

Chapter 3

Institutional sectors and classifications for R&D statistics

This chapter considers institutions that perform or fund research and experimental development (R&D) and identifies their shared characteristics. These characteristics are used to group institutions into sectors, which are then used for the presentation of statistics on R&D. The chapter draws upon the approach of the System of National Accounts (SNA) to identify five sectors, Business enterprise, Higher education, Government, Private non-profit, and, for funding purposes only, the Rest of the World, (formerly referred to as Abroad). While four of the sectors can be related to those of the SNA, the Higher education sector, because of its policy relevance, is unique to this manual and is made up of institutions that can be in any of the SNA sectors. While there are chapters in the manual devoted to each sector, this chapter discusses the features of each sector and the boundaries that separate them.

3.1. Introduction

3.1 The aim of this chapter is to explain the approach used in R&D statistics to characterise and classify R&D performing and funding institutions. Statistical units should be classified into sectors according to shared qualities or attributes. This chapter begins by describing what these units are, the purposes, including user needs, served by classification and the main criteria that are applied. The chapter then proceeds by introducing the institutional sectors that provide the basis for the common reporting of R&D statistics and the boundaries that separate these sectors. This chapter is completed by the presentation of generally applicable classifications for institutional units and by a summary description of the main features for each sector.

3.2 A more detailed presentation of the definitions of units within the sectors and the classifications to be applied within them is the subject of chapters dedicated to each sector: Business enterprise (Chapter 7); Government (Chapter 8); Higher education (Chapter 9); Private non-profit (Chapter 10); and Rest of the world (Chapter 11 on R&D globalisation).

3.3 This chapter draws upon the approach of the System of National Accounts (SNA) to institutional units and sectors in the SNA 2008 Manual (EC et al., 2009), especially Chapter 4 of that manual. Important terms are defined in the SNA 2008 Manual or in the Glossary. A summary overview is given in Box 3.2 of this chapter.

3.2. Institutional units

3.4 The definition of institutional units that are involved in the performing or funding of R&D activity is of fundamental importance to the collection, reporting and interpretation of R&D statistics. Units are grouped to make up the sectors and subsectors of the *Frascati Manual*. They have to be characterised by a sufficient degree of internal cohesion and be distinctive and separately identifiable from other units.

3.5 An institutional unit is a national accounting concept and is defined as “an economic entity that is capable, in its own right, of owning assets, incurring liabilities, and engaging in economic activities and transactions with other entities” (EC et al., 2009: 61, para 4.2). This concept can be applied to the measurement of R&D activities and R&D-related flows. In the R&D case, institutional units have to be capable of decision making in respect of the conduct of R&D, from the allocation of financial resources for internal or external use, to the management of R&D projects. These are weaker requirements than those

used to define an institutional unit in the National Accounts, but they serve for the purposes of this manual.

3.6 There are two main types of units that may qualify as institutional units, namely persons or groups of persons in the form of households, and legal or social entities. Legal entities are economic entities, the existence of which is recognised by law or society independently of the persons, or other entities, that may own or control them. Such units are responsible and accountable for the economic decisions or actions that they take, although their autonomy may be constrained to some extent by other institutional units; for example, shareholders (EC et al., 2009: 61, para 4.6). For reasons that have been explained in Chapter 2 on definitions and in Chapter 10, and which will be further discussed in this chapter, households are included as units in the framework for R&D statistics, mainly for completeness.

The institutional approach to R&D statistics

3.7 In principle, the statistical unit has to be uniform, within sectors, for all countries. In practice, however, this goal is never fully achieved, including because of international differences in terminology and regulations for the organisation and financial reporting of businesses and other types of units. In addition to this, the particular structure of the industries involved and the interaction with the reporting unit can lead to differences within and across countries and over time.

3.8 The **institutional approach** to R&D statistics is aimed at the collection and presentation of statistics based on the generic attributes of the institutional units. In the institutional sector approach, a given unit's resources dedicated to R&D are attributed to the sector into which it is classified, while flows relate to transactions between the statistical unit and third parties. In the **functional distribution approach**, a given unit's resources are distributed using information provided by the relevant reporting unit(s). Examples of functional distributions are the type of R&D (basic research, applied research and experimental development), the product field (or industry served), the field of R&D (e.g. natural sciences, engineering and technology, social sciences and humanities and arts) and the socio-economic objective (e.g. economic development, health, environment, education). Institutional and functional approaches can often be combined, for example, when only large organisations are requested to break down their activities on a functional basis that may or may not match their own internal structure, while for burden reasons no such breakdown may be requested from smaller and simpler units, thus relying in such cases on the institutional classification. Functional distribution approaches can be used to address the potential mismatch between reporting units and intended statistical units when the reporting units encompass the statistical units of interest.

3.9 Whenever countries provide statistics for international comparisons, the statistical units should be specified as well as the use, alone or combined, of institutional and functional approaches. More detailed guidance is provided in Chapter 6 on methodology and in Chapters 7-10 which deal with specific sectors.

Statistical units

3.10 A **statistical unit** is an entity *about which* information is sought and *for which* statistics are ultimately compiled; in other words, it is the institutional unit of interest for the intended purpose of collecting R&D statistics. A statistical unit may be an **observation unit** for which information is received and statistics are compiled or an **analytical unit**, which is created by splitting or combining observation units with the help of estimations or imputations in order to supply more detailed and/or homogeneous data than would otherwise be possible (United Nations, 2007).

3.11 The need to delineate statistical units arises in the case of large and complex economic entities where the activities in which the entities engage fall into different classes, or the units of which they are composed are located in different geographical areas. There are various types or levels of statistical units according to their ownership, the control linkages, the homogeneity of economic activity, and their location, namely **enterprise groups, enterprises, establishments and “kind-of-activity” units (KAUs)**, as described in Box 3.1. These concepts apply to statistical units in all sectors, and not only to what this manual defines as the Business enterprise sector. The choice of statistical unit and the methodology used are strongly influenced by the purposes of R&D statistics as well as by the existence of records and the ability of respondents to provide the information of interest. In large and complex organisations, decisions concerning the strategic direction and financing of R&D activities tend to occur at a higher organisational level than does the day-to-day management of R&D operations, possibly including decisions on the types of expenditures on R&D performance and the hiring of human resources to be devoted to R&D. These decisions can cut across national borders, thus raising a challenge for the statistical activities of national authorities and agencies, whose responsibility is often limited to gathering information from resident units.

Reporting units

3.12 A **reporting unit** is the entity *from which* the required statistics are collected. It may consist of multiple reporting units in the institution where survey questionnaires are completed. In the case of administrative data, the reporting unit would correspond to the unit that is represented by the individual record. The choice of reporting units will vary from sector to sector and from country to country, depending on institutional structures, the legal framework for data collection, traditions, national priorities and survey resources. If the required statistics are obtained from a survey, the reporting unit is the respondent. In some countries, data may be collected from R&D units; in others, it may be gathered at a more aggregate level. This manual can make no overarching recommendation concerning the reporting unit to be applied by each individual country.

