**STATISTICS DENMARK**

**Documentation of statistics for
Activities in micro enterprises 2023**

Communication report

Placement in Statistics Denmarks subject level hierachy:

# 1 Introduction

The purpose of the statistics is to shed light on the activities e.g. the use of ICT in microenterprises, with 5-9 employees. The study focuses on topics with high topicality and attention among users, such as cyber security and robotics. The content is replaced every year. The survey is developed in collaboration with users and has been carried out for the first time for 2021.

# 2 Statistical presentation

The statistics are an annual survey of the activities of small businesses. The subjects that are covered are typically some that users are currently asking for more knowledge about. This could be, for example, the effect of COVID-19, sustainability, innovation, social responsibility and digitalisation, including the use of digital business solutions, e.g. the spread of remote meetings, robotics and artificial intelligence. It can also be ICT security measures in the company and the use of various e-sales channels.

## 2.1 Data description

The statistics for 2021 and 2022 primarily describes micro-enterprises' use of digital business solutions. The statistics cover the following general topics related to digitization in companies: · Access to the Internet and Internet speed · Remote access to the company's systems · Robotic technology · Advanced technologies, e.g. artificial intelligence, Internet of Things (IoT) and advanced data use · IT security measures · E-sales In addition to digitization issues, the study in 2021 and 2022 includes the following topics: the impact of COVID-19, innovation and social responsibility. A more detailed description of the survey's content appears in the statistics' questionnaires, which can be accessed in the Sources field.

## 2.2 Classification system

Survey results are reported by activity. The applied activity nomenclature is Danish Industrial Classification 2007 (DB07), internationally NACE Rev.2. By activity groupings, Statistics Denmark's standard groupings are applied. For further information, see [Danish industrial classification](#).

## 2.3 Sector coverage

The survey covers the majority of industries in the private, non-financial urban industries. The following industries are included in the population: manufacturing etc., construction, trade and transport etc., information and communication, business services.

## 2.4 Statistical concepts and definitions

Industrial robot: A robot that is part of industrial production. It can be fixed or mobile. It is automatically controlled and can be programmed to manipulate objects, bend and rotate around three or more axes.

Internet of Things (IoT): Physical objects, e.g. measuring devices or machines, which are integrated with sensors, software and other technologies and which can exchange data with other devices over the Internet. The Internet of Things (IoT) is closely related to sensor technology that expands the ability to collect and respond to data from the objects connected in the network.

Service robot: A robot that interacts with people, other machines or digital devices. It has a degree of autonomy and is able to operate in a complex and dynamic environment.

Collaborative robot: A robot that is designed to work side by side with humans, where the robot identifies work risks for humans and reacts to them. Examples of use: assembling, painting, screw jobs, marking, packing, polishing, injection molding or welding.

## 2.5 Statistical unit

Enterprise

## 2.6 Statistical population

Enterprises with between 5 and 9 employees.

## 2.7 Reference area

Denmark.

## 2.8 Time coverage

2022-

## 2.9 Base period

Not relevant for this statistics.

## 2.10 Unit of measure

Percent of enterprises.

## 2.11 Reference period

The reference period is typically the past year. The reference period may be different for the individual questions depending on the content of the question.

## 2.12 Frequency of dissemination

The survey is published annually.


## 2.13 Legal acts and other agreements

The Act on Statistics Denmark (Lov om Danmarks Statistik), cf. Order no. 15 of 12 January 1972, as amended by Act no. 386 of 13 June 1990, Act no. 1025 of 19 December 1992, Act no. 295 of 2 May 2000 and Act no. 610 of 30 2018.


## 2.14 Cost and burden

The reporting burden is set at 91 hours for the 548 companies that answered the question about time consumption in 2022. This equals to an average time consumption per company for 10 minutes in 2022. The estimated time consumption for the 1,500 companies answering the survey is 250 hours in 2022.


## 2.15 Comment

Find information on the subject website about the use of ICT in enterprises. Additional information can be obtained from Statistics Denmark.


