INFOSOC_ESQRSET_A_LU_2018_0000

National Reference Metadata in ESS Standard for Quality Reports Structure (ESQRS)
Compiling agency: Institut national de la statistique et des études économiques (STATEC)
Time Dimension: 2018-A0
Data Provider: LU1
Data Flow: INFOSOC_ESQRSET_A

Eurostat metadata

Reference metadata

For any question on data and metadata, please contact: EUROPEAN STATISTICAL DATA SUPPORT

1. Contact

Top

1.1. Contact organisation	Institut national de la statistique et des études économiques (STATEC)
1.2. Contact organisation unit	ENT3 - Structural Business Statistics
1.5. Contact mail address	STATEC B.P. 304 L-2013 Luxembourg

2. Statistical presentation

Top

2.1. Data description

(Metadata report)

Name of the data collection:

Enquête relative à l'usage des technologies de l'information et de la communication dans les entreprises – 2018

Data on the usage of Information and Communication Technologies (ICT) 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 towards the objectives set in the Digital Single Market Strategy. Statistical data support the development of the Digital Scoreboard established in the context of the Monitoring the Digital Economy and Society 2016-2021.

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. Data for this collection are supplied directly from the surveys with no separate treatment.

2.2. Classification system

NACE

2.3. Coverage - sector

(Metadata report)

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 persons employed. These activities are: NACE Rev. 2 sections C, D, E, F, G, H, I, J, L and N, divisions 69-74 and 95.1.

Coverage of enterprises 0-9 persons employed:

*In this section, please indicate for the micro-enterprises if all the NACE categories were covered – by introducing an "**x**" in the column next to the appropriate response; if not which ones were included.*

Economic Activity	**Micro-enterprises**			
All NACE Rev. 2 categories covered?	**Yes**		**No**	X
If not, which ones were covered?	Micro-enterprises are not covered by the survey in Luxembourg.			

2.4. 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
- Other topics foreseen in the benchmarking frameworks: e-skills, the mobile use of the Internet, cloud computing, social media, software as a service, etc.

The annual model questionnaires and the methodological manual comprise definitions and explanations.

2.5. Statistical unit

(Metadata report)
Statistical Unit

Please indicate the statistical unit used. If it wasn't the "enterprise", as defined in the model survey, please mention the reasons.
The enterprise unit was used.

2.6. Statistical population

(Metadata report)
Target Population
As required by Annex I of the Commission Regulation, enterprises with 10 or more persons employed are intended to be covered by the survey.
Coverage of enterprises 0-9 persons employed:
*Indicate below what is the scope for the coverage of micro-enterprises in terms of size and if the breakdown in the size classes is provided or not. For each one of the two items below introduce an "**x**" in the column next to the appropriate response.*
If the variable used to define enterprise size was not the number of persons employed, indicate which one was used (number of employees, number of FTE's ...), the reason and the possible impact on results.

Coverage of micro-enterprises	**Yes**		**No**	
Breakdown between size classes [0 to 1] and [2 to 9]	**Yes**		**No**	
If different size delimitation or different variable was used, please indicate it.	Micro-enterprises are not covered by the survey in Luxembourg.			

2.7. Reference area

(Metadata report)
Geographic scope (all enterprises)

Please indicate here if all the territory of the country was considered or if any part of the country was not included. All territory of the country should be covered. In case parts of the country were not included indicate which, the reasons why, and an estimate of the percentage of the target population not covered.
The whole territory was covered.

2.8. Coverage - Time

(Metadata report)
Reference period

In this section please indicate if the reference periods defined in the model questionnaire were followed in the national survey and highlight the differences.
The reference periods defined in the model questionnaire were followed in the national survey.

2.9. Base period

Not applicable

3. Statistical processing

Top

3.1. Source data

(Metadata report)
A) Frame population
A) 1. Description of frame population
In this section please include information concerning the frame population.

a) When was the last update of the Business register that was used for drawing the sample of enterprises for the survey?	21/02/2018
b) When was the sample drawn?	21/02/2018
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)	The frame population used for the sample differs from the one used in SBS. However, the frame population for the final data production uses the same snapshot as the SBS preliminary results.
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):	The frame population used for sampling is based on an early version of the business register, where not all information on turnover or employment is complete. Therefore, this frame will be updated in September for the grossing up procedure.
e) 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.	Given that the sampling frame only contains 9 months' worth of employment data for the reference year, we use the average employment over the 12 previous months as a criteria for the size classes used in sampling. These size classes are recalculated when the final frame population is drawn for grossing up and production of final results.

A) 2. Frame population distribution
Please provide the number of statistical units (enterprises) in the frame population, by size and by economic activity. Optional size classes are to be filled in if applicable.
***NOTE:* PLEASE FILL IN THE RELEVANT INFORMATION IN THE ATTACHED EXCEL FILE (Worksheet: *FRAME POPULATION*)**

(Metadata report)
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). If stratification was used, please indicate 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. Include also in this section the method

used for the determination of the sample size and the method used for sample selection. In particular, mention if any procedures for the coordination or non- overlapping with samples of other surveys was used.

The frame population was stratified using the following criteria:
- 3 size classes (i.e. 10-49, 50-249, 250+ employees)
- 15 NACE categories. These categories are mainly based on the aggregates listed in the model questionnaire for possible calculation of national NACE Rev. 2 aggregates, the only difference being that division 56 and group 95.1 are included as separate categories:
• C10_18
• C19_23
• C24_25
• C26-33
• D26_36
• D35_39
• F41_43
• G45_47
• H49_53
• I55
• I56
• J58_63
• L68
• M69_74
• N77_82
• S951

The method used for sampling was a stratified random sample, with varying sampling rates depending on size class:
• For the two size classes 50-249 and 250+, the sampling rate was 100% (i.e. a census);
• For the size class 10-49, the sampling rate was generally fixed 60%, the only exceptions being F41_43, G45-47 with a sampling rate of 35% and I56 with a sampling rate of 30% (as it is not calculated at the national level). For small strata where the sample would have consisted of 3 units or less, a minimum of 3 units where sampled.
The sampling rate of 60% was chosen for the 2013 survey, after simulating the effect of various sampling rates on the coefficients of variation of the 2011 and 2012 data, taking into account historical response rates. Simulations were performed on the coefficients of variation for the following indicators: cuse, iacc, web, ade, awsell, aebuy.

