

## SURVEY ON ICT USAGE AND E-COMMERCE IN ENTERPRISES – 2023

<b>Module A: Access and use of the internet</b>	
(Scope: all enterprises)	
<p><b>A1</b>    <b>How many persons employed have access to the internet for business purposes?</b>            (including fixed line, fixed wireless and mobile telephone network connection)            (Filter question)</p> <p style="margin-top: 20px;">If you can't provide this value,</p> <p><b>please indicate an estimate of the percentage of the total number of persons employed who have access to the internet for business purposes</b></p>	<div style="border: 1px solid black; width: 60px; height: 20px; margin: 0 auto; display: flex; justify-content: space-around;"> <span style="border-right: 1px solid black; width: 15px; height: 100%;"></span> <span style="border-right: 1px solid black; width: 15px; height: 100%;"></span> <span style="border-right: 1px solid black; width: 15px; height: 100%;"></span> <span style="width: 15px; height: 100%;"></span> </div> %

The value is between 0-100. In case A1=0, an explanation for why none of the persons employed in the enterprise have access to the internet for business purposes. Thereafter, you can submit the survey.

**For other questions in the survey. Scope: A1 > 0%**

<b>Use of a fixed connection to the internet for business purposes</b>											
<p><b>A2.</b>    <b>Does your enterprise use any type of fixed connection to the internet?</b> (e.g. ADSL, SDSL, VDSL, fiber optics technology (FTTP), cable technology, fixed wireless)            (Add national examples)            (Filter question)</p>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center;"> <input type="checkbox"/> </div> <div style="text-align: center;"> <p>No <input type="checkbox"/></p> <p>-&gt;go to <b>A4</b></p> </div> </div>										
<p><b>A3.</b>    <b>What is the maximum contracted download speed of the fastest fixed internet connection of your enterprise?</b>            (additional categories at national level can be added, if needed)            (Tick only one)</p>	<div style="border: 1px solid black; width: 100%; height: 100%;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px 5px;">a) less than 30 Mbit/s</td> <td style="text-align: center; padding: 2px 5px;"><input type="checkbox"/></td> </tr> <tr> <td style="padding: 2px 5px;">b) at least 30 but less than 100 Mbit/s</td> <td style="text-align: center; padding: 2px 5px;"><input type="checkbox"/></td> </tr> <tr> <td style="padding: 2px 5px;">c) at least 100 Mbit/s but less than 500 Mbit/s</td> <td style="text-align: center; padding: 2px 5px;"><input type="checkbox"/></td> </tr> <tr> <td style="padding: 2px 5px;">d) at least 500 Mbit/s but less than 1 Gbit/s</td> <td style="text-align: center; padding: 2px 5px;"><input type="checkbox"/></td> </tr> <tr> <td style="padding: 2px 5px;">e) at least 1 Gbit/s</td> <td style="text-align: center; padding: 2px 5px;"><input type="checkbox"/></td> </tr> </table> </div>	a) less than 30 Mbit/s	<input type="checkbox"/>	b) at least 30 but less than 100 Mbit/s	<input type="checkbox"/>	c) at least 100 Mbit/s but less than 500 Mbit/s	<input type="checkbox"/>	d) at least 500 Mbit/s but less than 1 Gbit/s	<input type="checkbox"/>	e) at least 1 Gbit/s	<input type="checkbox"/>
a) less than 30 Mbit/s	<input type="checkbox"/>										
b) at least 30 but less than 100 Mbit/s	<input type="checkbox"/>										
c) at least 100 Mbit/s but less than 500 Mbit/s	<input type="checkbox"/>										
d) at least 500 Mbit/s but less than 1 Gbit/s	<input type="checkbox"/>										
e) at least 1 Gbit/s	<input type="checkbox"/>										

