

Bilaga 4. Engelskt frågeformulär till företag med 10 eller fler anställda

A. Access and use of the internet

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

_____ % If 0 --> go to F1.

iii Include employees that have access to the internet but...

...that never use internet

Given that, employees use a computer, telephone or similar that provides access to Internet. (The employees do not need to use the internet.)

...that share a computer, telephone etc.

Given that employees at least sometimes use the computer, the mobile phone or similar and which provides internet access. (Note that employees do not need to use the internet).

Use of a fixed line connection to the internet for business purposes

What is fixed line connection to the internet?

The connection from the workplace (or from the property) to the internet goes via e.g.

- Fixed line telephone network eg. DSL, ADSL, VDSL and SDSL.
- Cable television network
- Public wireless networks e.g. Public Wi-Fi, hotspots.

Wireless network (like Wi-Fi) is considered a fixed connection given that it is connected to a fixed connection.

2. Does your enterprise use any type of fixed line connection to the internet?

- Yes
- No --> go to A7

3. What is the maximum contracted download speed of the fastest fixed line internet connection of your enterprise?

If you have fixed line connections at multiple addresses, select the speed of the fastest connection.

The contracted download speed could also be found on the invoice.

- Less than 30 Mbit/s
- At least 30 but less than 100 Mbit/s
- At least 100 but less than 500 Mbit/s
- At least 500 but less than 1 Gbit/s
- At least 1 Gbit/s

4. Is the speed of your fixed line connection(s) to the internet usually sufficient for the actual needs of the enterprise?

- Yes
- No

Use of a website

5. Does your enterprise have a website?

If your enterprise is a part, of a group of enterprises, that has a website and information on your enterprise can be found on that website, include it in your answer.

Does not refer to account on social media.

- Yes

Please fill in the address of your website here _____

- No --> go to A9

6. Does the website have any of the following?

If the enterprise has several websites, are there any of the following functions on any of the websites?

	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 Does not include manually written e-mail.	<input type="checkbox"/>	<input type="checkbox"/>
c) Possibility for visitors to customise or design online goods or service Does not refer to traditional search function or where the customer clicks to the right page via the website's menus.	<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 Answer Yes only if both login and personalization are used on the site.	<input type="checkbox"/>	<input type="checkbox"/>
f) Links or references to the enterprise's social media profiles	<input type="checkbox"/>	<input type="checkbox"/>

7. Does your enterprise have the following chat service for customer contacts?

	Yes	No
a) A chat service where a person replies to customers	<input type="checkbox"/>	<input type="checkbox"/>
b) A chatbot or virtual agent replying to customers iii A chatbot is a text or speech based robot that you can write to and that simulates a human conversation, or a chat. It responds to different types of input, with predetermined answers or artificial intelligence (AI). Depending on what skills it is has, it can interpret and answer your question / reasoning / statement.	<input type="checkbox"/>	<input type="checkbox"/>

B. E-commerce: Web sales of goods or services

What is e-commerce?

The module on e-commerce refers to bookings and orders of goods and / or services that are done electronically. However, payment and delivery need not be made electronically.

Bookings and orders can be made via e.g.

- Own website or app, not social media **iii**
- Common website / app for group, franchise or business chain
- An e-commerce site where several companies sell eg. Block, Booking, Online Pizza.

The customer orders electronically directly on the website or app. **Do not** include manually typed e-mail, telephonecalls or sms.

Also, **do not** include orders that the employees at the enterprise has electronically completed for the customer who contacted the enterprise via email, phone, sms or visit.

iii What is meant by own website?

- Your enterprise (or your group of enterprises) determines the content the website must be designed.
- Does not refer to social media accounts.
- Include extranets (means your customers have passwords for that access your website or app).

