COMMUNITY SURVEY ON ICT USAGE AND E-COMMERCE IN ENTERPRISES

2021

General outline of the survey

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 2021).Year 2020 for the value or % of sales data and where specified.
Recommended survey period:	First quarter 2021.
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

[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.

	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). 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 17 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, A5, 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.

ICT-Entr 2021 - MQ V.1.2.Docx – Response burden

Module	Description	Mandatory questions	Optional questions
A	**Access and use of the internet**	**7**	**9**
	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*	*2*
	Use of a website	*0*	*7*
	Use of social media	*4*	*0*
B	**e-Commerce sales**	**24**	**2**
	Web sales of goods or services	*19*	*2*
	EDI-type sales	*5*	*0*
C	**Sharing of information electronically within the enterprise**	**3**	**0**
D	**Use of cloud computing services**	**11**	**0**
E	**Internet of Things**	**8**	**0**
F	**Artificial Intelligence**	**14**	**14**
	Total number of questions/responses	**67**	**25**
X	**Background characteristics**	**3**	**0**
	Total number of questions/responses with background characteristics	**70**	**25**

COMMUNITY SURVEY ON ICT USAGE AND E-COMMERCE IN ENTERPRISES

2021

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

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 **X1**

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) or to **A6** (if optional included) else go to **A8**
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	☐	

[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

Use of a mobile connection to the internet for business purposes

A mobile connection to the internet means the usage of portable devices connecting to the internet through mobile telephone networks for business purposes. Enterprises provide portable devices and pay for all or at least up to a limit, the subscription and the use costs.

A4. *4	**Does your enterprise provide <u>portable devices</u> that allow a <u>mobile</u> connection to the internet using mobile telephone networks, for business purposes?** (e.g. via portable computers or other portable devices such as smartphones) ***- Optional***	Yes ☐	No ☐ →go to A6 (if optional included) else go to **A8**
A5. *5	**How many persons employed use a <u>portable device</u> 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) If you can't provide this value, **please indicate an estimate of the percentage of the total number of persons employed who use a <u>portable device</u> 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) ***- Optional***	*(Number)* ␣ ␣ ␣ %	

Use of a website

A6.	**Does your enterprise have a website?** (Filter question) ***-Optional***	Yes ☐	No ☐ ->go to **A8**
A7.	**Does the website have any of the following?** ***-Optional***	Yes	No
	a) Description of goods or services, price information	☐	☐
*6	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	☐	☐

[4] For indicator E2 on connectivity of the monitoring framework 2016-2021 – annual
[5] For indicator E3 on connectivity of the monitoring framework 2016-2021 – annual
[6] For indicator E18 on e-commerce of the monitoring framework 2016-2021 – annual or biennial

Use of social media

Enterprises **using** social media are considered those that have a user profile, an account or a user licence depending on the requirements and the type of the social media.

		Yes	No
A8. *[7]	**Does your enterprise use any of the following social media?** *(add national examples; replace existing examples if necessary)*		
	a) Social networks (e.g. Facebook, LinkedIn, Xing, Viadeo, Yammer, etc.)	☐	☐
	b) Enterprise's blog or microblogs (e.g. Twitter, etc.)	☐	☐
	c) Multimedia content sharing websites or apps (e.g. YouTube, Flickr, SlideShare, Instagram, Pinterest, Snapchat etc.)	☐	☐
	d) Wiki based knowledge sharing tools	☐	☐

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.

[7] For indicators on integration of digital technology of the monitoring framework 2016-2021 – biennial; included in DESI

B1. *8	**During 2020, 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]*	☐	☐
	If both B1 a) and B1 b) = "No" then go to B10		
B2. *9	**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 2020?	(National currency, excluding VAT) _____	
	OR **b) What percentage of total turnover was generated by web sales of goods or services, in 2020?** *If you cannot provide the exact percentage an approximation will suffice.*	⊔ ⊔ ⊔ , ⊔ %	

	Question B3 should be answered only if both B1 a) <u>and</u> B1 b) = "Yes"	
B3.	**What was the percentage breakdown of the value of web sales in 2020 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** %

[8] For indicator E19 (annual; included in DESI), E21 (annual or biennial) on e-commerce of the monitoring framework 2016-2021

[9] For indicator E20 on e-commerce of the monitoring framework 2016-2021 – annual; included in DESI

Question B4 should be answered only if B1 b) = "Yes"				
B4.	**Via how many e-commerce marketplaces did you have web sales during 2020?** *- Optional*	Via one ☐	Via two ☐	Via more than two ☐
If B4 = "via one" then go to B6				