Box 3.1. Types of statistical units

An **enterprise** is the view (EC et al., 2009, para. 5.1) of any institutional unit – not necessarily within what this manual defines as the Business enterprise sector – as a producer of goods and services. The term enterprise may refer to a corporation, a quasi-corporation, a non-profit institution or an unincorporated enterprise. An enterprise is an economic transactor with autonomy in respect of financial and investment decision-making, as well as authority and responsibility for allocating resources for the production of goods and services. It may be engaged in one or more economic activities at one or more locations. An enterprise may be a sole legal unit.

A **kind-of-activity unit (KAU)** is an enterprise, or a part of an enterprise, that engages in only one kind of productive activity or in which the principal productive activity accounts for most of the value added. Each enterprise must, by definition, consist of one or more kind-of-activity units.

Enterprises often engage in productive activity at more than one location, and for some purposes it may be useful to partition them accordingly. Thus, a **local unit** is an enterprise, or a part of an enterprise, that engages in productive activity at or from a single location.

An **establishment** is an enterprise, or part of an enterprise, that is situated in a single location and in which only a single productive activity is carried out or in which the principal productive activity accounts for most of the value added. Establishments are sometimes referred to as local kind-of-activity units (local KAUs).

An **enterprise group** is a set of enterprises controlled by the group head. The group head is a parent legal unit that is not controlled either directly or indirectly by any other legal unit. It can have more than one decision-making centre, especially for policies on production, sales and profits, or it may centralise certain aspects of financial management and taxation. It constitutes an economic entity that is empowered to make choices, particularly concerning the units which it comprises. The enterprise group as a unit is particularly useful for financial analyses and for studying company strategies; however, it can be too varied in nature and unstable to be adopted as a unit for statistical surveys and analysis.

Source: OECD, based on EC et al. (2009) and United Nations (2007).

3.3. Institutional sectors

Main reasons for sectoring

3.13 To facilitate the collection and production of internationally comparable statistics on R&D personnel and R&D expenditures and funding flows, which are described later in this manual, the statistical unit(s) should be classified into sectors according to shared qualities or attributes. The recommendation

is to follow as closely as possible standard statistical classifications for these units while meeting the stated needs of established users of R&D statistics. The classification to sectors of statistical units in the context of R&D statistics can serve a range of purposes.

R&D data collection

3.14 Sectoring plays an important role in organising data collections, for example, by indicating which survey instrument to apply to institutional units with a certain set of common features, for example, concerning the type and field of R&D carried out, the underlying accounting systems or the terminology used by these units to describe their R&D activities. Sectoring also plays an important role in defining strata and in supporting data collection and estimation efforts. In particular:

- When measuring R&D expenditure (Chapter 4) and personnel (Chapter 5), the sectoral approach offers a reliable approach for building up national aggregates.
- Sectoring offers a framework for analysing the flows of funds between R&D-funding and R&D-performing entities (Chapter 4). In this context, classifications should be relatively easy to interpret from the perspective of the survey respondents, for otherwise the flows from and to other units could be misreported.

Interacting with and mapping to other statistical frameworks and data sources

3.15 Insofar as units are tagged using standard classifications, it may be possible to relate R&D sources to other statistical sources. This may facilitate:

- the development of unit registers for R&D collection efforts, by drawing on the sources available and on prior classification efforts undertaken in the context of other statistical frameworks
- the adaptation of R&D statistics to and their subsequent use within other frameworks, such as the System of National Accounts (SNA), which draws on R&D statistics to compile sectoral and national estimates of R&D output and capital formation, feeding into major economic indicators
- an improved understanding of the role of R&D in economic development and the formulation of related policy, by allowing for the linking of the data and the study of their relationships.

Reporting R&D statistics, on a national and international basis

3.16 A standardised sectoring approach provides a basis for the stable and readily comparable public reporting of R&D statistics, in particular to meet the needs of policy makers and other major users. For this reason, the recommendation is the use of a set of main institutional sectors for R&D statistics.

3.17 Aggregation into sectors also helps avoid the problem posed by the often confidential nature of R&D data collected under statistical secrecy rules. Confidentiality rules and data quality issues place limits on the number of different, overlapping classifications that can be published by the statistical agencies compiling R&D statistics. When unit-level data can be publicly released, sectoring provides a helpful organising and filtering tool for users seeking to retrieve specific information on individual actors.

3.18 It is acknowledged that a single classification scheme may not be sufficient on its own to accomplish each one of these multiple purposes or to meet the varied and increasing range of user interests in R&D statistics. This manual proposes an institutional classification that attempts to strike a reasonable balance across all these, complemented by a range of optional cross-cutting classifications to ensure that a wide range of user needs can be met.

Criteria for the classification and choice of institutional sectors for R&D statistics

3.19 For the general presentation of R&D statistics, the domestic economy is made up of the entire set of institutional units resident in the economy; these are grouped into four mutually exclusive institutional sectors, namely, Business enterprise, Higher education, Government and Private non-profit, in addition to the Rest of the world sector, in order to capture, for completeness, the relationship with non-resident units. The underlying criterion for grouping institutional units into sectors is the homogeneity of the units in respect of economic objectives, principal functions and behaviour.

3.20 The classification of institutional units for R&D purposes aims to ensure full consistency with the definition of R&D and with the explicit needs of established R&D statistics users, as well as with the classification criteria used by the System of National Accounts (SNA). The latter includes the completeness and residence criteria and the reference to the type of economic activity and ownership and economic control. Funding may also be a factor.

3.21 As defined in the SNA, the **residence** of each institutional unit is the economic territory with which it has the strongest connection, in other words, its centre of predominant economic interest. The economic territory includes the land area, airspace and territorial waters, including jurisdiction over fishing rights and rights to fuels or minerals. In a maritime territory, the economic territory includes islands that belong to the territory. The economic territory also includes territorial enclaves in the Rest of the world. These are clearly demarcated land areas (such as embassies, consulates, military bases and scientific stations) located in other territories and used by governments that own or rent them for diplomatic, military, scientific or other purposes with the formal agreement of the governments of the territories where the land areas are physically located (EC et al., 2009: 62, para. 4.11). The residence criterion helps demarcate the “Rest of the world” sector from the other institutional sectors.

3.22 For R&D statistics, an institutional unit has a centre of predominant economic interest in an economic territory when there exists, within the economic territory, a location, place of production or other premises 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 R&D activities and/or transactions on a significant scale. The actual or intended location for one year or more is used as an operational definition. More relevant guidance on this criterion and related R&D statistics is provided in Chapter 11 on R&D globalisation.

