

**Documentation of statistics for  
Engineering Activities and Related Technical Consultancy 2017**

## 1 Introduction

The purpose of the statistics is to provide information about the activities in the sector for *Engineering activities and related technical consultancy* 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 for the sector Engineering activities and related technical consultancy. 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 for the sector Engineering activities and related technical consultancy. 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:

- Consulting engineering activities within construction (DB07) 711210
- Consulting engineering activities within production and machinery technique (DB07) 711220
- Mounting and delivery of ready-made production plants (DB07) 711230
- Geological surveying and prospecting activities, chartered surveyors etc. (DB07) 711240
- Other technical consultancy (DB07) 711290.

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 before the year 2007 are:

- Engineering consultancy activities related to construction and civil engineering (DB03 742010).
- Engineering consultancy activities related to industrial and mechanical engineering (DB03 742020).
- Mounting and delivery of ready-made production plants (DB03 742030).
- Geological surveying and prospecting activities (DB03 742060).
- Other technical consultancy (DB03 742090).

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

*Services:*

- Engineering advisory services
- Engineering services for building projects
- Engineering services for power projects
- Energy planning
- Renewable energy projects
- Other energy projects
- Engineering services for construction projects
- Waste management projects (hazardous and non-hazardous)
- Engineering services for water, sewerage and drainage projects
- Water projects
- Sewerage and drainage projects
- Engineering services for industrial and manufacturing projects
- Engineering services for telecommunications and broadcasting projects
- Engineering services for other projects
- Project management services for construction project
- Geological, geophysical and related prospecting and consulting services
- Sales
- Other products

*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 *Engineering activities and related technical consultancy*.

## 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.

- Engineering advisory services
- Engineering services for building projects
- Engineering services for power projects
- Energy planning
- Renewable energy projects
- Other energy projects
- Engineering services for construction projects
- Waste management projects (hazardous and non-hazardous)
- Engineering services for water, sewerage and drainage projects
- Water projects
- Sewerage and drainage projects
- Engineering services for industrial and manufacturing projects
- Engineering services for telecommunications and broadcasting projects
- Engineering services for other projects
- Project management services for construction project
- Geological, geophysical and related prospecting and consulting services
- Sales
- Other products

The firms provide information about their turnover and export (in 1000 kr. without VAT). Furthermore 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 *Engineering activities and related technical consultancy*. The enterprises are legal and defined by their CVR-nr in the Business Register of Statistics Denmark.

## **2.6 Statistical population**

The population includes the enterprises in the sector for *Engineering activities and related technical consultancy*. The population does not cover inactive enterprises. The threshold limit regarding the level of economic activity required means that an enterprise should have had an annual performance corresponding to at least a half years work for one person (according to Business Register Recommendations manual chapter 6). The total number of enterprises in the population is estimated to 500.

Foreign companies of branches established in Denmark are included in the statistics.

## **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 1.000 kr. Before the year 2013 the distributions of turnover were given in percent.

To Eurostat the distributions of the turnover by services and resident of clients are delivered in DKK 1,000. In the Statistics Database of Eurostat the data are published in 1,000 Euros, [Statistics Database of Eurostat](#).

## **2.11 Reference period**

The statistics covers the financial year.

## **2.12 Frequency of dissemination**

The statistics is carried out every second year.

## **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 the reference year 2017 does not exist.

## 2.15 Comment

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

## 3 Statistical processing

Data are collected by web from 340 enterprises for the sector *Engineering Activities and Related Technical Consultancy*. In the questionnaire the enterprises are asked to breakdown their turnover and export by a number of products, services and client categories. 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 *Engineering activities and related technical consultancy*. 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 50 employees or more and a part of enterprises with 5-49 employees. 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 population consists of enterprises in the Business Register System, which are active in the drawing time.

### 3.2 Frequency of data collection

Data are collected every second year.

### 3.3 Data collection

Data are collected by web questionnaires. In the questionnaire the enterprises are asked to distribute their turnover in DKK 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 will refer the matter to the police for requesting the imposition of a fine. And the enterprises still have to give us the data we have asked for.

### **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 for the statistics Purchases and sales by enterprises.

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 *Engineering activities and related technical consultancy*.

### **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.

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

### **4.2 User Satisfaction**

Information about user satisfaction for the statistics does not exist.

