

**Documentation of statistics for  
Computer Services 2016**

## 1 Introduction

The statistics provides information about the activities in the sector for *Computer services* and thereby improve the knowledge of the sector. Moreover, the purpose is to improve the information in the national accounts statistics regarding the service sector, and finally it contributes to the continuing maintenance of activity codes in the Central Business Register.

The statistics is a part of EU *Structural Business Statistics* (SBS). The statistics was carried out for the first time for the year 1995.

## 2 Statistical presentation

The statistics provides information on the distribution of total turnover and export on products and services. Furthermore information is collected on the turnover broken down by clients and information on the export broken down by residence of client (resident or Non-resident intra-EU or Non-resident extra-EU).

### 2.1 Data description

The statistics provides information on the distribution of total turnover and export on products and services. Furthermore information is collected on the turnover broken down by clients and information on the export broken down by residence of client (resident or Non-resident intra-EU or Non-resident extra-EU).

### 2.2 Classification system

The activity codes in the statistics are:

- Publishing of computer games (DB07) 582100
- Other software publishing (DB07) 582900
- Computer programming services (DB07) 620100
- Hardware consultancy (DB07) 620200
- Computer facilities management services (DB07) 620300
- Other information technology and computer services (DB07) 620900
- Data processing, hosting and related services (DB07) 631100
- Web portal content (DB07) 631200.

Dansk Branchekode 2007 (DB07) is the National version of Nace Rev. 2 activity classification. A full description of the activities can be found on [DB07](#).

The activity codes from for the reference years 1995-2006 are:

- Hardware consultancy (DB03) 72.10.00
- Publishing of standardsoftware (DB03) 72.21.00
- Software consultancy and supply (DB03) 72.2200
- Data processing (DB03) 72.30.00
- Database activities (DB03) 72.40.00
- Maintenance and repair of office, accounting and computing machinery (DB03) 72.50.00
- Other computer-related activities (DB03) 72.60.00

In the national publication the following services and clients are used.

*Services:*

- IT design and development services for computer games software
- IT design and development services for applications to smart phones, tablets, smart TV and app windows 8
- IT design and development services for other computer software
- Hardware consultancy services
- Systems and software consulting services
- IT technical support services
- Network management services
- Computer systems management services
- Other information technology and computer services
- Data processing, hosting and related services
- Webportal services
- Publishing of computer games
- Systems software, packaged
- Application software, packaged
- Software downloads
- Online software
- Licensing services for the right to use computer software
- Maintenance and repair of office and accounting machinery
- Resale of software (retail and wholesale, not own developed)
- Resale of hardware (retail and wholesale, not own developed)
- Other resale
- Other additional products n.e.c

*Client:*

- Public sector
- Households and non-profit institutions
- Enterprises

In the EU publication the *resident of clients* is used instead the "National" clients mentioned above.

*Resident of client:*

- Resident
- Non-resident, of which intra-EU or extra-EU.

## **2.3 Sector coverage**

The statistics covers enterprises that are legally registered in Denmark and have the main activity in the sector for Computer Services.

## 2.4 Statistical concepts and definitions

*Client:* In the national publication the following clients are used:

- Public sector
- Households and non-profit institutions
- Enterprises

*Residence of client:* In the EU publication the resident of clients is used

- Resident
- Non-resident intra-EU
- Non-resident extra-EU

*Services:* Generally the questions in the questionnaire are based on Statistical Classification of Products by Activity [CPA 2008](#), with adjustments to Danish conditions.

The following services are used:

- Computer programming services
- Hardware consultancy services
- Systems and software consulting services
- IT technical support services
- Network management services
- Computer systems management services
- Other information technology and computer services
- Data processing, hosting and related services
- Webportal services
- Publishing of computer games
- Systems software, packaged
- Application software, packaged
- Software downloads
- Online software
- Licensing services for the right to use computer software
- Maintenance and repair of office equipment
- Maintenance and repair of computing machinery
- Resale of software (retail and wholesale, not own developed)
- Resale of hardware (retail and wholesale, not own developed)
- Other resale
- Other additional products n.e.c

The firms in the sector for Computer Services provide information about their turnover and export (in 1000 kr. without VAT). Further more the total turnover and export are distributed on services (in 1000 kr. without VAT) and clients (in percent). Finally, the export is divided by residence of client (resident and Non-resident intra-EU or Non-resident extra-EU). Until 2008 information on ownership was collected i.e. if the ownership is Danish, intra-EU or extra-EU.

## 2.5 Statistical unit

The units in the statistics are enterprises in the sector for Computer Services. The enterprises are legal and defined by their CVR-nr in the Business Register of Statistics Denmark.