Box 3.2. The SNA institutional sector classification

The *Frascati Manual's* sector classification is closely related to that recommended by the System of National Accounts (SNA). The SNA classifies all institutional units in the economy and groups them into five mutually exclusive institutional sectors. Sectors are groups of institutional units, and the whole of each institutional unit must be classified to one or other sector of the SNA: financial corporations and non-financial corporations; general government, non-profit institutions serving households (NPISH); and households. The SNA's recommended sequence for classification is to first separate households from legal institutional units, then focus next on the latter, which are primarily concerned with economic production. Further questions determine the sectoral allocation of all such units.

The first is whether the unit is a market or non-market producer, depending on whether the majority of the unit's production is offered at economically significant prices (EC et al., 2009, para. 22.28).

When non-market units are not controlled by government, these are defined as NPISH, while the rest are classified as general government. Non-profit institutions (NPIs) are defined in EC et al. (2009), para. 4.8, and they can appear in any of the SNA sectors. Market units make up the corporation sector, which comprises private and public corporations, depending on whether they are controlled by government.

Source: EC et al. (2009).

3.23 The SNA institutional classification provides a basis for the recommended classification of the main sectors for R&D statistics (i.e. the "Frascati sectors"). The relationship between the Frascati sectors and the SNA sectors is described in Table 3.1. There are two main differences.

3.24 First, since the first edition of this manual, the users of R&D statistics have repeatedly placed considerable emphasis on ensuring the consistent reporting of R&D activity within higher education institutions and the units over which they exert control or administer. Implementing this requirement calls for an additional set of criteria that help identify institutional units for

a separate Higher education sector, which in the SNA would be classified as either corporations, government units or NPISH, according to the market and government control criteria that are applicable in each country. The particular aspects of the Higher education sector for R&D statistics are covered in detail in Chapter 9.

3.25 Second, and largely for economy of presentation, R&D statistics combine into a single group households with non-profit institutions that are not allocated to the Higher education, Business enterprise or Government sectors, i.e. the units in the NPISH sector that are not part of this manual's Higher education sector. The resulting group could be called the "Other private and non-profit" sector, as an abbreviation to represent the residual group of households and other private and non-profit institutions and to complete the full representation of actors in the domestic economy. As the contribution of this residual group of households is small, the sector is referred to in the manual as the Private non-profit sector (PNP).

3.26 This approach provides the basis for the national and international reporting of R&D data. This should be kept in focus, particularly for international reporting, while allowing for a number of more flexible, complementary approaches, as discussed below. Thus, five main sectors have been identified for the measurement of R&D. They are summarily described below in Section 3.5 and discussed in more detail in the relevant methodology chapters:

- Business enterprise Chapter 7
- Government Chapter 8
- Higher education Chapter 9
- Private non-profit Chapter 10
- Rest of the world Chapter 11.

Implementing the institutional classification

3.27 Classification can be a resource-intensive activity, particularly for agencies building comprehensive R&D statistics systems for the first time. The classification activity needs to be continued over time, as units appear and disappear or need to be reclassified. For statistical agencies with access to official statistical registers, R&D classification decisions can be made easier by supporting them in general with SNA classification decisions, introducing an additional filter check to help identify whether the unit corresponds to the Higher education sector as defined in Section 3.5. and which is discussed further in Chapter 9.

3.28 In some cases, the agency compiling R&D statistics may need to reconsider and revise the generic classification available from standard registers if, for example, the classification reported in the register has not been kept up-to-date with the most recent developments relevant to R&D statistics, including

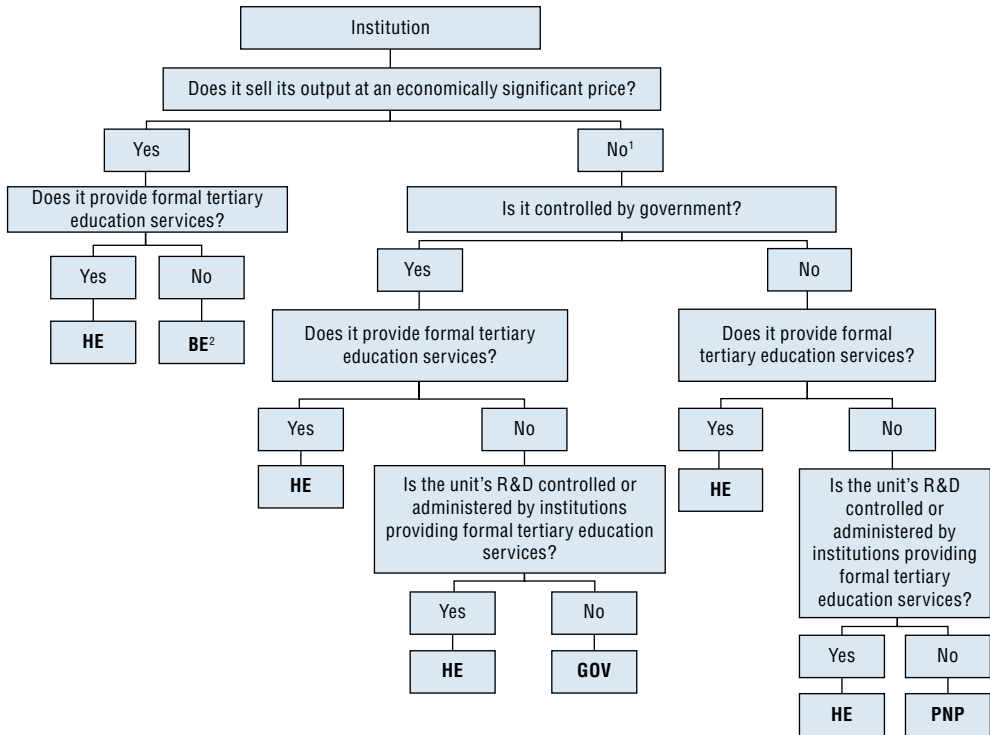
changes in the profile of the statistical unit. Through its R&D system monitoring and relationship building activities, the compiler of R&D statistics may be in a better position to observe and document those changes in the case of specific R&D performing or funding units. These observations by R&D statistics compilers can also be of further value to the compilers of general statistical registers.

Table 3.1. Approximate correspondence between Frascati and SNA institutional sectors

SNA institutional sectors	Frascati sectors			
	Higher education (HE)	Business enterprise (BE)	Government (GOV)	Private non-profit (PNP)
Corporations (financial and non-financial)	HE institutions in the Corporations sector	Same as SNA Corporations sector, including public corporations, but not HE institutions in the Corporations sector		
General government	HE institutions in the General government sector		Same as SNA General government sector, except for the HE institutions	
NPISH	HE institutions in the NPISH sector			Same as SNA NPISH sector, except for the HE institutions in the NPISH sector
Households	Enterprise-like self-employed (most likely captured as quasi corporations)			For completeness: Same as SNA Households sector, except for the households "enterprise-like self-employed"

3.29 For agencies without ready access to official registers, additional efforts are required to ensure a complete, up-to-date classification of statistical units that are potential R&D performers in the economy. In the absence of data-sharing arrangements, agencies in charge of compiling R&D statistics may wish either to apply an SNA-like classification that is expanded by the application of the HE criterion or to adopt a sequential decision process that is more fully focused on R&D statistics, as captured in Figure 3.1.

