



PRESS RELEASE

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The Research and Development Activity in 2012

For the correct interpretation of results, kindly see the methodological note on pages 5 and 6 of the press release.

In 2012, Romania spent 2872.7 million lei for the research and development activity. The research and development expenditure was 0.49% of the GDP^{*)}, 0.01 pp more compared to 2011.

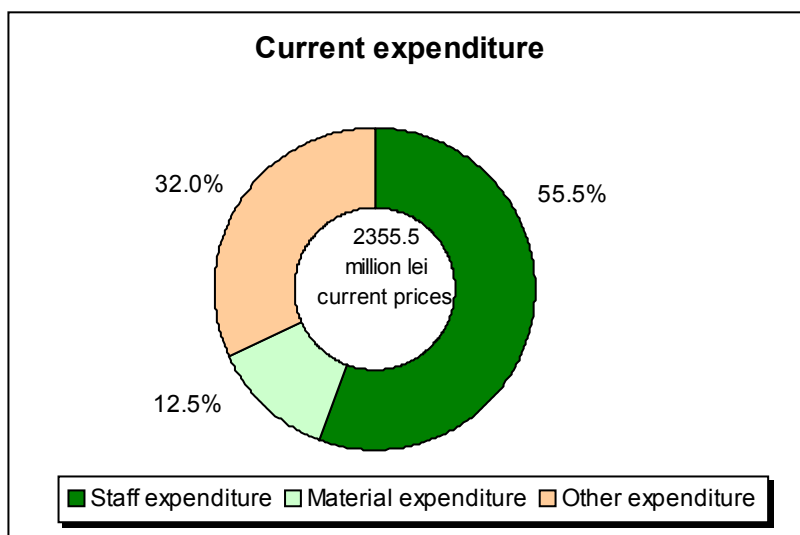
At the end of 2012, 42674 employees were involved in the research and development activity, a number of employees almost similar to that registered at the end of 2011.

The expenditure with the research and development activity

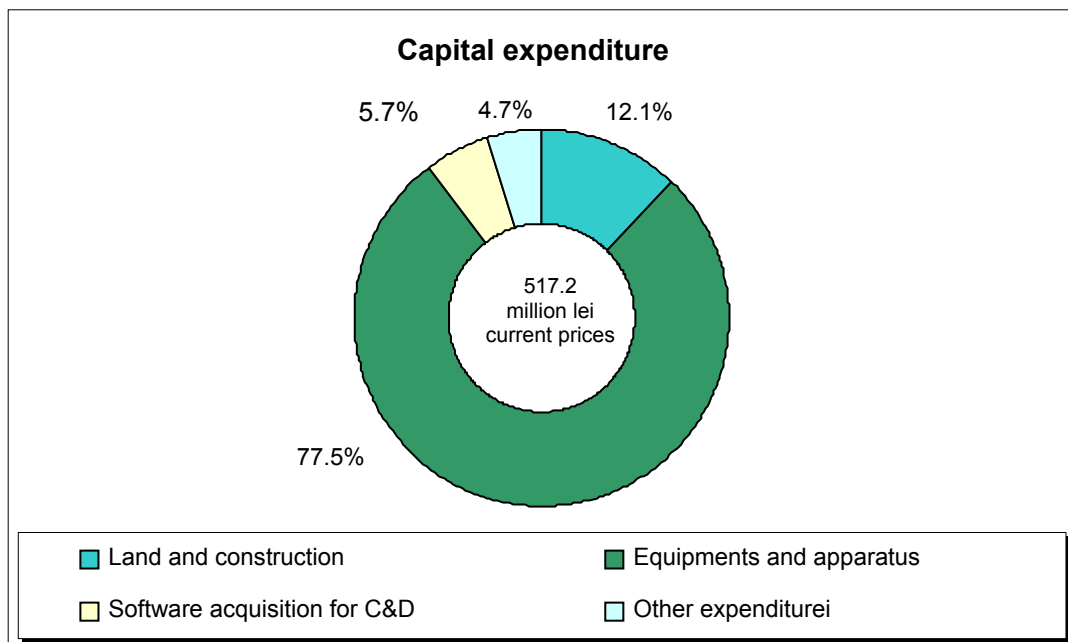
In 2012, 2872.7 million lei were spent on research and development, in its four sectors of performance, out of which 2355.5 million lei were current expenditure, 82.0% respectively, and 517.2 million lei were capital expenditure, 18.0 %, respectively.

Compared to 2011, the weight of the capital expenditure for the endowment of the units that had a research and development activity decreased by 1.2 pp in 2012.

