

Research and development (R&D) (rd)
RD_GOVSI_A_RO_2021_0000

National Reference Metadata in Single Integrated Metadata Structure (SIMS)

Compiling agency: National Institute of Statistics Romania



Eurostat metadata

Reference metadata

- [1. Contact](#)
 - [2. Metadata update](#)
 - [3. Statistical presentation](#)
 - [4. Unit of measure](#)
 - [5. Reference Period](#)
 - [6. Institutional Mandate](#)
 - [7. Confidentiality](#)
 - [8. Release policy](#)
 - [9. Frequency of dissemination](#)
 - [10. Accessibility and clarity](#)
 - [11. Quality management](#)
 - [12. Relevance](#)
 - [13. Accuracy](#)
 - [14. Timeliness and punctuality](#)
 - [15. Coherence and comparability](#)
 - [16. Cost and Burden](#)
 - [17. Data revision](#)
 - [18. Statistical processing](#)
 - [19. Comment](#)
- [Related Metadata](#)
[Annexes](#) (including footnotes)

For any question on data and metadata, please contact: [EUROPEAN STATISTICAL DATA SUPPORT](#)

| 1. Contact | | Top |
|---------------------------------------|--|---------------------|
| 1.1. Contact organisation | National Institute of Statistics Romania | |
| 1.2. Contact organisation unit | Department of Short Term Economic Indicators Statistics | |
| 1.3. Contact name | RODICA DUMITRIU CAMELIA COSCA | |
| 1.4. Contact person function | Rodica Dumitriu-methodology Camelia Cosca-methodology | |
| 1.5. Contact mail address | 16 Libertatii Bvd., Bucharest 5, ROMANIA, Postal code 050706 | |
| 1.6. Contact email address | rodica.dumitriu@insse.ro camelia.cosca@insse.ro | |
| 1.7. Contact phone number | +40213181854 +40744999205 | |
| 1.8. Contact fax number | +40213181866 | |

| 2. Metadata update | | Top |
|-------------------------------------|------------|---------------------|
| 10/10/2023 | | |
| 2.1. Metadata last certified | 10/10/2023 | |
| 2.2. Metadata last posted | 10/10/2023 | |
| 2.3. Metadata last update | 10/10/2023 | |

3. Statistical presentation

[Top](#)

3.1. Data description

Statistics on Government R&D (GOVERD) measure research and experimental development (R&D) performed in the Government sector, i.e. R&D expenditure and R&D personnel. In line with this objective the target population for the national R&D survey of the Government sector should consist of all R&D performing units (including all R&D performers – occasional and continuous, known and unknown - in all branches and size classes) belonging to this sector.

Main concepts and definitions used for the production of R&D statistics are given by the OECD (2015), [Frascati Manual 2015: Guidelines for Collecting and Reporting Data on Research and Experimental Development, The Measurement of Scientific, Technological and Innovation Activities](#), which is the internationally recognised standard methodology for collecting R&D statistics and by the [European Business Statistics Methodological Manual on R&D Statistics](#) (EBS Methodological Manual on R&D Statistics).

Since the beginning of 2021, the collection of R&D statistics is based on [Commission Implementing Regulation \(EU\) No 2020/1197](#) of 30 July 2020. The Regulation sets the framework for the collection of R&D statistics and specifies the main variables of interest and their breakdowns at predefined level of detail. Statistics on science, technology and innovation were collected until the end of 2020 based on the Commission Implementing [Regulation \(EU\) No 2012/995](#) concerning the production and development of Community statistics on science and technology.

3.2. Classification system

- The local units for the statistics are compiled at regional level according to NUTS 2 – [Nomenclature of Territorial Units for Statistics](#);
- The distribution by socioeconomic objectives (SEO) is based on [Nomenclature for the Analysis and Comparisons of Scientific Programmes and Budgets](#) (NABS);
- The fields of research and development are based on Classification and distribution by [Fields of Research and Development](#) (FORD).

3.2.1. Additional classifications

| Additional classification used | Description |
|--------------------------------|-------------|
| N/A | N/A |
| | |
| | |

3.3. Coverage - sector

See below.

3.3.1. General coverage

| | |
|--|--|
| Definition of R&D | YES Research and development is defined as any systematic and creative activity initiated to increase the volume of knowledge, including knowledge about man, culture and society and the use of this knowledge for new applications. The research-development activity includes the technological design. Does not include: market research activities, industrial and agricultural micro-production (except execution activities, prototypes, experimental installations, pilot stations), production and related activities, education and training activities, information services, general collection data, testing and standardization, patenting and licensing work, feasibility studies, specialized medical services, regular software development, industrial innovation (other than research and development), policy studies (application of research results -development to evaluate government policies). |
| Fields of Research and Development (FORD) | NSH and SSH separately available |
| Socioeconomic objective (SEO by NABS) | No national particularities. |

3.3.2. Sector institutional coverage

| | |
|--|---|
| Government sector | The coverage of the government sector is in line with the Frascati Manual 2015, taking into account the structural organisation of the units in Romania. |
| Hospitals and clinics | The higher education sector includes university hospitals and medical clinics. For some of these, as well as for other types of medical centers, there are problems of delimitation between R&D activities and health activities and in these cases no data is available on R&D expenditures and personnel. |
| Inclusion of units that primary don't belong to GOV | NO |

3.3.3. R&D variable coverage

| | |
|--|---|
| R&D administration and other support activities | No deviations from FM; personnel is not included but expenditure is included. |
| External R&D personnel | Starting with 2018 reference year, new questions related External R&D researchers. External R&D researchers included in personnel by occupation, but separately by employment status. |
| Clinical trials | Not included (clinical trials are included in Higher Education Sector) Included only public medical clinics with R&D activity. |

3.3.4. International R&D transactions

| | |
|---|-----------|
| Receipts from Rest of the world by sector - availability | Available |
| Payments to Rest of the world by sector - availability | Available |

3.3.5. Extramural R&D expenditures

According to the Frascati Manual, expenditure on extramural R&D (i.e. R&D performed outside the statistical unit) is not included in intramural R&D performance totals (FM, §4.12).

| | |
|---|---|
| Data collection on extramural R&D expenditure (Yes/No) | YES |
| Method for separating extramural R&D expenditure from intramural R&D expenditure | Starting with 2018, we included in questionnaire a specific questions for intramural and extramural current costs related R&D personnel |
| Difficulties to distinguish intramural from extramural R&D expenditure | Difficulties to distinguish and understand for respondents the new indicators for External R&D personnel expenditure |

3.4. Statistical concepts and definitions

See below.

3.4.1. R&D expenditure

| | |
|---|---|
| Coverage of years | Calendar year |
| Source of funds | In line with FM |
| Type of R&D | In line with FM |
| Type of costs | In line with FM, starting with 2018 reference year, detailed breakdown of current costs, for internal and external R&D personel expenditure |
| Defence R&D - method for obtaining data on R&D expenditure | Data is obtained in the survey questionnaire. Data for Defense makes reference only to the expenditure for civilian purpose. |

3.4.2. R&D personnel

See below.

