	f1	e_envpap1 <= e_envpe
SDMXE	*	INDICATOR	f1	e_envpap1 <= ent
SDMXE	*	INDICATOR	f1	e_envpap1x <= ent
SDMXE	*	INDICATOR	f1	e_envpe <= e_envpap1 + e_envreict1
SDMXE	*	INDICATOR	f1	e_envreict1 <= e_envpe
SDMXE	*	INDICATOR	f1	e_envreict1 <= ent
SDMXE	*	INDICATOR	f1	e_envreict1x <= ent
SDMXE	*	INDICATOR	f1	ent = e_envpap1 + e_envpap1x
SDMXE	*	INDICATOR	f1	ent = e_envreict1 + e_envreict1x
SDMXE	*	INDICATOR	f1	ent >= e_envpap1 + e_envpap1x

Survey	Country	KeyName	KeyGroup	Message
SDMXE	*	INDICATOR	f1	ent >= e_envreict1 + e_envreict1x
SDMXE	*	INDICATOR	f2	e_envcei <= ent
SDMXE	*	INDICATOR	f2	e_envceix <= ent
SDMXE	*	INDICATOR	f2	ent = e_envcei + e_envceix
SDMXE	*	INDICATOR	f2	ent >= e_envcei + e_envceix
SDMXE	*	INDICATOR	f2f1	e_envpecei <= e_envcei
SDMXE	*	INDICATOR	f2f1	e_envpecei <= e_envpe
SDMXE	*	INDICATOR	f2f1	e_envpecei_hi <= e_di4_hi
SDMXE	*	INDICATOR	f2f1	e_envpecei_hi <= e_envpecei
SDMXE	*	INDICATOR	f2f1	e_envpecei_lo <= e_di4_lo
SDMXE	*	INDICATOR	f2f1	e_envpecei_lo <= e_envpecei
SDMXE	*	INDICATOR	f2f1	e_envpecei_vhi <= e_di4_vhi
SDMXE	*	INDICATOR	f2f1	e_envpecei_vhi <= e_envpecei
SDMXE	*	INDICATOR	f2f1	e_envpecei_vlo <= e_di4_vlo
SDMXE	*	INDICATOR	f2f1	e_envpecei_vlo <= e_envpecei
SDMXE	*	INDICATOR	f3	e_env_dkpt <= ent
SDMXE	*	INDICATOR	f3	e_env_dkptx <= ent
SDMXE	*	INDICATOR	f3	e_env_drec <= ent
SDMXE	*	INDICATOR	f3	e_env_drecx <= ent
SDMXE	*	INDICATOR	f3	e_env_dsrd <= ent
SDMXE	*	INDICATOR	f3	e_env_dsrdx <= ent
SDMXE	*	INDICATOR	f3	ent = e_env_dkpt + e_env_dkptx
SDMXE	*	INDICATOR	f3	ent = e_env_drec + e_env_drecx
SDMXE	*	INDICATOR	f3	ent = e_env_dsrd + e_env_dsrdx
SDMXE	*	INDICATOR	f3	ent >= e_env_dkpt + e_env_dkptx
SDMXE	*	INDICATOR	f3	ent >= e_env_drec + e_env_drecx
SDMXE	*	INDICATOR	f3	ent >= e_env_dsrd + e_env_dsrdx
SDMXE	*	INDICATOR	p_a01	empl = p_iuse + p_iusex
SDMXE	*	INDICATOR	p_a01	empl >= p_iuse + p_iusex
SDMXE	*	INDICATOR	p_a01	p_iuse <= empl
SDMXE	*	INDICATOR	p_a01	p_iusex <= empl
SDMXE	*	INDICATOR	p_a04	empl >= p_pmd + p_pmdx
SDMXE	*	INDICATOR	p_a04	p_empmd2 <= empl
SDMXE	*	INDICATOR	p_a04	p_empmd2 <= p_iuse
SDMXE	*	INDICATOR	p_a04	p_empmd2 <= p_pmd
SDMXE	*	INDICATOR	p_a04	p_empmd2x = p_pmd - p_empmd2
SDMXE	*	INDICATOR	p_a04	p_pmd <= empl
SDMXE	*	INDICATOR	p_a04	p_pmdx <= empl
SDMXE	*	INDICATOR	p_b1	p_awsell <= empl
SDMXE	*	INDICATOR	p_b8	p_axsell <= empl
SDMXE	*	INDICATOR	p_b8b1	p_aesell <= empl
SDMXE	*	INDICATOR	p_b8b1	p_aesell <= p_awsell + p_axsell
SDMXE	*	INDICATOR	p_b8b1	p_awsell <= p_aesell
SDMXE	*	INDICATOR	p_b8b1	p_axsell <= p_aesell