## 2.6 Statistical population

*Committee Population (FRAME)* describes the population from which the sample to *IT services* is drawn. *FRAME* includes all IT enterprises in the Business Register System, which are active in the extraction time. (Active enterprises are enterprises, which have paid in wage and salary for employees corresponding to at least 0.5 man-year and/or have had calculated earnings of a certain volume.)

*Target population* describes the population as respondents (the selected IT enterprises) shall be estimated to. The target population includes all IT enterprises in the Business Register System, which are active when estimation/calculation is carried out. There may be situations where some enterprises are located in *FRAME* but not in the target population. This is due to business closure or industry changes between the draw of *FRAME* and the target population. Similarly, it can also happen that there are some enterprises in the target population but not in *FRAME*, because data in the target population are updated with recent and new information, thus the target population could include new enterprises.

*FRAME 2014 for IT services* includes about 10,000 enterprises. Furthermore the *FRAME* is bounded so enterprises that have under five full-time employees, are sorted out. The total number of enterprises in the *FRAME 2014* is estimated to 1,300. The target population for *IT services* is estimated to 11,000 enterprises.

## 2.7 Reference area

Denmark

## 2.8 Time coverage

The statistics covers the time period from 2007 onwards.

## 2.9 Base period

Not relevant for these statistics.

## 2.10 Unit of measure

The distributions of turnover (and export) by services and clients are given in DKK 1,000. Before the year 2012 the distributions of turnover were given in percent.

## 2.11 Reference period

The statistics covers the financial year.

## 2.12 Frequency of dissemination

Frequency of the statistics is annual.

## 2.13 Legal acts and other agreements

The Act on Statistics Denmark (Lov om Danmarks Statistik), Section 8, cf. Order no. 599 of 22 June 2000.

From the reference year 2008: Regulation (EC) No. 295/2008 of the European Parliament and of the Council of 11 March 2008 concerning structural business statistics.

## 2.14 Cost and burden

Statistics on response burden for all statistics on the service sectors in the reference year 2016 was 143.000 Dkr.

## 2.15 Comment

The statistics has a [subject page](#).

## 3 Statistical processing

Data are collected by web from about 890 enterprises for the sector *Computer services*. In the questionnaire the enterprises are asked to breakdown their turnover by a number of products, services and client categories. It also reported information about export. The reported data are checked by comparing the distribution of turnover among enterprises that are similar. Survey data is grossed up in part by including information from administrative sources on the VAT turnover in the reference year for the entire population.

### 3.1 Source data

The statistics is based on a sample of enterprises in the sector for *Computer Services*. The enterprises are selected based on their number of full-time employees. The number of full-time employees is calculated based on the average for full-time employees in each of the four quarters of the year.

The sample is stratified random sample consisting of all enterprises with 20 employees or more and a part of enterprises with 5-19 employees. Enterprises with under 5 full-time employees are not included in the sample due to response burden. The sample is divided into 5 size groups: 5-9, 10-19, 20-49, 50-100 and more than 100 full-time employees. Each year a new sample is drawn and the FRAME consists of enterprises in the Business Register System, which are active in the drawing time.

### 3.2 Frequency of data collection

Data are collected annually.

### **3.3 Data collection**

Data are collected by online questionnaires. In the questionnaire the enterprises are asked to distribute their turnover and export in DK 1,000 by a number of products, services and client categories.

The reporting is mandatory, i.e. the enterprises are required to report accurate data on time. If the data has not been received, the companies will be reminded 3 times by mail or telephone. After that a registered letter will be sent to inform the enterprises that if the information are not submitted within one week, Statistics Denmark can refer the matter to the police for requesting the imposition of a fine.

### **3.4 Data validation**

The submitted data are checked for errors, ex. data of the individual reporter are compared with prior periods and similar enterprises reporting in the current period. If the data are significantly different than expected, the enterprise will be contacted. It must be assumed that not all errors in the data are found. That is why the statistics may be subject to some uncertainty associated with error reporting.

### **3.5 Data compilation**

The data from the questionnaires received are grossed up to the provisional total turnover from Business Register.

The data are corrected for bias in the sample and response pattern. A so-called *ratio estimate* is used, which includes information on the taxable turnover of the year concerned for the entire population of the sector for Computer Services.

### **3.6 Adjustment**

Not relevant for these statistics.

## **4 Relevance**

The statistics is used among enterprises when planning and provides an overview of the development taking place in the service sector.

Furthermore the statistics is an input to national accounts in Statistics Denmark regarding the service sector. The statistics is also used of the European Statistic bureau, Eurostat, to create EU-statistics about Business Services.