3.4.2.1. R&D personnel – Head Counts (HC)

| | |
|--------------------------|---|
| Coverage of years | data refer to end of period |
| Function | Data compatible with ISCO-08. |
| Qualification | Not difficulties |
| Age | Not difficulties |
| Citizenship | We assimilate the citizenship with the origin country. In 2011, not included |

3.4.2.2. R&D personnel – Full Time Equivalent (FTE)

| | |
|--------------------------|---|
| Coverage of years | Calendar year |
| Function | Data compatible with ISCO-08 |
| Qualification | Not difficulties |
| Age | Not difficulties. |
| Citizenship | We assimilate the citizenship with the origin country. In 2011, not included |

3.4.2.3. FTE calculation

The respondent unit calculates the hours worked in research projects by the post-graduate students and computes in full time equivalent.

3.4.2.4. R&D personnel - Cross-classification by occupation and qualification

| Cross-classification | Unit | Frequency |
|-----------------------------|-------------|------------------|
| Total R&D personnel | HC | Yearly |
| R&D researchers | HC | Yearly |
| Total R&D personnel | FTE | Yearly |
| R&D researchers | FTE | Yearly |

3.5. Statistical unit

The statistical unit is the institutional unit as defined by [Council Regulation \(EEC\) No 1993/696 of 15 March 1993.](#)

3.6. Statistical population

See below.

3.6.1. National target population

The target population is the population for which inferences are made. The frame (or frames, as sometimes several frames are used) is a device that permits access to population units. The frame population is the set of population units which can be accessed through the frame and the survey data really refer to this population.

The objective of the European R&D statistics is to cover all intramural R&D activities. In line with this objective, the target population for the national R&D survey of the Government Sector should consist of all R&D performing units (including known R&D performers or assumed to perform R&D). In practice however, counties in their R&D surveys might have difficulty in identifying R&D activities at the municipality level.

| | Target population when sample/census survey is used for collection of raw data | Target population when administrative data or pre-compiled statistics are used |
|---|--|---|
| Definition of the national target population | The target population for governmental sector includes all units belonging to central and municipality government, those managing public business and applying the economic and social policy of the society, as well as the R&D national entities. Data sources used for identifying unknown R&D performers were the following: business statistical register, administrative sources, other statistical survey (CIS, SBS, and Labour force survey). | |
| Estimation of the target population size | Administrative sources for government units involved in R&D projects. Also, all units that stated in the last survey in the filter question intention to carry out CD activity in the reference year. | |

3.6.2. Frame population – Description

In ESS countries, the frame population for GOV R&D statistics is defined as the list of all the institutional units classified by the national accounts (ESA) as included in the General government (S.13), with the exclusion of those units included in the Higher education sector (HES).

| | |
|--|--|
| Method used to define the frame population | The frame population is defined according to the methodology lay down in the Frascati Manual 2015, and comprises legal units known to perform R&D activity as: R&D government institutes, units of central and local (municipality) public administration, all public services, museums, hospitals and other government units. |
| Methods and data sources used for identifying a unit as known or supposed R&D performer | The methods used for GOV sector consists of all R&D national (government) institutes and units from central administration. The main sources for this register are the following: - Business Statistical Register; - Official Journal of Romania; - Other statistical surveys. |
| Inclusion of units that primary do not belong to the frame population | N |
| Systematic exclusion of units from the process of updating the target population | N |
| Estimation of the frame population | N |

3.7. Reference area

Not requested.

3.8. Coverage - Time

Not requested. See point 3.4.

3.9. Base period

Not requested. The base year for the unit Purchasing Power Standard (PPS) and PPS per inhabitant at constant prices is currently 2005. All calculations of non-basic unit (national currencies) are done by Eurostat.

4. Unit of measure

[Top](#)

R&D indicators are available according to 3 units of measure:

- R&D expenditure is available in National currency
- R&D Personnel data is available in full-time equivalent (FTE) and in headcount (HC)

5. Reference Period

[Top](#)

Reference period is the calendar previous year.

6. Institutional Mandate

[Top](#)

6.1. Institutional Mandate - legal acts and other agreements

See below.

6.1.1. European legislation

| | |
|--|---|
| Legal acts / agreements | Since the beginning of 2021, the collection of R&D statistics is based on Commission Implementing Regulation (EU) No 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. The Regulation sets the framework for the collection of R&D statistics and specifies the main variables of interest and their breakdowns at predefined level of detail. |
| Nature of the “obligations” of responsible national organisations to produce statistics and report to international organisations | Mandatory according to Commission Implementing Regulation (EU) no 2020/1197 and complying with the Program of Statistical Surveys of the Romanian National Institute of Statistics drawn up on an annually basis, approved by the Government and published in the Official Journal of Romania. |

6.1.2. National legislation

| | |
|---|---|
| Existence of R&D specific statistical legislation | <ul style="list-style-type: none"> - National research, development and innovation strategy 2014-2020 https://www.mcid.gov.ro/wp-content/uploads/2022/12/hg-929-2014.pdf - Modification and completion of the National Strategy for research, development and innovation 2014 - 2020, approved by GD 929/2014 http://legislatie.just.ro/Public/DetaliuDocument/187003 - National Education Law – http://legislatie.just.ro/Public/DetaliuDocument/125150 - Government Ordinance 57/2002 on scientific research and technological development https://www.mcid.gov.ro/wp-content/uploads/2022/12/ordonanta-57-2002.pdf - Law 319/2003 on the Statute of research and development staff https://www.mcid.gov.ro/wp-content/uploads/2022/12/legea-319-2003.pdf - Evaluation and classification in order to certify the institutions from the national research-development system https://www.mcid.gov.ro/wp-content/uploads/2022/12/hg-1062-2011.pdf - Government Ordinance 41/2015 amending and supplementing Government Ordinance no. 57/2002 on scientific research and technological development –https://www.mcid.gov.ro/wp-content/uploads/2022/12/ordonanta-41-2015.pdf - Law 206/2004 on good conduct in scientific research, technological development and innovation – http://legislatie.just.ro/Public/DetaliuDocument/52457 |
| Legal acts | <p>Law on the organization and functioning of official statistics in Romania no. 226/2009 https://insse.ro/cms/ro/content/cadru-legal-ins</p> |
| Obligation of responsible organisations to produce statistics (as derived from the legal acts) | <p>Government Decision no. 586/2020 on the approval of the National Annual Statistical Program 2020; https://insse.ro/cms/ro/content/cadru-legal-ins</p> |
| Right of responsible organisations to collect data – obligation of (natural / legal) persons to provide raw and administrative data (as derived from the legal acts) | <p>This right derives from Law 206/2004 on good conduct in scientific research, technological development and innovation – http://legislatie.just.ro/Public/DetaliuDocument/52457</p> |
| Obligation of responsible organisations to protect | <ul style="list-style-type: none"> - NIS President Order no 530/31.07.2001; - Law 677/2001 https://www.dataprotection.ro/servlet/ViewDocument?id=35 |

| | |
|--|--|
| confidential information from disclosure (as derived from the legal acts) | - Law 682/2001- http://legislatie.just.ro/Public/DetaliiDocumentAfis/32945 |
| Rights of access of third organisations / persons to data and statistics (as derived from the legal acts) | National Law 544/2001 https://www.edu.ro/sites/default/files/_fi%C8%99iere/Minister/2016/Transparenta/2016/544/LEGE_544-2001_actualizata-aug2016.pdf |
| Planned changes of legislation | According with international changes of legislation |

6.1.3. Standards and manuals

- [Frascati Manual 2015](#), Guidelines for Collecting and Reporting Data on Research and Experimental Development
- [European Business Statistics Methodological Manual on R&D Statistics](#)

6.2. Institutional Mandate - data sharing

Not requested.

