

Questionnaire manual: Research and development (R&D) (in companies)

Questionnaire code: 11342024

Submitted in: 05.08.2024, data about 2023

Periodicity: Annual

p. 1/9

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DATA COLLECTED WITH THE QUESTIONNAIRE

Table 1.0. GENERAL DATA

If the main goal is to technically improve a product or process, the performed work is classified as R&D. If a product, process or an approach is developed and the main goal of the work is market expansion, pre-production planning or the smooth work of the control system, the activity is not classified as R&D.

R&D is creative systematic work, the aim of which is to obtain new knowledge, including knowledge about man, culture and society, and the implementation of such knowledge.

Row code/ column code	Name of variable * - mandatory	Code of variable	Explanation	Type of data (number of decimals) or list/ classification name	You need not fill in the value: period, economic activity
1 / 1	Number of persons employed at the end of the reference period	RD_EMP_P	No. of persons employed includes all employees working in the undertaking, irrespective of the length of their work week: owners working in the undertaking and their family members working free of charge; full or part time employees; persons who work outside the undertaking (marketing personnel) but belong to the staff of the undertaking and are on payroll; persons temporarily absent from work (sick leaves, paid holidays, educational leaves, on strike); trainees (apprentices), seasonal and remote employees who are on payroll; persons employed under contract for services. Family members working free of charge are persons who live together with the owner of the undertaking and work regularly in the undertaking without an employment contract and without getting paid. The no. of persons employed does not include the employees of other companies who are active in this undertaking, executing its orders, also persons absent for a longer period of time (parental leave, military service).	Positive integer	
2 / 1	Existence of internal R&D costs *	RD_ENT_YES	Existence of internal R&D costs in the reference period. If the company only outsourced R&D services, the answer to this question is 'No'. The main criterion of R&D is innovativeness and the absence of a solution for a scientific or a technological problem in the early stage of the work. R&D is the research and development work carried out in the company. A broader definition of R&D: if the main goal is to technically improve a product or process, the work performed is classified as R&D. If a product, process or an approach has basically been developed and the main goal of the work is market expansion, pre-production planning or the smooth performance of a control system, the activity is not classified as R&D.	valik_jah_ei_1v	

Questionnaire manual: Research and development (R&D) (in companies)

Questionnaire code: 11342024

Submitted in: 05.08.2024, data about 2023

p. 2/9

Table 1.1. EMPLOYEES ENGAGED IN RESEARCH AND DEVELOPMENT BY EDUCATION AND SEX AND WORKING TIME SPENT ON RESEARCH AND DEVELOPMENT

Number of employees engaged in R&D includes people who are directly related to such activities and spend at least 10% of their working time on the said activities. In columns 1–7, indicate the number of such employees by level of education, sex and category. In column 8, indicate the working time spent on R&D in the reference year in full-time years by category (without the estimated distribution by sex).

Row code/ column code	Name of variable * - mandatory	Code of variable	Explanation	Type of data (number of decimals) or list/ classification name	You need not fill in the value: period, economic activity
1 / 1	Number of employees engaged in R&D at the end of the reference period: total with doctoral degree – men and women	RD_PER MF_DOC_BES	Number of employees with a doctoral degree engaged in R&D at the end of the reference year – total scientists and engineers, technicians and assistant personnel.	Positive integer	
1 / 2	Number of employees engaged in R&D at the end of the reference period: total with doctoral degree – women	RD_PER F_DOC_BES	Number of female employees with a doctoral degree engaged in R&D at the end of the reference year – total scientists and engineers, technicians and assistant personnel.	Positive integer	
1 / 3	Number of employees engaged in R&D at the end of the reference period: other R&D personnel with doctoral degree – total	RD_OTH MF_DOC	Number of technicians and support staff with a doctoral degree at the end of the reference period.	Positive integer	
1 / 4	Number of employees engaged in R&D at the end of the reference period: other R&D personnel with doctoral degree – women	RD_OTH F_DOC	Number of female technicians and support staff with a doctoral degree at the end of the reference period.	Positive integer	
2 / 1	Number of employees engaged in R&D at the end of the reference period: researchers and engineers with a master's degree, academic higher education or professional higher education – total	RD_RES MF_HIGH	Number of researchers and engineers with a master's degree, academic higher education or professional higher education at the end of the reference period.	Positive integer	
2 / 2	Number of employees engaged in R&D at the end of the reference period: researchers and engineers with a master's degree, academic higher education or a professional higher education – women	RD_RES F_HIGH	Number of female researchers and engineers with a master's degree, academic higher education or professional higher education at the end of the reference period.	Positive integer	