### **4.1 User Needs**

The statistics is used among enterprises when planning and provides an overview of the development taking place in the service sector.

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## 4.2 User Satisfaction

Information about user satisfaction for the statistics does not exist.

## 4.3 Data completeness rate

Turnover and export for some industries will not be published due to confidentiality or data quality.

The statistics is covered by the requirements of the EU. Regarding completeness of the data all these requirements are satisfied.

## 5 Accuracy and reliability

Overall, the uncertainty of the level of the total turnover is estimated below 1 per cent. The uncertainty varies widely between services. In some services the uncertainty is significantly higher than the uncertainty of the total turnover.

### 5.1 Overall accuracy

In general, the quality of the statistics is rated highly, with a few reservations.

For the reference year 2016 there are 894 enterprises in the sample, covering approx. 91 per cent of the total turnover in FRAME for the sector for Computer Services. 863 enterprises answered the questionnaire, i.e. the response rate is 97 percent. The usable questionnaires are from 849 enterprises. There is a lapse of 5 per cent. The lapse are due to wrong industry code and closure of the enterprises and non-responded questionnaires.

The usable data from 849 enterprises grossed up to the total level (the target population) of the 6-digit industries within the sector for Computer Services by using preliminary turnover from the Business Register. Each company is assigned a weight, that corresponds to the ratio of population and responses in a given size group and industry. The enumeration is made by ratio estimation.

As the survey is random, the figures can be associated with some statistical uncertainty in the form of random variation. The sampling error is calculated for all services in the form of variance, 95 pct. confidence interval and coefficient of variation Uncertainty estimates can be seen in the attached document [usikkerhedsestimerer\\_IT](#).

The figures for 2016 are preliminary and will not revised in the national publishing. For delivery to EU the figures are calculated (revised) based on Accounts Statistics.

### 5.2 Sampling error

The sample was drawn at 1559 consisting of 894 enterprises. Of these, 863 companies have completed the questionnaire, i.e. the response rate is 95 percent. The usable questionnaires were from 849 enterprises.

The sampling error is calculated for all services in the form of variance, 95 pct. confidence interval and coefficient of variation Uncertainty estimates can be seen in the attached document [usikkerhedsestimerer\\_IT](#).



### 5.3 Non-sampling error

The total uncertainty consists of sampling uncertainty and other systematic uncertainty. In other uncertainties include inter alia measurement error and non response error/lapse.

*Coverage error:* The population is defined by the industry, the enterprises registered in the Business Register by themselves. Errors of classification of the industries will be expected. This means that there may be enterprises in the population that really should not be classified as an enterprise in the sector Computer Services, but also companies in the sector Computer Services can be classified with the wrong industry.

In the context of fault tracing and quality assurance of the statistics, number of these errors continuously are found and corrected. Companies that incorrectly classified as Computer Services cause over-coverage while misclassifications within Computer Services cause over-coverage in one industry but under-coverage in another. These coverage error is detected primarily for companies in the sample, but also in some cases for non-sampled companies.

Under- coverage in the form of companies that are classified entirely outside Computer Services, even though they should properly be classified as Computer Services, are difficult to detect, but can be found also. The significance of these coverage problems are generally small because the volume is estimated to be small.

The total number of enterprises in the FRAME population is estimated at approx. 1,550, and among these the sample is selected. The sample for the reference year 2016 was 894 companies and is thus approx. 58 per cent. of the FRAME population. Because of the stratified selection, where large companies are more likely to selection than the smaller, the sample consists approx. 91 per cent. of the total turnover of the FRAME population.

*Measurement error:* Uncertainty due to lapse, incorrectly reported numbers and misunderstandings has sought to minimize by repeated reminders by non-reporting, as well as by substantial verification of the reported figures.

Generally the services in the questionnaire are based on Statistical Classification of Products by Activity CPA [CPA 2008](#), with an adjustment to Danish conditions. It can be an uncertainty in the distribution of turnover and export by services when the services CPA 2008 are not quite commensurate with the classification of products of the firms.

*Non response error:* There are 894 enterprises in the sample. The usable questionnaires are from 849 enterprises, i.e. there is a lapse of 6 per cent.

### 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

In general, the quality of the statistics is rated highly, with a few reservations. It can be problems in comparing figures over time. This is because the questionnaire has been revised a few times since 1995. Moreover, there are break of data due to the changes in industry codes (from NACE rev.1 to NACE rev. 1.1 and to Nace rev. 2).

From the reference year 2013 the method is changed so the enumeration is based on a new data from the Central Business Register. Data are back calculated for 2012. Which means that the results before the year 2012 are not directly comparable to the results from 2012 onwards.