(Metadata report)
C) Gross sample distribution
Please provide the number of statistical units (e.g. enterprises) selected for sampling without any posterior correction for misclassification, by size and by economic activity. Optional size classes are to be filled in if applicable.
***NOTE:* PLEASE FILL IN THE RELEVANT INFORMATION IN THE ATTACHED EXCEL FILE (Worksheet: GROSS SAMPLE)**

(Quality report)
D) Net sample distribution
Please provide the number of enterprises used for grossing up and tabulation, by size and by economic activity. Optional size classes are to be filled in if applicable.
***NOTE:* PLEASE FILL IN THE RELEVANT INFORMATION IN THE ATTACHED EXCEL FILE (Worksheet: NET SAMPLE)**

3.2. Frequency of data collection

Annual. No additional information is requested.

3.3. Data collection

(Metadata report) / (Quality report)
A) Survey period
Please indicate the dates between which the data collection took place, i.e., when the questionnaires were sent out (or the web-questionnaire made available) and when the last filled in questionnaire treated and used for the results was received. Please indicate also the collection dates for the financial sector and the micro-enterprises (if conducted), even if they are the same as the general survey.

Survey / Collection	Date of sending out questionnaires	Date of reception of the last questionnaire treated
General survey	12/03/2018	26/09/2018
Financial sector	NA	NA
Micro-enterprises	NA	NA

(Metadata report)
B) Survey vehicle
*Stand-alone or embedded in another survey. Please introduce an "**x" in the row below.***
In addition, please indicate if the data collection for micro-enterprises was integrated with the general survey, i.e. the same questionnaire was used and the sending out of questionnaires was simultaneous.

General survey:		Was the collection of micro-enterprises integrated with the general survey?		
Stand-alone survey	Embedded in another survey	Yes	No	Not applicable
x				X

(Metadata report)
C) Survey type

Please give a short description of the survey type (e.g. web survey, face-to-face interviews, self-administered mail survey, telephone interview, combination of techniques, other).

Possibility for respondents to choose between an online questionnaire or print out and fill in a PDF version of the questionnaire.

(Metadata report)
D) Survey participation

Please indicate if the survey was mandatory or voluntary, by introducing an "x" in the row below.

Mandatory	Voluntary
x	

3.4. Data validation

(Metadata report) / (Quality report)

EDIT tool provided by Eurostat is normally used before the final data transmission.

Additional checks are performed on the microdata and aggregated levels.

3.5. Data compilation

(Quality report)

Grossing-up procedures

Please give a description of the extrapolation or weighting procedures used to gross up the number of enterprises, number of persons employed, turnover and purchases in the net sample to the (target) population. Please present the different steps taken or factors applied to the design weighting to take into account the (post)stratification, balancing for unit non-response, etc. Please describe the different categories of questions – if any – that have been grossed up differently (see also the model questionnaire and the Methodological Manual).

To treat non-response, the initial sampling weight is first adjusted using the response rate for each stratum. Strata are defined by crossing the following size classes and NACE groupings.

In order to obtain reliable results for quantitative variables (that are in line with SBS totals) the corrected weights are calibrated using to the number of units, the total turnover and the total employment per stratum as auxiliary information. Calibration is carried out in R, using the “calib” method of the “sampling” package with a “logit” distance function.

Please note that due to the small number of observations leading to co-linearity problems, some strata cannot be calibrated over all size classes. For these strata, several size classes were combined.

The strata used for calibration consist of the strata listed in section 6.2.

3.6. Adjustment

Not applicable

4. Quality management

Top

4.1. 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.

Please briefly describe the general quality assurance framework of your organisation and how it is implemented for the domain-specific activities (if information is available):

4.2. 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.

(Metadata report)

Please provide an overall assessment of the national methodology for quality management (if information is available):

For the 2018 survey, the online questionnaire was maintained as the main survey vehicle with no paper questionnaires sent out, after the previous survey showed sharp increases in online response rates using this procedure. Alternatively, a PDF version of the questionnaire was available to download and print out.

Experiences gained with past questionnaires as well as from other domains (CIS, agriculture) helped to improve the quality of the online questionnaire while trying to reduce the response burden as much as possible.

The 2018 data collection is the fifth consecutive edition completely managed in-house. This allows for a better overview of the status of the survey, the problems encountered by respondents, as well as an improved follow-up with 2 reminders, as well as a planned 3rd reminder to high-impact enterprises sent as a registered letter.

Whereas the 2014 and 2015 questionnaires were available in French and German versions only, the ICT survey is also made available in English since its 2016 edition.

5. Relevance

Top

5.1. Relevance - User Needs

At European level, European Commission users (DG CNECT, DG GROW, DG JUST, DG EAC, DG SANTE) 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.

(Metadata report)

Please add information concerning the involvement of users at national level (if available):

STATEC's research unit is routinely asked to provide feedback on new modules in the model questionnaire, as well as to indicate any variables used in research projects that might be missing from the model questionnaire. These additional variables, the pursued goal and their value-added are generally discussed between both units, in order to reach a consensus that allows to keep the questionnaire relatively short, while not unnecessarily reducing its usefulness to the research community.

5.2. 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.

(Metadata report)

Please add information concerning user satisfaction at national or European level (if available):
There is no survey led at the national level to assess the user's satisfaction on the data quality on the ICT usage and e-commerce in enterprises.