B5.	**Did more than half of your turnover from e-commerce marketplaces in 2020 come from only one e-commerce marketplace?** *- Optional*	Yes ☐	No ☐

B6. *10

What was the percentage breakdown of the value of web sales in 2020 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** %

B7. *11 **During 2020, did your enterprise have web sales to customers located in the following geographic areas?**

	Yes	No
a) Own country	☐	☐
b) Other EU countries	☐	☐
c) Rest of the world	☐	☐

The following question (B8) should only be answered if at least two of the above possible responses in question B7 a) , b) or c) are answered with "Yes", otherwise check next filter instruction before question B9

[10] For indicator E20 on e-commerce of the monitoring framework 2016-2021 – annual; included in DESI

[11] For indicators on e-commerce of the monitoring framework 2016-2021 – biennial; included in DESI;

B8. *11	**What was the percentage breakdown of the value of web sales in 2020 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.*	
	a) Own country	⊔ ⊔ ⊔ %
	b) Other EU countries	⊔ ⊔ ⊔ %
	c) Rest of the world	⊔ ⊔ ⊔ %
	TOTAL	**1 0 0** %

The following question (B9) should only be answered if B7b)="Yes" otherwise go to B10.

B9. *12 **Regarding web sales <u>to other EU countries</u>: did your enterprise experience any of the following difficulties during 2020?**

	Yes	No
a) High costs of delivering or returning products when selling to other EU countries	☐	☐
b) Difficulties related to resolving complaints and 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	☐	☐
e) Restrictions from your business partners to sell to certain EU countries	☐	☐
f) Difficulties related to the VAT system in EU countries (e.g. uncertainty regarding VAT treatment in different countries)	☐	☐

[12] For indicators on e-commerce of the monitoring framework 2016-2021 – annual or biennial;

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]*).

B10. *13	**During 2020, did your enterprise have EDI-type sales of goods or services?** (Filter question)	Yes ☐	No ☐ -> go to **C1**

B11. *14

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 2020?	(National currency, excluding VAT) _____
OR **b) What percentage of total turnover was generated by EDI-type sales of goods or services, in 2020?** *If you cannot provide the exact percentage an approximation will suffice.*	⊔ ⊔ ⊔ , ⊔ %

B12. *15 **During 2020, did your enterprise <u>sell</u> via EDI-type messages to customers located in the following geographic areas?**

	Yes	No
a) Own country	☐	☐
b) Other EU countries	☐	☐
c) Rest of the world	☐	☐

[13] For indicator E19 on e-commerce of the monitoring framework 2016-2021 – annual; included in DESI;

[14] For indicator E20 on e-commerce of the monitoring framework 2016-2021 – annual; included in DESI;

[15] For indicators on e-commerce of the monitoring framework 2016-2021 – biennial; included in DESI;

Module C: Sharing of information electronically within the enterprise

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

An ERP (Enterprise Resource Planning) is a software used to manage resources by sharing information among different functional areas (e.g. accounting, planning, production, marketing, etc.). ERP software can be off-the-shelf software, customised to the needs of the enterprise or self-created software. Examples are SAP, [add national examples].

C1. *16	**Does your enterprise use ERP software?**	Yes ☐	No ☐

CRM (Customer Relationship Management) refers to any software application for managing information about customers

C2. *17	**Does your enterprise use CRM software to manage:**	Yes	No
	a) the collection, storing and making available information on customers to various business functions	☐	☐
	b) the analysis of information on customers for marketing purposes (e.g. setting prices, sales promotion, choosing distribution channels, etc.)	☐	☐

[16] For indicator E4 on integration of digital technology of the monitoring framework 2016-2021 – biennial; included in DESI

[17] For indicator E5 on integration of digital technology of the monitoring framework 2016-2021 – biennial

Module D: Use of cloud computing services

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

Cloud computing refers to **ICT services** that are used **over the internet** to access software, computing power, storage capacity etc.;

where the services have all of the following characteristics:

- are delivered from **servers** of service providers;
- can be easily **scaled** up or down (e.g. number of users or change of storage capacity) ;
- can be used **on-demand by the user,** at least after the initial set up (without human interaction with the service provider) ;
- are **paid** for, either per user, by capacity used, or they are pre-paid.

Cloud computing may include connections via Virtual Private Networks (VPN).