B1 Web sales of goods or services

8. During 2019, did your enterprise have web sales of goods or services via:

	Yes	No
a) Enterprise's websites or apps?	<input type="checkbox"/>	<input type="checkbox"/>
b) E-commerce marketplace websites or apps used by several enterprises for trading goods or services? <i>E.g. Blocket, Booking, Onlinepizza.</i>	<input type="checkbox"/>	<input type="checkbox"/>

9. What percentage of total turnover was generated by web sales of goods or services, in 2019?

Do **not** count with VAT

_____ % of total turnover

B3 will only be answered if both B1 a) and b) = "Yes".

10. What was the percentage breakdown of the value of web sales in 2019 for the following:

Please, answer based on the percentage breakdown given in question B2. If you cannot provide the exact percentages, an approximation will suffice.

a) Orders on the enterprise's own website/app or joint website/app in the group of enterprises, franchise or chain of enterprises that your enterprise belongs to	_____ %
b) Orders at an e-commerce site where several enterprises sell E.g. Block, Booking, Onlinepizza.	_____ %
Sum	100 %

11. What was the percentage breakdown of the value of web sales in 2019 by type of customer:

a) Sales to private consumers (B2C)	_____ %
b) Sales to other enterprises (B2B) and sales to public sector (B2G)	_____ %
Sum	100 %

B2 Orders the enterprise received via business systems in format of EDI, XML or similar

What is EDI and XML?

The EDI type of sales covers business customer orders via EDI types (EDI: Electronic Data Interchange) which means:

- 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

12. During 2019, did your enterprise have EDI-type sales of goods or services?

- Yes
- No --> go to C1

13. What percentage of total turnover was generated by EDI-type sales of goods or services, in 2019?

_____ % of total turnover

C. Invoicing

What types of invoices are there?

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.

They are exchanged either directly, via service providers or via an electronic banking system e.g. Kivra

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

14. In 2019, 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.

	Yes	No
a) Invoices in electronic form, in a standard structure suitable for automated processing (e-invoices)? (EDI (e.g. EDIFACT), XML (e.g. UBL) Excluding the transmission of PDF files	<input type="checkbox"/>	<input type="checkbox"/>
b) Invoices in electronic form not suitable for automated processing? (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"/>

If C1a) answered with 'Yes', go to C2, otherwise go to D1.

15. Concerning e-invoices: In 2019, 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?

_____ %

D. Use of cloud computing services

What is meant with cloud computing services?

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).

16. Does your enterprise buy any cloud computing services used over the internet?

- Yes
- No --> go to E1

17. Does your enterprise buy any of the following cloud computing services used over the internet?

	Yes	No
a) E-mail (as a cloud computing service)	<input type="checkbox"/>	<input type="checkbox"/>
b) Office software (e.g. word processors, spreadsheets, etc.) (as a cloud computing service)	<input type="checkbox"/>	<input type="checkbox"/>
c) Hosting the enterprise's database(s) (as a cloud computing service)	<input type="checkbox"/>	<input type="checkbox"/>
d) Storage of files (as a cloud computing service)	<input type="checkbox"/>	<input type="checkbox"/>
e) Finance or accounting software applications (as a cloud computing service)	<input type="checkbox"/>	<input type="checkbox"/>
f) Customer Relationship Management (CRM) software application for managing information about customers (as a cloud computing service)	<input type="checkbox"/>	<input type="checkbox"/>
g) Computing power to run software used by the enterprise (as a cloud computing service)	<input type="checkbox"/>	<input type="checkbox"/>

E. Big Data

What is Big Data?

Big data have the following characteristics:

- Volume: vast amounts of data.
- Variety: different formats of complex data (e.g. text, video, voice, sensor data, activity logs, coordinates).
- Velocity: data is frequently generated.

Big data analysis refers to the use of technologies, techniques or software tools such as data or text mining, machine learning, etc., for analysing big data extracted from your own enterprise's data sources or other data sources.

18. During 2019, did your enterprise perform big data analysis on any of the following data sources?

Please *exclude* big data analysis conducted by external service providers.