# 3 Statistical processing

The statistics are a sample-based questionnaire survey. Data is collected via digital reporting. Data validation takes place in the form of consistency checks in the digital form as well as by subsequent troubleshooting and possible re-contact with the reporting parties. The published results are calculated for the population. There is stratification by industry and size.

## 3.1 Source data

The survey covers companies in the private, non-financial urban industries with 5-9 full-time employees. The statistics are based on questionnaire information from a sample of companies. The sample is stratified by industry groups and size. The sample contains approx. 1,650 companies, of which approx. 1,500 answer the questions. Data is collected via digital reporting. The questionnaires can be found here:

Spørgeskema mikro virksomheder_2021 Questionnaire micro enterprises 2021.pdf

Spørgeskema mikro virksomheder_2022 Questionnaire micro enterprises 2022.pdf

Spørgeskema mikro virksomheder_2023 Questionnaire micro enterprises 2023.pdf


## 3.2 Frequency of data collection

Yearly.

### 3.3 Data collection

Digital reporting via the form. The form can be seen [here](#).

### 3.4 Data validation

A number of checks and validation mechanisms as well as reporting aides for the reporter's understanding of the questionnaire are built into the digital form. This includes among other things checks on sum totals of quantitative fields (e.g. that reported percentages add to 100 per cent) as well as filter and routing mechanisms (e.g. so that information cannot be reported in fields, where the enterprise should not provide any information).

Once data is received by Statistics Denmark a number of additional checks are performed. These are performed in part at macro level, where e.g. the results for a given variable for an activity group or size class are compared to the ones from the previous survey period. Further validation is carried out at micro level, i.e. at the level of the individual enterprise. This includes e.g. comparison of the reported e-commerce figures with those reported previously. In both macro and micro level validation background information from Statistics Denmark's Statistical Business Register is used. Finally, in addition to this, checks involve identifying outliers, i.e. reported data with extreme values, for certain variables. In some cases validation results in recontacting the reporting enterprise for a clarification of the reported data.

### 3.5 Data compilation

The published results are raised to the level of the population.

A stratified random sampling is used on the basis of the activity of the enterprise and the number of employees. By grossing up a weighting and calibration using regression techniques is applied to the weight of the individual enterprise. Imputation is not used, neither in the case of partially lacking information from the enterprise (item non-response), nor in the case of completely lacking reporting from an enterprise (unit non-response). The latter, instead, is handling through reweighting as part of the grossing up procedure.

3.5.1

### 3.6 Adjustment
<p>No further corrections are undertaken than those already described under validation and treatment.</p>

3.6.1

## 4 Relevance

Statistics Denmark is experiencing an ever-increasing demand for more knowledge about small businesses, particularly in areas such as sustainability, innovation activities and digitalisation. A greater number of variables are replaced annually as a result of new technology and the development of user needs. The ongoing development of the content of the statistics takes place in close dialogue with users.

## 4.1 User Needs

There is general interest in the survey results from both ministries, interest organizations, researchers and journalists etc. The statistics are developed in collaboration with users and are subsidized by the Danish Business Authority in 2021 and 2022 and by the Danish Agency for Digital Government and by the Danish Agency for Higher Education and Science in 2023. In many cases, the statistics can also supplement existing other statistics on the same subjects, but which typically cover companies with at least 10 employees. An example is the statistics on companies' ICT use or the statistics on companies' activities within research and development. Data from the survey is also used for analyses, e.g. via access to micro data through the Research Service, where data from this survey can be supplemented with other data from e.g. registers.

## 4.2 User Satisfaction

The ongoing development of the content of the statistics takes place in close dialogue with users. A formal assessment of the study, which started in 2021, has not yet been carried out.

## 4.3 Data completeness rate

Not relevant to this statistic.