Use of a website		
<b>A4.</b> Does your enterprise have a website? (Filter question)	Yes <input type="checkbox"/>	No <input type="checkbox"/> ->go to A 7
<b>A5.</b> Does the website have any of the following?	Yes	No
a) Description of goods or services, price information	<input type="checkbox"/>	<input type="checkbox"/>
b) Online ordering or reservation or booking, e.g. shopping cart	<input type="checkbox"/>	<input type="checkbox"/>
c) Possibility for visitors to customise or design online goods or services	<input type="checkbox"/>	<input type="checkbox"/>
d) Tracking or status of orders placed	<input type="checkbox"/>	<input type="checkbox"/>
e) Personalised content on the website for regular/recurrent visitors	<input type="checkbox"/>	<input type="checkbox"/>
f) A chat service for customer support (a chatbot, virtual agent or a person replying to customers)	<input type="checkbox"/>	<input type="checkbox"/>
g) Advertisement of open job positions or online job application	<input type="checkbox"/>	<input type="checkbox"/>
h) Content available in at least two languages Please, consider a multilingual website within a single domain (e.g. ".com") or multiple domains of your enterprise in different languages (e.g. ".es", ".uk").	<input type="checkbox"/>	<input type="checkbox"/>

Use of social media		
Enterprises <b>using</b> 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.		
<b>A7.</b> Does your enterprise use any of the following social media?  (add national examples; replace existing examples if necessary)	Yes	No
a) Social networks (e.g. Facebook, LinkedIn, Xing, Viadeo, Yammer)	<input type="checkbox"/>	<input type="checkbox"/>
b) Enterprise's blog or microblogs (e.g. Twitter)	<input type="checkbox"/>	<input type="checkbox"/>
c) Multimedia content sharing websites or apps (e.g. YouTube, Flickr, SlideShare, Instagram, Pinterest, Snapchat)	<input type="checkbox"/>	<input type="checkbox"/>

**The following question (A8) should only be answered if any of the above social media is used (i.e. A7 has at least one "Yes"), otherwise go to A9.**

<b>A8.</b>	<b>Does your enterprise use any of the above mentioned social media to:</b>	Yes	No
	a) Develop the enterprise's image or market products (e.g. advertising or launching products)	<input type="checkbox"/>	<input type="checkbox"/>
	b) Obtain or respond to <u>customer</u> opinions, reviews, questions	<input type="checkbox"/>	<input type="checkbox"/>
	c) Involve <u>customers</u> in development or innovation of goods or services	<input type="checkbox"/>	<input type="checkbox"/>
	d) Collaborate with <u>business partners</u> (e.g. suppliers) or <u>other organisations</u> (e.g. public authorities, non-governmental organisations)	<input type="checkbox"/>	<input type="checkbox"/>
	e) Recruit employees	<input type="checkbox"/>	<input type="checkbox"/>
	f) Exchange views, opinions or knowledge <u>within</u> the enterprise	<input type="checkbox"/>	<input type="checkbox"/>

#### Other use of the internet

<b>A9.</b>	<b>Does your enterprise pay to advertise on the internet?</b> (e.g. adverts on search engines, on social media, on other websites or apps) (Filter question)	Yes <input type="checkbox"/>	No <input type="checkbox"/> ->go to A6
<b>A10.</b>	<b>Does your enterprise pay to advertise on the internet using any of the following targeted advertising methods?</b>	Yes	No
	a) Based on content or keywords searched by internet users	<input type="checkbox"/>	<input type="checkbox"/>
	b) Based on the tracking of internet users' past activities or profile	<input type="checkbox"/>	<input type="checkbox"/>
	c) Based on the geolocation of internet users	<input type="checkbox"/>	<input type="checkbox"/>
	d) Any other method of targeted advertising on the internet not specified above	<input type="checkbox"/>	<input type="checkbox"/>

<b>A6.</b>	<b>Does your enterprise have a mobile app for clients (e.g. for loyalty program, e-commerce, customer support)?</b>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
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## 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 (EDI: Electronic Data interchange) by methods specifically designed for the purpose of receiving orders.

The payment may be done online or offline.

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

Please report **web and EDI-type sales separately**. They are defined by the method of placing the order:

- WEB sales: the **customer** places the order on a website or through an app;
- EDI type sales: **an EDI-type order message is created from the business system of the customer.**

## Web sales of goods or services

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

- your enterprise's **websites or apps**:
  - online store (webshop);
  - web forms;
  - extranet (webshop or web forms) ;
  - booking/reservation applications for services;
  - apps for mobile devices or computers;
- **e-commerce marketplace websites or apps** (used by several enterprises for trading goods or services).