The structure of the current and capital expenditures for the research and development activity, by components, in 2012



^{*)} Gross Domestic Product-Estimated data



In 2012, compared to 2011, the **basic research** decreased by 2.0 pp in the total expenditure, that is from 43.4% to 41.4%. In 2012, **the applied research** registered an increase of 2.2 pp in total expenditure that is from 39.2% to 41.4%. In 2012, compared to 2011, the **experimental development** maintained its same weight in the total expenditure.

As to the **sources of funds** of the research and development total expenditure in 2012, the public funds have the highest weight, that is 49.9%, followed by the sources from enterprises, 30.9%, respectively.

From public funds, the units in the governmental sector received the largest sums (59.5%), followed by the units in the higher education sector (25.0%). The financing sources for the research and development activity from abroad have been mostly oriented towards the units in the business sector (37.7%) and in the higher education sector (35.9%).

**Total research and development expenditure, by sources of funds
and by sectors of performance, in 2012**

- million lei current prices -

Sectors of performance / Sources of funds	TOTAL	Business sector	Governmental sector	Higher education sector	Non-profit private sector
TOTAL	2872.7	1119.4	1175.3	566.6	11.4
Enterprises	888.0	719.2	126.2	42.2	0.4
Public funds	1434.8	219.1	853.9	358.1	3.7
Higher education units	17.3	1.8	9.3	6.2	*)
Private non-profit	2.8	*)	0.1	0.8	1.9
Abroad	414.9	156.4	108.3	148.8	1.4
Other sources	114.9	22.9	77.5	10.5	4.0

*) under 0.05%

The **research and development intensity** (calculated as a ratio between the total expenditure with research and development activity and the Gross Domestic Product) registered in 2012 a weight of 0.49%, 0.01 pp more compared to 2011.

In 2012, the expenditure from public funds held a weight of 0.24% of the GDP, increasing by 0.01 pp compared to 2011.

The employees involved in the research and development activity

On December 31, 2012, 42674 persons worked in the research and development activity, out of which 19774 were women, that is 46.3%.

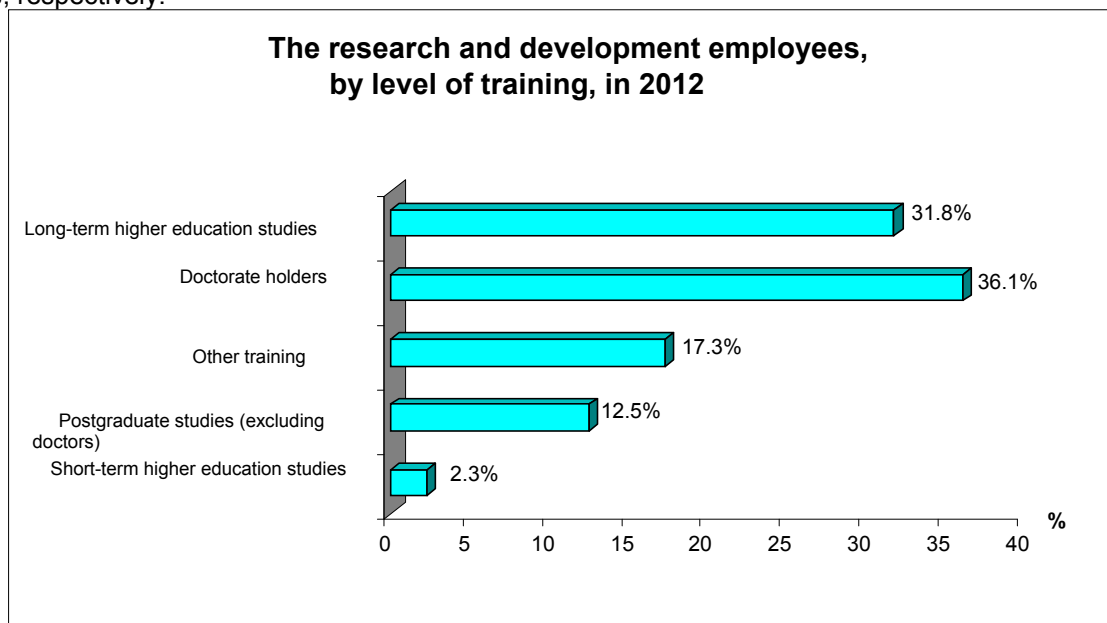
The research and development employees, by sectors of performance, in 2012, compared to 2011

- number at the end of the year -

	2011		2012	
	Employees total	out of which: women	Employees total	out of which: women
TOTAL	42363	19596	42674	19774
Business sector	11575	4681	11883	4752
Government sector	11106	5301	11867	5792
Higher education sector	19461	9511	18700	9103
Non-profit private sector	221	103	224	127

By **the level of education**, out of the total number of research and development employees existent at the end of 2012, 35315 had higher education studies (82.8% din total) and 7359 had other kind of education, higher education excluded. PH.D. degree employees and long-term higher education studies employees held the highest weight, of 36.1% and 31.8%, respectively, while short-term higher education studies employees held the lowest weight, of 2.3%.

