



UNESCO
INSTITUTE
FOR
STATISTICS



INSTRUCTION MANUAL

Questionnaire on Research and Experimental Development (R&D) Statistics

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INTRODUCTION

The survey on Research and Experimental Development (R&D) Statistics forms part of the strategy of the UNESCO Institute for Statistics (UIS) to improve its statistical programme and to develop and deliver timely, accurate and policy-relevant statistics. The objective of this questionnaire is to collect the most recent data on science, technology and innovation (STI), specifically on resources devoted to R&D.

These data will be used to update the UIS STI database which can be accessed through the UIS Data Centre at <http://data.uis.unesco.org> and will be published in reports prepared by UNESCO, other UN agencies, and public and private institutions or individuals worldwide.

This instruction manual has been prepared to help data producers in Member States to complete the *Questionnaire on Research and Experimental Development (UIS/RD)*.

The reference year for the data collection is indicated in each table of the questionnaire. If data for the requested reference year are not available, please provide data for the latest year available and indicate the reference year in the space provided. If data have been updated following a submission to the UIS, please complete and submit a separate questionnaire for the updated reference year.

The definitions and classifications presented in this manual are based on the *Recommendation concerning the International Standardization of Statistics on Science and Technology* (UNESCO, 1978) and the *Frascati Manual* (OECD, 2015).

Submission of questionnaires

The electronic questionnaire(s) are available at: <http://uis.unesco.org/uis-questionnaires>

Completed questionnaires should be sent by email attachment to: uis.stisurvey@unesco.org

If you experience problems accessing the site or for any questions related to the data collection, please contact the UIS at uis.stisurvey@unesco.org or by telephone at +1 514 343 6880.

1. COVERAGE OF THE QUESTIONNAIRE

The tables in this questionnaire refer to resources devoted to R&D, as defined in **Definition 1**.

Definition 1. Research and experimental development (R&D)

R&D comprise creative and systematic work undertaken in order to increase the stock of knowledge, including knowledge of humankind, culture and society, and to devise new applications of available knowledge. The term R&D covers three activities: basic research, applied research and experimental development.

Basic research is experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without any particular application or use in view.

Applied research is original investigation undertaken in order to acquire new knowledge. It is, however, directed primarily towards a specific, practical aim or objective.

Experimental development is systematic work, drawing on knowledge gained from research and practical experience and producing additional knowledge, which is directed to producing new products or processes or to improving existing products or processes.

R&D covers both formal R&D in R&D units and informal or occasional R&D in other units.

The questionnaire is designed to include data on all institutions carrying out R&D activities in your country. These include the four sectors as defined by the *Frascati Manual* (see also **Definition 2**):

- Business enterprises;
- Government;
- Higher education; and
- Private non-profit organizations.

Only one questionnaire per country should be completed, filled in either by the institution responsible for science and technology (S&T) policy or STI statistics (i.e. Ministry of Science and Technology, Ministry of Research and Higher Education, or National S&T Council) or the National Statistical Office.

The reported data should cover all sectors (described in Definition 2), even if some institutions fall under the authority of other ministries or data are collected by various institutions. Additionally, the **UIS encourages all countries to make their own estimations of missing or incomplete data**, since the UIS does not always have all the necessary elements for making the most accurate estimations.

Definition 2. Institutional sectors

The **business enterprise** sector includes:

- All resident corporations, including not only legally incorporated enterprises, regardless of the residence of their shareholders. This group also includes all other types of quasi-corporations, i.e. units capable of generating a profit or other financial gain for their owners that are recognised by law as separate legal entities from their owners and set up for purposes of engaging in market production at prices that are economically significant.
- The unincorporated branches of non-resident enterprises that are deemed to be resident because they are engaged in production on the economic territory on a long-term basis.
- All resident non-profit institutions (NPIs) that are market producers of goods or services or serve business.

The **government** sector is composed of:

- All units of central (federal), regional (state) or local (municipal) government, including social security funds, except those units that provide higher education services or fit the description of higher education institutions provided below.
- All non-market NPIs that are controlled by government units, which are not part of the Higher education sector.