6.1.3. Standards and manuals

- [Frascati Manual 2015](#), Guidelines for Collecting and Reporting Data on Research and Experimental Development
- [European Business Statistics Methodological Manual on R&D Statistics](#)

6.2. Institutional Mandate - data sharing

Not requested.

7. Confidentiality

[Top](#)

7.1. Confidentiality - policy

Confidentiality, being one of the process quality components, concerns the privacy of data providers (households, enterprises, administrations and other respondents), the confidentiality of the information they provide and the extent of its use for statistical purposes.

A property of data indicating the extent to which their unauthorized disclosure could be prejudicial or harmful to the interest of the source or other relevant parties.

a) Confidentiality protection required by law:

- No deviations from secure procedure
- Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of individuals with regard to the processing of personal data and on the free movement of such data and repealing Directive 95/46 / EC (General Regulation on data protection) <https://insse.ro/cms/ro/content/norme-de-confiden%C8%9Bialitate>
- Law no. 190 of 18 July 2018 on measures to implement Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of individuals with regard to the processing of personal data and on the free movement of these data and repealing Directive 95/46 / EC (General Data Protection Regulation) <https://insse.ro/cms/ro/content/norme-de-confiden%C8%9Bialitate>
- 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
- LAW no. 363 of December 28, 2018 on protection natural persons regarding the processing of personal data by the competent authorities for the purpose of preventing, detecting, investigating, prosecuting and combating crime or the execution of punishments, educational and security measures, and regarding the free movement of such data
- Law no. 102/2005 on the establishment, organization and functioning of the National Authority for the Supervision of Personal Data Processing, with subsequent amendments and completions.

b) Confidentiality commitments of survey staff:

A confidentiality certificate agreement is signed upon employment, where the official terms of confidentiality are established

7.2. Confidentiality - data treatment

Primary confidentiality:

- The rule of three (all cells with 3 and less units);
- The rule of dominance unit.

Secondary confidentiality:

- Disclosure by subtraction (differencing)

8. Release policy

[Top](#)

8.1. Release calendar

On the NIS website there are two calendars one for the press releases and the other for publications; both of them are accessible to the general public. The final data are target to be published in press release and also in national publication to 11 months after the end of the reference year (in November).

8.2. Release calendar access

https://insse.ro/cms/files/catalog/Catalogul_publicatiilor_INS_2022.pdf - for publications
<https://insse.ro/cms/ro/comunicate-de-presa-view-> for press release

8.3. Release policy - user access

The NIS has on the web page a section “Calendar of press releases”, with links to the monthly lists of publications planned for the current year. Each monthly list is sorted by date of publication and contains a brief description of the statistics to be provided. The monthly calendar is established for the following year in December of the previous year. NIS publishes annually on the site the calendar of press releases, calendar based on the terms of the Annual National Statistical Program and contains: title of the press release, reference period, date of issue. The monthly calendar is established and posted on the NIS website from December of the previous year. The calendar of press releases on the NIS website covers only the statistics published by the NIS

In the event of a change in the broadcast date, this is announced 24 hours before the calendar date, specifying the new broadcast date.

9. Frequency of dissemination

[Top](#)

The frequency of dissemination is annual.

10. Accessibility and clarity

[Top](#)

Accessibility and clarity refer to the simplicity and ease for users to access statistics using simple and user-friendly procedure, obtaining them in an expected form and within an acceptable time period, with the appropriate user information and assistance: a global context which finally enables them to make optimum use of the statistics.

10.1. Dissemination format - News release

See below.

10.1.1. Availability of the releases

| | Availability (Y/N) ¹ | Content, format, links, ... |
|-------------------------|---------------------------------|--|
| Regular releases | Y | The NIS press releases are sent directly by the NIS Press Office to the accredited media and ministries and are posted online at 9:00 a.m. in the dedicated section. Also, on the site there is the archive of these press releases, structured on statistical topics. |
| Ad-hoc releases | N | |

1) Y - Yes, N – No

10.2. Dissemination format - Publications

See below.

10.2.1. Availability of mean of dissemination

| Mean of dissemination | Availability (Y/N) ¹ | Content, format, links, ... |
|--|---------------------------------|--|
| General publication/article (paper, online) | Y | Web-site of Romanian National Institute of Statistics: www.insse.ro |
| Specific paper publication (e.g. sectoral provided to enterprises) (paper, online) | Y | "Research and development activity in 2021" https://insse.ro/cms/sites/default/files/field/publicatii/activitatea_de_cercetare_dezvoltare_5.pdf |

1) Y – Yes, N - No

10.3. Dissemination format - online database

Data for government sector of performance are available in database TEMPO ONLINE: <http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table>

10.3.1. Data tables - consultations

Not requested.

10.4. Dissemination format - microdata access

See below.

10.4.1. Provisions affecting the access

| | |
|---|---|
| Access rights to the information | <ul style="list-style-type: none"> - NIS does not have a "Safe center" for access to microdata. Due to the confidential nature of microdata, direct access to anonymized data is offered only for scientific research projects according to European and national legislation in the field, through an access contract. - The access is, in principle, limited to universities, research institutes, national statistical institutes, central banks within the EU and euro area countries, as well as to the European Central Bank. Individuals cannot be granted direct access to microdata. - The access to microdata is allowed only to research projects carried out on behalf of an accredited organization for scientific research, and exclusively for its staff, which signs a contract with NIS. Requests for changes shall be made by the contractor before the expiry of the contract by means of an amendment to the contract. |
| Access cost policy | N |
| Micro-data anonymisation rules | N/A |

10.5. Dissemination format - other

See below.

10.5.1. Metadata - consultations

Not requested.

10.5.2. Availability of other dissemination means

| Dissemination means | Availability (Y/N) ¹ | Micro-data / Aggregate figures | Comments |
|---|---------------------------------|--------------------------------|----------|
| Internet: main results available on the national statistical authority's website | Y | | |
| Data prepared for individual ad hoc requests | Y | | |
| Other | N | | |

1) Y – Yes, N - No

10.6. Documentation on methodology

Detail information about R&D national survey for GOV sector of performance applied are methodological notes, metadata and quality report. Data are accompanied of metadata describing the indicators and the calculation thereof.

To all other questions regarding the methodology or the manner of designing the tables and the data we respond whenever necessary.

In the TEMPO online database, each indicator is accompanied by the related metadata.

10.6.1. Metadata completeness - rate

Not requested.

10.7. Quality management - documentation

See below.