## 5 Accuracy and reliability

The survey is sample-based, and therefore associated with an uncertainty in the form of random variation in relation to industry and company size. Uncertainty calculations show that the sampling uncertainty is limited. The survey is compulsory to answer and the response rate is therefore above 90. The enumeration of the responses from the sample to the total population partially corrects for missing responses. Some questions are of a technical nature and therefore difficult to understand in companies that do not work with technology.

## 5.1 Overall accuracy

The overall uncertainty relates to both sampling uncertainty or random error as well as non-participation in the statistics and partial responses, where answers are missing to some of the form's questions. Both affect the uncertainty of the study's results only to a limited extent.

## 5.2 Sampling error

The results are based on responses from 1,500 companies out of a total population of 14,326 companies with 5-9 full-time employees. The overall response rate in 2021 was 91 per cent.

Sample uncertainty calculations are made every year. Examples of variables from 2021, with estimated proportion of companies and associated lower and upper limits at 95 per cent. statistical confidence interval:

- The proportion of micro-enterprises that have a website is estimated at 84 per cent. The standard error is 0.89 per cent. This means that the actual value is with 95 per cent. probability between 82 per cent. and 86 per cent
- The proportion of micro-enterprises that use cloud solutions is estimated at 34 per cent. The standard error is 1.15 per cent. This means that the actual value is with 95 per cent. probability between 32 per cent. and 36 per cent

The uncertainty calculations are available upon contacting the statistics' contact person.

### 5.2.1

## 5.3 Non-sampling error

Other uncertainty relates to the systematic uncertainty, i.e. the uncertainty that is not related to the sample (the random error). The main cause of other uncertainty may be that the population cannot be completely captured, or covers too widely. This happens, for example, when the form is sent to companies with fewer than 5 employees. This typically results in the company not answering the form. The questionnaire can be experienced as a great burden for some companies, who may end up not answering all questions with equal accuracy. Uncertain memory can lead to questions being answered inaccurately, just as technically complex questions can be too difficult to answer accurately. In case of non-response, the weights for the companies that have responded are adjusted so that it is assumed that the companies that have not responded are similar to the companies that have responded. Random sampling as close to the time of datacollection as possible, guidance on technical questions on the form and a limited number of questions are examples of measures aiming to reduce these uncertainties.

### 5.3.1

### 5.3.1.1

### 5.3.1.2

### 5.3.2

### 5.3.3

### 5.3.3.1

## 5.4 Quality management

Statistics Denmark follows the recommendations on organisation and management of quality given in the Code of Practice for European Statistics (CoP) and the implementation guidelines given in the Quality Assurance Framework of the European Statistical System (QAF). A Working Group on Quality and a central quality assurance function have been established to continuously carry through control of products and processes.

## 5.5 Quality assurance

Statistics Denmark follows the principles in the Code of Practice for European Statistics (CoP) and uses the Quality Assurance Framework of the European Statistical System (QAF) for the implementation of the principles. This involves continuous decentralized and central control of products and processes based on documentation following international standards. The central quality assurance function reports to the Working Group on Quality. Reports include suggestions for improvement that are assessed, decided and subsequently implemented.

## 5.6 Quality assessment

The relevance of the statistics is considered to be significant as the content is largely developed in collaboration with users. The statistics mainly contain yes-no questions, which are relatively easy to answer. This improves the quality of the statistics by means of more accurate and reliable answers. The statistics are timely because the results are published approx. one month after the end of the data collection and five months after the start of the data collection. The availability of the statistics is ensured by sharing metadata, i.e. uncertainty calculations, method descriptions and the precise formulation of the questions. Statistics Denmark has limited opportunities to influence the quality of the responses. It is not possible for us to check the correctness of the individual answers, e.g. regarding selected technical solutions, such as artificial intelligence, are To give an indication of the data quality, uncertainty calculations have been prepared, see more in section 5.2. Throughout, the response rate in the survey is high and the extent of partially deficient responses limited. The survey method, including random sampling and calculation of weights, is continuously assessed.

## 5.7 Data revision - policy

Statistics Denmark revises published figures in accordance with the [Revision Policy for Statistics Denmark](). The common procedures and principles of the Revision Policy are for some statistics supplemented by a specific revision practice.