Survey	Country	KeyName	KeyGroup	Message
SDMXE	*	INDICATOR	zdi	e_di4_hi <= ent
SDMXE	*	INDICATOR	zdi	e_di4_lo <= ent
SDMXE	*	INDICATOR	zdi	e_di4_vhi <= ent
SDMXE	*	INDICATOR	zdi	e_di4_vlo <= ent
SDMXE	*	INDICATOR	zdi	ent = e_di4_vlo + e_di4_lo + e_di4_hi + e_di4_vhi
SDMXE	*	INDICATOR	zdi	ent >= e_di4_vlo + e_di4_lo + e_di4_hi + e_di4_vhi
SDMXE	*	INDICATOR	zdid1	e_secmge1_hi <= e_di4_hi
SDMXE	*	INDICATOR	zdid1	e_secmge1_hi <= e_secmge1
SDMXE	*	INDICATOR	zdid1	e_secmge1_lo <= e_di4_lo
SDMXE	*	INDICATOR	zdid1	e_secmge1_lo <= e_secmge1
SDMXE	*	INDICATOR	zdid1	e_secmge1_vhi <= e_di4_vhi
SDMXE	*	INDICATOR	zdid1	e_secmge1_vhi <= e_secmge1
SDMXE	*	INDICATOR	zdid1	e_secmge1_vlo <= e_di4_vlo
SDMXE	*	INDICATOR	zdid1	e_secmge1_vlo <= e_secmge1
SDMXE	*	INDICATOR	zdid1	e_secmge3_hi <= e_di4_hi
SDMXE	*	INDICATOR	zdid1	e_secmge3_hi <= e_secmge3
SDMXE	*	INDICATOR	zdid1	e_secmge3_lo <= e_di4_lo
SDMXE	*	INDICATOR	zdid1	e_secmge3_lo <= e_secmge3
SDMXE	*	INDICATOR	zdid1	e_secmge3_vhi <= e_di4_vhi
SDMXE	*	INDICATOR	zdid1	e_secmge3_vhi <= e_secmge3
SDMXE	*	INDICATOR	zdid1	e_secmge3_vlo <= e_di4_vlo
SDMXE	*	INDICATOR	zdid1	e_secmge3_vlo <= e_secmge3
SDMXE	*	INDICATOR	zdid1	e_secmge5_hi <= e_di4_hi
SDMXE	*	INDICATOR	zdid1	e_secmge5_hi <= e_secmge5
SDMXE	*	INDICATOR	zdid1	e_secmge5_lo <= e_di4_lo
SDMXE	*	INDICATOR	zdid1	e_secmge5_lo <= e_secmge5
SDMXE	*	INDICATOR	zdid1	e_secmge5_vhi <= e_di4_vhi
SDMXE	*	INDICATOR	zdid1	e_secmge5_vhi <= e_secmge5
SDMXE	*	INDICATOR	zdid1	e_secmge5_vlo <= e_di4_vlo
SDMXE	*	INDICATOR	zdid1	e_secmge5_vlo <= e_secmge5
SDMXE	*	INDICATOR	zdid1	e_secmge7_hi <= e_di4_hi
SDMXE	*	INDICATOR	zdid1	e_secmge7_hi <= e_secmge7
SDMXE	*	INDICATOR	zdid1	e_secmge7_lo <= e_di4_lo
SDMXE	*	INDICATOR	zdid1	e_secmge7_lo <= e_secmge7
SDMXE	*	INDICATOR	zdid1	e_secmge7_vhi <= e_di4_vhi
SDMXE	*	INDICATOR	zdid1	e_secmge7_vhi <= e_secmge7
SDMXE	*	INDICATOR	zdid1	e_secmge7_vlo <= e_di4_vlo
SDMXE	*	INDICATOR	zdid1	e_secmge7_vlo <= e_secmge7
SDMXE	*	INDICATOR	zdid2	e_secawany_hi <= e_di4_hi
SDMXE	*	INDICATOR	zdid2	e_secawany_hi <= e_secawany
SDMXE	*	INDICATOR	zdid2	e_secawany_lo <= e_di4_lo
SDMXE	*	INDICATOR	zdid2	e_secawany_lo <= e_secawany
SDMXE	*	INDICATOR	zdid2	e_secawany_vhi <= e_di4_vhi
SDMXE	*	INDICATOR	zdid2	e_secawany_vhi <= e_secawany

