Research and Development in the Business Sector 2013

National Reference Metadata in ESS Standard for Quality Reports Structure (ESQRS)

National Statistics Office (NSO)

Time Dimension: 2013

Data Flow: MALTA_RDESQRS_A_MT

Concept name	
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2. Introduction	Research and Development is defined as creative work undertaken on a systematic basis to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications. The objective of the European R&D statistics is to cover all intramural R&D activities, including expenditure and personnel. R&D statistics are compiled for four institutional sectors of performance: Business Enterprise (BES), Government (GOV), Higher Education (HES) and Private Non-Profit (PNP). In Malta, the PNP sector is not captured as it is considered to be negligible. This quality report covers the BES sector. For further information on GOV and HES refer to metadata file: http://nso.gov.mt/metadata/reports.aspx?id=3 The R&D expenditure is broken down by source of funds, by type of costs, by type of economic activity (NACE), by size class, by type of R&D, by fields of science, and by socio-economic objectives. R&D personnel data is available in full-time equivalent (FTE) and in head count (HC). The data is further broken down by qualification and gender of recruited personnel, size class and economic activity (NACE) of the enterprise and field of science. R&D data are compiled in accordance to the guidelines laid down in the Proposed standard practice for surveys of research and experimental development - Frascati Manual (FM), OECD, 2002 available in the link below: http://www.oecd.org/science/inno/frascatimanualproposedstandardpracticeforsurveysonresearchandexperimentaldevelopment6thedition.htm.
3. Quality management - assessment	A group of interviewers are selected to conduct face-to-face interviewing to the selected enterprises. Questionnaires are vetted individually once brought to the office. Any missing information is requested via telephone or e-mail. Data is also compared with previous years to ensure consistency of results. Any queries are raised with the enterprise and if available with the companies' financial statements. The value of R&D expenditure is cross checked with the value given from the CIS survey (Community Innovation Survey).
4. Relevance	
4.1. Relevance - User Needs	The list of users includes: • The Malta Council for Science and Technology (to set out National policy); • The Malta Enterprise; • Researchers and students (to substantiate their studies); and • Eurostat (for the compilation of European Innovation Scoreboard).
4.2. Relevance - User Satisfaction	The latest User satisfaction survey was conducted in 2014 and provides results on the quality, timeliness and usefulness of news releases as well as the quality, frequency and timeliness of requests. Since the survey provides information for each production unit at the NSO and not by domain, such information is not available solely for the R&D survey. Results of the user satisfaction survey results can be accessed through: http://nso.gov.mt/en/News_Releases/View_by_Unit/Unit_01/Methodology_and_Research/Pages/User-Satisfaction-Survey.aspx.
4.3. Completeness	All requested data is transmitted, thus the data is complete.
4.3.1. Data completeness - rate	100 per cent complete.
5. Accuracy and reliability	
5.1. Accuracy - overall	Questionnaires are vetted individually once brought to the office. Any missing information is requested via telephone or e-mail. Data is compared with previous years to ensure consistency of results. Any queries are raised with the enterprise or when available with the companies' detailed financial statements. The value of R&D expenditure is cross checked with the value given from the Community Innovation Survey (CIS). All efforts are done to ensure that it is as accurate as possible.
5.2. Sampling error	A census is carried out and thus no sampling error is permissible.
5.2.1. Sampling error - indicators	Not applicable.