	Yes	No
a) Data from smart devices or sensors e.g. Machine to Machine M2M- communications, digital sensors, Radio frequency identification tags RFID14, etc.	<input type="checkbox"/>	<input type="checkbox"/>
b) Geolocation data from the use of portable devices e.g. portable devices using mobile telephone networks, wireless connections or GPS	<input type="checkbox"/>	<input type="checkbox"/>
c) Data generated from social media e.g. social networks, blogs, multimedia content sharing websites, etc.	<input type="checkbox"/>	<input type="checkbox"/>
d) Other big data sources not specified above, e.g. stock index data, transaction data, other open web data	<input type="checkbox"/>	<input type="checkbox"/>

If at least one "yes" in E1a)-d) then go to E2.

19. During 2019 did your enterprise use any of the following methods to analyse big data?

	Yes	No
a) Machine Learning e.g. deep learning iii iii A method that involves 'training' a computer model to better perform an automated task, e.g. pattern recognition.	<input type="checkbox"/>	<input type="checkbox"/>
b) Natural language processing, natural language generation or speech recognition iii iii Speech recognition is the ability for a computer program to understand human language as it is spoken, to convert data into natural language representation or to identify words and phrases in spoken language and convert them to a machine-readable format.	<input type="checkbox"/>	<input type="checkbox"/>
c) Other methods of big data analysis	<input type="checkbox"/>	<input type="checkbox"/>

20. During 2019, did your enterprise have another enterprise or organisation perform big data analysis for your enterprise?

Yes

No

If "No" to E1 a)-d) and "No" to E3 --> Go to E4.

21. Has your enterprise ever considered performing big data analysis?

- Yes
- No

If "Yes" to E1 a)-d) or E3 go to --> E6 and E7.

22. During 2019, did your enterprise sell access to any of its own big data?

E.g. big data from enterprise's smart devices or sensors, big data about enterprise's customers.

- Yes
- No

23. During 2019, did your enterprise purchase access to any big data?

E.g. big data from other enterprise's smart devices or sensors, big data about other enterprise's customers.

- Yes
- No

F. ICT specialists and skills

24. Does the enterprise employ ICT specialists  i.e. employees who have ICT as their main job?

E.g. such as support of software, operation and maintenance of ICT systems, applications, development of ICT systems and applications, web pages, etc. provided that the employees have ICT as their main task.

- Yes
- No

iii Examples of occupations

We have taken the examples from the Standard for Swedish Occupational Classification (SSYK).

- Software, web or system developers
- M.Sc. information technology, computer technology, hardware, electronics
- Support technician, it
- Data Techniques
- Network Techniques
- System technician, it
- Operation technician, data
- IT Manager
- Service technician, data
- Computer repair
- Graphic designer
- Interactive designer
- IT teacher
- Network or database administrator
- Technical salesman in IT

25. Did your enterprise provide any type of training (internal or external) to develop ICT related skills of the persons employed, during 2019?

Refers to **professionally designed training** with internal or external trainer, instructor or teacher. Also, include online training.

	Ja	Nej
a) Training for ICT specialists iii <i>Tick "No" if your enterprise didn't employ ICT specialists during 2019.</i>	<input type="checkbox"/>	<input type="checkbox"/>
b) Training for other persons employed <i>E.g. training in standard word processing or calculation programs, use of enterprise applications or systems, use of programs or systems to control machines or equipment in industry, commerce, healthcare, etc.</i>	<input type="checkbox"/>	<input type="checkbox"/>

