

Research and Development Survey 2021

Quote these numbers in any correspondence

	Name:	
	Address:	
	Town/Village:	Postcode:

Complete or amend if details are INCORRECT

In pursuance of the provisions of the Malta Statistics Authority Act 2000, you are requested to complete and forward this questionnaire to the National Statistics Office, Lascaris, Valletta, within one month of receipt.

This survey collects data which is essential to assure availability of pertinent statistical information to monitor Science and Technology (S&T) related activities in Malta and to support the development of S&T policy. Data provided will be amalgamated and used to plan and evaluate Research and Development (R&D) incentives programmes. Results will be available to: business and trade associations for market analysis, assessment of industry performance, operating characteristics and trends; government bodies to develop national economic policy; other users for research and policy making.

Please answer all questions; your best estimates are satisfactory when precise figures are not available.

We thank you for your kind cooperation.

Christianne Micallef
Head of Unit: Unit B4
Business Register, Research and Innovation

Contact person:	Position held:
Tel. no:	Fax no:
E-mail:	Date:
Signature	

0. Basic Information - 2021:

Main Activity:	Number of employees:
-----------------------	-----------------------------

1. Intramural R&D Personnel

1.1a How many, both full-time and part-time persons, were involved in intramural R&D activities within your enterprise in 2021?

- Persons both inside and outside your R&D department are to be included.
- External R&D personnel such as self-employed consultants and hire employees are to be included.
- Persons performing less than 0.1 Fulltime Equivalent (FTE) on R&D activity should not be reported (i.e. less than 20 working days in a year).

Involved in R&D:	Males		Females	
	Full-time	Part-time	Full-time	Part-time
Researchers				
Technicians and equivalents				
Other supporting staff				
Total R&D Personnel				

1.1b Of which were external R&D personnel

- Include self-employed consultants and hire employees.

Involved in R&D:	Males		Females	
	Full-time	Part-time	Full-time	Part-time
Researchers				
Technicians and equivalents				
Other supporting staff				
Total R&D Personnel				

1.1c Part-Time R&D staff performing less than 0.1 FTE i.e. less than 20 working days in a year (not included in 1.1a):

Number of Staff _____ Payroll cost related to R&D € _____

1.2 Please specify the number of R&D personnel by qualification and sex for 2021.

	Males		Females	
	Full-time	Part-time	Full-time	Part-time
PhD graduates				
Masters and first degree graduates				
Diplomas				
Other qualification incl. experience				

Note: Total R&D personnel must be equal to the total given in question 1.1a.

1.3 Please specify the number of R&D researchers by qualification and sex for 2021.

	Males		Females	
	Full-time	Part-time	Full-time	Part-time
PhD graduates				
Masters and first degree graduates				
Diplomas				
Other qualification incl. experience				

Note: Total R&D researchers must be equal to the total researchers given in question 1.1a.

1.4 Please specify the number of R&D researchers by citizenship, age and sex for 2021.

Researchers Citizenship	Males	Females
Maltese		
Other EU Member		
Other European		
North America		
Central & South America		
Asia		
Africa		
Other Citizenship		

Researchers Age group	Males	Females
Less than 25		
25 - 34		
35 - 44		
45 -54		
55 - 64		
65 +		

Note: Total R&D researchers must be equal to the total researchers given in question 1.1a.

1.5 Please specify the number of R&D personnel by their major field of Research for 2021.

Major Field of Research & Development	Researchers				Technicians				Other supporting staff				
	Males		Females		Males		Females		Males		Females		
	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time	
Natural sciences													
Engineering and technology													
Medical sciences													
Agricultural sciences													
Social sciences													
Humanities													
Total R&D personnel													

Note: Total R&D personnel must be equal to the total given in question 1.1a.

2. Expenditure on intramural R&D

2.1a Please specify Intramural R&D expenditure under each of the following headings:

- Include only actual expenditure, VAT and other similar taxes must be excluded.
- Depreciation charges are to be excluded.
- Extramural R&D expenditure (R&D performed by other organisation) should not be included.
- Persons performing less than 0.1 FTE on R&D activity should not be reported (i.e. less than 20 working days in a year).

Type of costs	2021
	€
Total current expenditure:	
Labour Costs: (wages, salaries and all associated costs of personnel directly associated with R&D)	
Other Current Costs: (External R&D personnel, such as consultants, non-capital purchases of materials, supplies and equipment; literature and subscriptions overheads associated with R&D)	
Capital expenditure:	
Land and Buildings: (land acquired for R&D, including major improvements, modifications and repairs)	
Instruments and equipment: (major instruments and other equipment acquired wholly for R&D purposes)	
Capitalised computer Software	
Other Intellectual Property Products	
Total expenditure	

2.1b Does the enterprise fund R&D activity outside Malta?