5.3. Completeness

(Metadata report)

A) Questionnaire

Implementation of the mandatory questions in the national questionnaire and adoption of questions for micro-enterprises (Model Questionnaire)

*All mandatory characteristics included in Annex I of the **Commission Regulation (EU) No 2017/1515 of 31 August 2017** are intended to be derived from the general survey, covering enterprises with 10 or more persons employed.*
*In the following table in the column **"General Survey"** please indicate any deviation of the question from the recommendation as defined in the model questionnaire, for the general survey.*
*For each question or item, an "**x**" in the column named **"Micro-enterprises"** would mean that it was included in the national questionnaire addressed to **micro-enterprises**. The national questionnaire(s) (and an English version, if available,) should be provided in the annex.*

		General Survey	Micro-enterprises
	Question / Item	**Any deviation from question / item in model questionnaire**	**Question included**
	Module A: Use of computers		
A1.	Does your enterprise use computers? (Filter question) Computers include personal computers, portable computers, tablets, other portable devices such as smartphones.	Not included in the online questionnaire.	
	Module B: ICT specialists and skills		
B1.	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.	No deviation	
B2.	Did your enterprise provide any type of training to develop ICT related skills of the persons employed, during 2017? a) Training for ICT specialists Tick "No" if your enterprise didn't employ ICT specialists during 2017. b) Training for other persons employed	No deviation	
B3.	Did your enterprise recruit or try to recruit ICT specialists during 2017? (Filter question)	No deviation	
B4.	During 2017, did your enterprise have vacancies for ICT specialists that were difficult to fill?	No deviation	
B5.	Please indicate who mainly performed the following ICT functions of your enterprise in 2017 (one of the three options: - Mainly own employees incl. those employed in parent or affiliate enterprises - Mainly external supplier - Not applicable) a) Maintenance of ICT infrastructure (servers, computers, printers, networks) b) Support for office software (e.g. word processors, spreadsheets, etc.) c) 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, etc.) Exclude purchases of pre-packaged software d) Support for business management software/systems (e.g. ERP, CRM, HR, databases) e) Development of web solutions (e.g. development of your enterprise's website, apps, e-commerce solutions, etc.) f) Support for web solutions (e.g. support of your enterprise's website, apps, e-commerce solutions, etc.) Exclude hosting your enterprise's website g) ICT security and data protection (e.g. security testing, training on security, resolving ICT security incidents, etc.) Exclude upgrades of pre-packaged software	No deviation	
	Module C: Access and use of the internet		
C1.	Does your enterprise have access to the internet? (Filter question)	Not included in the online questionnaire.	
C2.	How many persons employed use computers with access to the internet for business purposes?	Only the number of persons employed is collected.	

		General Survey	Micro-enterprises
	Question / Item	**Any deviation from question / item in model questionnaire**	**Question included**
	If you can't provide this value, Please indicate an estimate of the percentage of the total number of persons employed who use computers with access to the internet for business purposes. Computers include personal computers, portable computers, tablets, other portable devices such as smartphones.		
C3.	Does your enterprise use any type of fixed connection to the internet? (e.g. ADSL, SDSL, VDSL, fiber optics technology (FTTP), cable technology, etc.) (Add national examples for public Wi-Fi, WiMax, etc.) (Filter question)	No deviation	
C4.	What is the maximum contracted download speed of the fastest fixed internet connection of your enterprise? (Tick only one) a) less than 2 Mbit/s b) at least 2 but less than 10 Mbit/s c) at least 10 but less than 30 Mbit/s d) at least 30 but less than 100 Mbit/s e) at least 100 Mbit/s	No deviation	
C5.	Does your enterprise provide portable devices that allow a mobile connection to the internet using mobile telephone networks, for business purposes? e.g. via portable computers or other portable devices such as smartphones	No deviation	
C6.	How many persons employed use a portable device provided by the enterprise, that allows internet connection via mobile telephone networks, for business purposes? (e.g. portable computers, or other portable devices such as smartphones) (Please enter a value, field cannot be left blank) 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 internet connection via mobile telephone networks, for business purposes (e.g. portable computers, or other portable devices such as smartphones) (Please enter a value, field cannot be left blank)	No deviation	
C7.	Does your enterprise provide portable devices that allow mobile connection to the internet using mobile telephone networks, for business use to: a) access the enterprise's e-mail system? b) access and modify enterprise's documents? c) use dedicated business software applications? (e.g. for orders or sales management, ERP (Enterprise Resource Planning) related applications, etc.)	No deviation	
C8.	Does your enterprise have a website? (Filter question)	No deviation	
C9.	Does the website have any of the following? a) Description of goods or services, price lists b) Online ordering or reservation or booking, e.g. shopping cart c) Possibility for visitors to customise or design online goods or services d) Tracking or status of orders placed e) Personalised content on the website for regular/recurrent visitors f) Links or references to the enterprise's social media profiles	Two additional items proposed: - Advertisement of open job positions or online job application - Pages that show the process 'Corporate Social Responsibility' or 'sustainable development' of your enterprise	
C10.	Does your enterprise pay to advertise on the internet? (e.g. adverts on search engines, on social media, on other websites, etc.) (Filter question)	No deviation	
C11.	Does your enterprise pay to advertise on the internet using any of the following targeted advertising methods? a) Based on webpages' content or keywords searched by users b) Based on the tracking of internet users' past activities or profile c) Based on the geolocation of internet users d) Any other method of targeted advertising on the internet not specified above	No deviation	
	Module D: Use of cloud computing services		
D1.	Does your enterprise buy any cloud computing services used over the internet? (Please refer to the definition of cloud computing above, exclude free of charge services.) (Filter question)	No deviation	
D2.	Does your enterprise buy any of the following cloud computing services used over the internet? (Please refer to the definition of cloud computing above, exclude free of charge services.) a) E-mail (as a cloud computing service) b) Office software (e.g. word processors, spreadsheets, etc.) (as a cloud computing service)	No deviation	