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

B1.	During 2022, did your enterprise have web sales of goods or services via:	Yes	No
	<b>a) your enterprise's websites or apps?</b> (including extranets)	<input type="checkbox"/>	<input type="checkbox"/>
	<b>b) e-commerce marketplace websites or apps used by several enterprises for trading goods or services?</b> (e.g. e-Bookers, Booking, hotels.com, eBay, Amazon, Amazon Business, Alibaba, Rakuten, TimoCom etc.) <i>[Please add national examples of e-commerce marketplaces incl. government marketplaces]</i>	<input type="checkbox"/>	<input type="checkbox"/>

If both B1 a) and B1 b) = "No" then go to B5

<b>B2.</b> <b>What was the value of your web sales?</b> (please refer to the provided definition of web sales) Please answer to a) OR b)	<b>a) What was the value of your web sales of goods or services, in 2022?</b>	(National currency, excluding VAT) _____
	<b>OR</b> <b>b) What percentage of total turnover was generated by web sales of goods or services, in 2022?</b> <i>If you cannot provide the exact percentage an approximation will suffice.</i>	□ □ □ , □ %

Question B3 should be answered only if both B1 a) and B1 b) = "Yes"

<b>B3.</b> <b>What was the percentage breakdown of the value of web sales in 2022 for the following:</b> (Please refer to value of web sales you reported in B2) <i>If you cannot provide the exact percentages an approximation will suffice.</i>	<b>a) via your enterprise's websites or apps?</b> (including extranets)	□ □ □ %
	<b>b) via e-commerce marketplace websites or apps used by several enterprises for trading goods or services?</b> (e.g. e-Bookers, Booking, hotels.com, eBay, Amazon, Amazon Business, Alibaba, Rakuten, TimoCom etc.)  <i>[Please add national examples of e-commerce marketplaces incl. government marketplaces]</i>	□ □ □ %
	<b>TOTAL</b>	<b>1 0 0 %</b>

<b>B4.</b> <b>What was the percentage breakdown of the value of web sales in 2022 by type of customer:</b> (Please refer to value of web sales you reported in B2)  <i>If you cannot provide the exact percentages an approximation will suffice.</i>	<b>a) Sales to private consumers (B2C)</b>	□ □ □ %
	<b>b) Sales to other enterprises (B2B) and Sales to public sector (B2G)</b>	□ □ □ %
	<b>TOTAL</b>	<b>1 0 0 %</b>

## EDI-type sales

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

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

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

<p><b>B5. During 2022, did your enterprise have EDI-type sales of goods or services?</b> (Filter question)</p>	<p>Yes <input type="checkbox"/></p>	<p>No <input type="checkbox"/> -&gt; go to C1</p>
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<p><b>What was the value of your EDI-type sales?</b> (please refer to the provided definition of EDI-type sales)</p>	
<p>_____</p>	<p>(National currency, excluding VAT) _____</p>
<p><b>What percentage of total turnover was generated by EDI-type sales of goods or services, in 2022?</b> <i>If you cannot provide the exact percentage an approximation will suffice.</i></p>	<p>□ □ □, □ %</p>

Sum of the B2 + B6 can not exceed 100%, i.e. more than the total turnover.

## Module C: Data utilisation, sharing, analytics and trading

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

### Use of business software

C1. Does your enterprise use the following business software?	Yes	No
<p><b>a) Enterprise Resource Planning (ERP) software</b> Software used to manage resources by sharing information among different functional areas (e.g. accounting, planning, production, marketing,). ERP software can be off-the-shelf software, customised to the needs of the enterprise or self-created software.</p>	<input type="checkbox"/>	<input type="checkbox"/>
<p><b>b) Customer Relationship Management (CRM) software</b> Software for managing information about customers (e.g. relations or transactions), CRM facilitates communication with the customer and helps track customer interests, purchasing habits.</p>	<input type="checkbox"/>	<input type="checkbox"/>
<p><b>c) Business Intelligence (BI) software</b> BI software accesses and analyses data (e.g. from data warehouses, data lakes) from internal IT systems and external sources and presents analytical findings in reports, summaries, dashboards, graphs, charts and maps, to provide users with detailed insights for decision-making and strategic planning.</p>	<input type="checkbox"/>	<input type="checkbox"/>