The **higher education** sector is composed of:

- All universities, colleges of technology and other institutions providing formal tertiary education programmes (i.e. ISCED levels 5, 6, 7, or 8), whatever their source of finance or legal status.
- It also includes all research institutes, centres, experimental stations and clinics that have their R&D activities under the direct control of, or administered by, tertiary education institutions.

The **private non-profit** sector includes:

- All non-profit institutions serving households (NPISH), except those classified as part of the Higher education sector.
- Households and private individuals engaged or not engaged in market activities.

For more detailed definitions and guidelines on their application, please refer to the OECD [Frascati Manual](#) (OECD, 2015).

Frascati Manual 2015

[Frascati Manual: Guidelines for Collecting and Reporting Data on Research and Experimental Development](#) has been revised by OECD in 2015. Some of the key changes compared to the previous edition of the *Frascati Manual* (OECD, 2002), which are relevant to this instruction manual, are summarized below.

- The definition of research and development (R&D) has been modified, but consistent with previous definition. See Definition 1.

- The definition of 'experimental development' has been modified, but consistent with previous definition. See Definition 1.
- The five institutional sectors (Business enterprise, Government, Higher education, Private non-profit and Rest of the world -in place of 'Abroad'-) have been maintained, with more detailed explanations. The definition of Higher education sector has slightly been modified. See Definition 2.
- Classification of R&D personnel is now envisaged according to their 'function' (researchers, technicians, other supporting staff), instead of 'occupation'.
- The definition of researchers has been changed/modified, but consistent with previous definition. See Definition 5.
- Other than Doctoral students, now it is suggested that master's students may be included in group of researchers if they meet the specific criteria. See Definition 5.
- Types of fixed assets used for R&D has been expanded, i.e. land and buildings, machinery and equipment (in place of 'instruments and equipment'), capitalized computer software and other intellectual property products. See Definition 8.
- Changes to terminology: the following terminology has been changed:
 - 'Occupation' → 'Function'
 - 'Fields of science and technology' → 'Fields of research and development (FORD)'
 - 'Humanities' → 'Humanities and the arts'
 - 'Abroad' → 'Rest of the world'
 - 'Instruments and equipment' → 'Machinery and equipment'

2. INSTRUCTIONS FOR COMPLETING THE QUESTIONNAIRE

R1. GENERAL INFORMATION

Question 1 identifies the person responsible for completing the questionnaire, as well as information related to the head of the institution. This information will be used to update the UIS database of “National Institutions Responsible for R&D Statistics”. Therefore, **it is very important to complete this section**, even if your country has no new information to provide. The person identified as being responsible for completing the questionnaire will act as liaison should the UIS need further clarification on responses.

If data are not for the calendar year, **Question 2** requests you to provide information on the starting and ending date of the data reported in this questionnaire. Expenditure data in this questionnaire should be reported in millions of national currency. Question 2 also requests you to provide the name of the currency which is reported in this questionnaire.

Question 3 covers the basic methodologies used to collect the data. This information will be incorporated into a database of metadata and will aid in the assessment of data comparability and quality. If the methodologies for collecting data on R&D personnel and R&D expenditure (*please see Definitions 3 and 8 of this manual*) are different within the same sector, please indicate R&D personnel with a “P” and R&D expenditure with an “E” under the respective methodologies. Any additional information on methodologies used should be written in the “Notes” section.

To identify the scope of the responses provided, please identify in **Question 4** whether the data provided cover the whole country or only a limited number of sectors or parts of sectors (i.e. some or all of the following: business enterprises, government institutions, higher education or private non-profit organizations). If coverage of some sectors is partial, please give details in the “Notes” section (i.e. which institutions or sub-sectors are included and which are not). If coverage of data related to R&D personnel and R&D expenditure is different within the same sector, please provide details.