		General Survey	Micro-enterprises
	Question / Item	**Any deviation from question / item in model questionnaire**	**Question included**
	c) Hosting the enterprise's database(s) (as a cloud computing service) d) Storage of files (as a cloud computing service) e) Finance or accounting software applications (as a cloud computing service) f) Customer Relationship Management (CRM) software application for managing information about customers (as a cloud computing service) g) Computing power to run the enterprise's own software (as a cloud computing service)		
D3.	Does your enterprise buy any cloud computing services delivered from: (Please refer to the definition of cloud computing above, exclude free of charge services.) a) shared servers of service providers b) servers of service providers exclusively reserved for your enterprise	No deviation	
	Module E: Use of 3D printing		
E1.	During 2017, did your enterprise use 3D printing: (Filter question) a) using your enterprise's 3D printers? Include use of rented or leased 3D printers. b) using printing services provided by other enterprises? Include printing services provided by parent or affiliate enterprises	No deviation	
E2.	During 2017, did your enterprise use 3D printing for any of the following: a) Prototypes or models for sale. b) Prototypes or models for internal use. c) Goods for sale excluding prototypes or models. (e.g. moulds, tools, parts of goods, semi-finished goods, etc.) d) Goods to be used in your enterprise's production process excluding prototypes or models. (e.g. moulds, tools, parts of goods, semi-finished goods, etc.)	No deviation	
	Module H: Invoicing		
H1.	In 2017, did your enterprise send any of the following types of invoices: Include also invoices sent via intermediaries, e.g. accountants, e-invoice service providers, etc. (Filter question) a) Invoices in electronic form, in a standard structure suitable for automated processing (e-invoices)? Excluding the transmission of PDF files (EDI (e.g. EDIFACT), XML (e.g. UBL) [please add national examples]) b) Invoices in electronic form not suitable for automated processing? Including the transmission of PDF files (e.g. emails, TIF, JPEG or other format) c) Paper invoices?	Percentages are collected for this question.	
	Module I: E-Commerce		
I1.	During 2017, did your enterprise receive orders for goods or services placed via a website or apps? (excluding manually typed e-mails) (Filter question)	No deviation	
I2.	Please state the value of the turnover resulting from orders received that were placed via a website or apps (in monetary terms, excluding VAT), in 2017. If you can't provide this value, please indicate an estimate of the percentage of the total turnover resulting from orders received that were placed via a website or apps, in 2017.	Only the monetary amount is collected. Refers to the financial year.	
I3.	What was the percentage breakdown of the turnover from orders received that were placed via a website or apps in 2017 by type of customer? (estimates in percentage of the monetary values, excluding VAT) a) B2C (Sales to private consumers) b) B2B (Sales to other enterprises) and B2G (Sales to public authorities)	Split into 3 separate items instead of 2 (B2C, B2B and B2G).	
I4.	During 2017, via which websites or apps did your enterprise receive orders for goods or services: a) via your enterprise's website or apps? (including those of parent or affiliate enterprises, extranets) b) via an e-commerce marketplace website or apps used by several enterprises for trading products? (e.g. Booking, eBay, Amazon, Amazon Business, Alibaba, Rakuten, etc.) [Please add national examples of e-commerce marketplaces incl. government marketplaces]	No deviation	
I5.	What was the percentage breakdown of the turnover from orders received via a website or apps in 2017 for the following: (estimates in percentage of the monetary values, excluding VAT) If you cannot provide the exact percentages an approximation will suffice. a) via your enterprise's website or apps? (including those of parent or affiliate enterprises, extranets) b) via an e-commerce marketplace website or apps used by several enterprises for trading products? (e.g. Booking, eBay, Amazon, Amazon Business, Alibaba, Rakuten, etc.)	No deviation	

		General Survey	Micro-enterprises
	Question / Item	**Any deviation from question / item in model questionnaire**	**Question included**
	[Please add national examples of e-commerce marketplaces incl. government marketplaces]		
I6.	During 2017, did your enterprise receive orders for goods or services placed via EDI-type messages? (Filter question)	No deviation	
I7.	Please state the value of the turnover resulting from orders received that were placed via EDI-type messages (in monetary terms, excluding VAT), in 2017. If you can't provide this value, Please indicate an estimate of the percentage of the total turnover resulting from orders received that were placed via EDI-type messages, in 2017.	Only the monetary amount is collected. Refers to the financial year.	
	Module X: Background information (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 2017	Not included; data used from Business Register/Preliminary SBS 2017.	
X2.	Average number of persons employed, during 2017	Not included; data used from Business Register/Preliminary SBS 2017.	
X3.	Total turnover (in monetary terms, excluding VAT), for 2017	Not included; data used from Business Register/Preliminary SBS 2017.	

(Metadata report)

B) Coverage of the optional questions of the Model Questionnaire

*Indicate which optional questions were included in the national questionnaire. For each question or item, an "**x**" in the column named **"Question included"** means that it was included in the national questionnaire. The column "10+" refers to enterprises with **"10 or more persons employed"** and column **"Micro"** refers to micro-enterprises.*

		Question included		
	Optional Question / Item	**10+**	**Micro**	**Any deviations from question / item in model questionnaire**
	Module A: Use of computers *(optional questions/items)*			
A2.	How many persons employed use computers for business purposes? If you can't provide this value, Please indicate an estimate of the percentage of the total number of persons employed who use computers for business purposes.			
	Module F: Use of robotics (*optional module)*			
F1.	Does your enterprise use any of the following types of robots? (Filter question) a) Industrial robots (e.g. robotic welding, laser cutting, spray painting, etc.) (Please see the definition of industrial robots) b) Service robots (e.g. used for surveillance, cleaning, transportation, etc.) (Please see the definition of service robots)			
F2.	Does your enterprise use service robots for any of the following? (Please see the definition of service robots when considering the relevant tasks mentioned below) a) Surveillance, security or inspection tasks (e.g. use of airborne drones, etc.) b) Transportation of people or goods (e.g. use of automated guided vehicle, etc.) c) Cleaning or waste disposal tasks d) Warehouse management systems (e.g. palletising, handling goods, etc.) e) Assembly works performed by service robots f) Robotic store clerk tasks g) Construction works or damage repair tasks			
	Module G: Big data analysis *(optional module)*			
G1.	During 2017, did your enterprise analyse big data from any of the following data sources? (Please refer to the definition of big data above; include big data analysis conducted by external service providers) a) Enterprise's own data from smart devices or sensors (e.g. Machine to Machine -M2M-communications, digital sensors, Radio frequency identification tags RFID , etc.) (in the context of big data)	**x**		