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)	Yes ☐	No ☐ -> go to **E1**
D2. *[18]	**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.)	Yes	No
	a) E-mail (as a cloud computing service)	☐	☐
	b) Office software (e.g. word processors, spreadsheets etc.) (as a cloud computing service)	☐	☐
	c) Finance or accounting software applications (as a cloud computing service)	☐	☐
	d) Enterprise Resource Planning (ERP) software applications (as a cloud computing service)	☐	☐
	e) Customer Relationship Management (CRM) software applications (as a cloud computing service)	☐	☐
	f) Security software applications (e.g. antivirus program, network access control) (as a cloud computing service)	☐	☐
	g) Hosting the enterprise's database(s) (as a cloud computing service)	☐	☐
	h) Storage of files (as a cloud computing service)	☐	☐
	i) Computing power to run the enterprise's own software (as a cloud computing service)	☐	☐
	j) Computing platform providing a hosted environment for application development, testing or deployment (e.g. reusable software modules, application programming interfaces (APIs)) (as a cloud computing service)	☐	☐

[18] For indicator E8 on integration of digital technology of the monitoring framework 2016-2021 – biennial; included in DESI

Module E: Internet of Things

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

The Internet of Things (IoT) refers to interconnected devices or systems, often called **"smart"** devices or systems. **They collect and exchange data and can be monitored or remotely controlled via the internet.**

Examples are:

- "smart"-meters, -thermostats, -lamps (lights), -alarm systems, -smoke detectors, -door locks,
- -cameras;
- sensors, RFID tags connected to a base station that allows them to be managed via the internet.

Please exclude plain detection and sensors (e.g. motion, sound, temperature, smoke, etc.) and RFID tags that **cannot** be monitored or remotely controlled via the internet).

Internet of Things may include various types of network connections via WAN, WiFi, LAN, Bluetooth, ZigBee, Virtual Private Networks (VPN) etc.

E1.	**Does your enterprise use interconnected devices or systems that can be monitored or remotely controlled via the internet (Internet of Things)?** (Filter question)	Yes ☐	No ☐ ->go to **F1**

E2. *[19]	**Does your enterprise use interconnected devices or systems that can be monitored or remotely controlled via the internet (Internet of Things) for any of the following?**	Yes	No
	a) for energy consumption management (e.g. "smart"-meters, -thermostats, -lamps (lights))	☐	☐
	b) for premises' security (e.g. "smart" -alarm systems, -smoke detectors, -door locks, -security cameras)	☐	☐
	c) for production processes (e.g. sensors or RFID tags that are monitored/controlled via the internet and used to monitor or automate the process)	☐	☐
	d) for logistics management (e.g. sensors monitored/controlled via the internet for tracking products or vehicles in warehouse management)	☐	☐
	e) for condition-based maintenance (e.g. sensors monitored/controlled via the internet to monitor maintenance needs of machines or vehicles)	☐	☐
	f) for customer service (e.g. "smart" cameras or sensors monitored/controlled via the internet to monitor customers' activities or offer them a personalised shopping experience)	☐	☐
	g) for other purposes	☐	☐

[19] For indicator E12 on integration of digital technology of the monitoring framework 2016-2021 – biennial or triennial

Module F: Artificial Intelligence

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

Artificial intelligence refers to systems that use technologies such as: **text mining, computer vision, speech recognition, natural language generation, machine learning, deep learning** to gather and/or use data to predict, recommend or decide, with varying levels of autonomy, the best action to achieve specific goals.

Artificial intelligence systems **can be purely software based**, e.g.:

- chatbots and business virtual assistants based on natural language processing;
- face recognition systems based on computer vision or speech recognition systems;
- machine translation software;
- data analysis based on machine learning, etc.;

or **embedded in devices**, e.g.:

- autonomous robots for warehouse automation or production assembly works;
- autonomous drones for production surveillance or parcel handling, etc.

F1.	**Does your enterprise use any of the following Artificial Intelligence technologies?**	**Yes**	**No**
	a) Technologies performing analysis of written language (text mining)	☐	☐
	b) Technologies converting spoken language into machine-readable format (speech recognition)	☐	☐
	c) Technologies generating written or spoken language (natural language generation)	☐	☐
	d) Technologies identifying objects or persons based on images (image recognition, image processing)	☐	☐
	e) Machine learning (e.g. deep learning) for data analysis	☐	☐
	f) Technologies automating different workflows or assisting in decision making (Artificial Intelligence based software robotic process automation)	☐	☐
	g) Technologies enabling physical movement of machines via autonomous decisions based on observation of surroundings (autonomous robots, self-driving vehicles, autonomous drones)	☐	☐