HUMAN RESOURCES IN R&D

Tables R2 to R7 seek detailed information on human resources devoted to R&D, especially researchers (*see Definition 3*).

Definition 3. R&D personnel

R&D personnel are all persons engaged directly in R&D, as well as those providing direct services for the R&D activities (such as R&D managers, administrators, technicians and clerical staff). Persons providing indirect support and ancillary services, such as canteen, maintenance, administrative and security staff, should be excluded.

Headcounts (HC) and full-time equivalents (FTE): Data for this section should be reported in headcounts (HC) and full-time equivalents (FTE) respectively, unless otherwise specified. These are two different methods of accounting for human resources. HC are data on the total

number of persons who are mainly or partially employed in R&D. This includes staff employed both “full-time” and “part-time” on R&D. FTE data are a measure of the actual volume of human resources devoted to R&D and are especially useful for international comparisons.

Definition 4. Measurement units of R&D personnel

The **headcount (HC) of R&D personnel** is defined as the total number of individuals contributing to intramural R&D, at the level of a statistical unit or at an aggregate level, during a specific reference period (usually a calendar year). That means, **headcount** data reflect the total number of persons employed in R&D, independently from their dedication. These data allow links to be made with other data series, such as education and employment data, or the results of population censuses. They are also the base for calculating indicators analysing the characteristics of the R&D workforce, with respect to age, gender or national origin.

The **Full-time equivalent (FTE) of R&D personnel** is defined as the ratio of working hours actually spent on R&D during a specific reference period (usually a calendar year) divided by the total number of hours conventionally worked in the same period by an individual or by a group. In other words, one **full-time equivalent** may be thought of as one person-year. Thus, a person who normally spends 30% of his/her time on R&D and the rest on other activities (such as teaching, university administration and student counselling) should be considered as 0.3 FTE. Similarly, if a full-time R&D worker is employed at an R&D unit for only six months, this results in an FTE of 0.5. Therefore, it is measured by combining two variables: actual involvement in R&D activities and formal engagement on the basis of normative/statutory working hours. Specific attention should be paid to the quantification of total working time, which is the basis for the calculation of full-time equivalent R&D personnel. It is noted that no one person can account for more than **one FTE** in a single year and hence cannot perform more than **one FTE on R&D** on an annual basis. In order to be included in the R&D personnel totals, an individual should make an appreciable contribution to the R&D performed (at least 0.1 FTE on R&D on an annual basis, i.e. 10 per cent of the total working time).

A number of restrictions apply to the actual measurement of FTE. It is therefore impossible to avoid differences in the methodology used for different countries and sectors. The most precise method, which is applied in some countries in the higher education sector, involves carrying out time-use surveys for each individual researcher. However, more approximate methods are often used in practice. One method often used consists of counting the number of positions for each category of personnel, then multiplying by appropriate R&D coefficients. In some cases, the R&D coefficients used are founded on survey data of some sort, while in others they are simply based on assumptions made by those who compile the statistics.

The following formula can be used to calculate R&D personnel in FTE:

$$\text{FTE} = (\text{dedication to the employment: full-time/part-time}) \times (\text{portion of the year active on R\&D}) \times (\text{time or portion spent on R\&D})$$

For example:

- A full-time employee spending 100% of time on R&D during a year: $(1 \times 1 \times 1) = 1 \text{ FTE}$
- A full-time employee spending 30% of time on R&D during a year: $(1 \times 1 \times 0.3) = 0.3 \text{ FTE}$
- A full-time R&D person spending 100% of time on R&D employed at an R&D institution only for six months: $(1 \times 0.5 \times 1) = 0.5 \text{ FTE}$
- A full-time employee spending 40% of time on R&D during half of the year (person is only active for 6 months per year): $(1 \times 0.5 \times 0.4) = 0.2 \text{ FTE}$

- A part-time employee (working 40% of a full-time year) engaged only in R&D (spending 100% of time on R&D) during a year: $(0.4 \times 1 \times 1) = 0.4$ FTE
- A part-time employee (working 40% of a full-time year), spending 60% of time on R&D during half of the year (person is only active for 6 months per year): $(0.4 \times 0.5 \times 0.6) = 0.12$ FTE
- 20 full-time employees spending 40% of time on R&D during a year: $20 \times (1 \times 1 \times 0.4) = 8$ FTE

Each table in the questionnaire includes a “Not specified” column or row or both. If some of the data requested in a particular table cannot be listed by the categories given, please include such data in the “Not specified” column or row or both (depending on the table) and describe the nature of these data using a comment.