		Question included		
	Optional Question / Item	**10+**	**Micro**	**Any deviations from question / item in model questionnaire**
	b) Geolocation data from the use of portable devices (e.g. portable devices using mobile telephone networks, wireless connections or GPS) (in the context of big data) c) Data generated from social media (e.g. social networks, blogs, multimedia content sharing websites, etc.) (in the context of big data) d) Other big data sources not specified above			
G2.	During 2017, who performed big data analysis for your enterprise? a) Enterprise's own employees (incl. those employed in parent or affiliate enterprises) b) External service provider	**x**		
	Module H: Invoicing *(optional questions/items)*			
H2.	Concerning e-invoices: In 2017, out of all invoices your enterprise sent (in electronic or paper form) to private customers, other enterprises or public authorities, how many were e-invoices in a standard structure suitable for automated processing? (Tick only one) a) Less than 10% b) At least 10% but less than 25% c) At least 25% but less than 50% d) At least 50% but less than 75% e) At least 75%			
H2.bis	Alternative Concerning e-invoices: In 2017, out of all invoices your enterprise sent (in electronic or paper form) to private customers, other enterprises or public authorities, what percentage were e-invoices in a standard structure suitable for automated processing? (If you cannot provide the exact percentage an approximation will suffice.)	**x**		**Percentages are collected directly in H1.**
H3.	Concerning e-invoices: In 2017, did your enterprise send e-invoices in a standard structure suitable for automated processing, to: a) Other enterprises (B2B) b) Public authorities (B2G) c) Private consumers (B2C)	**x**		
H4.	In 2017, did your enterprise receive any of the following types of invoices: (Filter question) a) Invoices in electronic form, in a standard structure suitable for automated processing (e-invoices)? Excluding the transmission of PDF files (EDI (e.g. EDIFACT), XML (e.g. UBL) [please add national examples]) b) Invoices in electronic form not suitable for automated processing? Including the transmission of PDF files (e.g. emails, TIF, JPEG or other format) c) Paper invoices?	**x**		
H5.	Concerning e-invoices: In 2017, out of all invoices your enterprise received, how many were e-invoices in a standard structure suitable for automated processing? (Tick only one) a) Less than 10% b) At least 10% but less than 25% c) At least 25% but less than 50% d) At least 50% but less than 75% e) At least 75%			
H5.bis	Alternative Concerning e-invoices: In 2017, out of all invoices your enterprise received, what percentage were e-invoices in a standard structure suitable for automated processing? (If you cannot provide the exact percentage an approximation will suffice.)	**x**		**Percentages are collected directly in H4**
	Module I: E-Commerce *(optional questions/items)*			
I8.	During 2017, did your enterprise place orders for goods or services via a website, apps, or EDI-type messages? (Excluding manually typed e-mails)	x		
I9.	During 2017, did your enterprise place orders for goods or services via a website or apps?	x		
I10.	During 2017, did your enterprise place orders for goods or services via EDI-type messages?	x		
I11.	During 2017, was the value of the orders that your enterprise placed electronically equal or more than 1% of the total purchases' value? (in monetary terms, excluding VAT)	x		The respondent is asked to indicate the percentage as a value

(Metadata report)

C) General remarks on the national questionnaire

The General remarks on the national questionnaire section can be filled in with general information about the variables collected. For example, if a variable was collected/verified from administrative sources, other survey, etc. It is noted that X1-X3 variables may be available from SBS, the business register or other administrative sources.

(Metadata report)

D) Additional questions introduced in national questionnaire(s)

In the section on additional questions introduced in the national questionnaireyou can introduce general information on the adoption of additional national questions. In the following table you can provide the designation of these questions and any other additional information on that question youwish to provide.

Additional questions	Additional information
A1 Is your enterprise part of an enterprise group?	
C9 g) Advertisement of open job positions or online job application	
C9 h) Pages that show the process 'Corporate Social Responsibility' or 'sustainable development' of your enterprise	
H5/H9) WEB/EDI Turnover split by geographic areas	
H12) WEB/EDI Purchases split by geographic areas	

5.3.1. Data completeness - rate

Not requested (to be calculated by EDIT). Please refer to 5.3 in order to provide any relevant qualitative information.

6. Accuracy and reliability

Top

6.1. Accuracy - overall

(Quality report)

A) Reliability of breakdowns to be used for the calculation of European aggregates

*Please indicate for both the general survey and for micro-enterprises the breakdowns to be used for the calculation of **European** aggregates that have a **sufficiently high quality** to be released at **national** level by introducing an **"x"** in the column next to the Y/N responses.*

***Note:** In the case there is a grant agreement that foresees that certain breakdowns will be provided with sufficiently high quality to allow their release at **national** level, the following table should reflect the grant agreement (**"x"** next to "Yes" for the respective breakdowns).*

In the case data for few variables/breakdowns cannot be released - although the particular breakdowns had been taken into account in the sampling design as foreseen in the grant agreement - it is expected that the breakdowns are marked with "Yes", data are accordingly flagged as unreliable and explanations should be provided in point 6.1. (B) (below)

In all cases, data will be evaluated for completeness and compliance with the terms in the grant agreement (if applicable) and the current quality report; additional clarifications may be requested.

Economic Activity	Micro-enterprises				General Survey			
10-12	Yes		No		Yes		No	x
13-15	Yes		No		Yes		No	x
16-18	Yes		No		Yes		No	x
26	Yes		No		Yes		No	x
27-28	Yes		No		Yes		No	x
29-30	Yes		No		Yes		No	x
31-33	Yes		No		Yes		No	x
45	Yes		No		Yes		No	x
46	Yes		No		Yes		No	x
55-56	Yes		No		Yes		No	x
58-60	Yes		No		Yes		No	x
61	Yes		No		Yes		No	x
62-63	Yes		No		Yes		No	x
77-78+80-82	Yes		No		Yes		No	x
79	Yes		No		Yes		No	x
95.1	Yes		No		Yes		No	x

(Quality report)

B) Comments on reliability and representativeness of results and completeness of dataset

These comments should reflect standard errors reported for the indicators and breakdowns in section 6.2.1 (Sampling error - indicators) and the breakdowns for 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.).

Comments related to all indicators, breakdowns concerning accuracy (sampling error in 6.2.1, other indicators and breakdowns, breakdowns for European aggregates):

(Quality report)
C) Use of flags:

If significant standard errors were found, were data cells in the transmitted dataset flagged as unreliable?	
Yes	No[1]
x	
Please inform according to which criteria or rules flags have been included.	*Please explain the reasons for not including flags in the transmitted data.*
The estimated standard error shall not exceed 2 percentage points for the overall proportions and shall not exceed 5 percentage points for the proportions of the different subgroups of the population.	