Figure 3.1. **Decision tree for allocating institutional units to the main sectors in this manual**



Key:
BE Business enterprise sector
HE Higher education sector
GOV Government sector
PNP Private non-profit sector

1. NPIs primarily serving businesses (e.g. trade associations, etc.) are classified in the Business enterprise sector, following the SNA convention of classifying those into the SNA Corporations sector.

2. This sector can be further subdivided into public and private Business enterprises, depending on whether the institution is controlled by government or not. This is analogous to the SNA treatment of public and private corporations.

3.30 In applying the above criteria to the classification of institutional units for R&D statistics, a considerable number of borderline cases will be found. Further guidance on the main sectors and borderline cases is provided in Section 3.5 below, as well as in the chapters dedicated to each sector within this manual. Before considering this, Section 3.4 provides further guidelines on general classification principles and types of classifications of broad relevance that can be used to complement and to inform the Frascati institutional classification.

3.4. General classifications applicable to all institutional units

Classification of units by main economic activity

3.31 The economic activity is defined by the goods or services that are provided and is a feature of broad applicability to all units. All institutional units in an economy can be characterised by the goods or services they provide. A description of the R&D activity on the basis of **economic activity or industries** (defined as consisting of a group of establishments engaged in the same, or similar, kinds of activity; United Nations, 2007) can be relevant for a range of uses. For example, economic activity, by reference to the provision of formal tertiary programmes (UNESCO-UIS, 2012), is a key defining attribute of the Higher education sector as defined in this manual. A further example is provided by units such as hospitals. Their focus on providing health services presents specific challenges that may require a special type of questionnaire to gather data on their R&D activities. The classification by economic activity can help target suitable data-gathering instruments to specific types of units, regardless of the Frascati institutional sector to which they are classified.

3.32 The presentation of R&D statistics can also be greatly assisted by assigning the units to an industry classification. As units with a common economic activity may be classified into different institutional sectors, the classification by economic activity can provide an additional source of insight into the structure and dynamics of R&D across the entire economy, and not only the Business enterprise sector where the main economic activity classification is more systematically applied. For this reason, it is recommended that countries should tag institutional units in all sectors according to their principal economic activity even if they choose not to report these figures on a systematic basis.

3.33 An institutional unit may perform one or more economic activities. Units are classified according to their principal activity. In practice, the majority of production units perform activities of a mixed character. The International Standard Industrial Classification (ISIC) is the reference classification for economic activities (United Nations, 2008). Several countries and areas have their own adaptations of this classification to meet their individual needs, while attempting to keep a common core that allows for international comparability. The identification of a principal activity is necessary to allocate a unit to a particular category in the reference classification of economic activities. In order to determine the principal activity of a unit, the shares of value added (or other appropriate classification variable) by the different categories of activity that the unit undertakes have to be known. In practice, however, it is often impossible to obtain this information, so the activity classification has to be determined by using substitute criteria. Whenever possible and justifiable, the recommendation is that compilers of R&D statistics should avoid making separate classification decisions and use available information from statistical registers.

3.34 A major focus of the economic activity classification of institutional units, in all institutional sectors, relates to the categories of R&D services, health and education. Units involved in these activities can potentially be part of any Frascati institutional sector. The complete presentation of R&D statistics on the basis of an economic activity may possibly reveal some potential differences for units engaged in education services with respect to the total reported for higher education, which can be due to a number of factors, including the distinction between primary and secondary activities. Even for units within the Higher education sector, it is relevant to note whether education is the unit's primary or secondary activity, and what is the role of R&D and possibly health services in the case of university hospitals.

Classification of units according to public or private status

3.35 The distinction between units controlled by government and those independent of it is relevant for the classification process and to identify what share of Business enterprise and Higher education sector R&D should be reported as belonging in the public sector. The public or private status of an institutional unit should be determined by whether or not the unit is **controlled by government**.

3.36 The SNA defines the public sector as comprising general government and public corporations. Thus, a unit in the Business enterprise sector should be classified as being in the public sector on the basis of its being controlled by government. In contrast, a university that is commonly described as "public" but has its own board which can determine all facets of its organisational operations (including acquiring and disposing of assets and incurring liabilities), without approval by government officials, and which can cease its operations without the approval of government authorities, should be represented as private.

3.37 The borderline with public institutions can be difficult to establish, since both may receive significant amounts of government support, either directly or indirectly, and since even public institutions may have a significant degree of autonomy. The key, therefore, is whether the institution is clearly self-governing and not part of the government's administrative system. In some cases the definition of control is challenging, because the power to decide on the allocation and amount of funding can be a means of control. Therefore, in some instances it may be appropriate to use the major source of funding to decide whether the institution is controlled by government or not.

3.38 Although commonly reported as such, the simplified presentation of R&D statistics should not attempt to identify the combination of the Higher education and Government sectors (Business enterprise and Private non-profit) with the category of "public sector" ("private sector"), since this fails to account, for example, for the fact that public enterprises are part of the Business enterprise sector and private and independent universities are part of the Higher education sector. Units tagged as private (or public) across all institutional sectors can be grouped together for the presentation of statistics that meet user requirements.

Classification of units by affiliation status to a broader group, domestic or foreign

3.39 The sub-classification of units on the basis of independence or of affiliation to other units, in the same or a different sector, domestically or abroad, is of clear relevance to understanding the nature of the R&D activity within the unit and to the production of R&D statistics. **Control relationships** can dictate behaviour and decision making within the unit under analysis and underpin flows across the units that may be difficult to capture as transactions. Membership of a larger group of units can also enable access to a wider range of resources for the performance of R&D and influence the way that information on R&D in the unit is managed, stored and shared. The systematic recording of this information and its selective use in the presentation of aggregated statistics is therefore relevant across all types of institutional units, particularly in the Business enterprise sector.

3.40 Specific attributes of institutional units that can be worth recording include:

- Whether the unit is controlled by a separate institutional unit, and/or whether the unit itself controls other institutional units.
- The sector to which the ultimate controlling unit belongs, in particular whether it is a resident unit or is based abroad. For example: is the unit controlled by a non-resident business enterprise or higher education institution?

3.41 As will be discussed in Chapter 4, these dimensions are relevant for informing the recommended breakdowns of R&D by source of funds and by the recipients of R&D funds coming from the statistical unit.