10.7.1. Information and clarity

| | |
|---|---|
| Type(s) of data accompanying information available (metadata, graphs, quality reports, etc.) | Metadata, graphs, methodological notes and quality report |
| Request on further clarification, most problematic issues | Further clarifications were not needed. To all other questions regarding the methodology or the manner of designing the tables and the data we respond whenever necessary. |
| Measure to increase clarity | We included in national questionnaire more methodological details about new FM 2015 indicators related R&D personnel and R&D expenditure. For R&D Personnel: - methodological details related status employment breakdown by internal/external R&D Personnel and internal/external researchers For R&D Expenditure: - methodological details related current costs breakdown by R&D internal/external Personnel expenditure - methodological details related type of funds breakdown by R&D internal /external funds |
| Impression of users on the clarity of the accompanying information to the data | We consider our users are satisfied with the clarity of the accompanying information to the data. |

11. Quality management

[Top](#)

Quality management is defined as systems and frameworks in place within an organisation to manage the quality of statistical products and processes.

11.1. Quality assurance

- The quality quantifies how well the statistics are fit for their purpose. The criteria to judge statistical quality correspond to: relevance, accuracy and reliability, timeliness and punctuality, accessibility and clarity, comparability, coherence and cost and burden. The aim is to reduce the errors of coverage, the non-response, the measurements errors, the processing errors.
- The legal acts and other document related quality assurance are: Legislation concerning quality assurance, Task Forces or Working Groups, Law No. 226/2009 on the organisation and functioning of official statistics in Romania, Internal procedures, European Statistics Code of Practice, Quality Guidelines for Romanian Official Statistics
- Statistical practices used to compile national R&D data for government sector of performance are in compliance with Frascati Manual recommendations

11.2. Quality management - assessment

- The methodology was improved through the identification of government units and other public services.
- The R&D survey for government sector of performance is conducted to provide knowledge about R&D indicators (mandatory and optional) and to allow comparisons with other European countries.
- At every R&D survey for government sector of performance, before the finalization of the national questionnaire, the main national users and the representatives of regional NIS departments are invited to a discussion, by Romanian NIS, to express their opinions and suggestions about the final national questionnaire (clarity, difficulties, understanding and perception of the questions and about other national statistical needs).

12. Relevance

[Top](#)

Relevance is the degree to which statistics meet current and potential users' needs. It includes the production of all needed statistics and the extent to which concepts used (definitions, classifications etc.) reflect user needs. The aim is to describe the extent to which the statistics are useful to, and used by, the broadest array of users. For this purpose, statisticians need to compile information, firstly about their users (who they are, how many they are, how important is each one of them), secondly on their needs, and finally to assess how far these needs are met.

12.1. Relevance - User Needs

See below.

12.1.1. Needs at national level

| Users' class ¹ | Description of users | Users' needs |
|---------------------------|--|--|
| 1 | European Commission, European Council, European Parliament | Data used for the European R&D statistics and its further development |
| 1 | Governmental departments: Ministry of National Education, Ministry of Finance, Ministry of Economy, Authorities for Regional Development | Data used for R&D national and regional strategy and policy, publications, training. |
| 1 | OECD | Data used for international comparability |
| 2 | Scientific institutes and universities; Trade unions; Employer's associations | Data used for analyses |
| 3 | International or regional media | Data used for analyses and comments to the general public |
| 4 | Researchers and students | Data used for analyses and projects |
| 5 | Enterprises or businesses | Market analysis, marketing strategy, consultancy services |

1) Users' class codification

1- Institutions:

- European level: Commission (DGs, Secretariat General), Council, European Parliament, ECB, other European agencies etc.
- in Member States, at the national or regional level: Ministries of Economy or Finance, Other Ministries (for sectoral comparisons), National Statistical Institutes and other statistical agencies (norms, training, etc.), and
- International organisations: OECD, UN, IMF, ILO, etc.

2- Social actors: Employers' associations, trade unions, lobbies, among others, at the European, national or regional level.

3- Media: International or regional media – specialized or for the general public – interested both in figures and analyses or comments. The media are the main channels of statistics to the general public.

- 4- Researchers and students** (Researchers and students need statistics, analyses, ad hoc services, access to specific data.)
- 5- Enterprises or businesses** (Either for their own market analysis, their marketing strategy (large enterprises) or because they offer consultancy services)
- 6- Other** (User class defined for national purposes, different from the previous classes.)

12.2. Relevance - User Satisfaction

To evaluate if users' needs have been satisfied, the best way is to use user satisfaction surveys.

12.2.1. National Surveys and feedback

| | |
|---|--|
| Conduction of a user satisfaction survey or any other type of monitoring user satisfaction | A user satisfaction survey is carried out by National Institute of Statistics. This survey is addressed to a selection of users of all statistical fields. Last one survey in March 2021, once at 3 years. Also, we receive information about from the Department of data dissemination, where are recorded the user 's requests. |
| User satisfaction survey specific for R&D statistics | National users satisfaction survey is not specific for R&D statistics, but we have comments received from the large users' categories. |
| Short description of the feedback received | Not received detailed requests. |

12.3. Completeness

See below.

12.3.1. Data completeness - rate

Data completeness of final mandatory data are very good and good. National questionnaire survey for government sector of performance included also mandatory and optional R&D indicators.

12.3.2. Completeness - overview

Completeness is assessed via comparison of the data delivered against the requirements of [Commission Implementing Regulation \(EU\) No 2020/1197](#) of 30 July 2020. The Regulation (EU) stipulates periodicity of variables that should be provided, breakdowns and if they should be provided mandatory or on voluntary basis.

| | 5 (Very Good) | 4 (Good) | 3 (Satisfactory) | 2 (Poor) | 1 (Very poor) | Reasons for missing cells |
|---|--------------------------|---------------------|-----------------------------|---------------------|--------------------------|----------------------------------|
| Preliminary variables | X | | | | | |
| Obligatory data on R&D expenditure | X | | | | | |
| Optional data on R&D expenditure | | X | | | | |

| | | | | | | |
|---|---|---|--|--|--|--|
| Obligatory data on R&D personnel | | X | | | | |
| Optional data on R&D personnel | | X | | | | |
| Regional data on R&D expenditure and R&D personnel | X | | | | | |

Criteria:

A) Obligatory data. Only 'Very Good' = 100%, 'Poor' >95%; 'Very Poor' <100% apply.

B) Optional data. 'Very Good' = 100%; 'Good' = >75%; 'Satisfactory' 50 to 75%; 'Poor' 25 to 50%; 'Very Poor' 0 to 25%.

12.3.3. Data availability

See below.