[1] Please note that if data were not flagged as unreliable they will be released

6.2. Sampling error

(Quality report)
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.
Please, describe below the approach which you have followed. This information will help Eurostat to evaluate the comparability of the standard errors supplied in the previous section by the different statistical institutes participating in the survey.

a) Name and brief description of the applied estimation approach

Estimations of the variables of interest were performed with the calibrated weights.
For a sufficiently large sample size, the calibration estimator is equivalent to the linear regression estimator and its bias tends to be minor. Consequently, the variance of the estimation is based on the residuals resulting from the relationship between the variable of interest and the ancillary variables which have been used for the calibration.
The standard error for a given survey stratum (which is normally also the stratum used for grossing-up) is calculated based on these properties. If necessary, these standard errors are then aggregated to the breakdowns requested by Eurostat.

b) Basic formula

See Annex 'basic formula Luxembourg'

c) Main reference in the literature

“Techniques de sondage” by Pascal Ardilly (ISBN 10: 2-7108-0847-1)

d) How has the stratification been taken into account?

See Annex 'stratification Luxembourg'

e) Which strata have been considered?

The strata used were the ones used for grossing-up. In cases were several strata had to be combined to allow calibration, these regroupings were also taken into account for the calculation of standard errors. Generally, strata were defined by crossing the following size classes and NACE groupings (exceptions in parenthesis):

Size classes:
S - 10-49 employees
M - 50-249 employees
L - 250 employees

NACE groupings:
C10_18
C19_23
C24_25
C26_33
D35_39 (S+M combined)
F41_43
G45_47 (M+L combined)
H49_53
I55_56 (S and M without L)
I56 (L without S and M)
J58_63
L68
M69_74 (M+L combined)
N77_82
S951

6.2.1. Sampling error - indicators

(Quality report)
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 Persons Employed” and “Economic Activity” as it was defined in the 3 tables of section 3.1 A2, C, D).

In order to evaluate the reasonability of the assumptions made by Eurostat, we need to compare the estimated standard error computed under these assumptions and those computed by the country, taking into account the real sampling design used and other sources of variability, for at least some of the indicators. We also need to compare these measures not only for the overall population, but also for the several breakdowns, in which case the standard error is commonly higher.

*We kindly ask you to provide in the following table the estimated standard error **in percentage points** for each of the listed indicators. Both aggregates for "possible calculation of **national** aggregates" and for "possible calculation of **European** aggregates" are included in the table.*

Certain cells correspond to optional size classes, and are to be filled in only when these were covered by the survey. In case of confidential data (flag c in data and in the right column of the table below), the estimated proportion and Standard error are left empty.

The first three columns of the table refer as a technical reference to the question and scope in the same terms as used in the Transmission Format.

NOTE: PLEASE FILL IN THE RELEVANT INFORMATION IN THE ATTACHED EXCEL FILE (Worksheets starting with STANDARD ERROR)

6.3. Non-sampling error

Please fill in the sub-concepts below.

6.3.1. Coverage error

See 3.1. A) 1. Known shortcomings of frame population, if any

6.3.1.1. Over-coverage - rate

(Quality report)

Please provide information concerning over-coverage (if possible, the over-coverage rate).

6.3.1.2. Common units - proportion

Not requested.

6.3.2. Measurement error

(Quality report)

Measurement errors related to the survey instrument should be reported here
(for example wrong routing in national questionnaire, processing errors due to coding or data entry, interviewers' bias).

Non-applicable.

6.3.3. Non response error

See detailed sections below

6.3.3.1. Unit non-response - rate

Response and non-response

(Quality report)

A) Unit response

The following table should be filled in with 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.

Type of response	0-9 persons employed		10 or more persons employed	
	Number	%	Number	%
Gross sample size (as in section 3.1 C)		**100%**	2155	**100%**
1. Response (questionnaires returned by the enterprise)			1895	87.93
1.1 Used for tabulation and grossing up (Net sample or Final Sample; as in section 3.1 D)			1876	87.05
1.2 Not used for tabulation			19	0.88
1.2.1 Out of scope (deaths, misclassified originally in the target population, etc.)			19	0.88
1.2.2 Other reasons (e.g. unusable questionnaire, etc.)			-	-
2. Non-response (e.g. non returned mail, returned mail by post office, etc.)			260	12.06

Comments on unit response, if any

(Quality report)

B) Methods used for minimizing unit non-response

Please give a description of measures taken to reduce the unit non-response: advance notification in the form of a letter or phone call, showing respondents how the data they are providing are being used, system of reminders, etc.

In order to reduce the non-response, 3 reminders are sent (registered letter to high-impact enterprises, only the 3rd reminder).

(Quality report)

C) Methods used for unit non-response treatment

*Indicate the method used to correct for unit non-response (Please put an "**x**" into the right column of the relevant 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	x

3. Treatment by imputation (done distinctly for each variable/item)	x

4. Please briefly describe below the 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, etc.)

To treat non-response, the initial sampling weight is first adjusted using the response rate for each stratum. Strata are defined by crossing the following size classes and NACE groupings.
In order to obtain reliable results for quantitative variables (that are in line with SBS totals), the corrected weights are calibrated using to the number of units, the total turnover and the total employment per stratum as auxiliary information. Calibration is carried out in R, using the "calib" method of the "sampling" package with a "logit" distance function.

(Quality report)
D) Assessment of unit non-response bias

In case of high non-response (response rate below 60%), please provide a qualitative assessment of the bias associated with non-response (e.g. survey of non-respondents).

n.a.

6.3.3.2. Item non-response - rate

(Quality report)
A) Questions or items with item response rates below 90%

If any, identify the items with low response rates (the cut-off value to be used is 90%) and indicate their respective response rates. The item non-response rate should of course be calculated taking into account the routing and filtering in the questionnaire.

There are no questions with response rates lower than 90%.

(Quality report)
B) Methods used for item non-response treatment

Indicate whether imputations are made for item non-response and give a short description of the methods used. Please see also guidance on this subject in the model questionnaire and the Methodological Manual.