## 5.8 Data revision practice

Not relevant for this statistics.

## 6 Timeliness and punctuality

The statistics are published 12 months after the end of the reference period. It is usually published without delay in relation to the announced time.

### 6.1 Timeliness and time lag - final results

The statistics are published 12 months after the end of the reference period. The statistics are only published in a final version.

### 6.2 Punctuality

The statistics are usually published without delay in relation to the scheduled date.

## 7 Comparability

Some of the results can be compared with results from the survey 'ICT use in enterprises', which covers companies with at least 10 employees. A large number of questions in the survey are replaced annually, so there is no coherent time series for all subjects.

### 7.1 Comparability - geographical

Not relevant to this statistic. International statistics typically cover companies with a minimum of 10 employees.

### 7.2 Comparability over time

When comparing the censuses of the individual years, changes in the content of the survey must be taken into account. The survey typically contains new questions from year to year.

### 7.3 Coherence - cross domain

Statistics Denmark also compiles statistics on the population's use of the internet and digitalisation in companies with at least 10 employees. A number of questions in the micro-enterprise survey have also been asked in the survey about digitization in companies with at least 10 employees. This concerns, among other things, about internet access, security measures and online sales.

### 7.3.1

### 7.3.2

### 7.4 Coherence - internal

A number of controls and validation mechanisms as well as support mechanisms in relation to the reporting person's understanding of questions etc. is built into the digital questionnaire. This concerns, among other things, on filter and routing control (e.g. that no information is provided in fields where the company must not respond).

## 8 Accessibility and clarity

*News from Statistics Denmark* and the main results are available in Danish on Statistics Denmark's homepage at the address [Statistics Denmark's homepage](#).

### 8.1 Release calendar

The publication date appears in the release calendar. The date is confirmed in the weeks before.

### 8.2 Release calendar access

The Release Calender can be accessed on our English website: [Release Calender](#).

### 8.3 User access

Statistics are always published at 8:00 a.m. at the day announced in the release calendar. No one outside of Statistics Denmark can access the statistics before they are published.

### 8.4 News release

Most recent publications can be found at [Most recent publications](#) .

### 8.5 Publications

Not relevant for these statistics.

### 8.6 On-line database

The statistics are published in the StatBank under the subjects in the following tables:

- [ITAV10](#): ICT usage in enterprises (5-9 employees)
- [ITAV11](#): Enterprises e-commerce (5-9 employees)

### 8.7 Micro-data access

The basic material (questionnaires and database) is stored for a number of years. Access to anonymised micro data may be granted under the rules for research access.

### 8.8 Other

Not relevant for these statistics.

### 8.9 Confidentiality - policy

For a description of Statistics Denmark's policy on confidentiality, see (https://dst.dk/Site/Dst/SingleFiles/GetArchiveFile.aspx?fi=formid&fo=datafortrolighed&ext= {2}).

### 8.10 Confidentiality - data treatment

In connection to publication and delivery of customized statistics, a so-called confidentiality test of data is made. The confidentiality test is made on the basis of two criteria:

1. The number criteria: If one data cell contains less than 3 observations (enterprises) employment and financial information can not be published
2. The dominance criteria: If one or two observations (enterprises) contained in one data cell, alone or together constitute a certain percentage of the total turnover of the cell, the turnover and other financial information for this group can not be published.

### 8.11 Documentation on methodology

There are no separate documentation on methodology for these statistics.

### 8.12 Quality documentation

Results from the quality evaluation of products and selected processes are available in detail for each statistics and in summary reports for the Working Group on Quality.

## 9 Contact

The administrative placement of this statistics is in the division of Science, Technology and Culture. The person responsible is Agnes Tassy, tlf. 3917 3144, e-mail: ata@dst.dk

### 9.1 Contact organisation

Statistics Denmark

### 9.2 Contact organisation unit

Science, Technology and Culture

### 9.3 Contact name

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N/A