26. Did your enterprise recruit or try to recruit ICT specialists during 2019?

Yes

No --> Go to F6

27. During 2019, did your enterprise have vacancies for ICT specialists that were difficult to fill?

- Yes
 No --> Go to F6

28. Did your enterprise have any of the following difficulties to recruit ICT specialists during 2019?

	Yes	No
a) Lack of applications	<input type="checkbox"/>	<input type="checkbox"/>
b) Applicants' lack of relevant ICT related qualifications from education and/or training;	<input type="checkbox"/>	<input type="checkbox"/>
c) Applicants' lack of relevant work experience	<input type="checkbox"/>	<input type="checkbox"/>
d) Applicants' salary expectations too high	<input type="checkbox"/>	<input type="checkbox"/>

29. Who performed your enterprise's ICT functions in 2019?

E.g. maintenance of ICT infrastructure; support for office software; development or support of business management software/systems and/or web solutions; security and data protection?

	Yes	No
a) Own employees (incl. those employed in parent or affiliate enterprises)	<input type="checkbox"/>	<input type="checkbox"/>
b) External suppliers E.g. consultants or service agreements.	<input type="checkbox"/>	<input type="checkbox"/>

G. Internet of Things (IoT)

What is meant by the Internet of Things?

The Internet of Things means objects with built-in electronics and internet connection, often called "smart" devices or systems. They collect and exchange data and can be monitored and controlled over the internet.

Examples of usage are:

- smart thermostats, lamps or meters;
- Radio Frequency Identification (RFID) or Internet Protocol (IP) tags applied or incorporated into a product or an object in order to track them;
- sensors for tracking the movement or maintenance needs of vehicles monitored over the Internet.

30. Does your enterprise use interconnected devices or systems that can be monitored or remotely controlled via the Internet (Internet of Things)?

Please exclude the usage of computers, smartphones, printers.

- Yes
- No --> Go to H1

31. Does your enterprise use any of the following interconnected devices or systems that can be monitored or remotely controlled via the Internet (Internet of Things)?

	Yes	No
a) Smart meters, smart lamps, smart thermostats to optimize energy consumption in enterprise’s premises (warehouses, production sites, distribution sites)	<input type="checkbox"/>	<input type="checkbox"/>
b) Sensors, RFID or IP tags* or Internet-controlled cameras to improve customer service, monitor customers’ activities or offer them a personalised shopping experience (targeted and relevant discounts, selfcheckout)	<input type="checkbox"/>	<input type="checkbox"/>
c) Movement or maintenance sensors to track the movement of vehicles or products, to offer condition-based maintenance of vehicles	<input type="checkbox"/>	<input type="checkbox"/>
d) Sensors or RFID tags to monitor or automate production processes, to manage logistics, to track the movement of products	<input type="checkbox"/>	<input type="checkbox"/>
e) Other Internet of Things devices or systems	<input type="checkbox"/>	<input type="checkbox"/>

H. Use of 3D printing

What is a 3D-printer?

Use of 3D printing aka additive layer manufacturing refers to the use of special printers either by the enterprise itself or the use of 3D printing services provided by other enterprises for the creation of three-dimensional physical objects using digital technology.

32. During 2019, did your enterprise use 3D printing:

	Yes	No
a) using your enterprise’s 3D printers? Include use of rented or leased 3D printers	<input type="checkbox"/>	<input type="checkbox"/>
b) using printing services provided by other enterprises?	<input type="checkbox"/>	<input type="checkbox"/>

If “Yes” to any from H1 a)-b) --> Go to H2. Otherwise go to I1.

33. During 2019, did your enterprise use 3D printing for any of the following:

	Yes	No
a) Prototypes or models for sale	<input type="checkbox"/>	<input type="checkbox"/>
b) Prototypes or models for internal use.	<input type="checkbox"/>	<input type="checkbox"/>

- | | | |
|---|--------------------------|--------------------------|
| c) Goods for sale excluding prototypes or models. (e.g. moulds, tools, parts of goods, semi-finished goods, etc.) | <input type="checkbox"/> | <input type="checkbox"/> |
| 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.) | <input type="checkbox"/> | <input type="checkbox"/> |

I. Use of robots

What types of robots are there?