1.No treatment for item non-response	
2.Deductive imputation An exact value can be derived as a known function of other characteristics.	x
3.Deterministic imputation (e.g. mean/median, mean/median by class, ratio-based, regression-based, single donor nearest-neighbour, etc) 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 etc) 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	x
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. Please briefly describe below the method(s) and the model(s) corresponding to the above or other method(s) used for the treatment of item non-response.

- Deductive imputation was used in cases when filters were not respected
- Cold-deck imputation, based on 2017 data, was used for variables that were present in last year's survey and which do not change much over time.
- Hot-deck imputation based on random sampling without replacement was performed by predefined strata for other variables.

(Quality report)
C) Other comments relating to the item non-response

Please use this box to inform us of additional issues concerning "non-response" calculation (e.g. method used in national publications, etc.).

NA

6.3.4. Processing error

See detailed sections below

6.3.4.1. Imputation - rate

(Quality report)

Please provide the imputation rate, if possible.

6.3.5. Model assumption error

Not requested.

6.4. Seasonal adjustment

Not applicable

6.5. Data revision - policy

(Quality report)

Please provide any information concerning data revisions (national policy)

ICT data are currently not planned to be revised.

6.6. Data revision - practice

(Quality report)

Please provide any information concerning national practices on data revisions

ICT data are currently not revised.

6.6.1. Data revision - average size

Not requested.

7. Timeliness and punctuality

Top

See detailed section below.

7.1. Timeliness

See detailed sections below

7.1.1. Time lag - first result

Not applicable

7.1.2. Time lag - final result

(Quality report)

A) *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 same year that the survey is conducted (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).*

Please report any deviation from the above:

A first complete set of data has been sent to Eurostat on 16/11/2018 (under embargo). After additional validations and corrections, revised data were transmitted on 21/11/2018.

(Quality report)

B) Date of release of final national data

Please report the release date of final national data.

n/a

7.2. Punctuality

See detailed sections below

7.2.1. Punctuality - delivery and publication

(Quality report)

Please report on the time lag between the actual date of data delivery to Eurostat and the deadline (5th October).

A first complete set of data has been sent to Eurostat on 16/11/2018 (under embargo). After additional validations and corrections, revised data were transmitted on 21/11/2018.

8. Coherence and comparability

Top

See detailed section below.

8.1. 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.

(Quality report)

Please indicate here if you have deviated from the model questionnaire or the concepts described in the Methodological manual that would affect the comparability of data among countries (e.g. different or no filter question, etc)

The model questionnaire has been considered as the basis for the elaboration of the questionnaire.
No actual deviation from this model have been applied, only the adaptation of some questions to the national needs (see Chapter 5.3: Completeness)

8.1.1. Asymmetry for mirror flow statistics - coefficient

Not applicable

8.2. Comparability - over time

See detailed section below.

8.2.1. Length of comparable time series

(Metadata report)

Please indicate any changes in the survey from the previous year(s) that may have an impact on the comparability over time of the results delivered to Eurostat (and not particularly those relating to results released only nationally).

No methodological changes occurred compared to the 2017 survey.

8.3. Coherence - cross domain

(Metadata report) / (Quality report)

*Please indicate any issues with other statistical data collections in enterprises (using either surveys or administrative sources) that may have an impact on the coherence **across domains**. e.g. use of different statistical units from Structural business survey, economic activities, size classes, reference period, etc*

While the Structural Business Survey is carried out at the Kind-of-Activity level, the ICT survey uses the enterprise concept as the survey unit. To minimize confusion and show to the enterprises what should be included in the ICT survey, we include a list of legal units that are to be covered by a specific questionnaire. While this is usually straightforward for qualitative variables, there remains a risk that the coverage of an enterprise is not

completely in line with SBS, especially for quantitative variables. Enterprises are asked to indicate any deviations on the questionnaire, and we try to detect improbable answers to quantitative variables.

(Metadata report)

Please indicate any issues with other statistical data collections (using either surveys or administrative sources) that may have an impact on the comparability across domains. e.g. comparability with data from Structural Business Survey

The frame used for the final production of data is the same one used for the production of SBS preliminary data (this of course only applies to the enterprises of 10 employees or more, in the NACE sections covered by both surveys). Data on turnover and employment comes from the SBS preliminary data. Although weights for the ICT survey are calibrated to guarantee the coherence with SBS data, it is possible that there are deviations from SBS for some breakdowns. This can be explained by the different breakdowns used in both surveys, as well as the fact that some breakdowns have to be combined due to non-response. On more aggregated levels, comparability with the sub-population of SBS is usually possible.

8.4. Coherence - sub annual and annual statistics

Not applicable

8.5. Coherence - National Accounts

Not applicable

8.6. Coherence - internal

Not applicable

9. Accessibility and clarity

Top

See detailed section below.

9.1. Dissemination format - News release

(Quality report)
National dissemination of results

Please indicate if there was any news release for dissemination of results or if any release is foreseen. If possible, provide links or attach News releases.

News releases:	Links
none available at the time of this report	

9.2. Dissemination format - Publications

(Quality report)
National dissemination of results

Please indicate if there was any publications for dissemination of results or if any publication is foreseen. If possible, provide links or attach publication.

Publications:	Links
Results will be published on http://www.statistiques.public.lu/fr/entreprises/ Selected results will also appear in the annual statistical yearbook and in “Luxembourg in figures”. It is also planned to have a publication in our “Regards”-series.	http://www.statistiques.public.lu/fr/entreprises/

9.3. Dissemination format - online database

See detailed section 9.3.1

9.3.1. Data tables - consultations

(Quality report)
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.

National data tables/databases:	Links

9.4. Dissemination format - microdata access

Not applicable

9.5. Dissemination format - other

Not requested.

9.6. Documentation on methodology

(Quality report)

Please report on the availability of documents that are referred to as national reference metadata files, methodological papers, summary documents or other important handbooks, if any.

9.7. Quality management - documentation

(Quality report)

Please provide information about national quality management documentation or studies (if available).

9.7.1. Metadata completeness - rate

Not requested.

9.7.2. Metadata - consultations

Not requested.

10. Cost and Burden

Top

(Quality report)

In the 2010 survey one optional question on response burden("Time needed to fill out the questionnaire") was included. On the basis of 19 countries that had asked this question, it took on average 40 minutes to fill out this questionnaire (ranging from less than 20 to more than 80 minutes).