Questionnaire manual: Research and development (R&D) (in companies)

Questionnaire code: 11342024

Submitted in: 05.08.2024, data about 2023

p. 3/9

2 / 3	Number of employees engaged in R&D at the end of the reference period: other R&D personnel with a master's degree, academic higher education or professional higher education – total	RD_OTH MF_HIG H	Number of technicians and support staff with a master's degree, academic higher education or professional higher education at the end of the reference period.	Positive integer	
2 / 4	Number of employees engaged in R&D at the end of the reference period: other R&D personnel with a master's degree, academic higher education or professional higher education – women	RD_OTH F_HIGH	Number of female technicians and support staff with a master's degree, academic higher education or professional higher education at the end of the reference period.	Positive integer	
3 / 3	Number of employees engaged in R&D at the end of the reference period: other R&D personnel with secondary or professional secondary education or without secondary education – total	RD_OTH MF_SEC N	Number of technicians and support staff with secondary or professional secondary education or without secondary education at the end of the reference period.	Positive integer	
3 / 4	Number of employees engaged in R&D at the end of the reference period: other R&D personnel with secondary or professional secondary education or without secondary education – women	RD_OTH F_SECN	Number of female R&D personnel with secondary or professional secondary education or without secondary education at the end of the reference period.	Positive integer	

Table 1.2. EMPLOYEES ENGAGED IN RESEARCH AND DEVELOPMENT IN THE COMPANY BY LEVEL OF EDUCATION AT THE END OF THE REFERENCE YEAR

Working time spent on R&D in full-time years in the reference year (estimate). The difference between Table 1.1 and Table 1.2 is that Table 1.2 also takes into account the working time spent on R&D by those employees who are no longer employed at the end of the year or who spent less than 10% of their working time on R&D. In other words, all working time spent on R&D in the reference year is taken into account.

Row code/ column code	Name of variable * - mandatory	Code of variable	Explanation	Type of data (number of decimals) or list/ classification name	You need not fill in the value: period, economic activity
1 / 1	Working time spent on R&D in the company in full-time years in	RD_RES MF_FTE _ENT	Working time of researchers and engineers spent on R&D in full-time years in the reference year: total men and women.	Positive real number (0,2)	

Questionnaire manual: Research and development (R&D) (in companies)

Questionnaire code: 11342024

Submitted in: 05.08.2024, data about 2023

p. 4/9

	the reference period: total researchers and engineers				
2 / 1	Working time spent on R&D in full-time equivalent in the reference period: researchers and engineers in business – women	FTE_RE S_F	Total working time spent on R&D by female researchers and engineers in the reference year.	Positive real number (0,2)	
3 / 1	Full-time equivalent (FTE) hours spent on R&D in the reference period: other R&D personnel in scientific areas – total	RD_OTH MF_FTE _SCF	Full-time equivalent (FTE) hours spent on R&D by technicians and support staff in all scientific areas during the reference period.	Positive real number (0,2)	
4 / 1	Full-time equivalent (FTE) hours spent on R&D in the reference period: other R&D personnel in scientific areas – women in total	RD_OTH F_FTE_ SCF	Full-time equivalent (FTE) hours spent on R&D by female technicians and support staff in all scientific areas during the reference period.	Positive real number (0,2)	

Table 2. RESEARCHERS AND ENGINEERS BY AGE AT THE END OF THE REFERENCE YEAR

Age distribution of researchers and engineers at the end of the reference year. The total number of researchers and engineers must be equal to the corresponding number in Table 1.1.

Row code/ column code	Name of variable * - mandatory	Code of variable	Explanation	Type of data (number of decimals) or list/ classification name	You need not fill in the value: period, economic activity
1 / 2	Number of researchers and engineers at the end of the reference period: up to 25-year-olds – men and women	RD_RES MF_AGE 1	Number of researchers and engineers aged under 25 at the end of the reference period.	Positive integer	
1 / 3	Number of researchers and engineers at the end of the reference period: 25–34-year-olds – men and women	RD_RES MF_AGE 2	Number of researchers and engineers aged 25–34 at the end of the reference period.	Positive integer	
1 / 4	Number of researchers and engineers at the end of the reference period: 35–44-year-olds – men and women	RD_RES MF_AGE 3	Number of researchers and engineers aged 35–44 at the end of the reference period.	Positive integer	
1 / 5	Number of researchers and engineers at the end of the reference period: 45–54-year-olds – men and women	RD_RES MF_AGE 4	Number of researchers and engineers aged 45–54 at the end of the reference period.	Positive integer	
1 / 6	Number of researchers and	RD_RES MF_AGE	Number of researchers and engineers aged 55–64 at the end of the reference period.	Positive integer	