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As the survey is random, the figures can be associated with some statistical uncertainty in the form of random variation. The sampling error is calculated for all services in the form of variance, 95 pct. confidence interval and coefficient of variation. Uncertainty estimates can be seen in the attached document [usikkerhedsestimerer\\_IT](#).

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## 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

The published data will not be revised, since the statistics is published once a year.

## **6 Timeliness and punctuality**

The statistics is published once a year and approximately 10 months after the reference year. The statistics is published usually without delay regarding to the announced date. To EU the data must be delivered within 18 months after the reference year.

### **6.1 Timeliness and time lag - final results**

The statistics is published once a year and approximately 10 months after the reference year. The statistics is published usually without delay regarding to the announced date. To EU the data must be delivered within 18 months after the reference year.

### **6.2 Punctuality**

The statistics is usually published without delay regarding to the announced date.

## **7 Comparability**

The statistics has been compiled since 1995, but it can be problems in comparing figures over time. The questionnaire, the sample design and the calculation method have been adjusted a few time, latest in 2013, where the time series back to 2012 has been backcasted using new method.

### **7.1 Comparability - geographical**

To Eurostat the data are provided only for enterprises with less 20 person employed (according to EU's regulation). In the Statistics Database of Eurostat the distributions of the turnover by services and residence of client are published on [EUROSTAT's homepage](#). It is considered that there are good comparability across countries, because the statistics should be produced by common guidelines and principles.

### **7.2 Comparability over time**

It can be problems in comparing figures over time. This is because the questionnaire has been revised a few times since 1995. Moreover, there are break of data due to the changes in industry codes (from NACE rev.1 to NACE rev. 1.1 and to Nace rev. 2). From the reference year 2013 the method is changed so the enumeration is based on a new data from the Central Business Register. Data are back calculated for 2012. Which means that the results before the year 2012 are not directly comparable to the results from 2012 onwards.

In Statistics Bank the data can be found back to 1995. Due to the differences in methods and units the data for the earlier years can't be expected to compare with the current data beginning with year 2012.

### **7.3 Coherence - cross domain**

At national level the data for the survey are grossed up to the provisional turnover from the statistic Purchases and sales of enterprises ("VAT statistics"). The final turnover is not available at the time when data are grossed up. The VAT statistics provides the total turnover in the sector for *Computer Services*, whereas the survey in addition to the total turnover also indicates the breakdown of the turnover by different services.

At European level the data for the statistics are grossed up to the level for the Danish Accounts Statistics. As in the VAT statistics the breakdown of the turnover by various services doesn't exist in the accounts statistics but only in this survey.

### **7.4 Coherence - internal**

Not relevant for these statistics.

## **8 Accessibility and clarity**

The latest New article can be found on [NEW](#). The statistics is published on [Statbank](#). Furthermore the statistics has a [subject page](#).

In the Statistics Database of EU the distributions of the turnover by services and residence of client are published on [EUROSTAT'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 Calendar can be accessed on our English website: [Release Calendar](#).

### **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**

From the reference year 2013 it will be not published a separate New-article for Computer Services. Instead, there is an annual New article for the following industries within the Service Sector:

- Computer services
- Advertising services
- Temporary employment agencies and other human resources services
- Legal services
- Accounting and bookkeeping
- Business and management consultancy activities
- Architectural services
- Market research and public opinion polling
- Technical testing and analysis
- Consulting engineering.

The latest New article can be found on [NEW](#).

#### **8.5 Publications**

Before 2010 the statistics was a part of Statistical Yearbook.

#### **8.6 On-line database**

In the national publishing the distribution of the turnover by services is published on [Statbank](#).

In the European publishing the distributions of the turnover by services and residence of client are published on [EUROSTAT's homepage](#).

#### **8.7 Micro-data access**

Access to Micro-data is not possible. The questionnaires and data are stored for a number of years.

#### **8.8 Other**

There is no other accessibility than New article, Statistics Bank and subject page from Statistics Denmark and the EU's statistics Bank.

#### **8.9 Confidentiality - policy**

The statistics follows Data Privacy Policy of Statistics Denmark, [Data Privacy Policy](#).

#### **8.10 Confidentiality - data treatment**

The statistics follows Data Privacy Policy of Statistics Denmark, [Data Privacy Policy](#).

### **8.11 Documentation on methodology**

The statistical method is described only here in the documentation of 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 Business Development. The person responsible is Mahtab Keshavarz, tel. +45 39 17 31 15, e-mail: mke@dst.dk

### **9.1 Contact organisation**

Statistics Denmark

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