### **4.3 Data completeness rate**

At national level the data are published for all enterprises in the sector for Engineering activities and related technical consultancy. To Eurostat data are provided only for enterprises with less 20 person employed (according to EU's regulation).

## 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 and is significantly higher than the uncertainty of the total turnover.

### 5.1 Overall accuracy

The quality of the statistics is rated acceptable.

For the reference year 2017 there are 340 enterprises in the sample, covering approx. 94 per cent of the total turnover in the sector for *Engineering activities and related technical consultancy*. 320 enterprises answered the questionnaire, i.e. the response rate is 96 percent. The usable questionnaires are from 320 enterprises. There is a lapse of 6 per cent. The lapse are due to wrong industry code and closure of the enterprises and non-responded questionnaires.

The usable data from 320 enterprises grossed up to the total level of the 6-digit industries within the sector for *Engineering activities and related technical consultancy* 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 [usikkerhedsestimer IGOR](#).

The figures for 2017 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 Jun 2017 consisting of 340 enterprises. Of these, 320 companies have completed the questionnaire, i.e. the response rate is 94 percent. The usable questionnaires were from 320 enterprises.

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



### 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 *Engineering activities and related technical consultancy*.

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 *Engineering activities and related technical consultancy* cause over-coverage. 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 *Engineering activities and related technical consultancy*, even though they should properly be classified as *Engineering activities and related technical consultancy*, are difficult to detect, but can be found also.

The total number of enterprises in the population is estimated at approx. 481, and among these the sample is selected. The sample for the reference year 2017 was 340 companies and is thus 71 percent. of the total number of the population. Because of the stratified selection, where large companies are more likely to selection than the smaller, the sample consists approx. 95 per cent. of the total turnover of the 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 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 340 enterprises in the sample. The usable questionnaires are from 320 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

The quality of the statistics is rated acceptable. It can be problems in comparing figures over time. The survey was conducted for the first time in 1995. In relation to a pilot study in EU the questionnaire concerning 2001 has been revised which means that the results previous to 2001 are not totally comparable with the results concerning 2001 and forwards. The years 2005 and 2007 are not comparable because of a shift to NACE Rev. 2 activity classification. The years 2007 and 2009 are not comparable because of changes in the questionnaire. Products were adjusted to the EU questionnaire.

From the reference year 2013 the method is changed so the enumeration is based on a new data from the Central Business Register. That means the results before the year 2013 are not directly comparable to the results from 2013 onwards.

For the reference year 2017 there are 340 enterprises in the sample, covering approx. 95 per cent of the total turnover in the sector for *Engineering activities and related technical consultancy*. 361 enterprises answered the questionnaire, i.e. the response rate is 94 percent. The usable questionnaires are from 320 enterprises. There is a lapse of 6 per cent. The lapse are due to wrong industry code and closure of the enterprises and non-responded questionnaires.

The usable data from 320 enterprises grossed up to the total level of the 6-digit industries within the sector for *Engineering activities and related technical consultancy* 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 [usikkerhedsestimater IGOR](#).

The figures for 2017 are preliminary and will not be revised in the national publishing. For delivery to EU the figures are calculated (revised) based on Accounts Statistics.

## 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 every second year.

## **6 Timeliness and punctuality**

The statistics is published once every second 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 every second 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 2017.

### **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. The survey was conducted for the first time in 1995. In relation to a pilot study in EU the questionnaire concerning 2001 has been revised which means that the results previous to 2001 are not totally comparable with the results concerning 2001 and forwards. The years 2005 and 2007 are not comparable because of a shift to NACE Rev. 2 activity classification. The years 2007 and 2009 are not comparable because of changes in the questionnaire. Products were adjusted to the EU questionnaire.

From the reference year 2013 the method is changed so the enumeration is based on a new data from the Central Business Register. That means the results before the year 2013 are not directly comparable to the results from 2013 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 2013.

### **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 *Engineering Activities and Related Technical Consultancy*, whereas this 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 Engineering activities and related technical consultancy. 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 for Engineering activities and related technical consultancy 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 and export 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 3917 3115, e-mail: mke@dst.dk

### **9.1 Contact organisation**

Statistics Denmark

### **9.2 Contact organisation unit**

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