12.3.3.1. Data availability - R&D Expenditure

| | Availability ¹ | Frequency of data collection | Gap years – years with missing data | Modifications - Description | Modifications - Year of introduction | Modifications - Reasons |
|--------------------------------|---------------------------|------------------------------|-------------------------------------|------------------------------|--------------------------------------|-------------------------|
| Source of funds | Y-1993 | annual | 1993,1994 only current expenditure | introduced total expenditure | | |
| Type of R&D | Y-1995 | annual | | | | |
| Type of costs | Y-1995 | annual | | | | |
| Socioeconomic objective | Y-1995 | annual | | | | |
| Region | Y-2000 | annual | | | | |
| FORD | Y-1999 | annual | | | | |
| Type of institution | Y- 2019 | annual | | | | |

1) Y-start year, N – data not available

12.3.3.2. Data availability - R&D Personnel (HC)

| | Availability ¹ | Frequency of data collection | Gap years – years with missing data | Modifications - Description | Modifications - Year of introduction | Modifications - Reasons |
|----------------------------|---------------------------|------------------------------|-------------------------------------|--|--------------------------------------|-------------------------|
| Sex | Y-1999 | annual | | | | |
| Function | Y-1993 | annual | | | | |
| Qualification | Y-1993 | annual | | | | |
| Age | Y-1993 | annual | 1993-2002 | new breakdown of the ages corresponding to Frascati Manual: up to 25, 25-34, 35-44,45-54, 55-64, 65 and more | | |
| Citizenship | Y-2004 | annual | | | | |
| Region | Y-2000 | annual | | | | |
| FORD | Y-1999 | annual | | | | |
| Type of institution | Y-2019 | annual | | | | |

1) Y-start year, N – data not available

12.3.3.3. Data availability - R&D Personnel (FTE)

| | Availability ¹ | Frequency of data collection | Gap years – years with missing data | Modifications - Description | Modifications - Year of introduction | Modifications - Reasons |
|----------------------|---------------------------|------------------------------|-------------------------------------|-----------------------------|--------------------------------------|-------------------------|
| Sex | Y-1999 | annual | | | | |
| Function | Y-1993 | annual | | | | |
| Qualification | Y-1993 | annual | | | | |
| Age | Y-1995 | annual | | | | |
| Citizenship | | | | | | |
| Region | Y-2000 | annual | | | | |

| | | | | | | |
|----------------------------|---------|--------|--|--|--|--|
| FORD | Y-1999 | annual | | | | |
| Type of institution | Y- 2019 | annual | | | | |

1) Y-start year, N – data not available

12.3.3.4. Data availability - Other

| Additional dimension/variable available at national level¹⁾ | Availability²⁾ | Frequency of data collection | Breakdown variables | Combinations of breakdown variables | Level of detail |
|---|----------------------------------|-------------------------------------|----------------------------|--|------------------------|
| number of scientific meetings organized at national level with international participation | 2000-2010 | annual | | | |
| training courses of R&D personnel | 2000 -2010 | annual | | | |
| Publications papers by scientific programs according with NABS classifications (domestic level and international level) | 2000-2010 | annual | | | |
| number of R&D projects by NABS programs and by sources of funds | 2000-2010 | annual | | | |
| Breakdown of public funds by type of national R&D projects | 2000 | annual | | | |
| Breakdown R&D expenditure by type of funds | 2018 | annual | | | |
| Breakdown R&D personnel by status employment | 2018 | annual | | | |

1) This question is optional. It refers to variables and breakdowns NOT asked by the Commission Implementing Regulation (EU) No 995/2012 (neither as 'optional').

2) Y-start year

13. Accuracy

[Top](#)

13.1. Accuracy - overall

Accuracy in the statistical sense denotes the closeness of computations or estimates to the exact or true values. Statistics are not equal with the true values because of variability (the statistics change from implementation to implementation of the survey due to random effects) and bias (the average of the possible values of the statistics from implementation to implementation is not equal to the true value due to systematic effects).

Several types of statistical errors occur during the survey process. The following typology of errors has been adopted:

1. **Sampling errors.** These only affect sample surveys. They are due to the fact that only a subset of the population, usually randomly selected, is enumerated.
2. **Non-sampling errors.** Non-sampling errors affect sample surveys and complete enumerations alike and comprise:
 - a) Coverage errors,
 - b) Measurement errors,
 - c) Non response errors and
 - d) Processing errors.

Model assumption errors should be treated under the heading of the respective error they are trying to reduce.

13.1.1. Accuracy - Overall by 'Types of Error'

| | Sampling errors | Non-sampling errors ¹⁾ | | | | | Perceived direction of the error ²⁾ |
|---|-----------------|-----------------------------------|--------------------|-------------------|---------------------|---------------------------------------|--|
| | | Coverage errors | Measurement errors | Processing errors | Non response errors | Model-assumption Errors ¹⁾ | |
| Total intramural R&D expenditure | - | 5 | 4 | 4 | 3 | - | + |
| Total R&D personnel in FTE | - | 5 | 4 | 4 | 3 | - | + |
| Researchers in FTE | - | 5 | 4 | 4 | 3 | - | + |

1) Ranking of the type(s) of errors that result in over/under-estimation, from the most important source of error (1) to the least important source of error (5). In the event that errors of a particular type do not exist, is used the sign '-'.
 2) The perceived direction of the 'overall' error using the signs "+" for over estimation, "-" for under estimation and "+/-" when assumption of the direction of the error cannot be made for R&D.

13.1.2. Assessment of the accuracy with regard to the main indicators

| Indicators | 5 (Very Good) ¹ | 4 (Good) ² | 3 (Satisfactory) ³ | 2 (Poor) ⁴ | 1 (Very poor) ⁵ |
|----------------------------------|-------------------------------|--------------------------|----------------------------------|--------------------------|-------------------------------|
| Total intramural R&D expenditure | | X | | | |
| Total R&D personnel in FTE | | X | | | |
| Researchers in FTE | | X | | | |

1) 'Very Good' = High level of coverage (annual rate of substitution in the target population lower than 5%). High average rates of response (>80%) in census and sample surveys. Full data consistency with reference to totals and relationships between variables in the dataset sent to Eurostat.

2) 'Good' = In the event that at least one out of the three criteria above described would not be fully met.

3) 'Satisfactory' = In the event that the average rate of response would be lower than 60% even by meeting the two remaining criteria.

4) 'Poor' = In the event that the average rate of response would be lower than 60% and at least one of the two remaining criteria would not be met.

5) 'Very Poor' = If all the three criteria are not met.

13.2. Sampling error

That part of the difference between a population value and an estimate thereof, derived from a random sample, which is due to the fact that only a subset of the population is enumerated.

13.2.1. Sampling error - indicators

The main indicator used to measure sampling errors is the coefficient of variation (CV).

Definition of coefficient of variation:

CV= (Square root of the estimate of the sampling variance) / (Estimated value)

13.2.1.1. Variance Estimation Method

Not applicable.

13.2.1.2. Coefficient of variation for R&D expenditure by source of funds

| Source of funds | R&D expenditure |
|---------------------|-----------------|
| Business enterprise | Not applicable |
| Government | Not applicable |
| Higher education | Not applicable |
| Private non-profit | Not applicable |
| Rest of the world | Not applicable |
| Total | Not applicable |

13.2.1.3. Coefficient of variation for R&D expenditure by occupation and qualification

| | | R&D personnel (FTE) |
|----------------------|----------------------------|---------------------|
| Function | Researchers | Not applicable |
| | Technicians | Not applicable |
| | Other support staff | Not applicable |
| Qualification | ISCED 8 | Not applicable |
| | ISCED 5-7 | Not applicable |
| | ISCED 4 and below | Not applicable |

13.3. Non-sampling error

Non-sampling errors occur in all phases of a survey. They add to the sampling errors (if present) and contribute to decreasing overall accuracy. It is important to assess their relative weight in the total error and devote appropriate resources for their control and assessment.