Classification of units into Corporations, General government and Non-profit sectors

3.42 As indicated at the outset of this chapter, there are three types of institutional units with a legal status that can be the object of R&D data collection, and these can differ from the institutional sector they are assigned to:

- **Corporations** comprise all entities that are capable of generating a profit or other financial gain for their owners, that are recognised by law as separate legal entities from their owners who enjoy limited liability, and that are set up for purposes of engaging in market production (EC et al., 2009: para. 4.38). The term covers cooperatives, limited liability partnerships and quasi-corporations. For some practical purposes, this category can be extended to comprise households or individuals formally engaged in market production where the separation of liability is difficult to establish. Overall, this group should essentially match the units identified as business enterprises, details about which are provided in Chapter 7.

- **Government units** are unique kinds of legal entities established by political processes that have legislative, judicial or executive authority over other institutional units within a given area (EC et al. 2009: para. 4.117). These units are of special relevance for the analysis of R&D budgets and tax incentives, as covered in Chapters 12 and 13, respectively. More detailed analysis of government units and the Government sector is provided in Chapter 8.
- **Non-profit institutions (NPIs)** are legal or social entities, created for the purpose of producing goods and services, whose status does not permit them to be a source of income, profit or other financial gain for the units that establish, control or finance them (EC et al., 2009: para. 4.83). They can be engaged in market or non-market production. The interest in identifying the ensemble of NPIs in R&D statistics stems from the rather residual nature of the Private non-profit sector in the main institutional classification, as covered in Chapter 10. This would be consistent with the SNA recommendations on a set of NPI satellite accounts. Not all NPIs are part of the Private non-profit sector; NPIs may be found in Higher education, Business enterprise and Government sectors, depending on the nature of the activities they undertake and whether or not they are controlled by government.

3.43 The institutional units are grouped into sectors in the SNA. The sectors used in this manual are defined in Section 3.5. In the SNA, the Corporations sector (EC et al., 2009: paras 4.94 and 4.98) is equivalent to the Business enterprise sector used in this manual, with the exception of the higher education units discussed in Section 3.5. The General government sector (EC et al., 2009: para. 127) is equivalent to the Government sector, with the exception of the higher education units discussed in Section 3.5. The Non-profit institutions serving households sector (NPISH) (EC et al., 2009: para. 4.166) is included in the Private non-Profit sector (PNP) with the exception of the higher education units discussed in Section 3.5. The PNP sector, for completeness, also includes the SNA Household sector, with the exception of the “enterprise-like self-employed”, which are in the Business enterprise sector.

Classification of units by field of R&D

3.44 The classification by field of R&D (FORD) has been introduced in Chapter 2 to characterise the object of the R&D activity, and it is presented in detail online in the annex guidance to this manual. Two R&D projects can be said to belong to the same field if the main objects of their R&D are the same or sufficiently similar. The degree of similarity in subject matter content can be driven by (a) common knowledge sources drawn upon for the R&D activity carried out; (b) common R&D objects of interest and application areas – the phenomena to be understood or the problems to be solved; and the methods; (c) the techniques and professional identities of the scientists and other R&D workers.

3.45 Because of the great diversity of R&D domains covered within institutional units, the relevance of using this classification for grouping institutional units is limited to Frascati institutional sectors in which R&D-performing units are fundamentally focused on the production of knowledge-based outputs, especially the Higher education sector, and to statistical units that are defined at a relatively disaggregated level. In those cases, the first level of the classification comprising six fields of R&D should be used:

- natural sciences
- engineering and technology
- medical sciences
- agricultural sciences
- social sciences
- humanities and the arts.

3.46 Specific guidance on the use of this classification is provided separately for each sector, and principally from a functional distribution perspective. The more detailed classification is found online in annex guidance to this manual available at <http://oe.cd/frascati>.

Classification of units by geography

3.47 The location of R&D-performing units is of great user interest but is challenging from the perspective of statistics collection, as statistical units defined on the basis of the R&D decision making can span several locations, in different countries and in different regions within each country. A detailed geographical classification is most relevant for local units and establishments. For some types of enquiries, these may be the relevant statistical units, but it may not always be possible to secure data on their own R&D activities, and therefore a geographical classification within a country may not always be possible. A priority for geographical demarcation should be the distinction between resident and non-resident units. Functional distribution approaches based on reporting units that cover more than a single site can also be used to attempt to regionalise R&D data. These methods are the subject of discussion in a separate online guidance to this manual available at <http://oe.cd/frascati>.

Record-keeping practices for institutional classification

3.48 Table 3.2 presents an illustrative example of how statistical agencies can compile comprehensive registers of units to tag them against a number of classifications and relevant descriptors. Similar systems can allow them to address specific national and international user needs on a regular or ad-hoc basis.

Table 3.2. **A simplified example of a potential frame structure tagging statistical units on various dimensions**

	Frascati institutional sector	SNA institutional sector ¹	Primary economic activity ¹	Secondary economic activity (if any) ¹	Private / public status ¹	Non-profit institution (NPI)? ¹	Links to other units ¹
Unit A							
Unit B							
...							

1. Can be adopted from other statistical frameworks or sources as enabled by data-sharing agreements, or imputed by the agency compiling the R&D statistics.

3.49 It is proposed that, in the interest of international **comparability and quality assurance**, countries disclose their classification decisions to the extent that provisions on statistical confidentiality allow them to do so. This is expected to strongly facilitate a better understanding of data differences and to promote convergence towards increased comparability.

3.5. Summary presentation of the Frascati main sectors, their units and borderline cases

3.50 The presentation of the Frascati sectors can be best summarised as four broad sectors comprising three that have a counterpart in the SNA institutional classification (Business enterprise, Government and Private non-profit) plus one sector defined on the basis of meeting user needs for units engaged in higher education, overlaid on the others. This is represented in Figure 3.2.

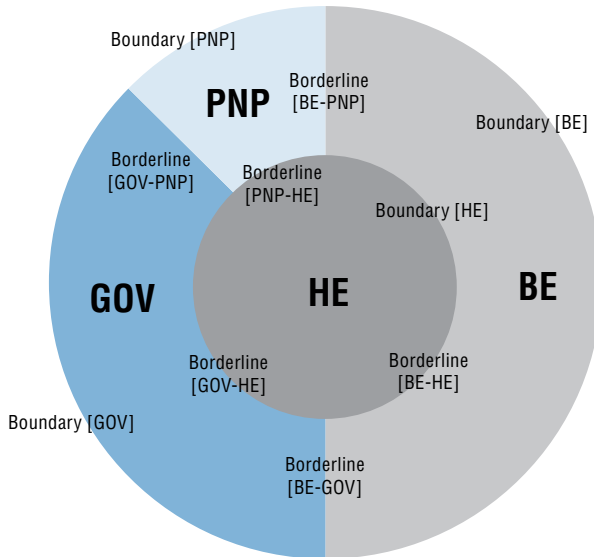
Business enterprise sector

Main characteristics

3.51 The Business enterprise sector comprises:

- 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 NPIs that are market producers of goods or services or serve business.

