



## METHODOLOGICAL EXPLANATION

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# INNOVATION ACTIVITY IN INDUSTRY AND SELECTED SERVICES

This methodological explanation relates to the data releases:

Innovation activity in industry and selected services, Slovenia, 2020 - 2022 (First Release)

Innovation activity in industry and selected services, Slovenia 2020 - 2022 (Detailed Data)



December 2024

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## 1 PURPOSE

The purpose of publishing the data is to present to what extent enterprises with at least 10 persons employed are involved in innovation activities, i.e. to obtain the number of enterprises engaged in product and/or process innovation in the observed period and/or enterprises with ongoing and/or abandoned innovation activity.

## 2 LEGAL FRAMEWORK

- [Annual Programme of Statistical Surveys \(LPSR\) \(only in Slovene\)](#)
- [National Statistics Act \(OJ RS, No. 45/95 and 9/01\)](#)
- [Regulation \(EU\) 2019/2152 of the European Parliament and of the Council of 27 November 2019 on European Business Statistics, repealing 10 legal acts in the field of business statistics \(CELEX: 32019R2152\)](#)
- [Commission Implementing Regulation \(EU\) 2020/1197 of 30 July 2020 laying down technical specifications and arrangements pursuant to Regulation \(EU\) 2019/2152 of the European Parliament and of the Council on European business statistics repealing 10 legal acts in the field of business statistics \(CELEX: 32020R1197\)](#)
- [Commission Implementing Regulation \(EU\) 2022/1092 of 30 June 2022 laying down technical specifications of data requirements for the topic 'Innovation' pursuant to Regulation \(EU\) 2019/2152 of the European Parliament and of the Council \(CELEX: 32022R1092\)](#)

Since the statistical survey is based on the Oslo Manual, the data are internationally comparable. The Oslo Manual 2018 is the source for collecting and analysing data on innovation activities.

## 3 UNIT DESCRIBED BY THE PUBLISHED DATA

The unit described by the published data is the enterprise registered on the territory of the Republic of Slovenia and in one of the activities of the Standard Classification of Activities SKD 2008 (i.e. NACE Rev. 2).

Enterprises are monitored by the Standard Classification of Activities SKD 2008, by size of the enterprise and by innovation activity of the enterprise.

## 4 SELECTION OF OBSERVATION UNIT

The observation unit is selected on the basis of the threshold (cut-off sampling). We select enterprises with at least 10 persons employed, registered on the territory of the Republic of Slovenia in one of the activities of the Standard Classification of Activities SKD 2008 (i.e. NACE Rev. 2) from various sections of

activities:

- Mining and quarrying (B: 05–09)
- Manufacturing (C: 10–33)
- Electricity, gas steam and air conditioning supply (D: 35)
- Water supply; sewerage, waste management and remediation activities (E: 36–39)
- Wholesale trade, except of motor vehicles and motorcycles (G: 46)
- Transportation and storage (H: 49–53)
- Information and communication (J: 58–63)
- Financial and insurance activities (K: 64–66)
- Architectural and engineering activities; technical testing and analysis (M: 71)
- Scientific research and development (M: 72)
- Advertising and market research (M: 73)

The coverage of the observed units is a combination of a census (large and medium-sized enterprises) and a sample (small enterprises); this means that the survey covers all enterprises in the mentioned activities employing between 50 and 249 (medium-sized enterprises) and 250 or more persons (large enterprises), and a sample of enterprises employing between 10 and 49 persons (they are selected on the basis of a random sample).

About 2,800 observation units are included in the survey, which is conducted every other year.

## **5 SOURCES AND METHODS OF DATA COLLECTION**

Data are collected every odd year for the previous three-year period.

Data are collected with the web questionnaire with the survey “Innovation Activity in Industry and Selected Services” (INOV). The reporting units (enterprises) receive the INOV questionnaire and they complete it in line with their available records.

Some of the data for the Innovation Activity in Industry and Selected Services (INOV) survey are taken over from administrative sources. Data on turnover and the number of employees are taken over from the Statistical Business Register. Data on the share of turnover by type of geographic market are taken from the database of annual financial statements kept by the Agency of the Republic of Slovenia for Public Legal Records and Related Services (AJPES). AJPES collects data on the basis of the Companies Act (ZGD). Units that are not included in annual financial statements are attributed a 100% share of turnover on the Slovenian market. These are mostly units registered in section K – Financial and insurance activities. Data on the share of tertiary educated personnel in the enterprise are taken over from the Statistical Register of Employment (SRDAP) kept by SURS.