Survey	Country	KeyName	KeyGroup	Message
SDMXE	*	INDICATOR	zdid2	e_secawany_vlo <= e_di4_vlo
SDMXE	*	INDICATOR	zdid2	e_secawany_vlo <= e_secawany
SDMXE	*	INDICATOR	zdid3	e_secpol2_hi <= e_di4_hi
SDMXE	*	INDICATOR	zdid3	e_secpol2_hi <= e_secpol2
SDMXE	*	INDICATOR	zdid3	e_secpol2_lo <= e_di4_lo
SDMXE	*	INDICATOR	zdid3	e_secpol2_lo <= e_secpol2
SDMXE	*	INDICATOR	zdid3	e_secpol2_vhi <= e_di4_vhi
SDMXE	*	INDICATOR	zdid3	e_secpol2_vhi <= e_secpol2
SDMXE	*	INDICATOR	zdid3	e_secpol2_vlo <= e_di4_vlo
SDMXE	*	INDICATOR	zdid3	e_secpol2_vlo <= e_secpol2
SDMXE	*	INDICATOR	zdid4	e_secprev_cy_hi <= e_di4_hi
SDMXE	*	INDICATOR	zdid4	e_secprev_cy_hi <= e_secprev_cy
SDMXE	*	INDICATOR	zdid4	e_secprev_cy_lo <= e_di4_lo
SDMXE	*	INDICATOR	zdid4	e_secprev_cy_lo <= e_secprev_cy
SDMXE	*	INDICATOR	zdid4	e_secprev_cy_vhi <= e_di4_vhi
SDMXE	*	INDICATOR	zdid4	e_secprev_cy_vhi <= e_secprev_cy
SDMXE	*	INDICATOR	zdid4	e_secprev_cy_vlo <= e_di4_vlo
SDMXE	*	INDICATOR	zdid4	e_secprev_cy_vlo <= e_secprev_cy
SDMXE	*	INDICATOR	zdid7	e_secins_hi <= e_di4_hi
SDMXE	*	INDICATOR	zdid7	e_secins_hi <= e_secins
SDMXE	*	INDICATOR	zdid7	e_secins_lo <= e_di4_lo
SDMXE	*	INDICATOR	zdid7	e_secins_lo <= e_secins
SDMXE	*	INDICATOR	zdid7	e_secins_vhi <= e_di4_vhi
SDMXE	*	INDICATOR	zdid7	e_secins_vhi <= e_secins
SDMXE	*	INDICATOR	zdid7	e_secins_vlo <= e_di4_vlo
SDMXE	*	INDICATOR	zdid7	e_secins_vlo <= e_secins
SDMXE	*	INDICATOR	zdif1	e_envpe_hi <= e_di4_hi
SDMXE	*	INDICATOR	zdif1	e_envpe_hi <= e_envpe
SDMXE	*	INDICATOR	zdif1	e_envpe_lo <= e_di4_lo
SDMXE	*	INDICATOR	zdif1	e_envpe_lo <= e_envpe
SDMXE	*	INDICATOR	zdif1	e_envpe_vhi <= e_di4_vhi
SDMXE	*	INDICATOR	zdif1	e_envpe_vhi <= e_envpe
SDMXE	*	INDICATOR	zdif1	e_envpe_vlo <= e_di4_vlo
SDMXE	*	INDICATOR	zdif1	e_envpe_vlo <= e_envpe
SDMXE	*	INDICATOR	zdif2	e_envcei_hi <= e_di4_hi
SDMXE	*	INDICATOR	zdif2	e_envcei_hi <= e_envcei
SDMXE	*	INDICATOR	zdif2	e_envcei_lo <= e_di4_lo
SDMXE	*	INDICATOR	zdif2	e_envcei_lo <= e_envcei