### Data sharing

<p><b>Does your enterprise share data electronically with suppliers or customers within the supply chain (e.g. via websites or apps, EDI-systems, real-time sensors or tracking)?</b></p> <p>This data may be exchanged via websites, networks or other means of electronic data transfer, excluding e-mails not suitable for automated processing or manually typed.</p> <p>Some of the examples of data exchange: information on inventory levels, progress of deliveries, progress in service provision, demand forecasts, products availability, customer requirements, e-commerce data, information regarding production or maintenance.</p>	<p>Yes</p> <input type="checkbox"/>	<p>No</p> <input type="checkbox"/>
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## Module C2. Use of government authorities' data

<b>C2.1 Does your enterprise use government authorities' data?</b> (Filter question)	<b>Yes</b>	<b>No</b>
	If Yes, go to C2.3	If No go to C2.2

Scope: C2.1= No

<b>C2.2 What are the reasons for your enterprise not to use government authorities' data?</b>		
	Yes	No
a. No needs		
b. The data of source to the relevant data is hard to be found		
c. Difficulties with access to the data		
d. The data is incomplete, poorly quality, missing value or in inconvertible format		
e. There is a lack of relevant expertise, equipment, software or systems in the enterprise		
f. Other reasons		

Scope: C2.1= Yes

<b>C2.3 How did your enterprise acquire the government authorities' data?</b> (Filter question) (Tick only one)	<b>a) Acquire by the enterprise directly from the data source</b>	<b>b) Acquire by externals on behalf of the enterprise</b>	<b>c) Don't know</b>
	If answered with 'a)', go to C2.4	If answered with 'b)', go to C2.5	If answered with 'c)', go to C2.5

Scope: C2.1= Yes

<b>Filter – if C2.3 answered with 'a'</b>		
<b>C2.4 Does your enterprise use any of the following methods to search for the data that the enterprise itself has acquired?</b>		
	Yes	No
a. Search ' <a href="http://data.norge.no">data.norge.no</a> ' ( <a href="#">Felles datakatalog</a> )		
b. Search the government authorities' website		
c. Search the government authorities' the data sharing platform or data base (e.g. <a href="#">Transport-portalen</a> , <a href="#">Diskos</a> , <a href="#">Copernikus</a> , <a href="#">Geovekst</a> , <a href="#">Helsekatalog.no</a> , etc.)		
d. Other methods		



Scope: C2.1= Yes

<b>C2.5 Does your enterprise encountered any issues when using government authorities' data?</b> (Filter question)	<b>Yes</b>	<b>No</b>
	If Yes, go to C2.6	If No go to C2.7

**Filter – if C2.5 answered with 'Yes'**

**C2.6 Does your enterprise encountered the following issues when using government authorities' data?**

	Yes	No
a. Difficulties with the access to the data		
b. It is resource-intensive to acquire data (e.g. spent a lot of time of money)		
c. Data or metadata is deficient, poor quality, incomplete, inaccurate or inconsistent with data description, etc.		
d. The format of the data is not user-friendly, e.g. the data is in a non-machine-readable format such as JPG (image format), PDF, etc.		
e. Concerns regarding violation of data protection and privacy		
f. Other issues		

Scope: C2.1= Yes

**C2.7 To what extent has the use of government authorities' data led to your enterprise benefiting from : (item a - f)**

(There are 6 options for each item, where

**Option 1** = 'To a very small extent'

**Option 2** = 'To a rather small extent'

**Option 3** = 'To neither a large nor small extent'

**Option 4** = 'To a great extent'

**Option 5** = 'To a very large extent'

**Option 6** = 'Not relevant/Don't know' )

(for each item a-f, tick the number of the option)

Item	Option number
a. better knowledge and decision-making basis for managing the business	
b. increased efficiency of the production of goods or services	
c. improvement of system or process related to operation or production (e.g. inventory management, maintenance, logistics, etc.)	
d. improvement of the customer service or marketing	
e. improvement of existing products or services, development of new products or services, research and development (R&D) and innovation activities	
f. commercial consultancy and advisory activities, e.g. the government authorities' data is used as an important input in analysis reports, consultation documents, etc.	