- **An industrial robot** is an automatically controlled, reprogrammable, multipurpose manipulator programmable in three or more axes, which may be either fixed in place or mobile for use. Most existing industrial robots are based on the robot arm with a solid base and a series of links and joints with an end effector that carries out the task.
- **A service robot** is a machine that has a degree of autonomy that enables it to operate in complex and dynamic environment that may require interaction with persons, objects or other devices, excluding its use in industrial automation applications. They are designed to fit their tasks, working in the air (e.g. as a drone), under water, or on land, using wheels or legs to achieve mobility with arms and end effectors to physically interact and are often used in inspection and maintenance tasks.

Software robots (computer programs) and 3D printers are out of the scope of the following questions.

34. Does your enterprise use any of the following types of robots?

	Yes	No
a) Industrial robots iii (e.g. robotic welding, laser cutting, spray painting, etc.)	<input type="checkbox"/>	<input type="checkbox"/>
b) Service robots iii (e.g. used for surveillance, cleaning, transportation, etc.)	<input type="checkbox"/>	<input type="checkbox"/>

iii An industrial robot is an automatically controlled, reprogrammable, multipurpose manipulator programmable in three or more axes, which may be either fixed in place or mobile for use. Most existing industrial robots are based on the robot arm with a solid base and a series of links and joints with an end effector that carries out the task.

iii A service robot is a machine that has a degree of autonomy that enables it to operate in complex and dynamic environment that may require interaction with persons, objects or other devices, excluding its use in industrial automation applications. They are designed to fit their tasks, working in the air (e.g. as a drone), under water, or on land, using wheels or legs to achieve mobility with arms and end effectors to physically interact and are often used in inspection and maintenance tasks.

If I1 b) = "Yes" then go to I2 else J1

35. This question only applies to service robots **iii (not industrial robots). Does your enterprise use service robots for any of the following?**

	Yes	No
a) Surveillance, security or inspection tasks (e.g. use of autonomous airborne drones, etc.)	<input type="checkbox"/>	<input type="checkbox"/>
b) Transportation of people or goods (e.g. use of automated guided vehicle, etc.)	<input type="checkbox"/>	<input type="checkbox"/>
c) Cleaning or waste disposal tasks	<input type="checkbox"/>	<input type="checkbox"/>
d) Warehouse management systems (e.g. palletising, handling goods, etc.)	<input type="checkbox"/>	<input type="checkbox"/>
e) Assembly works performed by service robots	<input type="checkbox"/>	<input type="checkbox"/>
f) Robotic store clerk tasks	<input type="checkbox"/>	<input type="checkbox"/>
g) Construction works or damage repair tasks	<input type="checkbox"/>	<input type="checkbox"/>
h) Other _____	<input type="checkbox"/>	<input type="checkbox"/>

iii A service robot is a machine that has a degree of autonomy that enables it to operate in complex and dynamic environment that may require interaction with persons, objects or other devices, excluding its use in industrial automation applications. They are designed to fit

their tasks, working in the air (e.g. as a drone), under water, or on land, using wheels or legs to achieve mobility with arms and end effectors to physically interact and are often used in inspection and maintenance tasks.

J. Artificiell intelligens

What is meant by Artificial Intelligence?

Artificial intelligence (AI) refer to systems that exhibit intelligent behavior by analyzing their environment and acting, with some type of self-determination, to achieve specific goals. AI-based systems can be pure software based (chat robots, machine learning programs, natural language processing, etc.) or built into a device (self-driving cars, self-learning robots, etc.).

Räkna inte med användning av standardmjukvara som sökmotorer, personliga virtuella assistenter, mobilappar etc.

36. Has the enterprise used any AI-based **iii** software or hardware **iii** in 2019?

- Yes
- No --> Go to K1

iii What is meant by Artificial Intelligence (AI)?