TOTAL R&D PERSONNEL

In **Tables R2 and R3**, please report data on R&D personnel by function, sex and sector of employment.

Table R2: R&D personnel by function and sex (headcounts and full-time equivalents)

This table measures the total number of R&D personnel and its breakdown by function (see **Definition 5**) and sex, based on the classification provided in the *Frascati Manual*.

Definition 5. R&D functions

Researchers are professionals engaged in the conception or creation of new knowledge. They conduct research and improve or develop concepts, theories, models, techniques, instrumentation, software or operational methods. Managers and administrators engaged in the planning and management of the scientific and technical aspects of a researcher’s work are also classified as “researchers”. Doctoral students at the PhD level (ISCED level 8) engaged in R&D should be counted as “researchers”. Master’s students may in some cases be counted as “researchers” (this applies, in particular, to students following an ISCED level 7 research master’s programmes).

Technicians and equivalent staff are persons whose main tasks require technical knowledge and experience in one or more fields of engineering, the physical and life sciences (technicians) or the social sciences, humanities and the arts (equivalent staff). They participate in R&D by performing scientific and technical tasks involving the application of concepts and operational methods and the use of research equipment, normally under the supervision of researchers.

Other supporting staff includes skilled and unskilled craftsmen, and administrative, secretarial and clerical staff participating in R&D projects or directly associated with (or providing services to researchers involved in) such projects.

Table R3: R&D personnel by function, sector of employment and sex (headcounts and full-time equivalents)

This table measures sectoral distribution of the total number of R&D personnel and its breakdown by function and sex, based on the classification provided in the *Frascati Manual*.

RESEARCHERS

Data requested in **Tables R4 to R7** seek information on **researchers** instead of R&D personnel.

Table R4: Researchers by sector of employment, qualification and sex (headcounts and full-time equivalents)

This table reflects the educational qualifications of researchers (ISCED level of the **highest level of education** attained), broken down by the sector in which they develop their R&D activities and sex (see **Definition 6**). Please note that it applies to researchers only, and not technical and other staff.

The breakdown by level of qualification is designed to classify researchers according to the highest education level completed: Doctoral or equivalent level (ISCED 8), Master's or equivalent level (ISCED 7), Bachelor's or equivalent level (ISCED 6), short-cycle tertiary education (ISCED 5) and all other types of diplomas or qualifications, including other post-secondary non-tertiary diplomas, secondary diplomas (ISCED 0-4), etc. If some of the data cannot be listed by education level, please include such data in the "Not specified" row and describe these data using a comment.

Please note that definitions for ISCED levels are based on the ISCED 2011 classification, available at: <http://uis.unesco.org/en/topic/international-standard-classification-education-isced>

Table R5: Researchers by sector of employment, field of R&D and sex (headcounts and full-time equivalents)

This table reflects the distribution of researchers by field of R&D of their main R&D activity, broken down by the sector in which they are employed and sex.

The classification of **fields of research and development (FORD)** is based on the OECD *Frascati Manual 2015* (it is closely related to the guidelines specified by UNESCO in the Recommendation of 1978, which provided the initial basis for the OECD classification of R&D by the field of S&T in previous versions of the *Frascati Manual*) (see **Definition 7**) and, in this survey, is limited to the first level.

Definition 6. ISCED levels

ISCED level 8 – Doctoral or equivalent level. Programmes at ISCED level 8 are designed primarily to lead to an advanced research qualification. Programmes at this ISCED level are devoted to advanced study and original research and are typically offered only by research-oriented tertiary educational institutions such as universities. Doctoral programmes exist in both academic and professional fields (UNESCO-UIS, 2012, §259).