In 2012, the number of the doctorate holders who worked in the research and development activity was of 15414 persons, 773 persons more compared to 2011, out of which 6938 female doctorate graduates, 45.0%, respectively.



Out of the employees who worked in the research and development activity in 2012, by **the effective working hours**, 73.0% had full-time equivalent jobs.

**The research and development employees, by sectors of performance,
in 2012, compared to 2011**

- full-time equivalent -

	2011		2012	
	Employees total	out of which: women	Employees total	out of which: women
TOTAL	29749	13848	31135	14419
Business sector	10002	3998	10887	4400
Government sector	10675	5097	11381	5549
Higher education sector	8879	4664	8710	4382
Non-profit private sector	193	89	157	88

In 2012, by **occupation**, the highest weight of the research and development employees was that of the researchers, 65.2% of the total, 27838 employees, respectively, increasing by 2349 employees compared to 2011. The weight of the category "technicians and similar" was of 13.6%, 5800 employees, respectively.

**The research and development employees, by occupation,
in 2012, compared to 2011**

- number at the end of the year -

	2011		2012	
	Employees total	out of which: women	Employees total	out of which: women
TOTAL	42363	19596	42674	19774
Researchers	25489	11738	27838	12565
Technicians and similar	6380	2861	5800	2660
Other categories of employees	10494	4997	9036	4549

The distribution of the researchers, by age groups, shows that in the governmental sector as well as in the higher education sector, the highest weight is held by the researchers included in the 35-44 years age group.

METHODOLOGICAL NOTE

1. Data source: The annual statistical surveys concerning the research and development activity (**CD-GOV** – “**The statistical survey on the research and development activity of the public/governmental sector**”, **CD-HES** – “**The statistical survey on the research and development activity of higher education and university clinics sector**”, **CD-PNP** – “**The statistical survey on the research and development activity of the non-profit sector**” and **CDI-BES** – “**The integrated statistical survey on the research and development and innovation activity of the companies in the business sector**” – questionnaires available at the following address: <https://esop.insse.ro/esop-web/> through which data on the indicators related to human resources and expenditure are collected according to Decision 1608/2003/EC of the European Parliament and Council regarding the production and development of the Community statistics from science and technology.

A novelty in our country is the fact that The National Institute of Statistics has released, beginning with the reference year 2011, the new above mentioned statistical questionnaires meant for the statistical units in accordance with the performance sectors of the economy, also taking into consideration the recommendations of the Frascati Manual, 2002 edition, where it is specified that both the known units, which have research and development activity, and the unknown ones, potential to carry out this activity, should be addressed.

The specific survey CDI-BES brings in an additional novelty for the companies in the business sector. Besides the indicators related to the research and development activity, the survey also deals with the innovation activity, the indicators being present in an integrated questionnaire, structured according to the new statistical demands.

2. The statistical survey is selective type for the survey CDI-BES and exhaustive type for the rest of the surveys, namely CD-GOV, CD-HES and CD-PNP, taking into consideration the selection criteria of the units included in the 4 nomenclatures of the surveys. For the **survey CDI-BES**, the type of survey used and the procedure of the sample extraction is that of the stratified survey with simple random selection without come back within each stratum, in which the stratification variables where the economic activity, the size class of the enterprise according to the number of employees and the development region represent the stratification variables. The statistical survey regards all the enterprises, regardless of the size class and/or the economic activity. The enterprises with 100 employees and over are exhaustively surveyed. The size classes according to the number of employees are as follows: 0-9 (micro), 10-49 (small), 50-249 (medium) and 250 and over (big). A number of **16190 enterprises** represented the statistical population for the **survey CDI BES**. The base of sample selection ensures representativeness calculated according to the turnover of 95% of the total active units. The maximum admitted error of estimations is of $\pm 5\%$. For the surveys CD-GOV, CD-HES and CD-PNP the survey is of exhaustive type and involved a number of **632 units for CD-GOV, 157 units for CD-HES and 294 units for CD-PNP.**

3. Concepts and definitions

The experimental research and development is the systematic and creative activity undertaken to enhance the knowledge, including knowledge of man and culture and use this knowledge for new applications.

