

# R&D Expenditure



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The basic measure is “intramural expenditures”; *i.e.* all expenditures for R&D performed within a statistical unit or sector of the economy.

Another measure, “extramural expenditures”, covers payments for R&D performed outside the statistical unit or sector of the economy.

For R&D purposes, both current costs and capital expenditures are measured.

## **Intramural expenditures**



Intramural expenditures are all expenditures for R&D performed within a statistical unit or sector of the economy during a specific period, whatever the source of funds.

## **Extramural expenditures**



Extramural expenditures are the sums a unit, organisation or sector reports having paid or committed themselves to pay to another unit, organisation or sector for the performance of R&D during a specific period. This includes acquisition of R&D performed by other units and grants given to others for performing R&D.



Depreciation costs are excluded.

R&D is an activity involving significant transfers of resources among units, organisations and sectors and especially between government and other performers. It is important for science policy advisors and analysts to know who finances R&D and who performs it.



A statistical unit may have expenditures on R&D either within the unit (intramural) or outside it (extramural). The full procedure for measuring these expenditures is as follows:

Identify the intramural expenditure on R&D performed by each statistical unit.

Identify the sources of funds for these intramural R&D expenditures as reported by the performer.

Aggregate the data by sectors of performance and sources of funds to derive significant national totals.

Optional: Identify the extramural R&D expenditures of each statistical unit.



R&D expenditure refers to resources actually spent in R&D activities, rather than only budgeted. Therefore, the way to obtain sound data is to rely on responses of R&D performers, rather than funding agencies.



**Current costs** are composed of:

*labour costs of R&D personnel* (annual wages and salaries and all associated costs or fringe benefits) and

*other current costs* (non-capital purchases of materials, supplies and equipment to support R&D, including water, gas and electricity; books, journals, reference materials, subscriptions to libraries, scientific societies, etc.; materials for laboratories such as chemicals or animals, costs for on-site consultants, administrative and other overhead costs (e.g. office, post and telecommunications, insurance), costs for indirect services (e.g. security; storage; use, repair and maintenance of buildings and equipment; computer services; and printing of R&D reports), labour costs of non-R&D personnel).



**Capital expenditures** are the annual gross expenditures on fixed assets used in the R&D programmes of statistical units, including land and buildings, instruments and equipment, and computer software.

Expenditure should be reported in full for the period when it took place and should not be registered as an element of depreciation.

All depreciation provisions for building, plant and equipment, whether real or imputed, should be excluded from the measurement of intramural R&D expenditures.



### **Criteria for identifying flows of R&D funds**

There must be a direct transfer of resources.

The transfer must be both intended and used for the performance of R&D.

## universities' "own funds"



To finance their R&D activities, universities usually draw on three types of funds:

The general grant they receive from the ministry of education or from the corresponding provincial or local authorities in support of their overall research/teaching activities. As government is the original source and has intended at least part of the funds concerned to be devoted to R&D, *the R&D content of these public general university funds should be credited to government as a source of funds.*

Income from endowments, shareholdings and property, plus surplus from the sale of non-R&D services such as fees from individual students, subscriptions to journals and sale of serum or agricultural produce. *These are the universities' "own funds".*

R&D contracts and earmarked grants received from government and other outside sources. *These should be credited to their original source.*

## Sources of Funds



**Business enterprise.** All firms, organisations and institutions whose primary activity is the market production of goods or services - other than higher education - for sale to the general public at an economically significant price, as well as the private non-profit institutions mainly serving them. Includes public enterprises.

**Government** All departments, offices and other bodies which furnish, but normally do not sell to the community, those common services, other than higher education, which cannot otherwise be conveniently and economically provided, as well as those that administer the state and the economic and social policy of the community, as well as NPI is controlled and mainly financed by government, but not administered by the higher education sector Public enterprises are excluded.



**Private non-profit.** Non-market, private non-profit institutions serving households (*i.e.* the general public), private individuals or households.

**Higher education.** All universities, colleges of technology and other institutions of post-secondary education, whatever their source of finance or legal status; all research institutes, experimental stations and clinics operating under the direct control of or administered by or associated with higher education institutions.

**Abroad.** All institutions and individuals located outside the political borders of a country, except vehicles, ships, aircraft and space satellites operated by domestic entities and testing grounds acquired by such entities; all international organisations (except business enterprises), including facilities and operations within the country's borders.

## Gross domestic expenditure on R&D (GERD)



GERD includes R&D performed within a country and funded from abroad but excludes payments for R&D performed abroad.



Table 6.1. Gross domestic expenditure on R&amp;D (GERD)

Funding source	Sector of performance				Total
	Business enterprise	Government	Private non-profit	Higher education	
Business enterprise					Total domestic performance financed by the business enterprise sector
Government					Total domestic performance financed by the government sector
Public general university funds (GUF)					Total domestic performance financed by public general university funds (GUF)
Higher education					Total domestic performance financed by the higher education sector
Private non-profit (PNP)					Total domestic performance financed by the private non-profit sector
Abroad					Total domestic performance financed by abroad
<ul style="list-style-type: none"> <li>• Foreign enterprises</li> <li>  - Within the same group</li> <li>  - Other</li> <li>• Foreign government</li> <li>• European Union</li> <li>• International organisations</li> <li>• Other</li> </ul>					
<b>Total</b>	<b>Total performed in the business enterprise sector</b>	<b>Total performed in the government sector</b>	<b>Total performed in the private non-profit sector</b>	<b>Total performed in the higher education sector</b>	<b>GNERD</b>

Source: OECD.

## Gross national expenditure on R&D (GNERD)



The GNERD aggregate comprises total expenditure on R&D financed by a country's institutions during a given period. It includes R&D performed abroad but financed by national institutions or residents; it excludes R&D performed within a country but funded from abroad.



Table 6.2. Gross national expenditure on R&amp;D (GERD)

Funding sector	Sector of performance								Total
	National territory				Abroad				
	Business enterprise	Government	Private non-profit	Higher education	Business enterprise		International organisations	Other	
Within the same group					Other business enterprise				
Business enterprise									Total financed by the business enterprise sector
Government									Total financed by the government sector
Public period university funds (PUF)									Total financed by public PUF
Higher education									Total financed by the higher education sector
Private non-profit									Total financed by the PNP sector
<b>Total</b>	<b>Total nationally financed performed in the business enterprise sector</b>	<b>Total nationally financed performed in the government sector</b>	<b>Total nationally financed performed in the private non-profit sector</b>	<b>Total nationally financed performed in the higher education sector</b>	<b>Total nationally financed performed abroad in business enterprise within the same group</b>	<b>Total nationally financed performed abroad in other business enterprise</b>	<b>Total nationally financed performed abroad in international organisations</b>	<b>Total nationally financed performed abroad in other</b>	<b>GERD</b>

Source: OECD



# THANK YOU