13.3.1. Coverage error

Coverage errors are due to divergences between the target population and the frame population. The frame population is the set of target population members that has a chance to be selected into the survey sample. It is a listing of all items in the population from which the sample is drawn that contains contact details as well as sufficient information to perform stratification and sampling.

a) Description/assessment of coverage errors:

We analyze the nomenclature specific to the units in the government performance sector in addition to BR, the operating R&D national laws for this sector, the administrative sources and we find out if there are units that do not belong to GOV

b) Measures taken to reduce their effect:

For the units described in point a) we take the decision to move to another performance sector if necessary

c) Share of PNP (if PNP is included in GOV):

We have at national level a dedicated survey for PNP sector of performance (N/A)

13.3.1.1. Over-coverage - rate

Not requested.

13.3.1.2. Common units - proportion

Not requested.

13.3.2. Measurement error

Measurement errors occur during data collection and generate bias by recording values different than the true ones (e.g. difficulty to distinguish intramural from extramural R&D Expenditure). The survey questionnaire used for data collection may have led to the recording of wrong values, or there may be respondent or interviewer bias.

a) Description/assessment of measurement errors:

Few processing or measurement errors

b) Measures taken to reduce their effect:

The measures for reducing errors consisted in selection of staff with knowledge in R&D methodology and experience in data entry and validation checks for online questionnaires. Also, we developed detailed methodological notes regarding the new terms and their definition.

We recontact the respondents for supplementary clarifications.

13.3.3. Non response error

Non-response occurs when a survey failed to collect data on all survey variables from all the population units designated for data collection in a sample or complete enumeration.

There are two elements of non-response:

-Unit non-response which occurs when no data (or so little as to be unusable) are collected on a designated population unit.

-Item non-response which occurs when data only on some, but not all survey variables are collected on a designated population unit.

The extent of response (and accordingly of non-response) is also measured with response rates.

13.3.3.1. Unit non-response - rate

The main interest is to judge if the response from the target population was satisfactory by computing the un-weighted response rate.

Definition: Eligible are the survey units which indeed belong to the target population. Frame imperfections always leave the possibility that some units may not belong to the target population. Moreover, when there is no contact with certain units and no other way to establish their eligibility they are characterized as 'unknown eligibility units'.

Un-weighted Unit Non- Response Rate = $1 - (\text{Number of units with a response}) / (\text{Total number of eligible and unknown eligibility units in the survey})$

13.3.3.1.1. Un-weighted unit non-response rate

| Number of units with a response in the survey | Total number of units in the survey | Unit non-response rate (Un-weighted) |
|---|-------------------------------------|--------------------------------------|
| 596 | 640 | 6.9 |

13.3.3.2. Item non-response - rate

Definition:

Un-weighted Item Non-Response Rate (%) = $1 - (\text{Number of units with a response for the item}) / (\text{Total number of eligible, for the item, units in the sample}) * 100$

13.3.3.2.1. Un-weighted item non-response rate

| R&D variable/breakdown | Item non-response rate (un-weighted) (%) | Comments |
|-------------------------|--|--|
| Total R&D expenditure | 0.6 | The response rate is calculated for the units that declared R&D activity in the reference year |
| Current R&D expenditure | 1.4 | The response rate is calculated for the units that declared R&D activity in the reference year |
| Capital R&D expenditure | 41.4 | The response rate is calculated for the units that declared R&D activity in the reference year |
| Total R&D personnel HC | 0.6 | The response rate is calculated for the units that declared R&D activity in the reference year |
| R&D researchers HC | 2.3 | The response rate is calculated for the units that declared R&D activity in the reference year |
| Total R&D personnel FTE | 0.6 | The response rate is calculated for the units that declared R&D activity in the reference year |
| R&D researchers FTE | 2.3 | The response rate is calculated for the units that declared R&D activity in the reference year |

13.3.3.3. Measures to increase response rate

For few units we sent mail and recontact territorial departments in order to explain them the necessity of the survey.

13.3.4. Processing error

Between data collection and the beginning of statistical analysis, data must undergo a certain processing: coding, data entry, data editing, imputation, etc. Errors introduced at these stages are called processing errors. Data editing identifies inconsistencies or errors in the data.

13.3.4.1. Identification of the main processing errors

| | |
|---|---|
| Data entry method applied | Data entry method used was a combination of data keying and responses through electronic online portal questionnaire. |
| Estimates of data entry errors | 0.2% |
| Variables for which coding was performed | R&D expenditure |
| Estimates of coding errors | 0,1% |
| Editing process and method | The editing method is a combination of automated and manual methods. We are applying a value range check for every variable and compared with data from previous collection of the same statistics. |
| Procedure used to correct errors | Re-contact the units. |

13.3.5. Model assumption error

Not requested.

14. Timeliness and punctuality

[Top](#)

14.1. Timeliness

Timeliness and punctuality refer to time and dates, but in a different manner: the timeliness of statistics reflects the length of time between their availability and the event or phenomenon they describe. Punctuality refers to the time lag between the release date of the data and the target date on which they should have been delivered, with reference to dates announced in the official release calendar.

14.1.1. Time lag - first result

Time lag between the end of reference period and the release date of the results:
Indicator: (Release date of provisional/ first results) - (Date of reference for the data)

- a) End of reference period: 31.12.2021
- b) Date of first release of national data: 16.11.2022
- c) Lag (days): 320

14.1.2. Time lag - final result

- a) End of reference period: 31.12.2021
- b) Date of first release of national data: 25.11.2022
- c) Lag (days): 329

14.2. Punctuality

Punctuality refers to the time lag between the release date of data and the target date on which they were scheduled for release as announced officially.

14.2.1. Punctuality - delivery and publication

Punctuality of time schedule of data release = (Actual date of the data release) - (Scheduled date of the data release)

14.2.1.1. Deadline and date of data transmission

| | Transmission of provisional data | Transmission of final data |
|--|----------------------------------|----------------------------|
| Legally defined deadline of data transmission (T+_ months) | 10 | 18 |
| Actual date of transmission of the data (T+x months) | 10 | 18 |
| Delay (days) | - | - |
| Reasoning for delay | - | - |

15. Coherence and comparability

[Top](#)

Comparability aims at measuring the impact of differences in applied statistical concepts and definitions on the comparison of statistics between geographical areas, non-geographical domains or over time. It is the extent to which differences between statistics are attributed to differences between the true values of the statistical characteristics.

The factors that may cause two statistical figures to lose comparability are attributes of the surveys that produce them. These attributes may be grouped into two major categories: (a) concepts of the survey and (b) measurement / estimation methodology.

The two following sections present lists of key attributes. Information on some of the attributes will have already been reported in previous sections of this report but they are repeated here for completeness of the lists.

The coherence of statistics is their adequacy to be reliably combined in different ways and for various uses. It is, however, generally easier to show cases of incoherence than to prove coherence.

When originating from a single source, statistics are coherent in that elementary concepts can be combined reliably in more complex ways. When originating from different sources, and in particular from statistical surveys of different frequencies, statistics are coherent insofar as they are based on common definitions, classifications and methodological standards. The messages that statistics convey to users will then clearly relate to each other, or at least will not contradict each other. The coherence between statistics is orientated towards the comparison of different statistics, which are generally produced in different ways and for different primary uses.