If F1 a) to g) = "No" then go to F4 (if optional included) else go to X1

F2.	**Does your enterprise use Artificial Intelligence software or systems for any of the following purposes?**	**Yes**	**No**
	a) **for marketing or sales** e.g. • chatbots based on natural language processing for customer support, • customer profiling, price optimisation, personalised marketing offers, market analysis based on machine learning, etc.	☐	☐
	b) **for production processes** e.g. • predictive maintenance based on machine learning, • tools to classify products or find defects in products based on computer vision,	☐	☐

	• autonomous drones for production surveillance, security or inspection tasks, • assembly works performed by autonomous robots, etc.		
	c) **for organisation of business administration processes** e.g. • business virtual assistants based on machine learning and/or natural language processing, • voice to text conversion based on speech recognition for document drafting, • automated planning or scheduling based on machine learning, • machine translation, etc.	☐	☐
	d) **for management of enterprises** e.g. • machine learning to analyse data and help make investment or other decisions, • sales or business forecasting based on machine learning, • risk assessment based on machine learning, etc.	☐	☐
	e) **for logistics** e.g. • autonomous robots for pick-and-pack solutions in warehouses, • route optimization based on machine learning, • autonomous robots for parcel shipping, tracing, distribution and sorting, • autonomous drones for parcel delivery, etc.	☐	☐
	f) **for ICT security** e.g. • face recognition based on computer vision for authentication of ICT users, • detection and prevention of cyber-attacks based on machine learning, etc.	☐	☐
	g) **for human resources management or recruiting** e.g. • candidates pre-selection screening, automation of recruiting based on machine learning, • employee profiling or performance analysis based on machine learning, • chatbots based on natural language processing for recruiting or supporting human resources management, etc.	☐	☐

F3.	**How did you enterprise acquire the Artificial Intelligence software or systems that it uses?** ***- Optional***	**Yes**	**No**
	a) They were developed by own employees (including those employed in parent or affiliate enterprise)	☐	☐
	b) Commercial software or systems were modified by own employees (including those employed in parent or affiliate enterprise)	☐	☐
	c) Open-source software or systems were modified by own employees (including those employed in parent or affiliate enterprise)	☐	☐
	d) Commercial software or systems ready to use were purchased (including examples where it was already incorporated in a purchased item or system)	☐	☐
	e) External providers were contracted to develop or modify them	☐	☐

Questions F4 and F5 are presented only to respondents who answered 'No' to F1a)-g) i.e. enterprises that did not use any of the Artificial Intelligence technologies listed in question F1.

F4.	**Has your enterprise ever considered using any of the Artificial Intelligence technologies listed in question F1? – *Optional*** *(Filter question)*	**Yes** ☐	**No** ☐ -> go to **X1**
F5.	**What are the reasons for your enterprise not to use any of the Artificial Intelligence technologies listed in question F1? – *Optional***	**Yes**	**No**
	a) The costs seem too high	☐	☐
	b) There is a lack of relevant expertise in the enterprise	☐	☐
	c) Incompatibility with existing equipment, software or systems	☐	☐
	d) Difficulties with availability or quality of the necessary data	☐	☐
	e) Concerns regarding violation of data protection and privacy	☐	☐
	f) Lack of clarity about the legal consequences (e.g. liability in case of damage caused by the use of Artificial Intelligence)	☐	☐
	g) Ethical considerations	☐	☐
	h) Artificial Intelligence technologies are not useful for the enterprise	☐	☐

Module X: Background information*[20] (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 2020**	…
X2.	**Average number of employees and self-employed persons (persons employed), during 2020**	…
X3.	**Total turnover (in monetary terms, excluding VAT), for 2020**	…

[20] 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

Bluetooth

Bluetooth is a wireless technology standard used for exchanging data between fixed and mobile devices over short distances using short-wavelength UHF radio waves in the industrial, scientific and medical radio bands, from 2.400 to 2.485 GHz, and building personal area networks (PANs).

Source: https://en.wikipedia.org/wiki/Bluetooth

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

Chatbots or Virtual agent

A chatbot or virtual agent is a computer generated, animated, artificial intelligence virtual character that serves as an online customer service representative.

Computer Vision

Computer vision tasks include methods for acquiring, processing, analysing and understanding digital images, and extraction of high-dimensional data from the real world in order to produce numerical or symbolic information, e.g. in the forms of decisions.

Source: https://en.wikipedia.org/wiki/Computer_vision

Cloud computing

Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g. networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. There are three service models of cloud computing services: *Software as a Service (SaaS), Platform as a Service (PaaS)* and *Infrastructure as a Service (IaaS)*.

Source: https://nvlpubs.nist.gov/nistpubs/Legacy/SP/nistspecialpublication800-145.pdf

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.