Survey	Country	KeyName	KeyGroup	Message
SDMXE	*	INDICATOR	zdif2	e_envcei_vhi <= e_di4_vhi
SDMXE	*	INDICATOR	zdif2	e_envcei_vhi <= e_envcei
SDMXE	*	INDICATOR	zdif2	e_envcei_vlo <= e_di4_vlo
SDMXE	*	INDICATOR	zdif2	e_envcei_vlo <= e_envcei
SDMXE	*	NUMBER_ EMPLOYEES	bysize	e0t1 <= e0t9
SDMXE	*	NUMBER_ EMPLOYEES	bysize	e0t1 >= 0
SDMXE	*	NUMBER_ EMPLOYEES	bysize	e0t9 = e0t1 + e2t9
SDMXE	*	NUMBER_ EMPLOYEES	bysize	e0t9 >= 0
SDMXE	*	NUMBER_ EMPLOYEES	bysize	e10t249 <= ege10
SDMXE	*	NUMBER_ EMPLOYEES	bysize	e10t249 = e10t49 + e50t249
SDMXE	*	NUMBER_ EMPLOYEES	bysize	e10t249 >= 0
SDMXE	*	NUMBER_ EMPLOYEES	bysize	e10t49 <= e10t249
SDMXE	*	NUMBER_ EMPLOYEES	bysize	e10t49 <= ege10
SDMXE	*	NUMBER_ EMPLOYEES	bysize	e10t49 >= 0
SDMXE	*	NUMBER_ EMPLOYEES	bysize	e2t9 <= e0t9
SDMXE	*	NUMBER_ EMPLOYEES	bysize	e2t9 >= 0
SDMXE	*	NUMBER_ EMPLOYEES	bysize	e50t249 <= e10t249
SDMXE	*	NUMBER_ EMPLOYEES	bysize	e50t249 <= ege10
SDMXE	*	NUMBER_ EMPLOYEES	bysize	e50t249 >= 0
SDMXE	*	NUMBER_ EMPLOYEES	bysize	ege10 = e10t49 + e50t249 + ege250
SDMXE	*	NUMBER_ EMPLOYEES	bysize	ege10 >= 0
SDMXE	*	NUMBER_ EMPLOYEES	bysize	ege250 <= ege10
SDMXE	*	NUMBER_ EMPLOYEES	bysize	ege250 >= 0
SDMXE	UK	UNIT_MULT	cur	eur = xdc / 0.8596
SDMXE	BG	UNIT_MULT	cur	eur = xdc / 1.9558
SDMXE	BA	UNIT_MULT	cur	eur = xdc / 1.95583
SDMXE	SE	UNIT_MULT	cur	eur = xdc / 10.1465
SDMXE	NO	UNIT_MULT	cur	eur = xdc / 10.1633
SDMXE	TR	UNIT_MULT	cur	eur = xdc / 10.5124

Survey	Country	KeyName	KeyGroup	Message
SDMXE	RS	UNIT_MULT	cur	eur = xdc / 117.5733
SDMXE	IS	UNIT_MULT	cur	eur = xdc / 150.15
SDMXE	CZ	UNIT_MULT	cur	eur = xdc / 25.64
SDMXE	HU	UNIT_MULT	cur	eur = xdc / 358.52
SDMXE	PL	UNIT_MULT	cur	eur = xdc / 4.5652
SDMXE	RO	UNIT_MULT	cur	eur = xdc / 4.9215
SDMXE	MK	UNIT_MULT	cur	eur = xdc / 61.636
SDMXE	DK	UNIT_MULT	cur	eur = xdc / 7.437
SDMXE	HR	UNIT_MULT	cur	eur = xdc / 7.5284

Annex 3 - Metadata reporting template

- **1 - View for a european file**
- **2 - View for a national file**

- Full view -

Template INFOSOC__ETNSI_A_2021

National Reference Metadata in SIMS structure for INFOSOC Enterprises

Compiling agency:

Eurostat metadata

Reference metadata

For any question on data and metadata, please contact: EUROPEAN STATISTICAL DATA SUPPORT

1. Contact

Top

1.1. Contact organisation	
1.2. Contact organisation unit	
1.3. Contact name	
1.4. Contact person function	

1.5. Contact mail address	
1.6. Contact email address	
1.7. Contact phone number	
1.8. Contact fax number	

2. Metadata update

Top

2.1. Metadata last certified	
2.2. Metadata last posted	
2.3. Metadata last update	

3. Statistical presentation

Top

3.1. Data description

Data on the Information and Communication Technologies (ICT) usage and e-commerce in enterprises are survey data. They are collected by the National Statistical Institutes or Ministries and are in principle based on Eurostat's **annual model questionnaires** on **ICT usage and e-commerce in enterprises**.

Large part of the data collected is used to measure the progress in the implementation of one of the main political priorities of the European Commission for 2019 to 2024 – A Europe fit for the digital age. Part of this is the "European strategy for data", envisioning a single market for data to ensure the EU's global competitiveness and data sovereignty, in which context a comprehensive set of new rules for all digital services was proposed: the Digital Services Act and the Digital Markets Act, which are centrepieces of the EU digital strategy. Furthermore, the Commission and the High Representative of the Union for Foreign Affairs and Security Policy presented a new "EU cybersecurity strategy", which is intended to bolster the EU's collective resilience against cyber threats, safeguard a global and open internet and protect EU values and the fundamental rights of its people. Furthermore, data will allow monitoring the progress towards the Commission's vision for Europe's digital transformation by 2030 presented on 9 March 2021. This vision for the EU's digital decade evolves around four cardinal points: Skills, Digital transformation of businesses, Secure and sustainable digital infrastructures, and Digitalisation of public services.

The aim of the European survey on ICT usage and e-commerce in enterprises is to collect and disseminate harmonised and comparable information at European level.

3.2. Classification system

NACE rev.2 2008

3.3. Coverage - sector
All economic activities in the scope of Annex I of the Commission Regulation are intended to be included in the general survey, covering enterprises with 10 or more employees and self-employed persons. These activities are: NACE Rev. 2 sections C, D, E, F, G, H, I, J, L, M and N, division 95.1. *For micro-enterprises see the sub-concepts below*
3.3.1. Coverage-sector economic activity - All Nace Rev. categories are covered
3.3.2. Coverage sector economic activity - If the answer is "No", which ones were covered?
3.4. Statistical concepts and definitions
The model questionnaire on ICT usage and e-commerce in enterprises provides a large variety of variables covering among others the following areas: - General information about ICT systems - Access to and use of the Internet - E-commerce and e-business - ICT security - Other topics: use of robotics, ICT specialists, ICT and the environment. The annual model questionnaires and the methodological manual comprise definitions and explanations regarding the topics of the survey.
3.5. Statistical unit
3.6. Statistical population
Target Population As required by Annex of the Commission Implementing Regulation, enterprises with 10 or more employees and self-employed persons are intended to be covered by the survey. *For micro-enterprises see the sub-concepts below*
3.6.1. Coverage of micro-enterprises
3.6.2. Breakdown between size classes [0 to 1] and [2 to 9]
3.6.3. If different size delimitation or different variable was used, please indicate it.
3.7. Reference area
3.8. Coverage - Time
Years 2021 and 2022.
3.9. Base period

Not applicable

4. Unit of measure

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Percentages of enterprises, Percentages of turnover, Percentages of employees and self-employed persons.

5. Reference Period

Top

6. Institutional Mandate

Top

6.1. Institutional Mandate - legal acts and other agreements

Complementary national legislation constituting the legal basis for the survey on the use of ICT in enterprises:

6.2. Institutional Mandate - data sharing

7. Confidentiality

Top

7.1. Confidentiality - policy

Regulation (EC) No 223/2009 on European statistics (recital 24 and Article 20(4)) of 11 March 2009 (OJ L 87, p. 164), stipulates the need to establish common principles and guidelines ensuring the confidentiality of data used for the production of European statistics and the access to those confidential data with due account for technical developments and the requirements of users in a democratic society.