The definition of coherence: The extent to which the statistical characteristics confirm with those in other statistics such that the statistics can be expected to be used together in conjunction with, or as an alternative to.

15.1. Comparability - geographical

See below.

15.1.1. Asymmetry for mirror flow statistics - coefficient

Not requested.

15.1.2. General issues of comparability

Previous 1993 R&D data could not be recomputed according with Frascati Manual due to the inclusion of other activities that did not belong to Frascati Manual;

Since 1993 R&D data are in concordance to international classifications and respect recommendations of Frascati Manual except the following:

- military defense R&D (defense R&D data include only civil defense R&D);
- R&D data for sector of performance abroad

15.1.3. Survey Concepts Issues

The following table lists a number of key survey concepts and conceptual issues; it gives reference to the Commission Implementing Regulation (EU) No 2020/1197, Frascati manual and [EBS Methodological Manual on R&D Statistics](#) paragraphs with recommendations about these concepts / issues.

| Concept / Issues | Reference to recommendations | Deviation from recommendations | Comments on national definition / Treatment – deviations from recommendations |
|---|--|--------------------------------|---|
| R&D personnel | <i>FM2015 Chapter 5 (mainly paragraph 5.2).</i> | NO | |
| Researcher | <i>FM2015, § 5.35-5.39.</i> | NO | |
| Approach to obtaining Headcount (HC) data | <i>FM2015, § 5.58-5.61 (in combination with Eurostat's EBS Methodological Manual on R&D Statistics).</i> | NO | |
| Approach to obtaining FTE data | <i>FM2015, § 5.49-5.57 (in combination with Eurostat's EBS Methodological Manual on R&D Statistics).</i> | NO | |
| Reporting data according to formula: Total R&D personnel = Internal R&D personnel + External R&D personnel | <i>FM2015, §5.25</i> | NO | |
| Intramural R&D expenditure | <i>FM2015, Chapter 4 (mainly paragraph 4.2).</i> | NO | |
| Statistical unit | <i>FM2015, § 8.64-8.65 (in combination with Eurostat's EBS Methodological Manual on R&D Statistics).</i> | NO | |
| Target population | <i>FM2015, § 8.63 (in combination with Eurostat's EBS Methodological Manual on R&D Statistics).</i> | NO | |

| | | | |
|--|--|----|--|
| Sector coverage | <i>FM2015, § 8.2-8.13 (in combination with Eurostat's EBS Methodological Manual on R&D Statistics).</i> | NO | |
| Hospitals and clinics | <i>FM2015, § 8.22 and 8.34</i> | NO | |
| Borderline research institutions | <i>FM2015, § 8.14-8.23 (in combination with Eurostat's EBS Methodological Manual on R&D Statistics).</i> | NO | |
| Fields of research & development coverage and breakdown | <i>Reg. 2020/1197 : Annex 1, Table 18</i> | NO | |
| Socioeconomic objectives coverage and breakdown | <i>Reg. 2020/1197 : Annex 1, Table 18</i> | NO | |
| Reference period | <i>Reg. 2020/1197 : Annex 1, Table 18</i> | NO | |

15.1.4. Deviations from recommendations

The following table lists a number of key methodological issues, which may affect the international comparability of national R&D statistics. The table gives the references in the Frascati manual, where related recommendations are made. Countries are asked to report on the existence of any deviations from existing recommendations and comment upon.

| Methodological issues | Deviation from recommendations | Comments on national treatment / treatment deviations from recommendations |
|---|---------------------------------------|---|
| Data collection method | NO | |
| Survey questionnaire / data collection form | NO | |
| Cooperation with respondents | NO | |
| Data processing methods | NO | |
| Treatment of non-response | NO | |
| Variance estimation | NO | |
| Data compilation of final and preliminary data | NO | |

15.2. Comparability - over time

See below.

15.2.1. Length of comparable time series

See below.

15.2.2. Breaks in time series

| | Length of comparable time series | Break years¹ | Nature of the breaks |
|--------------------------------|---|--------------------------------|---|
| R&D personnel (HC) | Starting with 1995 | NONE | |
| Function | Starting with 1995 | NONE | |
| Qualification | Starting with 1993 | 2003,2009 | 1993-2003 first stage tertiary education theoretical (ISCED-5A) and practical (ISCED-5B) were surveyed together; since 2003 we have comparable data as they were surveyed separately 1993-2009 not available data for ISCED 8 (doctoral level) |
| R&D personnel (FTE) | Starting with 1995 | NONE | |
| Function | Starting with 1995 | NONE | |
| Qualification | Starting with 1995 | 2003, 2009 | 1993-2003 first stage tertiary education theoretical (ISCED-5A) and practical (ISCED-5B) were surveyed together; since 2003 we have comparable data as they were surveyed separately 1993-2009 not available data for ISCED 8 (doctoral level) |
| R&D expenditure | Starting with 1995 | NONE | |
| Source of funds | Starting with 1995 | NONE | |
| Type of costs | Starting with 1995 | 1994, 1993 | there are included only current costs and not sub-total capital expenditures |
| Type of R&D | Starting with 1995 | 1994, 1993 | we have only total expenditures and not breakdown by sectors of performance |

| | | | |
|---|--------------------|------|--|
| Other:R&D expenditure by type of funds | Starting with 2018 | NONE | |
| Other:R&D personnel by employment status | Starting with 2018 | NONE | |

1) Breaks years are years for which data are not fully comparable to the previous period.

15.2.3. Collection of data in the even years

Yes

15.3. Coherence - cross domain

This part deals with any national coherence assessments which may have been undertaken. It reports results for variables which are the same or relevant to R&D statistics, from other national surveys and / or administrative sources and explains and comments on their degree of agreement with R&D statistics.

15.3.1. Coherence - sub annual and annual statistics

Not requested.

15.3.2. Coherence - National Accounts

R&D statistics for government sector of performance are compiled in according with institutional GOV sector as defined based on the System of National Account (SNA).

15.3.3. National Coherence Assessments

| Variable name | R&D Statistics - Variable Value | Other national statistics - Variable value | Other national statistics - Source | Difference in values (of R&D statistics) | Explanation of / comments on difference |
|---------------|---------------------------------|--|------------------------------------|--|---|
| N/A | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

15.4. Coherence - internal

See below.

15.4.1. Comparison between preliminary and final data

This part compares key R&D variables as preliminary and final data.

| | Total R&D expenditure – GOVERD (in 1000 of national currency) | Total R&D personnel (in FTEs) | Total number of researchers (in FTEs) |
|--|--|--|--|
| Preliminary data (<i>delivered at T+10</i>) | 1687410 | 11994 | 6508 |
| Final data (<i>delivered T+18</i>) | 1687410 | 11994 | 6508 |
| Difference (of final data) | - | - | - |

15.4.2. Consistency between R&D personnel and expenditure

| | Average remuneration (cost in national currency) |
|--|---|
| Consistency between FTEs of internal R&D personnel and R&D labour costs (1) | 78119 |
| Consistency between FTEs of external R&D personnel and other current costs for external R&D personnel (2) | 253704 |

(1) Calculate the average remuneration (cost) of individuals belonging to the internal R&D personnel, excluding those who are only formally 'employees' (university students, grant holders, etc.).