Yes No 2021
 € _____

2.2 Please specify your R&D expenditure, by the following major fields of Research and Development.

Major field of research	2021
	€
Natural sciences	
Engineering and technology	
Medical sciences	
Agricultural sciences	
Social sciences	
Humanities	

Note: Total expenditure must be equal to the expenditure given in question 2.1a

2.3 Please specify your R&D expenditure by the following socio-economic objectives.

Socio-economic objective	2021
	€
Exploration and Exploitation of the Earth	
Environment	
Exploration and Exploitation of Space	
Transport, telecommunication and other infrastructures	
Energy	
Industrial production and technology	
Health	
Agriculture	
Education	
Culture, recreation, religion and mass media	
Political and social systems, structures and processes	
General advancement of knowledge	
Defence	

Note: Total expenditure must be equal to the expenditure given in question 2.1a

2.4 Please specify your R&D expenditure by the following types of R&D.

Type of R&D	2021	
	€	
	Total R&D expenditure	of which total current expenditure
Basic research		
Applied research		
Experimental development		

Note: Total expenditure must be equal to the expenditure given in question 2.1a

3. R&D sources of funds

3.1 Please specify, the sources of your funds for R&D.

Type of R&D	2021
	€
Business enterprise:	
Own enterprise or enterprises within the same group	
Other business enterprise companies	
Central government	
Higher education	
Private non-profit	
Funds from abroad	

Note: Total expenditure must be equal to the expenditure given in question 2.1a

3.2 Please specify the total funds from abroad given in the above table by type of Financing Institution.

Funds from abroad by type of Financing Institution	2021 €		
	EU	NON EU	Total
Foreign business enterprises:			
Enterprises within the same group			
Other business enterprise companies			
Other national governments			
Private Higher education			
Public Higher education			
Private non-profit			
European commission			
Private International organisations			
Public International organisations			

4. R&D activity detail:

Please describe in detail the results of your R&D activities (e.g. manufacturing of food products, manufacturing of computers etc.) and provide its relative expenditure.

	2021
_____	€ <input type="text"/>
_____	€ <input type="text"/>
_____	€ <input type="text"/>

DEFINITION OF RESEARCH AND DEVELOPMENT (R&D)

Research and experimental development (R&D) comprise creative and systematic work undertaken in order to increase the stock of knowledge - including knowledge of humankind, culture and society - and to devise new applications of available knowledge.

R&D activities may be aimed at achieving either specific or general objectives. R&D is always aimed at new findings, based on original concepts (and their interpretation) or hypotheses. It is largely uncertain about its final outcome (or at least about the quantity of time and resources needed to achieve it), it is planned for and budgeted (even when carried out by individuals), and it is aimed at producing results that could be either freely transferred or traded in a marketplace.

Three types of R&D may be distinguished:

1. **Basic Research:** Experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without any particular applications or use in view.
2. **Applied Research:** Original investigation undertaken in order to acquire new knowledge. It is, however, directed primarily towards a specific, practical aim or objective.
3. **Experimental Development:** Systematic work, drawing on knowledge gained from research and practical experience and producing additional knowledge, which is directed to producing new products or processes or to improve existing products or processes.

Research and development includes the activities described above whether assigned to separate R&D organizational units of the department/ entity or carried out by department/entity's laboratories and technical groups not part of an R&D organization.

If the primary objective of the work is to conduct research on something relevant to the entity or make improvements to products or processes, then the work comes within the definition of R&D. On the other hand, if the product, process or approach is substantially set and the primary objective is to develop markets, do pre-production planning or get a production or control system working smoothly, then the work is no longer R&D.

Below is a list of activities to be excluded from R&D. However, should the activities below be undertaken as part of an R&D process, they should be included as R&D.