ISCED level 7 – Master’s or equivalent level. Programmes at ISCED level 7 are often designed to provide participants with advanced academic and/or professional knowledge, skills and competencies, leading to a second degree or equivalent qualification. Programmes at this level may have a substantial research component but do not yet lead to the award of a doctoral qualification. Typically, programmes at this level are theoretically-based but may include practical components and are informed by state-of-the-art research and/or best professional practice. They are traditionally offered by universities and other tertiary educational institutions (UNESCO-UIS, 2012, §241).

ISCED level 6 – Bachelor’s or equivalent level. Programmes at ISCED level 6 are often designed to provide participants with intermediate academic and/or professional knowledge, skills and competencies, leading to a first degree or equivalent qualification. Programmes at this level are typically theoretically-based but may include practical components and are informed by state-of-the-art research and/or best professional practice. They are traditionally offered by universities and equivalent tertiary educational institutions (UNESCO-UIS, 2012, § 224). First degree programmes at this level typically have a duration of three to four years of full-time study at the tertiary level (UNESCO-UIS, 2012, §229).

ISCED level 5 – Short-cycle tertiary education. Programmes at ISCED level 5 are often designed to provide participants with professional knowledge, skills and competencies. Typically, they are practically-based, occupationally-specific and prepare students to enter the labour market. However, these programmes may also provide a pathway to other tertiary education programmes. Academic tertiary education programmes below the level of a Bachelor’s programme or equivalent are also classified as ISCED level 5 (UNESCO-UIS, 2012, §207).

All other qualifications (ISCED 4 and below). This includes ISCED 4 (post-secondary non-tertiary education), ISCED 3 (upper secondary education) and below.

Definition 7. Fields of research and development (FORD)

Recommendation concerning the International Standardization of Statistics on Science and Technology (UNESCO, 1978) and Frascati Manual (OECD, 2015)

1. NATURAL SCIENCES

1.1 Mathematics

1.2 Computer and information sciences

1.3 Physical sciences

1.4 Chemical sciences

1.5 Earth and related environmental sciences

1.6 Biological sciences

1.7 Other natural sciences

2. ENGINEERING AND TECHNOLOGY

2.1 Civil engineering

2.2 Electrical engineering, electronic engineering, information engineering

2.3 Mechanical engineering

2.4 Chemical engineering

2.5 Materials engineering

2.6 Medical engineering

2.7 Environmental engineering

2.8 Environmental biotechnology

2.9 Industrial biotechnology

2.10 Nano-technology

2.11 Other engineering and technologies

3. MEDICAL AND HEALTH SCIENCES

3.1 Basic medicine

3.2 Clinical medicine

3.3 Health sciences

3.4 Medical biotechnology

3.5 Other medical sciences

4. AGRICULTURAL AND VETERINARY SCIENCES

4.1 Agriculture, forestry and fisheries

4.2 Animal and dairy science

4.3 Veterinary sciences

4.4 Agricultural biotechnology

4.5 Other agricultural sciences

5. SOCIAL SCIENCES

5.1 Psychology and cognitive sciences

5.2 Economics and business

5.3 Education

5.4 Sociology

5.5 Law

5.6 Political science

5.7 Social and economic geography

5.8 Media and communications

5.9 Other social sciences

6. HUMANITIES AND THE ARTS

6.1 History and archaeology

6.2 Languages and literature

6.3 Philosophy, ethics and religion

6.4 Arts (arts, history of arts, performing arts, music)

6.5 Other humanities

Table R6: Researchers by sector of employment, age and sex (headcounts)

This table measures the distribution of researchers by age, broken down by the sector in which they are employed and sex. Please note that data are requested only in headcounts (HC).