Questionnaire manual: Research and development (R&D) (in companies)

Questionnaire code: 11342024

Submitted in: 05.08.2024, data about 2023

p. 5/9

	engineers at the end of the reference period: 55–64-year-olds – men and women	5			
1 / 7	Number of researchers and engineers at the end of the reference period: at least 65-year-olds – men and women	RD_RES MF_AGE 6	Number of researchers and engineers aged 65 and over at the end of the reference period.	Positive integer	
2 / 2	Number of researchers and engineers at the end of the reference period: up to 25-year-olds – women	RD_RES F_AGE1	Number of under 25-year-old female researchers and engineers at the end of the reference year.	Positive integer	
2 / 3	Number of researchers and engineers at the end of the reference period: 25–34-year-olds – women	RD_RES F_AGE2	Number of 25–34-year-old female researchers and engineers at the end of the reference year.	Positive integer	
2 / 4	Number of researchers and engineers at the end of the reference period: 35–44-year-olds – women	RD_RES F_AGE3	Number of 35–44-year-old female researchers and engineers at the end of the reference year.	Positive integer	
2 / 5	Number of researchers and engineers at the end of the reference period: 45–54-year-olds – women	RD_RES F_AGE4	Number of 45–54-year-old female researchers and engineers at the end of the reference year.	Positive integer	
2 / 6	Number of researchers and engineers at the end of the reference period: 55–64-year-olds – women	RD_RES F_AGE5	Number of 55–64-year-old female researchers and engineers at the end of the reference year.	Positive integer	
2 / 7	Number of researchers and engineers at the end of the reference period: at least 65-year-olds – women	RD_RES F_AGE6	Number of at least 65-year-old female researchers and engineers at the end of the reference year.	Positive integer	

Table 3. COSTS OF INTERNAL RESEARCH AND DEVELOPMENT

The costs should be estimated taking into account only the share of total costs that is related to R&D. Thus, the labour costs of employees engaged in R&D should reflect only the working time spent on R&D.

Row code/ column code	Name of variable * - mandatory	Code of variable	Explanation	Type of data (number of decimals) or list/ classification name	You need not fill in the value: period, economic activity
2 / 1	Costs of internal R&D: labour costs	RD_EXP LAB_ENT	Labour costs (salary expenses, social tax and unemployment insurance premium) – salary expenses of employees engaged in R&D (basic wage or salary, premiums, holiday pay, allowances and other costs related to the employees, which are handled as salary expenses) and the social tax	Positive integer	

Questionnaire manual: Research and development (R&D) (in companies)

Questionnaire code: 11342024

Submitted in: 05.08.2024, data about 2023

			and unemployment insurance premium proportionally with the working time spent on R&D. Also indicate social tax from fringe benefits and calculated holiday reserve.		
3 / 1	R&D costs in organisation – other current costs	RD_EXP_CUR_OTH	Other current costs – lease and rent of buildings and/or premises, fees for electricity, water and heating, expenditure on the purchase of smaller equipment, instruments, materials and other current assets, business travels, repairs, communication services, etc. Depreciation costs are not included in the R&D costs. Also indicate the labour costs of persons not directly involved in R&D (security service, cleaning and maintenance personnel, etc.), if their activities were related to the premises or equipment used for R&D.	Positive integer	
5 / 1	R&D costs in organisation – acquisition, construction and capital repairs of buildings and facilities	RD_EXP_BUI_INS	R&D costs (investments) for the acquisition, building and capital repairs of buildings and facilities (incl. for reconstruction or extension), also for the acquisition of land.	Positive integer	
6 / 1	Funding of internal R&D costs: investments into non-current assets – acquisition of equipment, apparatus, machinery, inventory and means of transport	RD_EXP_EQU_ENT	Costs related to the acquisition of equipment, apparatus, machinery, inventory and means of transport in R&D. If the listed non-current assets are also used in production, then the share of such costs which is related to R&D is also added.	Positive integer	
7 / 1	Internal R&D costs: investments into non-current assets – acquisition of computers and computer systems	RD_EXP_ITH	Acquisition of computers and computer systems only for the purpose of R&D activities. If the listed non-current assets are also used in production, then the share of such costs which is related to R&D is also added.	Positive integer	
8 / 1	Funding of internal R&D costs: investments into non-current assets – acquisition of intangible fixed assets	RD_EXP_INV2	Acquisition of intangible fixed assets – costs on the acquisition special software, licences, patents, etc. necessary for R&D activities.	Positive integer	
9 / 1	Internal R&D costs: investments into non-current assets – other investments related to R&D	RD_EXP_INV3	Other investments related to R&D projects.	Positive integer	