Data analytics		
<p>Data analytics refers to the use of technologies, techniques or software tools for analysing data to extract patterns, trends and insights to make conclusions, predictions and better decision-making with the aim of improving performance (e.g. increase production, reduce costs). Data may be extracted from your own enterprise' data source or from external sources (e.g. suppliers, customers, government).</p>		
<p><b>C3. Does your enterprise perform data analytics by own employees?</b>  <i>Please, consider internal and external data sources.</i></p>	<p><b>Yes</b>  <input type="checkbox"/></p>	<p><b>No</b>  <input type="checkbox"/></p>

If Yes to question C3, then go to question C4, otherwise go to question C5.

<p><b>C4. Does your enterprise perform data analytics on data from the following sources?</b></p>	<p><b>Yes</b></p>	<p><b>No</b></p>
<p>a) Data analytics on data from transaction records such as sale details, payments records (e.g. from Enterprise Resource Planning system (ERP), own webshop)</p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>b) Data analytics on data about customers such as customer purchasing information, location, preferences, customer reviews, searches (e.g. from Customer Relationship Management system (CRM) or own website)</p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>c) Data analytics on data from social media, incl. from your enterprise's own social media profiles (e.g. personal information, comments, video, audio, images)</p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>d) Data analytics on web data (e.g. search engine trends, web scraping* data)  *use of computer program for extracting data from websites</p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>e) Data analytics on location data from the use of portable devices or vehicles (e.g. portable devices using mobile telephone networks, wireless connections or GPS)</p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>f) Data analytics on data from smart devices or sensors (e.g. Machine to Machine (M2M) communications, sensors installed in machinery, manufacturing sensors, smart meters, Radio frequency identification (RFID<sup>2</sup>) tags)</p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>g) Data analytics on government authorities' open data (e.g. enterprise public records, weather conditions, topographic conditions, transport data, housing data, buildings data)</p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>h) Data analytics on satellite data (e.g. satellite imagery, navigation signals, position signals)  Please, include data acquired from enterprise's own infrastructure or from externally provided service (e.g. AWS Ground Station) and exclude location data from the use of portable devices or vehicles using GPS.</p>	<input type="checkbox"/>	<input type="checkbox"/>
<p><b>C5. Does an external enterprise or organisation perform data analytics for your enterprise?</b>  <i>Please include data analytics based on data from internal and external sources.</i></p>	<p><b>Yes</b>  <input type="checkbox"/></p>	<p><b>No</b>  <input type="checkbox"/></p>

Data trading			
<b>C6.</b>	<b>During 2022, did your enterprise sell (access to) any of its own data?</b>  <i>e.g. data about your enterprise's customers' preferences, data from your enterprise's smart devices or sensors</i>	<b>Yes</b> <input type="checkbox"/>	<b>No</b> <input type="checkbox"/>

<b>C7.</b>	<b>During 2022, did your enterprise purchase (access to) any data?</b>  <i>e.g. data about other enterprise's customers' preferences, data from other enterprise's smart devices or sensors</i>	<b>Yes</b> <input type="checkbox"/>	<b>No</b> <input type="checkbox"/>
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## 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).

<b>D1.</b>	<b>Does your enterprise buy any cloud computing services used over the internet?</b> (Please refer to the definition of cloud computing above, exclude free of charge services.) (Filter question)	<b>Yes</b> <input type="checkbox"/>	<b>No</b> <input type="checkbox"/> -> go to E1
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<b>D2.</b>	<b>Does your enterprise buy any of the following cloud computing services used over the internet?</b> (Please refer to the definition of cloud computing above, exclude free of charge services.)	<b>Yes</b>	<b>No</b>
	a) E-mail (as a cloud computing service)	<input type="checkbox"/>	<input type="checkbox"/>
	b) Office software (e.g. word processors, spreadsheets) (as a cloud computing service)	<input type="checkbox"/>	<input type="checkbox"/>
	c) Finance or accounting software applications (as a cloud computing service)	<input type="checkbox"/>	<input type="checkbox"/>
	d) Enterprise Resource Planning (ERP) software applications (as a cloud computing service)	<input type="checkbox"/>	<input type="checkbox"/>
	e) Customer Relationship Management (CRM) software applications (as a cloud computing service)	<input type="checkbox"/>	<input type="checkbox"/>
	f) Security software applications (e.g. antivirus program, network access control) (as a cloud computing service)	<input type="checkbox"/>	<input type="checkbox"/>
	g) Hosting the enterprise's database(s) (as a cloud computing service)	<input type="checkbox"/>	<input type="checkbox"/>
	h) Storage of files (as a cloud computing service)	<input type="checkbox"/>	<input type="checkbox"/>
	i) Computing power to run the enterprise's own software (as a cloud computing service)	<input type="checkbox"/>	<input type="checkbox"/>
	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)	<input type="checkbox"/>	<input type="checkbox"/>