7.2. Confidentiality - data treatment

Data are transmitted via eDamis (encrypted) and delivered to a secure environment where they are treated. National Statistical Institutes are requested to add flags for confidentiality in case results must not be disclosed.

8. Release policy

Top

8.1. Release calendar

8.2. Release calendar access

8.3. Release policy - user access

9. Frequency of dissemination

Top

Annual

10. Accessibility and clarity

Top

10.1. Dissemination format - News release

National dissemination of results

10.2. Dissemination format - Publications
National dissemination of results
10.3. Dissemination format - online database
See detailed section 10.3.1
10.3.1. Data tables - consultations
Results for selected variables collected in the framework of this survey are available for all participating countries on Digital economy and society of Eurostat website.
10.4. Dissemination format - microdata access
Not applicable
10.5. Dissemination format - other
Not requested
10.5.1. Metadata - consultations
Not requested
10.6. Documentation on methodology
10.6.1. Metadata completeness - rate
Not requested
10.7. Quality management - documentation

11. Quality management

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11.1. Quality assurance
The Methodological Manual provides guidelines and standards for the implementation of the surveys in the Member States. It is updated every year according to the changed contents of the model questionnaires.
11.2. Quality management - assessment
At European level, the recommended use of the annual Eurostat model questionnaire aims at improving comparability of the results among the countries that conduct the survey on ICT usage and e-commerce in enterprises. Moreover, the Methodological Manual provides guidelines and clarifications for the implementation of the surveys in the Member States.

12. Relevance

Top

12.1. Relevance - User Needs
At European level, European Commission users (e.g. DG CNECT, DG GROW, DG JUST, DG REGIO, DG JRC) are the principal users of the data on **ICT usage and e-commerce in enterprises** and contribute in identifying/defining the topics to be covered. Hence, main users are consulted regularly (at hearings, task forces, ad hoc meetings) for their needs and are involved in the process of the development of the model questionnaires at a very early stage. User needs are considered throughout the whole discussion process of the model questionnaires aiming at providing relevant statistical data for monitoring and benchmarking of European policies.

12.2. Relevance - User Satisfaction
At European level, contacts within the Commission, the OECD and other stakeholders give a clear picture about the key users' satisfaction as to the following data quality aspects: accuracy and reliability of results, timeliness, satisfactory accessibility, clarity and comparability over time and between countries, completeness and relevance. Overall users have evaluated positively (good, very good) the data quality on the ICT usage and e-commerce in enterprises.
12.3. Completeness
Detailed information is available in " Annex I _ Completeness " excel file - related to questionnaire, coverage, additional questions.
12.3.1. Data completeness - rate
Not requested. Any relevant qualitative information is available in the column "Any deviation from question / item in model questionnaire" in the ***" Annex I _ Completeness " excel file***.

13. Accuracy

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13.1. Accuracy - overall
Comments on reliability and representativeness of results and completeness of dataset These comments reflect overall standard errors reported for the indicators and breakdowns in section 13.2.1 (Sampling error - indicators) and the rest of the breakdowns for national and European aggregates, as well as other accuracy measurements. The estimated standard error should not exceed 2pp for the overall proportions and should not exceed 5pp for the proportions related to the different subgroups of the population (for those NACE aggregates for the calculation and dissemination of national aggregates). If problems were found, these could have implications for future surveys (e.g. need to improve sampling design, to increase sample sizes, to increase the response rates etc.). **More detailed information is available in " Annex II. _ Accuracy " excel file - related to European aggregates, comments on reliability and use of flag.**
13.2. Sampling error
For calculation of the standard error see 13.2.1.1.
13.2.1. Sampling error - indicators

Standard error (for selected indicators and breakdowns)

Precision measures related to variability due to sampling, unit non-response (the size of the subset of respondents is smaller than the size of the original sample) and other (imputation for item non-response, calibration etc.) are not (yet) required from the Member states for all indicators. Eurostat will make basic assumptions to compute these measures for all indicators produced (e.g. stratified random sampling assuming as strata the crossing of the variables "Number of employees and self-employed persons" and "Economic Activity" as it was defined in the 3 tables of section 18.1).