(2) Calculate the average remuneration (cost) of individuals belonging to the external R&D personnel (FTEs/other current R&D costs for external R&D personnel).

16. Cost and Burden

[Top](#)

The assessment of costs associated with a statistical product is a rather complicated task since there must exist a mechanism for appointing portions of shared costs (for instance shared IT resources and dissemination channels) and overheads (office space, utility bills etc). The assessment must become detailed and clear enough so that international comparisons among agencies of different structures are feasible.

16.1. Costs summary

| | Costs for the statistical authority (in national currency) | % sub-contracted ¹⁾ |
|-----------------------|--|--------------------------------|
| Staff costs | not available separately | no subcontracting |
| Data collection costs | not available separately | no subcontracting |
| Other costs | not available separately | no subcontracting |
| Total costs | not available separately | no subcontracting |
| Comments on costs | | |
| | | |

1) The shares of the figures given in the first column that are accounted for by payments to private firms or other Government agencies.

16.2. Components of burden and description of how these estimates were reached

| | Value | Computation method |
|--|---|--|
| Number of Respondents (R) | 165 (including chapter dedicated GBARD) | All respondents with R&D indicators |
| Average Time required to complete the questionnaire in hours (T) ¹⁾ | 4.28 | Total number of hours (from questionnaire)/Number of all respondents with R&D indicators |
| Average hourly cost (in national currency) of a respondent (C) | Not available | Not available |
| Total cost | Not available | Not available |

1) T = the time required to provide the information, including time spent assembling information prior to completing a form or taking part in interview and the time taken up by any subsequent contacts after receipt of the questionnaire ('Re-contact time')

17. Data revision

[Top](#)

17.1. Data revision - policy

Not requested.

17.2. Data revision - practice

Not requested.

17.2.1. Data revision - average size

Not requested.

18. Statistical processing

[Top](#)

18.1. Source data

Several separate activities are used for the collection of raw data or pre-compiled administrative data and statistics related to R&D. For simplicity, we call them surveys irrespective of whether they are sample surveys, censuses, collections of administrative data/pre-compiled statistics. This section presents the names of the surveys by sector of performance as well as methodological information for each survey. Depending on the type of survey and sector of performance, only the sections corresponding to that survey and sector are filled in.

18.1.1. Data source – general information

| | |
|---|---|
| Survey name | Until 2010 : R&D - Research and development activity in specialized units; Starting with 2011 : R&D activity for units from governmental and public sector |
| Type of survey | Census |
| Combination of sample survey and census data | Not applicable. |
| Combination of dedicated R&D and other survey(s) | Not applicable. |
| Sub-population A (covered by sampling) | Not applicable. |
| Sub-population B (covered by census) | Not applicable. |
| Variables the survey contributes to | Number of R&D employees in HC at 31 December and FTE aggregated by occupation, qualification, by sex, by citizen Researchers- by sex, age group, nationality, field of science |

| | |
|--|--|
| | R&D Expenditures- by type of costs, by sources of funds, by type of research, by NABS Programms, by sources and type of funds R&D Expenditures - payments received from abroad by type of funds institutions. |
| Survey timetable-most recent implementation | Data collection: March-April after reference year Data processing, validation, comparison: May-September after reference year Data Dissemination (Press Release Communicate, Publication, Data base on line, Yearbook November) after reference year |

18.1.2. Sample/census survey information

| | Stage 1 | Stage 2 | Stage 3 |
|--|----------------|---------|---------|
| Sampling unit | Legal unit | | |
| Stratification variables (if any - for sample surveys only) | Not applicable | | |
| Stratification variable classes | Not applicable | | |
| Population size | Not applicable | | |
| Planned sample size | Not applicable | | |
| Sample selection mechanism (for sample surveys only) | Not applicable | | |
| Survey frame | | | |
| Sample design | Not applicable | | |
| Sample size | Not applicable | | |
| Survey frame quality | Very good | | |

18.1.3. Information on collection of administrative data or of pre-compiled statistics

| | |
|---|--|
| Source | Information are collected from R&D survey only and not from administrative data. |
| Description of collected data / statistics | Not used these methods |
| Reference period, in relation to the variables the survey contributes to | N/A |

18.2. Frequency of data collection

See 12.3.3.

18.3. Data collection

See below.

18.3.1. Data collection overview

| | |
|--|--|
| Information provider | Data is collected through national survey (R&D) addressed to government units and other public services units |
| Description of collected information | All providers send the same information filled in the national R&D questionnaire concerning number of personnel and R&D expenditures |
| Data collection method | Data collection is made by paper questionnaire or electronic online portal questionnaire |
| Time-use surveys for the calculation of R&D coefficients | Not applicable |
| Realised sample size (per stratum) | Not applicable |
| Mode of data collection (face-to-face interviews; telephone interviews; postal surveys, etc.) | postal surveys, online electronic questionnaire |
| Incentives used for increasing response | Not applicable |
| Follow-up of non-respondents | 2 reminders |
| Replacement of non-respondents (e.g. if proxy interviewing is employed) | Not applicable |
| Response rate (ratio of completed "interviews" over total number of eligible enterprises or enterprises of unknown eligibility) | 93.1% |
| Non-response analysis (if applicable -- also see section 18.5. Data compilation - Weighting and Estimation methods) | Not applicable |

18.3.2. Questionnaire and other documents

| Annex | Name of the file |
|--|------------------|
| R&D national questionnaire and explanatory notes in English: | - |
| R&D national questionnaire and explanatory notes in the national language: | CD-GOV |
| Other relevant documentation of national methodology in English: | - |
| Other relevant documentation of national methodology in the national language: | - |

18.4. Data validation

The data are validated at NIS level, after ensuring the completeness of the results and checking all correlations between indicators.
The data are validated at NIS level, after ensuring the completeness of the results and checking all correlations between indicators.
The statistical data are compared for each type of indicator with the data of previous years and the errors that present suspicions are discussed and transmitted to the respondents and / or the territorial statistical departments.

18.5. Data compilation

See below.

18.5.1. Imputation - rate

Not applicable
No imputation rate.

18.5.2. Data compilation methods

| | |
|--|---|
| Data compilation method - Final data (between the survey years) | National R&D survey for Government sector is carry out every year |
| Data compilation method - Preliminary data | In accordance with the National Statistical Programme approved by the Romanian Government and published in the Official Journal within 10 months of the reference period we provide data for the previous year. |

18.5.3. Measurement issues

| | |
|---|--|
| Method of derivation of regional data | Each unit from sample has a specific code in order to regional identification. |
| Coefficients used for estimation of the R&D share of more general expenditure items | Not applicable |
| Inclusion or exclusion of VAT and provisions for depreciation in the measurement of expenditures | Exclusion of VAT and depreciation; |
| Differences between national and Frascati Manual classifications not mentioned above and impact on national statistics | No differences |

18.5.4. Weighting and estimation methods

| | |
|---|----------------|
| Description of weighting method | Not applicable |
| Description of the estimation method | Not applicable |

18.6. Adjustment

Not requested.

18.6.1. Seasonal adjustment

Not requested.

19. Comment

[Top](#)

Related metadata

[Top](#)

Annexes

[Top](#)

[CHESTIONAR_CD_GOV_2021](#)