- Systems that exhibit intelligent behavior by analyzing their environment and acting, with some type of self-determination, to achieve specific goals.
- Examples of AI-based systems:
 - Mjukvara som t.ex. chatrobotar , program för machine learning, natural language processing etc.
 - Built into a device such as self-driving cars, self-learning robots, etc.
- Exclude the use of standard software such as search engines, personal virtual assistants, mobile apps, etc.

37. For what reason(s) did your enterprise use software or hardware that utilizes AI **iii**?

	Yes	No
a) Develop or expand knowledge of customer relationships (e.g. using chat robots for customer service, product or service recommendations, pricing optimization, automatically improving and creating content, etc.)	<input type="checkbox"/>	<input type="checkbox"/>
b) Develop a new product or service	<input type="checkbox"/>	<input type="checkbox"/>
c) Improve an existing product or service	<input type="checkbox"/>	<input type="checkbox"/>
d) Develop or improve internal processes (eg optimization of process flows, thinning of job seekers, etc.)	<input type="checkbox"/>	<input type="checkbox"/>
e) Other _____	<input type="checkbox"/>	<input type="checkbox"/>

38. What obstacle(s) does your enterprise see using AI-based software or hardware **iii**?

	Yes	No
a) No business needs identified	<input type="checkbox"/>	<input type="checkbox"/>
b) Lack of knowledge about available technology	<input type="checkbox"/>	<input type="checkbox"/>
c) Cost of services or equipment too high	<input type="checkbox"/>	<input type="checkbox"/>
d) Employees lack skills, training or experience	<input type="checkbox"/>	<input type="checkbox"/>
e) Ethical reasons	<input type="checkbox"/>	<input type="checkbox"/>
f) Legal reasons	<input type="checkbox"/>	<input type="checkbox"/>
g) Security reasons	<input type="checkbox"/>	<input type="checkbox"/>
h) Not compatible with existing equipment or software	<input type="checkbox"/>	<input type="checkbox"/>
i) Problems with data (e.g. quality problems, lack of data, etc.)	<input type="checkbox"/>	<input type="checkbox"/>
j) Organizational barriers	<input type="checkbox"/>	<input type="checkbox"/>
k) Other _____	<input type="checkbox"/>	<input type="checkbox"/>

K. ICT and environment

39. Does your enterprise have an environmental policy or a working method, which means that the enterprise must reduce its environmental impact through one of the following?

	Yes	No
a) Select the telephone, web or video meetings instead of meetings that involve travel.	<input type="checkbox"/>	<input type="checkbox"/>
b) Reduce energy consumption when using IT e.g. use of screensavers, demands that the computers be shut down at the end of the day, reduced printing, energy-efficient operation, etc.	<input type="checkbox"/>	<input type="checkbox"/>
c) Require suppliers to be environmentally certified in the procurement of IT products or IT services	<input type="checkbox"/>	<input type="checkbox"/>
d) Take into consideration energy consumption when selecting systems and hardware for procurement of IT products or IT services.	<input type="checkbox"/>	<input type="checkbox"/>

40. Does your enterprise have employees who work outside the enterprise's premises on average at least half a day a week, and from there have access to the enterprise's IT systems e.g. e-mail?

Yes
 No

41. Does your enterprise use the following technical solutions to reduce its energy consumption?

	Yes	No
a) Intelligent steering of transport and logistics	<input type="checkbox"/>	<input type="checkbox"/>
b) Intelligent lighting control, heating or ventilation	<input type="checkbox"/>	<input type="checkbox"/>
c) Digitization of workflows	<input type="checkbox"/>	<input type="checkbox"/>
d) Other digital solution for saving energy	<input type="checkbox"/>	<input type="checkbox"/>

X. Bakgrundsinformation

X1. Företagets huvudsaklig ekonomisk aktivitet, under 2019

X2. Antalet anställda i genomsnitt, under 2019

X3. Total omsättning (i monetära termer, exklusive moms), för 2019