A breakdown into six age categories is proposed to report data on 'researchers by age'. These categories are in line with the United Nations Provisional Guidelines on Standard International Age Classifications (United Nations, 1982):

- under 25 years
- 25-34 years
- 35-44 years
- 45-54 years
- 55-64 years
- 65 years and more.

Table R7: Researchers by sector of employment, seniority grade/level and sex (headcounts)

This table reflects the seniority levels of researchers, broken down by the sector in which they are employed and sex. Please note that data are requested only in headcounts (HC).

It is proposed to use the following classification of seniority grades/levels for reporting data on 'researchers by seniority grade/level'.

Classification of seniority grade/level¹:

- Category A: The single highest grade/post at which research is normally conducted. Example: "Director of research" or "Full professor".
- Category B: Researchers working in positions not as senior as top position (A) but more senior than newly qualified doctoral graduates (ISCED level 8). Example: "Senior researcher" or "Principal investigator" or "Associate professor".
- Category C: The first grade/post into which a newly qualified doctoral graduate would normally be recruited. Examples: "Researcher" or "Investigator" or "Assistant professor" or "Post-doctoral fellow".
- Category D: Either doctoral students at the ISCED level 8 who are engaged as researchers, or researchers working in posts that do not normally require a doctorate degree. Examples: "Ph.D. students" or "Junior researchers" (without a Ph.D.). Master's students who are counted as researchers would also fall under this category."

¹ EC (2013; p87), She Figures 2012: Statistics and Indicators – Gender in Research and Innovation, European Commission, Brussels.

EXPENDITURE ON R&D

This section seeks detailed information on the actual expenditure on R&D (see **Definition 8**) in order to better understand the activities carried out by countries. These data also describe the environment in which researchers conduct their work.

Definition 8. R&D expenditure

R&D expenditure includes all expenditure for R&D performed within a sector of the economy, including both current costs and capital expenditures for R&D.

- **Current costs:** are composed of labour costs of R&D personnel and other current costs used in R&D.
- **Labour costs:** comprise compensation for R&D personnel such as annual wages and salaries and all associated costs of researchers, technicians and supporting staff or fringe benefits.
- **Other current costs:** comprise non-capital purchases of materials, supplies, equipment and services to support R&D, i.e. water, fuel, gas, electricity; books, journals, reference materials, subscriptions to libraries and scientific societies; materials for laboratories; royalties or licences for the use of patents and other IPR; lease of capital goods and the rental of buildings to support R&D; costs for computer software that is used in the performance of R&D for one year or less; costs associated with on-site consultants who are not employed in the statistical unit but provide direct services that are integrated into the statistical unit's R&D activities; cost for doctoral and master's students not employed by the unit (e.g. receiving research grant or scholarship tracked by or through the statistical unit); administrative and other overhead costs, i.e. office, information and telecommunications, utilities, insurance, and costs for indirect or ancillary services, i.e. storage; the use, cleaning, repair and maintenance of buildings and equipment; computer services; and the printing of R&D reports. Prorated costs should be included if necessary to exclude non-R&D activities.
- **Capital expenditures:** are the annual gross expenditure on fixed assets used repeatedly or continuously in the R&D programmes of statistical units for more than one year, i.e. expenditure on land and buildings, machinery and equipment, capitalised computer software and other intellectual property products. They should be reported in full for the period when they took place and should not be registered as an element of depreciation. When the R&D share of a fixed asset is not known and it will be used for more than one activity (i.e. R&D and non-R&D activities), the costs should be prorated between R&D and other activities.
- **Land and buildings:** includes land acquired for R&D use and buildings constructed or purchased for R&D use.
- **Machinery and equipment:** covers major machinery and equipment acquired for use in the performance of R&D.
- **Capitalised computer software:** includes the costs of computer software that is used in the performance of R&D for more than one year.
- **Other intellectual property products:** includes the costs for purchased patents, long-term licences, or other intangible assets that are used in R&D and which are in use for more than one year.