More detailed information is available in" 2022 tables " excel file – worksheets starting with "Standard error".

13.2.1.1. Sampling error indicator calculation

Calculation of the standard error

Various methods can be used for the calculation of the standard error for an estimated proportion. The aim is to incorporate into the standard error the sampling variability but also variability due to unit non-response, item non-response (imputation), calibration etc. In case of census / take-all strata, the aim is to calculate the standard errors comprising the variability due to unit non-response and item non-response.

a) Name and brief description of the applied estimation approach

b) Basic formula

c) Main reference in the literature

d) How has the stratification been taken into account?

e) Which strata have been considered?

13.3. Non-sampling error

See the sub-concepts below

13.3.1. Coverage error

See 18.1.1. A) Known shortcomings of frame population

13.3.1.1. Over-coverage - rate

13.3.1.2. Common units - proportion

Not requested

13.3.2. Measurement error

13.3.3. Non response error

See detailed sections below

13.3.3.1. Unit non-response - rate

Response and non-response

13.3.3.1.1. Unit response

The following table contains the number of units (e.g. enterprises), by type of response to the survey and by the percentage of these values in relation to the gross sample size.

Please note that the gross/net sample shall correspond to the (updated) gross and net sample reported in 18.1.

Type of response	0-9 employees and self-employed persons		10 or more employees and self-employed persons	
	Number	%	Number	%
Gross sample size (as in section 3.1 C)		**100%**		**100%**
1. Response (questionnaires returned by the enterprise)				
1.1 Used for tabulation and grossing up (Net sample or Final Sample; as in section 3.1 D)				
1.2 Not used for tabulation				
1.2.1 Out of scope (deaths, misclassified originally in the target population, etc.)				
1.2.2 Other reasons (e.g. unusable questionnaire)				
2. Non-response (e.g. non returned mail, returned mail by post office)				

Comments on unit response, if unit response is below 60%

13.3.3.1.2. Methods used for minimizing unit non-response

13.3.3.1.3. Methods used for unit non-response treatment

1. No treatment for unit non-response

2. Treatment by re-weighting

2.1 Re-weighting by the sampling design strata considering that non-response is ignorable inside each stratum (the naïve model)

2.2 Re-weighting by identified response homogeneity groups (created using sample-level information)

2.3 Re-weighting through calibration/post-stratification (performed using population information) by the groups used for calibration/post-stratification

3. Treatment by imputation (done distinctly for each variable/item)

4. Method(s) and the model(s) corresponding to the above or other method(s) used for the treatment of unit non-response. (e.g. Re-weighting using Horvitz-Thompson estimator, ratio estimator or regression estimator, auxiliary variables)

13.3.3.1.4. Assessment of unit non-response bias

13.3.3.2. Item non-response - rate

13.3.3.2.1. Methods used for item non-response treatment

1.No treatment for item non-response

2.Deductive imputation

An exact value can be derived as a known function of other characteristics.

3.Deterministic imputation (e.g. mean/median, mean/median by class, ratio-based, regression-based, single donor nearest-neighbour)

Deterministic imputation leads to estimators with no random component, that is, if the imputation were to be re-conducted, the outcome would be the same

4.Random imputation (e.g. hot-deck, cold-deck)

Random imputation leads to estimators with a random component, that is, if the imputation were re-conducted, it would have led to a different result

5.Re-weighting

6.Multiple imputation

In multiple imputation each missing value is replaced (instead of a single value) with a set of plausible values that represent the uncertainty of the right value to impute. Multiple imputation methods offer the possibility of deriving variance estimators by taking imputation into account. The incorporation of imputation into the variance can be easily derived based on variability of estimates among the multiply imputed data sets.

7. Method(s) and the model(s) corresponding to the above or other method(s) used for the treatment of item non-response.

13.3.3.2.2. Questions or items with item response rates below 90% and other comments

Other comments relating to the item non-response

Additional issues concerning "non-response" calculation (e.g. method used in national publications).

Questions and items with low response rates (cut-off value is 90%) and item non-response rate.