With the INOV survey we provide users with information on innovation activities in the enterprises registered in Slovenia. This information is needed to monitor

innovation activity, and to support the planning, monitoring and implementing of innovation policy at the national and EU levels.

## 6 DEFINITIONS

An **innovation** is a new or improved product (good or service) or process (or a combination thereof) that differs significantly from the enterprise's previous product or process and that has been made available to potential users (product) or brought into use by the enterprise (process). The term innovation can be used in different contexts to refer to either a process or an outcome.

**An innovation activity** includes all developmental, financial, and commercial activities undertaken by an enterprise that are intended to result in an innovation for the enterprise. Innovation activities can result in an innovation being ongoing, postponed or abandoned.

**A product innovation** is a new or improved good or service that differs significantly from the enterprise's previous goods or services and that has been introduced on the market.

**A business process innovation** is a new or improved business process for one or more business functions that differs significantly from the enterprise's previous business processes and that has been brought into use in the enterprise. According to the Oslo Manual 2018, business functions are divided into six key and support groups: (1) production of goods and services, (2) distribution and logistics, (3) marketing and sales, (4) information and communication systems, (5) administration and management and (6) product and business process development.

**An innovation active enterprise** is an enterprise that in the observation period introduced a new or significantly improved product or a new or significantly improved process or that was engaged in an innovation activity in the observed period.

**An innovative enterprise** is an enterprise that in the observation period introduced a new or significantly improved product or process.

**Not innovation active enterprise** is an enterprise that in the observation period did not introduce any innovation and also had no innovation activity during the period.

**An enterprise** may consist of several ownership-related legal persons, as long as they operate on the market as one independent enterprise.

## **7 EXPLANATIONS**

### **7.1 CLASSIFICATIONS**

Survey results are published by enterprise size (regarding the number of persons employed) and by activities according to the European statistical classification of economic activities NACE Rev. 2.

The Standard Classification of Activities SKD 2008 <http://www.stat.si/doc/pub/skd.pdf> is the national version of the European statistical classification of economic activities NACE. Rev. 2, <http://ec.europa.eu/eurostat/documents/3859598/5902521/KS-RA-07-015-EN.PDF/dd5443f5-b886-40e4-920d-9df03590ff91?version=1.0>

### **7.2 DATA PROCESSING**

#### **DATA EDITING**

Data were edited with the combination of systematic corrections and imputation procedures. The following imputation methods were used: logical imputation and hot-deck imputation.

For more, see the general methodological explanations [Statistical data editing](#).

#### **WEIGHTING**

With weighting adjustment we want to achieve representatives of the sample, so that the weighted data give us as good population estimates as possible. The process of weighting depends on the sampling design, the unit nonresponse rate and available auxiliary variables used for calibration. The final weight is the product of the sampling weight, the nonresponse weight and the calibration factor.

#### **SEASONAL ADJUSTMENT**

Seasonal adjustment is not applicable.

#### **DATA PROCESSING OTHER**

In statistical surveys different kinds of errors can occur (e.g. sampling error, non-response error, measurement error) influencing the accuracy of the statistical results. Errors deriving from the random mechanisms determine the precision of the statistical estimates. The Statistical Office of the Republic of Slovenia draws attention to less precise estimates by flagging them with a special sign or by not publishing them at all.

If the table contains estimated population totals of (continuous) variables, estimated averages of continuous variables or estimated ratios of population totals of (continuous) variables, publishing limitations are determined by the relative standard errors or the coefficients of variation (CV). In such cases it holds:

If the coefficient of variation (CV) of the estimate is

- 10% or below ( $CV \leq 10\%$ ) the estimate is of acceptable precision and is published without limitations;
- in the interval from 10% and up to 30% ( $10\% < CV \leq 30\%$ ) the estimate is less precise and is flagged for caution with letter M;
- over 30% ( $CV > 30\%$ ), the estimate is too imprecise to be published and therefore suppressed for use by letter N.

For more, see the general methodological explanations [Precision of statistical estimates](#).

### 7.3 INDICES

Indices are not published.

### 7.4 PRECISION

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Totals are not always accurate due to rounding.

## 7.5 OTHER EXPLANATIONS

Data that are statistically protected to respect the confidentiality of reporting units are replaced with letter »z«.