Table 3.1. SHARES OF COSTS ON TYPES OF INTERNAL RESEARCH AND DEVELOPMENT

R&D costs are divided into three types: basic research – original surveys for obtaining new knowledge, without the aim of immediate implementation of such knowledge; applied research – original surveys with the aim to apply such knowledge in one specific field or for a specific purpose; experimental development – systematic work which is conducted based on the knowledge from basic and applied research for developing a new or improved material, product, process, system or service.

Row code/ column code	Name of variable * - mandatory	Code of variable	Explanation	Type of data (number of decimals) or list/ classification name	You need not fill in the value: period, economic activity
1 / 1	R&D costs by type of R&D: scientific areas – total basic research	RD_EXP_SCI_BAS	Total R&D expenditure on basic research by scientific area.	Positive integer	
2 / 1	R&D costs by type of R&D: scientific areas – total applied research	RD_EXP_SCI_AP	Total R&D expenditure on applied research by scientific area.	Positive integer	
3 / 1	R&D costs by type	RD_EXP	Total R&D expenditure on experimental development by	Positive	

Questionnaire manual: Research and development (R&D) (in companies)

Questionnaire code: 11342024

Submitted in: 05.08.2024, data about 2023

p. 7/9

	of R&D: scientific areas – total experimental development works	_SCI_EX W	scientific area.	integer	
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Table 3.2. SHARE OF INTERNAL BIOTECHNOLOGICAL RESEARCH AND DEVELOPMENT

Biotechnology is the application of science and technology in different areas on live organisms and parts thereof, products or models with the aim to make living or inanimate material into knowledge, products or services.

Row code/ column code	Name of variable * - mandatory	Code of variable	Explanation	Type of data (number of decimals) or list/ classification name	You need not fill in the value: period, economic activity
1 / 1	R&D costs by type of R&D: total biotechnology	RD_EXP _SCI_BI O		Positive integer	

Table 3.3 SHARE OF INTERNAL NANOTECHNOLOGICAL RESEARCH AND DEVELOPMENT

Row code/ column code	Name of variable * - mandatory	Code of variable	Explanation	Type of data (number of decimals) or list/ classification name	You need not fill in the value: period, economic activity
1 / 1	R&D costs by type of R&D: total in the field of nanotechnology	RD_EXP _SCI_NA NO	R&D expenditure in the field of nanotechnology.	Positive integer	

Table 4. FUNDING OF INTERNAL R&D COSTS IN THE REFERENCE YEAR

In Table 4, the total costs indicated in Tables 3 and 3.1 are distributed by source of funding. Support from the EU, international organisations, foreign countries and non-governmental organisations of foreign countries granted through the state budget is considered funding from the state, not funding from foreign sources.

Row code/ column code	Name of variable * - mandatory	Code of variable	Explanation	Type of data (number of decimals) or list/ classification name	You need not fill in the value: period, economic activity
2 / 1	Funding of R&D costs: enterprise's own funds	RD_EXP _BES	R&D expenditure covered by the enterprise's own funds.	Positive integer	
3 / 1	Funding of R&D costs: state funds	RD_EXP _GOV	R&D expenditure covered by state funds.	Positive integer	
4 / 1	Funding of internal R&D costs: higher education institutions and their research organisations	RD_EXP _HES	Internal R&D costs were funded by higher education institutions or their research organisations.	Positive integer	
5 / 1	Funding of internal R&D costs: non-profit organisations and foundations	RD_EXP _PNP	Internal R&D costs were funded by non-profit organisations or foundations, except ETAg, EAS and those listed under variables RD_EXP_GOV3 and RD_EXP_HES.	Positive integer	
6 / 1	Funding of internal R&D costs:	RD_EXP _BES6	Internal R&D costs were funded by other Estonian companies.	Positive integer	