Please provide updated relevant information, if available.

During the 2018 survey, Luxemburgish enterprises needed on average 46 minutes to fill in the questionnaire.
Whereas it took only a few minutes for some of them to answer all questions, some enterprises needed few hours to do so.
However, 91% declared that they spent less than 70 minutes to fulfil the entire questionnaire.

11. Confidentiality

Top

11.1. Confidentiality - policy

(Metadata report) / (Quality report)

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.

Please provide any relevant information concerning the national policy on confidentiality related to the survey on ICT usage and e-commerce in enterprises e.g. minimum number of enterprises for breakdowns, etc.

Quantitative variables

For quantitative variables, the same policy as in SBS is applied.
Primary confidentiality, if:

- n units dominate the total turnover by at least k% ;
- the cell contains less than n units.

Secondary confidentiality if:

- protection is needed to address primary confidentiality or linked table risks (historical data, subdivisions, etc.) ;
- there is a link with the SBS suppression pattern (

Every cell linked to the variable "turnover" is confidential if the cell is confidential for the variable "turnover".
A link can established as:

- direct link: the value of the variable of interest depends on the value of turnover (e.g. value-added, cost of sales, gross operating margin, etc.) ;
- indirect link: the value of turnover provides an idea of the dimension of the variable of interest (e.g. data calibrated with the variable « turnover », etc.).

In addition to the link inherited via the variable "turnover", variables relating to e-commerce turnover ("awsval", "axsval", etc.) are also checked for primary confidentiality individually.

Qualitative variables

For qualitative variables in frequency tables, a distinction has to be made between "Higher level confidentiality" and "Variable-specific rules":
Higher level confidentiality
Higher level confidentiality is checked only for cells broken down exclusively by variables which are available for every unit in the target population.
Higher level primary confidentiality is applicable if a cell in the target population contains less than n units for a given subdivision or breakdown ;
Higher level secondary confidentiality is applicable for any cells which are

- either a subdivision or a breakdown of the primary confidential cell, including cells with zero units ;
- or needed to protect primary confidential cells.

On each level of breakdown, all the cells have to be checked for both primary and secondary confidentiality. This rule is applied on the highest level for the total number of units, e.g. units per economic activity, units per size class, units per economic activity and size class, i.e. no additional variable of interest is used to subdivide the population (e.g. enterprises using computers, enterprises selling online, etc.). Each variable of interest inherits the higher level suppression pattern.
Variable-specific rules
Each variable needs to be checked a priori for the following risk potentials:

- disclosure risk (none/low/high): the potential of identification of the variable ;
- sensitivity (none/low/high): the potential damage dealt by the information in case of the disclosure ;
- group sensitivity (none/low/high): the potential damage dealt by the information in case of group disclosure.

One should be aware of the consequences of a « none » risk, meaning that no confidentiality is applied at all.

11.2. 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.

(Quality report)

Please provide any relevant information about national rules for treatment of confidential data or anonymisation.

Quantitative variables

The basis for any suppression pattern is the software package tau-Argus. However, the process also involves manual procedures, i.e. checking the tau-Argus output, comparing the historical data series and addressing linked table disclosure risks (see secondary confidentiality for further details).
The statistical disclosure control procedures are not performed for every variable individually but only for a primary shadow variable, i.e. "Turnover". If a given cell is confidential for that variable (no matter if primary or secondary), the same cell will be suppressed for all the other available quantitative variables. Variables relating to e-commerce turnover are also checked individually, an pass their flags on to related qualitative variables as well.
Primary confidentiality rules
a) Sensitivity rule: We apply the (n,k)-dominance rule, i.e. a cell is suppressed if n units separately or jointly dominate the total value of a cell by at least k% .
b) Minimum frequency rule: For any cells that are left after applying the sensitivity rule, a minimum frequency is applied. A cell is suppressed if there are less than n units in a given cell.
Secondary confidentiality rules

The secondary suppression is calculated by tau-Argus using the 'Modular' algorithm. Manual suppressions or cost adjustments are performed using the tau-Argus 'a priori' file facility.

a) Secondary suppression within a table

- A cell is suppressed for secondary confidentiality if n units dominate jointly or separately the confidential total value by at least k% ;
- special attention is paid to the impact of singletons, a risk which is in most cases directly addressed by the tau-Argus Modular algorithm ;
- tau-Argus is set to minimise the cost when determining the secondary suppressed cells. However, we also want to provide the user with useful data, whether it is in terms of interpretation and/or availability of time series. Consequently, the cost minimisation can be overridden for economic and/or historical reasons.

b) Secondary suppression due to linked tables disclosure risks

- historical disclosure: in conformity with the SDC handbook, we ensure that no historical cell is compromised by disclosing the same cell for the current reference year. As long as there is any significant link with prior year data, a cell may not be disclosed for the current reference year.
- Links to any other statistics: Turnover for the ICT survey is compared to the SBS preliminary series of the same reference year (e.g. T-1 for the survey carried out in year T).

12. Comment

Top

(Quality report)

Problems encountered and lessons to be learnt

These comments can relate to methodological issues as well as to the questionnaire itself (item construction, clarity of definitions to respondents, routing and filtering, etc.)

(Quality report)

Other comments, if any

(Metadata report) / (Quality report)

Annexes

Note: *Please also provide the annexes in a computer-readable format and in English* ***(Files can be attached using the button "Add file")***

Please add **"x"** if files are attach to the current report

(Metadata report) **Questionnaire in national language**	**FR/DE**
(Metadata report) **Questionnaire in English (if available)**	x
(Metadata report) **National reports on methodology (if available)**	n/a
(Quality report) **Analysis of key results, backed up by tables and graphs in English (if available)**	

(Metadata report / Quality report)

Other annexes

Please give an overview of other annexes (whether or not referred to in the preceding sections of this report)

Related metadata

Top

Annexes

Top

ENT 2018 population samples standard errors
Population/Sample - Metadata Report
2018 Questionnaire - DE
2018 Questionnaire - FR
2018 Questionnaire - EN
ICT ENTR 2018 LU - Quality Report