Figure 3.2. **Stylised representation of domestic Frascati institutional sectors and their borderlines**



Key:	
BE	Business enterprise sector
HE	Higher education sector
GOV	Government sector
PNP	Private non-profit sector

3.52 For these criteria to apply, the unit should not have been classified as part of the Higher education sector as a result of the criteria presented later in this section. This sector comprises both private and public business enterprises.

Statistical units in the Business enterprise sector

3.53 Business enterprises organise their R&D activities in order to better meet their objectives. Data requirements, specified in Chapters 4 and 5 generally and in Chapter 7 for this sector, determine the choice of the statistical unit(s) for business enterprises. Business enterprises can organise the funding and performance of R&D at various possible levels. Strategic decisions concerning the financing and direction of the R&D efforts may be taken at the group level, regardless of national boundaries. Business enterprises engaged in R&D may have activities spanning more than one country.

3.54 The statistical unit for the Business enterprise sector will generally be the enterprise, as defined in Box 3.1. When an enterprise is heterogeneous with regard to its economic activities and carries out significant amounts of R&D for several kinds of activities, a more detailed reporting unit, e.g. on a kind-of-activity basis or on the establishment, may be preferable if the necessary information can be obtained.

Main borderline cases

3.55 Most major borderline cases with other sectors are described later in this section. Some practical challenges may arise when deciding whether a business enterprise unit is resident or not, particularly when it concerns non-incorporated branches of foreign-controlled enterprises. Universities that sell their output at an economically significant price should be classified as part of the Higher education sector on the basis of their primary economic activity. Commercial firms owned by higher education institutions, for example as a result of agreements that give the university a major shareholding position in a spin-off company set up by staff and/or students, should be treated as business enterprises.

3.56 Some classification challenges may arise in the context of special entities created for a given purpose by a number of established institutional units. For example, many public units enter into arrangements with private entities or other public units to undertake a variety of activities jointly, including R&D. As defined in the SNA, a **joint venture** involves the establishment of a corporation, partnership or other institutional unit in which each party legally has joint control over the activities of the unit. The units operate in the same way as other units except that a legal arrangement between the parties establishes joint control over the unit. As an institutional unit, the joint venture may enter into contracts in its own name and raise finance for its own purposes. If they are standalone units, R&D joint ventures should also be classified on the basis of the units they predominantly serve, taking into account established SNA practice whenever possible.

3.57 **Private-private or private-public partnerships** are not necessarily institutional units, but in many cases, contracts between two institutions from different sectors. If these partnerships have the status of institutional units, the classification of such entities depends also on the institution with the greatest interest in the partnership. In some countries, R&D partnerships have a legal status and should also be classified on the basis of the units they predominantly serve.

3.58 Practical difficulties may arise in establishing whether NPIs are or are not engaged in **market production**. Research institutes, clinics, hospitals, medical practitioners in private, fee-paying practices, etc., may be able to raise additional funds in the form of donations or own assets generating property income which allow them to charge below-average prices. Likewise, establishing whether an NPI has been set up for the purpose of serving business may be complicated by the existence of multiple stakeholders who are being served and their variability over time. In general, NPIs created and managed by associations of businesses whose activities they are designed to promote, such as chambers of commerce and agricultural, manufacturing and trade associations, financed by contributions or subscriptions from the businesses concerned, which provide

core or project-based support for their R&D, should be treated as part of the Business enterprise sector.

3.59 The many possible borderline cases relevant to the Business enterprise sector, as well as recommended sub-classifications, are discussed in Chapter 7.

Government sector

Main characteristics

3.60 The Government sector consists of the following groups of resident institutional units:

- 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 in the previous subsection
- all non-market NPIs that are controlled by government units, which are not part of the Higher education sector.

3.61 The sector does not include public corporations, even when all the equity of such corporations is owned by government units. Public enterprises are included in the Business enterprise sector; the defining difference is that public corporations are market producers, while units classified in the Government sector are not.

Statistical units in the Government sector

3.62 This sector comprises government units and non-profit institutions controlled by government. Government units are unique kinds of legal entities established by political processes that have legislative, judicial or executive authority over other institutional units within a given area. These legal units or branches therein assume responsibility for the performance/provision of specific R&D services for the use of government and the benefit of society and the economy, and also finance their direct provision or provision by third parties out of taxation or other incomes. Their engagement in R&D may be principally as funders rather than performers of R&D, but government units may have internal research departments and laboratories that perform some types of R&D activities. Some agencies may be set up and given a separate legal identity to undertake research activities as a primary, secondary or ancillary activity. While the focus of enquiries will depend on whether the interest is in the performance of R&D, the funding of R&D, or both activities, the statistical unit will generally be the institutional unit. However, the data may be gathered at the department, ministry, local authority, agency or government institution, even if the reporting unit does not have all of the characteristics of an institutional unit (i.e. the ability to hold and control assets).

3.63 A substantial share of R&D performance within government units is likely to be carried out by non-profit institutions such as foundations, museums, hospitals and institutes that are controlled by government; the statistical unit

will generally be the enterprise, understood in the sense described in Box 3.1 earlier in this chapter.

Main borderline cases

3.64 Borderline cases between the Government and Higher education sectors are discussed later in this section. The borderline with the PNP sector is fundamentally driven by the extent to which government units control the operations of the relevant statistical unit. Control in this case is the ability to determine the non-market NPI's general policy or programme by having the right to appoint the NPI's management and/or otherwise ultimately direct its decisions. In some cases the definition of control is challenging, because the power to decide on the allocation and amount of funding can be a means of control. Therefore, it may be appropriate to use the major source of funding to decide whether the institution is government controlled or not.

3.65 For government-controlled units, the borderline with the Business enterprise sector is defined by the extent to which the unit operates on a market basis, i.e. whether its principal activity is the production of market goods or services, with the aim of selling most of its products at economically significant prices. A government research institute that may occasionally receive a considerable amount of revenue for the exploitation of some of its intellectual property should not be classified as a public Business enterprise if the majority of its R&D activities are carried out with a non-commercial intent. On the other hand, an institute controlled by government whose operations for example rely on fees for providing R&D services and access to research infrastructure that fully reflect the full economic cost of such services should be classified as a public Business enterprise.

3.66 The many possible borderline cases that affect units in the Government sector and recommended sub-classifications are discussed in Chapter 8 on government R&D.

Higher education sector

Main characteristics

3.67 This sector does not have a direct counterpart in the SNA group of institutional sectors. It is unique to this manual and is defined to reflect a policy-relevant category of R&D-performing institutions. It comprises all universities, colleges of technology and other institutions providing formal tertiary education programmes, whatever their source of finance or legal status, and 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 term "formal" is defined in ISCED (UNESCO-UIS, 2012, para. 36) and is elaborated upon in Chapter 9.