## Module E: 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.

E1.	Does your enterprise use any of the following Artificial Intelligence (AI) technologies?	Yes	No
	a) AI technologies performing analysis of written language (e.g. text mining)	<input type="checkbox"/>	<input type="checkbox"/>
	b) AI Technologies converting spoken language into machine-readable format (speech recognition)	<input type="checkbox"/>	<input type="checkbox"/>
	c) AI Technologies generating written or spoken language (natural language generation, speech synthesis)	<input type="checkbox"/>	<input type="checkbox"/>
	d) AI Technologies identifying objects or persons based on images or videos (image recognition, image processing)	<input type="checkbox"/>	<input type="checkbox"/>
	e) Machine learning (e.g. deep learning) for data analysis	<input type="checkbox"/>	<input type="checkbox"/>
	f) AI Technologies automating different workflows or assisting in decision making (e.g. <b>AI based</b> software robotic process automation)	<input type="checkbox"/>	<input type="checkbox"/>
	g) AI Technologies enabling physical movement of machines via autonomous decisions based on observation of surroundings (autonomous robots, self-driving vehicles, autonomous drones)	<input type="checkbox"/>	<input type="checkbox"/>

If E1 a) to g) = "No" then go to E4

else go to F1

E2.	Does your enterprise use Artificial Intelligence software or systems for any of the following purposes?	Yes	No
	<p>a) <b>Use of AI for marketing or sales</b>                      some of the examples may be:</p> <ul style="list-style-type: none"> <li>• customer profiling, price optimisation, personalised marketing offers, market analysis based on machine learning</li> <li>• chatbots based on natural language processing for customer support</li> <li>• autonomous robots for orders processing</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
	<p>b) <b>Use of AI for production or service processes</b>                      some of the examples may be:</p> <ul style="list-style-type: none"> <li>• predictive maintenance or process optimization based on machine learning</li> <li>• tools to classify products or find defects in products based on computer vision</li> <li>• autonomous drones for production surveillance, security or inspection tasks</li> <li>• assembly works performed by autonomous robots</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
	<p>c) <b>Use of AI for organisation of business administration processes or management</b>                      some of the examples may be:</p> <ul style="list-style-type: none"> <li>• business virtual assistants based on machine learning and/or natural language processing, e.g. for document drafting</li> <li>• data analysis or strategic decision making based on machine learning, e.g. risk assessment, based on machine learning</li> <li>• planning or business forecasting based on machine learning</li> <li>• human resources management based on machine learning or natural language processing, e.g. candidates pre-selection screening, employee profiling or performance analysis</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
	<p>d) <b>Use of AI for logistics</b>                      some of the examples may be:</p> <ul style="list-style-type: none"> <li>• autonomous robots for pick-and-pack solutions in warehouses for parcel shipping, tracing, distribution or sorting</li> <li>• route optimization based on machine learning</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
	<p>e) <b>Use of AI for ICT security</b>                      some of the examples may be:</p> <ul style="list-style-type: none"> <li>• face recognition based on computer vision for authentication of ICT users</li> <li>• detection and prevention of cyber-attacks based on machine learning</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
	<p>f) <b>Use of AI for accounting, controlling or finance management</b>                      some of the examples may be:</p> <ul style="list-style-type: none"> <li>• machine learning to analyse data that helps to make financial decisions</li> <li>• invoice processing based on machine learning</li> <li>• machine learning or natural language processing for bookkeeping documents</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
	<p>g) <b>Use of AI for research and development (R&amp;D) or innovation activity (excluding research on AI)</b>                      some of the examples may be:</p> <ul style="list-style-type: none"> <li>• analysis of data for conducting research, solving research problems, developing a new or significantly improved product/service based on machine learning</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>