The experimental research-development (hereafter named research-development) includes:

- **The basic research**, theoretic or experimental activity mainly initiated to accumulate new knowledge regarding the fundamental aspects of the noticeable phenomena and facts without considering a special or particular application;
- **The applied research** is an original investigation activity intended to facilitate the accumulation of new knowledge, being mainly oriented towards a particular practical objective or purpose;
- **The experimental development** is the systematic activity which uses the existing knowledge gained from research and / or practical experience in order to launch into production of new materials, products and devices, to introduce new processes, systems and services or to substantially improve the existing ones.

The statistical data related to the research and development activity also include the technological design.

The human and financial resources from the research and development domain are presented by **sectors of performance**, according to the methodology in the Frascati Workbook of OECD, the 2002 edition, similar to those in the National Account System, as follows:

- **The business performance sector (BES-business)** covers the business units of the national economy that have primary or secondary activity the research and development, known or unknown at the moment of achieving the sample of the reporting units.

- This sector includes: all the companies, organisations and institutions in the business sector having as main activity the production of goods and services meant for the market.

- The basic core of the performance sector BES is made up of **private companies** (corporations or quasi-corporations), even if they make or not profit. Among these companies one can encounter certain firms, for which the research and development activity is the main activity (such as: research and development commercial units and labs).

Additionally, this sector can include **public companies** (public corporations or governmental quasi-corporations) engaged in the production and sale of a certain type of goods and services which are usually provided by private companies.

This sector also includes **the non-profit institutions which are direct producers of goods and services**, other than the services of higher education, such as:

-the non-profit institutions engaged in the market production which have as main activity the production of goods and

services to be sold for a price that covers the main production costs. In this sector can also be included research institutes, certain private clinics and hospitals, companies providing various medical services in exchange for a payment, that can attract additional funds in the form of donations or from own assets.

-the non-profit institutions that serve the business sector. They are created and guided by associations belonging to the business sector that aim at the promotion of own activity, such as the agricultural or commercial associations.

- **The government performance sector (GOV-governmental)** consists of all governmental units (budgetary authorising ministries meant for research and development activity included), units that provide public services, those with research and development activities of the central, local or governmental administration, as well as the research- and development national institutes.

- **The higher education performance sector (HES-higher education)** includes all the state and private units of higher education, as well as medical clinics, under direct guidance or administered in association with institutions of higher education sector, which have research and development activities.

- **The non-profit private performance sector (PNP-private non-profit)** consists of associations, trust companies, centres, organizations, syndicates, parties and political groups that have research and development activities. The family associations are also included in this category.

Generally, these units provide individual or collective services without pay or for a totally insignificant price.

The staffs in the research and development activity consist of the persons that take part in the research subjects or provide services directly related to this activity.

The research and development staff has been grouped according to several criteria (some concerns the personnel with higher qualification), as follows:

a) By occupation:

- **Researchers** – experts working at the design and creation of knowledge, products and processes, methods and systems. This category includes certified scientists and other categories of higher education personnel directly engaged the research and development activity;
- **Technicians and similar** - staff with a medium level of education or completed with a post-secondary specialized training in a technical or other field of expertise. They participate to the research and development activity by applying the principles and operational methods directly under the control of researchers;
- **Other categories** - workers and secretarial and office personnel involved in the research and development projects or directly involved in the execution of such projects.

b) By level of education:

- Higher education staff (holders of Ph.D. title included);
- Staff with other degree of education (excluding superior);

The research and development staffs were also calculated in "**full-time equivalent**" by transforming the number of part-time employees in equivalent full-time employees, according to working time devoted to this activity.

Current expenditure includes all the payments made in the units during a period of time, representing the cost of the working force, of materials and of other current expenditure.

Capital expenditure (investments) includes the payments made during a period of time for construction works, for the purchase of devices, instruments, machines and equipments or other expenditure of the kind, intended to contribute to the augmentation of the volume of the unit assets.

Total expenditure (current and of capital) related to the research and development activity have been grouped by the financing source, as follows:

- **From enterprises**, intended for achieving the research and development works contracted by them, as well as from the resources derived from activities of production, micro-production, economies with the general expenditure of the unit and other sources at the discretion of the unit;
- **From public funds**, mainly managed by the funds coordinators and used for financing the research-development works based on contracts and general programmes financed from the budget;
- **From the higher education units**, for achieving the research-development works contracted by them, as well as the collecting from the micro-production, sale of magazines, journals, taxes from students, rentals of spaces, etc;
- **From the non-profit institutions**, for achieving the research-development works contracted by professional organisations, syndicates, cultural associations, charity or friendly societies, etc;
- **From funds from abroad**, for research and development activities, sources from international organisations, governments or foreign institutions, included.
- **Other financing sources.**

For more information, kindly see the statistical publication "The Research-Development Activity in 2012", date of issue November 29, 2013.

The next issue of the press release will be in November 2014.