Questionnaire manual: Research and development (R&D) (in companies)

Questionnaire code: 11342024

Submitted in: 05.08.2024, data about 2023

p. 8/9

	Estonian companies				
8 / 1	Funding of internal R&D costs: foreign companies	RD_EXP_FOR1	Internal R&D costs were funded by foreign companies.	Positive integer	
9 / 1	Funding of internal R&D costs: foreign funds and endowments	RD_EXP_FOR2	Internal R&D costs were funded by foreign funds or endowments.	Positive integer	
10 / 1	Funding of internal R&D costs: European Union research grants	RD_EXP_FOR3	Internal R&D costs were funded by research grants from the European Union.	Positive integer	
11 / 1	Funding of internal R&D costs: other foreign funding	RD_EXP_FOR4	Internal R&D costs were funded by a foreign funding source not listed under variables RD_EXP_FOR1, RD_EXP_FOR2, RD_EXP_FOR3.	Positive integer	

Table 5. RESEARCH AND DEVELOPMENT PLANNED FOR THE CURRENT YEAR

Row code/ column code	Name of variable * - mandatory	Code of variable	Explanation	Type of data (number of decimals) or list/ classification name	You need not fill in the value: period, economic activity
1 / 1	Existence of internal R&D costs in the year following the reference period *	RD_EXP_YES_NEW	Existence of internal R&D costs in the year following the reference period. If the company only outsourced the R&D service, the answer to this question is no. The main criterion of R&D is innovativeness and the absence of solution for a scientific or a technological problem at the early stage of the work. R&d is the research and development work carried out in the company. The main rule of R&D in a somewhat wider perspective: if the main goal is to technically improve a product or process, the performed work is classified as R&D. If a product, process or an approach is basically developed and the main goal of the work is market expansion, pre-production planning or the smooth work of the control system, the activity is not classified as R&D.	valik_jah_ei_1v	
2 / 1	Estimated amount of internal R&D costs in the year following the reference period	RD_EXP_NEW	Estimated amount of R&D costs in the year following the reference period. The main criterion of R&D is innovativeness and the absence of solution for a scientific or a technological problem at the early stage of the work. R&d is the research and development work carried out in the company. The main rule of R&D in a somewhat wider perspective: if the main goal is to technically improve a product or process, the performed work is classified as R&D. If a product, process or an approach is basically developed and the main goal of the work is market expansion, pre-production planning or the smooth work of the control system, the activity is not classified as R&D.	Positive integer	

Table 6. TIME SPENT ON FILLING OUT THE QUESTIONNAIRE

Please estimate how much time you spent on filling out the questionnaire (incl. time spent on reading the instructions, collecting and preparing data). Record the total time spent by all employees.

Row code/ column code	Name of variable * - mandatory	Code of variable	Explanation	Type of data (number of decimals) or list/ classification name	You need not fill in the value: period, economic activity
/	Number of hours spent on completing the questionnaire and collecting and preparing the necessary data	TAITMIS EAEGTU NDI	Number of hours spent by all employees on completing the questionnaire. The time spent on completing the questionnaire includes the time spent on reviewing instructions, collecting and preparing the necessary data.	Positive integer	

Questionnaire manual: Research and development (R&D) (in companies)

Questionnaire code: 11342024

Submitted in: 05.08.2024, data about 2023

p. 9/9

/	Number of minutes spent on completing the questionnaire and collecting and preparing the necessary data	TAITMIS EAEGMI NUTIT	Number of minutes spent by all employees on completing the questionnaire. The time spent on completing the questionnaire includes the time spent on reviewing instructions, collecting and preparing data. Permitted value range 0–59.	Positive integer	
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Table Y2. Overall assessment on the questionnaire

Row code/ column code	Name of variable * - mandatory	Code of variable	Explanation	Type of data (number of decimals) or list/ classification name	You neet not fill in the value: period, economic activity
/	Overall assessment on the ease of completing the questionnaire	TAGASI SY_1		rahulolu_vaga_lihtne_vaga_keeruline_5L	

Table Y3. Suggestions and comments

Row code/ column code	Name of variable * - mandatory	Code of variable	Explanation	Type of data (number of decimals) or list/ classification name	You neet not fill in the value: period, economic activity
/	Suggestions and comments	TAGASI S_TESS T		Text	