The **full procedure for measuring R&D expenditure** (adapted from the *Frascati Manual*) is as follows:

- Identify the institutions (statistical units) that perform R&D in the different sectors.
- Identify (survey) the intramural expenditure on R&D (the expenditure carried out within the boundaries of an institution, i.e. not out-contracted) performed by each statistical unit.
- Identify the sources of funds for these R&D expenditure as reported by the performer.
- Aggregate the data by sectors of performance and sources of funds to derive significant national totals.

This section includes five tables (Tables R8 to R12), requesting the total expenditure on R&D and its breakdown by sector of performance, source of funds, field of R&D, type of costs and type of R&D activity.

Currency and unit: Expenditure data in this questionnaire are requested in **millions of national currency**.

Table R8: Total expenditure on R&D in millions of national currency

This table measures the **total amount of expenditure on R&D**. If the data on actual amounts spent on R&D are not available, please provide estimated data calculated using budget allocations for R&D or other methodologies and explain these data using a comment.

Data are expected to be reported in **millions** of current national currency (this is expenditure at current prices in national currency), without adjusting to constant currency and without using exchange rates. Question 2 in Section 'VAL_R1' already requested the name of the currency which is reported in this questionnaire.

Table R9: Total expenditure on R&D by sector of performance and source of funds (millions of national currency)

This table measures the amounts spent on R&D by institutions corresponding to each of the different sectors (business enterprise, government, higher education, private non-profit organizations), financed by the different sectors of the economy (business enterprise, government, higher education, private non-profit organizations), as well as funds from the 'Rest of the world (abroad)'. If the sectors in which certain R&D was performed are unknown, or if the source for some financing of R&D is not available, include the relevant R&D expenditure in the "Not specified" column and/or row and describe such data using a comment.

Definitions for the different sectors can be found in **Definitions 2 and 9**.

Definition 9. Sources of funds

Definitions for institutional coverage for different sectors (business enterprise, government, higher education, private non-profit organizations) which financed R&D can be found in Definition 2. In addition to these sectors, funds from the 'Rest of the world (Abroad)' should be considered.

Rest of the world (formerly referred to as '**Abroad**') consists of:

- All institutions and individuals without a location, place of production or premises within the economic territory on which or from which the unit engages and intends to continue engaging, either indefinitely or over a finite but long period of time, in economic activities and transactions on a significant scale.
- All international organisations and supranational authorities, including facilities and operations within the country's borders.

Table R10: Total expenditure on R&D by sector of performance and field of R&D (millions of national currency)

This table measures the amounts spent on R&D in the main fields of R&D (natural sciences, engineering and technology, medical and health sciences, agricultural and veterinary sciences, social sciences, humanities and the arts) in each of the sectors of performance (business enterprise, government, higher education, private non-profit organizations). If the sectors in which certain R&D was performed are unknown, or if the fields in which certain R&D was performed are unknown, include relevant R&D expenditure in the "Not specified" row and describe such data using a comment.

Definitions for the different fields of R&D are provided in **Definition 7**.

Table R11: Total expenditure on R&D by sector of performance and type of cost (millions of national currency)

This table measures the amounts spent on R&D by type of cost (i.e. current costs: labour costs, other current costs; and capital expenditures: land and buildings, machinery and equipment, capitalised computer software, and other intellectual property products) in each of the sectors of performance (business enterprise, government, higher education, private non-profit organizations). If the type of cost for certain R&D is unknown, include relevant R&D expenditure in the "Not specified" row and describe such data using a comment.

Definitions for the different types of cost can be found in **Definition 8**.

Table R12: Total expenditure on R&D by sector of performance, type of R&D activity and cost (millions of national currency)

This table measures the amounts spent on R&D on different types of R&D activities (i.e. basic research, applied research, experimental development) in each of the sectors of performance (business enterprise, government, higher education, private non-profit organizations). Data are requested separately for total expenditure on R&D (current and capital) and for current cost only. If the types in which certain R&D was performed are unknown, include relevant R&D expenditure in the “Not specified” row and describe such data using a comment.

Definitions for the different types of R&D activities can be found in **Definition 1**.