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.
Internet of Things (IoT)	The Internet of Things (IoT) refers to interconnected devices or systems, often called "smart" devices or "smart" systems. They collect and exchange data and can be monitored or remotely controlled via the Internet, through software on any kind of computers, smartphones or through interfaces like wall-mounted controls.
LAN	A local area network (LAN) is a computer network that interconnects computers within a limited area such as a residence, school, laboratory, university campus or office building. By contrast, a wide area network (WAN) not only covers a larger geographic distance, but also generally involves leased telecommunication circuits. Source: https://en.wikipedia.org/wiki/Local_area_network
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.
Machine learning (incl. deep learning)	Machine learning (e.g. deep learning) involves 'training' a computer model to better perform an automated task, e.g. pattern recognition.
Natural language generation (NLG)	Natural language generation is the ability for a computer program to convert data into natural language representation.
Natural language processing (NLP)	Natural language processing is the ability for a computer program to understand human language as it is spoken.
Office (automation) software	Office (automation) software is a generic type of software comprising (grouped together) usually a word processing package, a spreadsheet, presentations' software etc.
Online payment	An online payment is an integrated ordering-payment transaction
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

Social media

In the context of the ICT usage survey, the central point of the social media is to establish and maintain social relationships within and around the enterprise. From that aspect we refer to the use of social media (as applications based on internet technology or communication platforms) and the use of Web 2.0 technologies and tools for connecting, conversing and creating content online, with customers, suppliers, or other partners, or within the enterprise. It is not simply the use of Web 2.0 platform (although it is the enabling technology) but the use of social media implies the development of new forms of collaboration and information management within the enterprises as well as helping employees, customers and suppliers to collaborate, to innovate, to share, and to organize knowledge and experiences.

The following are the main social media communication platforms and tools for enterprises:

Social networks or websites are applications based on internet technologies that enable users to connect by creating personal information profiles, share interest and/or activities, share ideas, invite others to have access to their profile and create communities of people with common interests.

Blogs: A blog is a website or a part of a website, that is updated frequently, either owned by individuals, interest groups of individuals or corporate (in the current context it is the blog of the enterprise and not other blogs to which employees contribute). An update (called an entry or a post) is usually quite short and readers can respond, share, comment or link to the entry online. Blogs can be used either within an enterprise (corporate blog) or for communicating with customers, business partners or other organisations.

Content communities offer the possibility of sharing media content between users. Photo and video services / Podcasting: A podcast (or non-streamed webcast) is a series of digital media files (either audio or video in various file format e.g. .aiff, .wav, .midi etc for the former and .mov, .avi etc for the latter) that are released episodically. The mode of delivery differentiates podcasting from other means of accessing media files over the internet, such as direct download, or streamed webcasting. Presentation sharing websites offer the possibility to share presentations, documents and professional videos over the internet (share publicly or privately among colleagues, clients, intranets, networks etc). These websites offer the possibility to upload, update and access presentations and/or documents. Very often, presentation sharing websites are linked to blogs and other social networking services or websites.

Microblogging refers to the posting of very short updates about oneself. It is in contrast to long-form blogging, where there are usually at least a few hundred words. Microblog posts usually involve a few hundred characters or

less. For example, in the context of microblogging services Tweets (Twitter) are text-based posts of up to 140 characters displayed on the user's profile page.

Wiki: A wiki is a website that allows the creation and editing of any number of interlinked web pages via a web browser using a simplified markup language or a WYSIWYG text editor. Wikis are typically powered by wiki software and are often used collaboratively by multiple users. Examples include community websites, corporate intranets, and knowledge management systems.

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.

Text mining

Text mining refers to the use of advanced techniques for automated detection of patterns in (large) texts.

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

WAN

A wide area network (WAN) is a telecommunications network that extends over a large geographical area for the primary purpose of computer networking. Wide area networks are often established with leased telecommunication circuits.

Source: https://en.wikipedia.org/wiki/Wide_area_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

Webform

A webform on a web page allows a user to enter data that is sent to a server for processing. Webforms resemble paper forms because internet users fill out the forms using checkboxes, radio buttons, or text fields. For example, webforms can be used to enter shipping or credit card data to order a product or can be used to retrieve data.

Source: http://en.wikipedia.org/wiki/Webform

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/

ZigBee ZigBee is an IEEE 802.15.4-based specification for a suite of high-level communication protocols used to create personal area networks with small, low-power digital radios, such as for home automation, medical device data collection, and other low-power low-bandwidth needs, designed for small scale projects which need wireless connection. Hence, ZigBee is a low-power, low data rate, and close proximity (i.e., personal area) wireless ad hoc network.

Source: https://en.wikipedia.org/wiki/Zigbee