1. **All education and training of personnel** in universities and special institutions of higher and post-secondary education.
2. Scientific and technical information services such as **collecting, coding, recording, classifying, dissemination, translating, analyzing and evaluating** by scientific and technical personnel, bibliographic services, patent statistics, scientific and technical information, extension and advisory services and scientific conferences
3. **General purpose data collection** is undertaken generally by government agencies to record natural, biological or social phenomena that are of general public interest or that only the government has the resource to record. Examples are routine topographical mapping; routine geological, hydrological, and meteorological surveying; astronomical observations. Hence, data collected for other or general purposes and not as part of an R&D process, such as quarterly sampling of unemployment, should be **excluded** from R&D even if exploited for research. Market surveys should also be **excluded**.
4. **Testing and Maintenance** of national standards, the calibration of secondary standards and routine testing and analysis of materials, components, products, processes, soils, atmosphere, etc.
5. **Feasibility studies** include the investigation of proposed engineering projects, using existing techniques to provide additional information before deciding on implementation.
6. **Specialized health care** concerning routine investigation and normal application of specialized medical knowledge.
7. **Patent and license work** including all administrative and legal work connected with patents and licenses.
8. **Policy-related studies** cover a range of activities, such as the analysis and assessment of the existing programmes, policies and operations of government departments; the work of units concerned with the continuing analysis and monitoring of external phenomena (e.g. defense and security analysis); and the work of legislative commissions of inquiry with general government or departmental policy or operations.
9. **Routine software development:** Software-related activities of a routine nature are not considered to be R&D. Technical problems that have been overcome in previous projects on the same operating systems and computer architecture are also excluded. This also includes routine computer maintenance.

PERSONNEL OF THIS REPORTING UNIT ENGAGED IN R&D

R&D may be carried out by persons who work solely on R&D projects or by persons who devote only part of their time to R&D. The latter should be considered as part timers related to R&D activities.

RESEARCHERS' SUPPORTING STAFF:

Technicians and technologists – Technically trained personnel who assist scientists and engineers in R&D, e.g. chemical technicians, drafts persons. They may be certified by either provincial educational authorities or by provincial or national scientific or engineering associations.

Other Supporting Staff – Personnel directly engaged in the R&D program e.g. machinists and electricians in construction of prototypes, or clerks, typists, accountants and storekeepers engaged in the administration or clerical support of R&D units.

FIELDS OF RESEARCH & DEVELOPMENT

- | | |
|---|---|
| 1. Natural sciences | 1.1 Mathematics
1.2 Computer and information sciences
1.3 Physical sciences
1.4 Chemical sciences
1.5 Earth and related environmental sciences
1.6 Biological sciences
1.7 Other natural sciences |
| 2. Engineering and technology | 2.1 Civil engineering
2.2 Electrical engineering, electronic engineering, information engineering
2.3 Mechanical engineering
2.4 Chemical engineering
2.5 Materials engineering
2.6 Medical engineering
2.7 Environmental engineering
2.8 Environmental biotechnology
2.9 Industrial biotechnology
2.10 Nano-technology
2.11 Other engineering and technologies |
| 3. Medical and health sciences | 3.1 Basic medicine
3.2 Clinical medicine
3.3 Health sciences
3.4 Medical biotechnology
3.5 Other medical science |
| 4. Agricultural and veterinary sciences | 4.1 Agriculture, forestry, and fisheries
4.2 Animal and dairy science
4.3 Veterinary science
4.4 Agricultural biotechnology
4.5 Other agricultural sciences |
| 5. Social sciences | 5.1 Psychology and cognitive sciences
5.2 Economics and business
5.3 Education
5.4 Sociology
5.5 Law
5.6 Political science
5.7 Social and economic geography
5.8 Media and communications
5.9 Other social sciences |
| 6. Humanities and the arts | 6.1 History and archaeology
6.2 Languages and literature
6.3 Philosophy, ethics and religion
6.4 Arts (arts, history of arts, performing arts, music)
6.5 Other humanities |

SOCIO-ECONOMIC OBJECTIVES (SEO) - NABS 2007

1: EXPLORATION AND EXPLOITATION OF THE EARTH – R&D RELATED TO:

- The exploration of the earth's crust and mantle, seas, oceans and atmosphere, and their exploitation.
- Climatic and meteorological research, polar exploration and hydrology
- Mineral, oil and natural gas prospecting
- Exploration and exploitation of the sea-bed
- Earth's crust and mantle excluding sea-bed
- Atmosphere sea and oceans

Does not include R&D related to pollution (SEO 2), soil improvement (SEO 4), and, land-use and fishing (SEO 8).

2: ENVIRONMENT – R&D RELATED TO:

- The control of pollution, aimed at the identification and analysis of the sources of pollution and their causes, and all pollutants, including their dispersal in the environment and the effects on man, species (fauna, flora, microorganisms) and biosphere;
- Development of monitoring facilities for the measurement of all kinds of pollution;
- The elimination and prevention of all forms of pollution in all types of environment.
- Protection of atmosphere and climate, ambient air and water, soil and groundwater, species and habitats and against natural hazards
- Radioactive pollution, noise and vibration and solid waste.