13.3.4. Processing error

13.3.5. Model assumption error

Not requested

14. Timeliness and punctuality

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14.1. Timeliness

See detailed section below

14.1.1. Time lag - first result

Not applicable
14.1.2. Time lag - final result
Data are to be delivered to Eurostat in the fourth quarter of the reference year (due date for the finalised dataset is 5th October). European results are released before the end of the survey year or in the beginning of the year following the survey year (T=reference year, T+0 for indicators referring to the current year, T+10 months for other indicators referring to the previous year e.g. e-commerce).
14.2. Punctuality
See detailed sections below
14.2.1. Punctuality - delivery and publication

15. Coherence and comparability

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15.1. Comparability - geographical
The model questionnaire is generally used by the countries that conduct the survey on ICT usage and e-commerce in enterprises. Due to (small) differences in translation, in reference periods, in the used survey vehicle, in non-response treatment or different routing through the questionnaire, some results for some countries may be of reduced comparability. In these cases, notes are added in the metadata**.**
15.1.1. Asymmetry for mirror flow statistics - coefficient
Not applicable
15.2. Comparability - over time
See detailed section below
15.2.1. Length of comparable time series
15.3. Coherence - cross domain
15.3.1. Coherence - sub annual and annual statistics
Not applicable
15.3.2. Coherence - National Accounts
Not applicable
15.4. Coherence - internal
Not applicable

16. Cost and Burden

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17. Data revision

Top

17.1. Data revision - policy
17.2. Data revision - practice
17.2.1. Data revision - average size

Not requested

18. Statistical processing

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18.1. Source data

A) Frame population description and distribution

For more information see concept 18.1.1.

B) Sampling design - Sampling method

This section includes a description of the sampling method used (e.g. stratified random sample, quota sampling, cluster sampling; one-stage or two-stage sampling) and information which variables were used to stratify, the categories of those variables, in particular for the NACE categories related to the "possible calculation of European aggregates", and the final number of strata.

C) **Gross sample distribution**

More detailed information is available in " 2022 tables " excel file (Worksheet: GROSS SAMPLE)

D) Net sample distribution

More detailed information is available in " 2022 tables " excel file (Worksheet: NET SAMPLE)

18.1.1. Source data - frame population

A) Description of frame population

a) When was the sample for the ICT usage and e-commerce in enterprise survey drawn?
b) When was the last update of the Business register that was used for drawing the sample of enterprises for the survey?
c) Please indicate if the frame population is the same as, or is in some way coordinated with, the one used for the Structural Business Statistics (different snapshots)
d) Please describe if different frames are used during different stages of the statistical process (e.g. frame used for sampling vs. frame used for grossing up):
e) Please indicate shortcomings in terms of timeliness (e.g. time lag between last update of the sampling frame and the moment of the actual sampling), geographical coverage, coverage of different subpopulations, data available etc., and any measures taken to correct it, for this survey.

B) Frame population distribution

More detailed information is available in " 2022 tables " excel file (Worksheet: FRAME POPULATION)

18.2. Frequency of data collection

Annual

18.3. Data collection

18.3.1. Survey period

Survey / Collection	Date of sending out questionnaires	Date of reception of the last
General survey Micro-enterprises		

18.3.2. Survey vehicle – general survey
General survey - Stand-alone survey
18.3.3. Survey vehicle – enterprises
Was the collection of micro-enterprises integrated with the general survey? - NO
18.3.4. Survey type
18.3.5. Survey participation
Mandatory
18.4. Data validation
18.5. Data compilation
Grossing-up procedures
18.5.1. Imputation - rate
18.6. Adjustment
Not applicable
18.6.1. Seasonal adjustment
Not applicable

19. Comment

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Problems encountered and lessons to be learnt:
19.1. Documents
Questionnaire in national language **Questionnaire in English (if available)** **National reports on methodology (if available)** **Analysis of key results, backed up by tables and graphs in English (if available)** **Other Annexes**

Related metadata

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Annexes

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GETTING IN TOUCH WITH THE EU

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European businesses statistics compilers' manual for ICT usage and e-commerce in enterprises

The purpose of this publication is to provide the compilers of European statistics on information and communication technology (ICT) usage and e-commerce in enterprises with clarifications on how to apply the EU legal provisions. With the help of explanations and legal references, the Manual is meant to serve as a practical reference document for National Statistical Authorities.

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