<b>E3.</b>	<b>How did you enterprise acquire the Artificial Intelligence software or systems that it uses?</b>	<b>Yes</b>	<b>No</b>
	a) They were developed by own employees (including those employed in parent or affiliate enterprise)	<input type="checkbox"/>	<input type="checkbox"/>
	b) Commercial software or systems were modified by own employees (including those employed in parent or affiliate enterprise)	<input type="checkbox"/>	<input type="checkbox"/>
	c) Open-source software or systems were modified by own employees (including those employed in parent or affiliate enterprise)	<input type="checkbox"/>	<input type="checkbox"/>
	d) Commercial software or systems ready to use were purchased (including examples where it was already incorporated in a purchased item or system)	<input type="checkbox"/>	<input type="checkbox"/>
	e) External providers were contracted to develop or modify them	<input type="checkbox"/>	<input type="checkbox"/>

**Questions E4 is presented only to respondents who answered 'No' to E1a)-g) i.e. enterprises that did not use any of the Artificial Intelligence technologies listed in question E1.**

<b>E4.</b>	<b>Has your enterprise ever considered using any of the Artificial Intelligence technologies listed in question E1?</b> <i>(Filter question)</i>	<b>Yes <input type="checkbox"/></b>	<b>No <input type="checkbox"/></b> -> go to F1
<b>E5.</b>	<b>What are the reasons for your enterprise not to use any of the Artificial Intelligence technologies listed in question E1?</b>	<b>Yes</b>	<b>No</b>
	a) The costs seem too high	<input type="checkbox"/>	<input type="checkbox"/>
	b) There is a lack of relevant expertise in the enterprise	<input type="checkbox"/>	<input type="checkbox"/>
	c) Incompatibility with existing equipment, software or systems	<input type="checkbox"/>	<input type="checkbox"/>
	d) Difficulties with availability or quality of the necessary data	<input type="checkbox"/>	<input type="checkbox"/>
	e) Concerns regarding violation of data protection and privacy	<input type="checkbox"/>	<input type="checkbox"/>
	f) Lack of clarity about the legal consequences (e.g. liability in case of damage caused by the use of Artificial Intelligence)	<input type="checkbox"/>	<input type="checkbox"/>
	g) Ethical considerations	<input type="checkbox"/>	<input type="checkbox"/>
	h) Artificial Intelligence technologies are not useful for the enterprise	<input type="checkbox"/>	<input type="checkbox"/>

## Module F: Invoicing

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

There are invoices in **paper form** and **electronic form**. Invoices in **electronic form** are of two types:

- **E-invoices** in a standard structure **suitable for automated processing**, excluding the transmission of PDF files. They are exchanged either directly or via service operators or via an electronic banking system.

- **Invoices** in electronic form **not suitable for automated processing**, including the transmission of PDF files

F1. In 2022, did your enterprise <u>send</u> any of the following types of invoices: <i>Include also invoices sent via intermediaries, e.g. accountants, e-invoice service providers</i> (Filter question)	Yes	No
a) Invoices in electronic form, in a standard structure <b>suitable for automated processing</b> (e-invoices)? (EDI (e.g. EDIFACT), XML (e.g. UBL) [please add national examples]) Excluding the transmission of PDF files	<input type="checkbox"/>	<input type="checkbox"/>
b) Invoices in electronic form <b>not suitable for automated processing</b> ? (e.g. emails, JPEG or other format) Including the transmission of PDF files	<input type="checkbox"/>	<input type="checkbox"/>
c) Paper invoices?	<input type="checkbox"/>	<input type="checkbox"/>

Filter – if F1a) answered with ‘Yes’, go to F2.

F2. Concerning e-invoices: In 2022, out of all invoices your enterprise <u>sent</u> (in electronic or paper form) to private customers, other enterprises or public authorities, how many were e-invoices in a <u>standard structure suitable for automated processing</u> ? (Tick only one)	
a) Less than 10%	<input type="checkbox"/>
b) At least 10% but less than 25%	<input type="checkbox"/>
c) At least 25% but less than 50%	<input type="checkbox"/>
d) At least 50% but less than 75%	<input type="checkbox"/>
e) At least 75%	<input type="checkbox"/>