3.68 In this manual, the term “higher education” is used, in most cases, rather than the broader term, “tertiary education”. In referring to the product of higher education institutions, the term “services” will be used, in preference to “programmes”, which is common in education statistics and in ISCED.

3.69 Units in this sector may correspond to units classified by the SNA as either part of the Corporations, General government or NPISH sectors.

Statistical units in the Higher education sector

3.70 The recommendation of this manual is that the enterprise, or its institutional equivalent, be the statistical unit in order to meet the requirement for homogeneous units. However, data could be collected (reported) from the smallest homogeneous unit engaged at the top level of the field of the R&D classification (FORD), or a combination of R&D classifications at this level in the case of units working in interdisciplinary domains. Depending on the ability of the unit to report on personnel, expenditures and funding flows on a consistent basis, as well as on the specific terminology applied in each country, the reporting unit could be a department, a faculty, a centre or institute, or a college. The recommendation is that the reporting unit be determined by its capacity to provide homogeneous statistics.

Main borderline cases

3.71 The sector includes all units (establishments) the primary activity of which is to provide tertiary education services at ISCED level 5, 6, 7 or 8, regardless of their legal status (UNESCO-UIS, 2012: 83). These may be corporations, quasi-corporations belonging to a government unit, market NPIs or NPIs controlled and mainly financed by government or by NPISHs (non-market NPIs). As noted above, the core is made up of universities and colleges of technology. It should be noted that not all tertiary institutions perform R&D.

3.72 **University hospitals and clinics** are included in the HE sector when they provide tertiary education services (possibly as a secondary activity). In the case of **other hospitals and clinics**, these should be treated as part of the Higher education sector only when the entire R&D activity is under the direct control of, or administered by, a higher education institution. The rationale for this is that in such a case the R&D activity can be treated as part of the HE institution’s own R&D performance. Otherwise, the hospital unit should be classified as determined by standard criteria concerning its market focus and the extent to which it is controlled by government. The application of these guidelines may require working with statistical and reporting units below the level of the entire medical institution.

3.73 The Higher education sector comprises **research centres and institutes** where R&D is the primary activity and higher education is a significant core activity, for example, focused on the systematic training of doctoral students. The HE sector also comprises affiliated non-market centres and

institutes for which there is no instructional component but the R&D activities of which are controlled by the higher education institution(s). When neither of these conditions apply, the centre should then be allocated to the relevant sector, namely Business enterprise if it is operating on a market basis (regardless of government control), PNP if it is operating on a non-market basis and not controlled by government, or government if it is nonmarket and controlled by government. Location should not be used as a key criterion.

3.74 The many possible borderline cases that affect higher education units together with recommended sub-classifications for this sector are discussed in Chapter 9.

Private non-profit sector

Main characteristics

3.75 This sector comprises:

- all non-profit institutions serving households (NPISH), as defined in the SNA 2008, except those classified as part of the Higher education sector
- for completeness of presentation, households and private individuals engaged or not engaged in market activities, as explained in the section, *Criteria for the classification of institutional sectors for R&D statistics*, earlier in this chapter.

3.76 Examples of units within this sector may include independent professional and learned societies, and charitable organisations that are not controlled by units in the Government or the Business enterprise sector. These provide individual or collective services to households either without charge or at prices that are not economically significant. Such NPIs may be created by associations of persons to provide goods, or more often services, primarily for the benefit of the members themselves or for general philanthropic purposes. Their activities may be financed by regular membership subscriptions or dues or by donations in cash or in kind from the general public, corporations or government. A potentially much broader group of units in this sector, including households, is likely to be involved in the funding of R&D activities than in performance.

3.77 The statistical guidelines provided in this manual for the measurement of R&D focus on the role played by institutional units as R&D performers. This conforms with the definition of R&D in Chapter 2 and with the explanatory criteria provided to ensure that the definition can be operationalised in a robust way. For completeness, economy of presentation, and primarily for some specific purposes, such as capturing phenomena like philanthropic R&D-funding activity by individuals, households complete the presentation of the economy and are pooled into the PNP sector.

- The roles played by individuals in R&D performance are fundamentally captured through the institutional units that they work for under a wide range of possible arrangements. Individual researchers may in some cases be the target of dedicated surveys, for example, surveys that aim to provide

complementary information to improve the estimation processes that are based on data collected from institutional units (such as to identify the R&D time use component when the information cannot be directly collected from the institutional units).

- Individuals or households may fit the institutional perspective in some instances, in particular when established as legal units or registered in other forms without the ability to separate their liabilities but still being formally organised. The difficulties both in ensuring that the criteria laid down in Chapter 2 are met and in capturing these micro-units are discussed in Chapter 6 and the dedicated sector chapters, in particular Chapter 7 for Business enterprises.

3.78 Individuals and the households they belong to make several other types of valuable contributions to R&D knowledge, not only as funders (e.g. as philanthropists) or as subjects of research (e.g. as participants in clinical trials) but also as active creators of new knowledge (e.g. as compilers of scientific data and as inventors). There are several examples in the history of science of breakthroughs arising from individual efforts, and new types of individual engagement are being facilitated by networks that enable competitions and collaboration across informal groups of individuals as well as with formal institutional units. The coverage of individuals with regards to their engagement in research or broader innovation activity, for example as volunteers, is part of the general “research” agenda in the area of science, technology and innovation indicators. However, a general approach for implementation across countries cannot be recommended at this point. Any experimental efforts undertaken at the country level to measure R&D undertaken by individuals should not be combined with the normal presentation of R&D statistics.

Statistical units in the Private non-profit sector

3.79 This manual recommends that the statistical unit for the PNP sector should be defined at the enterprise level (as broadly defined in this chapter). Judgement must be exercised when dealing with complex institutions and the smallest homogeneous unit engaged in a single field of R&D. An example is the case of PNP units working in specific interdisciplinary domains. When a major Private non-profit unit has significant R&D activity in more than one field of R&D, and records are available, an attempt may be made to collect data for the statistical unit from smaller units and classify them to relevant fields of R&D.

Main borderline cases

3.80 Borderline cases with Higher education and Government sectors have been discussed in the previous sub-sections. Those non-profit units offering higher education services or controlled by institutions of higher education should be classified as part of the Higher education sector. As indicated in this chapter,

control should be the main criterion applied. But in some cases the definition of control is challenging, because the power to decide on the allocation and amount of funding can be a means of control. Therefore, it can be appropriate to use the major source of funding as a qualifying criterion to decide whether the institution is government-controlled or not.

3.81 In line with the SNA, **non-profit institutions that are controlled by or primarily serve business enterprises**, such as trade associations, industry-controlled research institutes, etc., should be classified as part of the Business enterprise sector even if the institutions operate on the basis of subscriptions that barely cover their operating costs.

3.82 The market activities of **unincorporated enterprises owned by households**, i.e. self-employed consultants who undertake R&D projects for another unit at an economically significant price, should be included in the Business enterprise sector whenever practicable and whenever it is possible to demonstrate, in the case of performance, the R&D criteria established in Chapter 2.