3: EXPLORATION AND EXPLOITATION OF SPACE – R&D RELATED TO:

- **Civil Space** (scientific exploration of space, applied research programmes, launch systems and space laboratories and space travel).

4: TRANSPORT, TELECOMMUNICATION AND OTHER INFRASTRUCTURES – R&D RELATED TO:

- Infrastructure and land development, including the construction of buildings;
- The general planning of land-use;
- Protection against harmful effects in town and country planning.

This SEO also includes R&D related to, transport systems, telecommunication systems, general planning of land-use, construction and planning of building, civil engineering and water supply. It does not include R&D related to other types of pollution than harmful effects in town (SEO 2).

5: ENERGY – R&D RELATED TO:

- The production, storage, transportation, distribution and rational use of all forms of energy;
- Processes designed to increase the efficiency of energy production and distribution;
- The study of energy conservation.

This SEO also includes R&D related to, Energy efficiency, CO2 capture and storage, Renewable energy sources, Nuclear fission and fusion, Hydrogen and fuel cells, and, Other power and storage technologies. Does not include R&D related to, prospecting (SEO 1), and, vehicle and engine propulsion (SEO 6).

6: INDUSTRIAL PRODUCTION AND TECHNOLOGY – R&D RELATED TO:

- The improvement of industrial production and technology
- Industrial products and their manufacturing processes

This SEO also includes R&D related to, increasing economic efficiency and competitiveness, all manufactures, and, recycling waste. It does not include R&D related to industrial products and their manufacturing processes where they form an integral part of other objectives (e.g. defence, space, energy, agriculture).

7: HEALTH – R&D RELATED TO:

- Protecting, promoting and restoring human health – broadly. Interpreted to include health aspects of nutrition and food hygiene. It ranges from preventative medicine, including all aspects of medical and surgical treatment, both for individuals and groups, and the provision of hospital and home care, to social medicine and paediatric and geriatric research.
- Prevention, surveillance and control of communicable and non-communicable diseases
- Monitoring the health situation
- Health promotion
- Occupational health
- Public health legislation and regulations
- Public health management
- Specific public health services
- Personal health care for vulnerable and high risk populations

8: AGRICULTURE – R&D RELATED TO:

- The promotion of agriculture, forestry, fisheries and foodstuff production
- Chemical fertilizers, biocides, biological pest control and the mechanization of agriculture
- The impact of agricultural forestry activities on the environment
- The field of developing food productivity and technology
- Agriculture, forestry, and fishery
- Animal and dairy science
- Veterinary science and other agricultural sciences

This SEO does not include R&D related to, the reduction of pollution (SEO 2), the development of rural areas, the construction and planning of buildings, the improvement of rural rest and recreation amenities and agricultural water supply (SEO 4), energy measures (SEO 5), and, the food industry (SEO 6).

9: EDUCATION – R&D RELATED TO:

- Education in general, including training, pedagogy, didactics
- Subsidiary services to education.

10: CULTURE, RECREATION, RELIGION AND MASS MEDIA – R&D RELATED TO:

- The social phenomena of cultural activities, religion and leisure activities so as to define their impact on life in society;
- Racial and cultural integration and on socio-cultural changes in these areas. The concept of "culture" covers the sociology of science, religion, art, sport and leisure and also comprises inter alia R&D on the media, the mastery of language and social integration, libraries, archives and external cultural policy.

11: POLITICAL AND SOCIAL SYSTEMS, STRUCTURES AND PROCESSES – R&D RELATED TO:

- The political structure of society,
- Public administration issues and economic policy;
- Regional studies and multi-level governance;
- Social change, social processes and social conflicts;
- The development of social security and social assistance systems;
- The social aspects of the organization of work.
- Gender-related social studies including discrimination and familiar problems;
- The development of methods of combating poverty at local, national and international level;
- The protection of specific population categories on the social level, on the sociological level, i.e. with regard to their way of life and on the economic level.
- Methods of providing social assistance when sudden changes (natural, technological or social) occur in society.

This SEO does not include R&D related to Industrial health, the health control of communities from the organisational and socio-medical point of view, pollution at the place of work, prevention of industrial accidents and the medical aspects of the causes of industrial accidents (SEO 07).

12: GENERAL ADVANCEMENT OF KNOWLEDGE: R&D FINANCED FROM GENERAL UNIVERSITY FUNDS (GUF)**13: GENERAL ADVANCEMENT OF KNOWLEDGE: R&D FINANCED FROM OTHER SOURCES THAN GUF****14: DEFENCE – R&D RELATED TO:**

- Military purposes,
- Basic, nuclear and space R&D financed by Ministries of Defence.