## 8 PUBLISHING

- SiStat Database: [Development and Technology](#) - Research, development and innovation - Innovation activity; data are published as absolute numbers by three levels of size of enterprise and two-digit SKD.
- First Release (Development and Technology – Research and Development): »Innovation activity in industry and selected services, Slovenia, 2018-2020«.
- Electronic Release (Development and Technology – Research and Development): »Innovation activity in industry and selected services, Slovenia, 2018-2020«.
- [Statobook](#)
- European Statistical Office (EUROSTAT)
- The Organisation for Economic Co-operation and Development (OECD)

## 9 REVISION OF THE DATA

### 9.1 PUBLISHING OF PRELIMINARY AND FINAL DATA

We publish preliminary and final data. Preliminary data are published at the end of April and final data no later than 5 months after preliminary data are published.

Publishing of provisional and final data is planned. Due to the needs of users for timely information, provisional data are published that meet the criteria of the quality of official statistical data but do not meet the quality that can be met with complete coverage. Data are revised when recent, more complete and higher quality data can significantly contribute to the quality of data-based decision-making.

### 9.2 FACTORS INFLUENCING COMPARABILITY OVER TIME

Due to a change in the methodology (following the guidelines of the Oslo Manual 2005), a break in the time series was made in **2008 (reference period 2006–2008)** as the definition on innovation has changed.

In **2009**, we started to publish the survey results according to the classification SKD 2008, while previously the basis for collecting data and publishing the



results was the SKD 2002 classification.

Following the guidelines of the Oslo Manual 2018 (version 4), we changed the subcomponents of innovation types in **2018 (reference period 2016–2018)**. The new methodology identifies two main types of innovation: (1) product innovation (goods or/and services) and (2) business process innovation, which is divided into six subcomponents. Detailed differences between the definitions of innovation are presented in the table below.

Table 1: Comparing definitions of innovation defined in the Oslo Manual, version 3 (up to reference period 2014–2016 (OM 3<sup>1)</sup>) and Oslo Manual, version 4 (reference period from 2016–2018 (OM 4<sup>2)</sup>)

OM3	OM3 subcomponents	OM4	Differences
Product innovation	Goods	Goods	Inclusion of product design characteristics, which were included under marketing innovation in OM3
	Services	Services	
		Goods and services include knowledge-capturing products, and combinations thereof.	
		Includes the design characteristics of goods and services.	
Process innovation	Production	Production	Ancillary services in OM3 moved to administration & management in OM4
	Delivery & logistics	Distribution and logistics	
	Ancillary services, including purchasing, accounting and ICT services	Information and communication systems	
Organisational innovation	Business practices	Administration and management	Organisational innovations in OM3 are under administration and management subcategories in OM4.
	Workplace organisation (distribution of responsibilities)		Some ancillary services in administration and management were included under process innovation in OM3.
	External relations		
Marketing innovation	Design of products	Marketing, sales and after-sales support	
	Products placement and		Innovations in sales, after-sales services,

	packaging		and other customer support functions were not included in OM3.
	Product promotion		Innovations related to product design are included under product innovation in OM4.
	Pricing		

1) Methodological manual Oslo, 3rd Edition.      2) Methodological manual Oslo, 4th Edition.

The concept of the previous survey (according to the Oslo Manual, 3rd Edition) was directed at innovation active enterprises, product or/and process innovation, regardless of organisational or marketing innovation. This concept was general and it covered all kinds of innovations. The concept of the new methodology (according to the Oslo Manual, 4th Edition) is more complete and provides comparable information on the activities of all companies, regardless of innovation.

## 10 OTHER METHODOLOGICAL MATERIALS

Methodological materials on SURS's website are available at <https://www.stat.si/statweb/en/Methods/QuestionnairesMethodologicalExplanationsQualityReports>.

- Questionnaire (only in Slovene):
  - Inovacijska dejavnost v industriji in izbranih storitvenih dejavnostih (INOV)

Theme: Development and Technology, Subtheme: Research, Development and Innovation

- Quality report for the survey:
  - Innovation activity in industry and selected services (INOV)

Theme: Development and Technology, SubTheme: Research, Development and Innovation

- Methodological explanations:
  - Innovation activity in industry and selected services

Theme: Development and Technology, Subtheme: Research, Development and Innovation

- Oslo Manual 2018, <https://www.oecd.org/science/oslo-manual-2018-9789264304604-en.htm>