3.83 As previously indicated, the activities of **individuals** to pursue in their own time their personal interests as researchers or inventors are currently beyond the scope of the institutional approach to R&D statistics presented in this manual.

3.84 The appropriate treatment of individuals who may be part of a group of **persons employed** in a fully-fledged institutional unit, but not as employees, and who directly receive funds for their R&D activities from third parties is discussed in Chapter 4 on R&D expenditures and sources of funds and in Chapter 5 on R&D personnel.

3.85 Also beyond the scope of this manual are the informal sector and any R&D activities that may be undertaken there, either by individuals or by “enterprises of informal employers” (EC et al., 2009: 475). As noted in the SNA 2008 Manual (EC et al., 2009: 474), dealing with the informal sector is an issue not just for developing countries, but for all economies, whatever their state of development.

3.86 The many possible borderline cases that affect institutions in the PNP sector and the treatment of households and individuals, as well as the recommended sub-classifications, are discussed in Chapter 10 on private non-profit R&D.

Rest of the world

Main characteristics

3.87 This sector is defined on the basis of the non-residence status of the relevant units. The Rest of the world sector consists of all non-resident institutional units that enter into transactions with resident units, or have other

economic links with resident units. The concept of residence has been explained in Section 3.3. The Rest of the world includes:

- 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, defined below, including facilities and operations within the country's borders.

3.88 From the perspective of the agency compiling R&D statistics, it is convenient to refer to non-resident units as resident abroad or in the Rest of the world. Whenever statistics are reported for institutional sectors, as well as for the total economy, it is recommended to report funding flows for R&D with the Rest of the world, as indicated in Chapters 4 and 11. Transactions with the Rest of the world are recorded as if it is a de facto sector. The definition of this sector is also relevant for characterising R&D performance in the domestic economy by resident units with affiliation relationships to the Rest of the world.

Statistical units in the Rest of the world sector

3.89 The description of statistical units in the Rest of the world sector is not relevant in this case, as no statistical data collection is recommended for national compilers of R&D statistics.

Main borderline cases

3.90 Resident units may run operations outside the economic territory of a country, including the use of testing grounds, vehicles, ships, aircraft and space satellites operated by domestic entities. These are generally not institutional units separate from the domestic entity. In the SNA, all owners of land, buildings and immovable structures in the economic territory of a country, or units holding long leases on either, are deemed always to have a centre of economic interest in that country. All land and buildings are therefore treated as if owned by residents, and special units are created for that particular purpose.

3.91 When a unit maintains a site, branch, office or production site in another country in order to engage in R&D over a long period of time (usually taken to be one year or more), the branch, office or site is considered a separate institutional unit resident in the country in which it is located. If an institution from country A maintains a long-standing presence for years in host country B, even if the teams rotate for a period of less than a year, R&D statistics would treat this situation as there being a separate unit in country B. This separate unit would be within the scope of data collection for compilers in country B.

3.92 The concepts of economic territory and residence are designed to ensure that each institutional unit is a resident of a single economic territory. For this reason, it is recommended that national agencies compiling R&D statistics

coordinate their assessment of the residency of units at the boundaries of meeting the residence criterion with those of other countries potentially involved.

3.93 Some countries may be part of an institutional agreement that involves monetary flows from the member countries to the associated **supranational authority** (see Glossary for definition) and from the supranational authority to R&D-performing units. The supranational authority itself may also engage in R&D. For the individual countries, the supranational authorities are non-resident institutional units that are part of the rest of the world and may be classified in a specific subsector of the Rest of the world sector. In this manual, the terms “supranational authorities” and “supranational organisations” are used interchangeably.

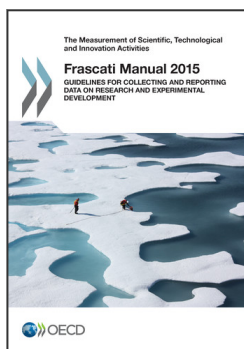
3.94 According to the SNA, **international organisations** have as members either national states or other international organisations whose members are national states. They are established by formal political agreements between their members that have the status of international treaties; their existence is recognised by law in their member countries, and they are not subject to the laws or regulations of the country, or countries, in which they are located. For example, they cannot be compelled by national authorities to provide statistical information on their R&D performance or funding activities. For the purposes of the SNA and also for R&D statistics, international organisations are treated as units that are resident in the Rest of the world, regardless of the physical location of their premises or operations.

3.95 In order to attain a complete representation of R&D activities on an area or even global basis, the relevant supranational and international statistical organisations should work to ensure full coverage of the units that lie beyond the scope of national statistical authorities and agencies. When by virtue of specific agreements, national compilers can collect data from these organisations, for example to better capture linkages with domestic units, the reporting of national figures should conform with the guidance in this manual to treat these units as part of the Rest of the world sector.

3.96 The types of units, their sub-classifications and boundary cases are discussed in Chapter 11 on R&D globalisation.

References

- EC, IMF, OECD, UN and the World Bank (2009), *System of National Accounts*, United Nations, New York. <https://unstats.un.org/unsd/nationalaccount/docs/sna2008.pdf>.
- UNESCO-UIS (2012), *International Standard Classification of Education (ISCED) 2011*, UIS, Montreal. www.uis.unesco.org/Education/Documents/isced-2011-en.pdf.
- United Nations (2008), *International Standard Industrial Classification of All Economic Activities (ISIC), Rev. 4*, United Nations, New York. <https://unstats.un.org/unsd/cr/registry/isic-4.asp> and http://unstats.un.org/unsd/publication/seriesM/seriesm_4rev4e.pdf.
- United Nations (2007), *Statistical Units*, United Nations, New York. <http://unstats.un.org/unsd/isdts/docs/StatisticalUnits.pdf>.



From:

Frascati Manual 2015

Guidelines for Collecting and Reporting Data on Research and Experimental Development

Access the complete publication at:

<https://doi.org/10.1787/9789264239012-en>

Please cite this chapter as:

OECD (2015), "Institutional sectors and classifications for R&D statistics", in *Frascati Manual 2015: Guidelines for Collecting and Reporting Data on Research and Experimental Development*, OECD Publishing, Paris.

DOI: <https://doi.org/10.1787/9789264239012-5-en>

This work is published under the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of OECD member countries.

This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

You can copy, download or print OECD content for your own use, and you can include excerpts from OECD publications, databases and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that suitable acknowledgment of OECD as source and copyright owner is given. All requests for public or commercial use and translation rights should be submitted to rights@oecd.org. Requests for permission to photocopy portions of this material for public or commercial use shall be addressed directly to the Copyright Clearance Center (CCC) at info@copyright.com or the Centre français d'exploitation du droit de copie (CFC) at contact@cfcopies.com.