5.3. Non-sampling error	The main forms of non-sampling errors are item and unit non-response. In case of unit non-response, a number of follow ups are implemented to ensure that the relevant unit responds to the questionnaire. Data from the previous year is considered when no contact is made. With respect to item non-response the enterprise is contacted in order to provide the missing information. For questions related to monetary amounts, the chasing is continued until data is actually provided. For other items, chasing is done to a certain extent, with missing data being eventually imputed. Since the R&D Survey is conducted through face-to-face interviews, item non-response is very minimal. Data entry errors might also occur since data entry is subject to human error. This is kept to minimum through inbuilt validation rules for skipping and routing of questions.
5.3.1. Coverage error	The target enterprises are the ones which had R&D taking place during the year under study. The main identifiers of the active R&D population are: • the CIS, as it addresses a particular question to R&D; • the Malta Enterprise; • the MCST (Malta Council for Science and Technology). The latter two sources promote R&I (Research and Innovation) programmes in Malta for individuals and enterprises to benefit from funds or tax rebates related to R&D. Enterprises which do not feature in any of the above categories, which however carry out R&D activities, would not be included in the target population, thus resulting in under coverage. Under coverage cannot, however, be quantified.
5.3.1.1. Over-coverage - rate	Over coverage is not possible as the enterprises recording R&D are as indicated within the R&D survey itself. Enterprises that were thought to have R&D, but replied that they do not carry out any R&D activity, are taken out of the population.
5.3.2. Measurement error	Errors are kept to a minimum because the surveys are based on face-to-face interviews basis and the small size of the target population permits questionnaires to be tackled individually. Values are compared to previous years and should any inconsistencies arise, enterprises are contacted individually. Interviewers are properly briefed and made aware of any issues that they need to be sure of.
5.3.3. Non response error	A postal reminder is sent to non-respondents, and values are estimated on past data when no feedback is available. Non-responding enterprises are kept in the population, estimated with previous year data. The response rate stood at 89%.
5.3.3.1. Unit non-response - rate	A postal reminder and a number of telephone calls are used to mitigate non-response. The main reason for non-response to the survey is that no R&D would have taken place in the respective enterprise.
5.3.3.2. Item non-response - rate	There is no item non-response as enterprises are contacted via telephone or e-mail for further interviewing when certain information is not available. Interviewers are expected to return fully filled questionnaires. Moreover, some clarifications would be needed to understand better what kind of R&D is carried out. Item non response has decreased by time after the introduction of face to face interviewing.
5.3.4. Processing error	Data entry errors are kept to a minimum as the IT programme includes in built validation rules. No specific data editing is employed since a company by company approach is used. Once questionnaires are received they are checked and vetted individually, and companies are directly contacted as deemed necessary.
5.3.4.1. Imputation - rate	The exact rate with which original collected values are replaced is not available. Upon receipt of questionnaires, enterprises are contacted individually in case of non-response, and a value is sought.
5.3.4.2. Common units - proportion	Not applicable, since data about each unit is only gathered by means of the survey. No administrative data sources are used.
5.3.5. Model assumption error	Not applicable, no model is assumed.
5.3.6. Data revision	The released data is considered final.
5.3.6.1. Data revision - policy	The general NSO revision policy can be accessed through: http://nso.gov.mt/en/nso/About_NSO/Documents/NSO_Policies/Revisions_of_Official_Statistics.pdf. R&D data is considered final once released.
5.3.6.2. Data revision - practice	The released data is considered final.
5.3.6.3. Data revision - average size	Not applicable.
5.3.7. Seasonal adjustment	Not applicable.
6. Timeliness and punctuality	
6.1. Timeliness	18 months from reference period to transmission of data.
6.1.1. Time lag - first result	10 months from reference period.
6.1.2. Time lag - final result	18 months from reference period.
6.2. Punctuality	Data is delivered before the stipulated dates (18 months). In fact, data for R&D 2014 was delivered on 30th June 2016.
6.2.1. Punctuality - delivery and publication	Time-frames within the stipulated time frames according to regulation.
7. Accessibility and clarity	
7.1. Dissemination format - News release	The Research and Development Release is published annually. The link for the latest release is provided below: http://nso.gov.mt/en/News_Releases/View_by_Unit/Unit_A2/Public_Finance/Pages/Research-and-Development-in-Malta.aspx.
7.2. Dissemination format - Publications	Not applicable.

7.3. Dissemination format - online database	Statistics on Research and Development may be found on the Eurostat's database through the link below: http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database.
7.3.1. Data tables - consultations	Not applicable.
7.4. Dissemination format - microdata access	Microdata are not accessible to outside users.
7.5. Documentation on methodology	The R&D survey covers all active known enterprises irrespective of their size class or NACE classification. The methodology used is based on the Frascati manual which is provided in the link below: http://www.oecd.org/science/inno/frascatimanualproposedstandardpracticeforsurveysonresearchandexperimentaldevelopment6thedition.htm.
7.5.1. Metadata completeness - rate	Not applicable. Metadata reports for R&D are not produced.
7.5.2. Metadata - consultations	Not applicable. Metadata reports for R&D are not produced.
7.6. Quality management - documentation	In early 2014, the NSO documented the processes and procedures followed in the collection and dissemination of data for each unit for internal purposes. In addition, a quality report is produced and sent to Eurostat as required (i.e. every two years).
7.7. Dissemination format - other	Adhoc requests may be supplied through the NSO website through the following link: http://nso.gov.mt/en/Pages/NSO-Home.aspx.
8. Comparability	
8.1. Comparability - geographical	The R&D survey is based on the recommendations explained within the Frascati manual which is adhered to by all countries. Thus data may be compared geographically.
8.1.1. Asymmetry for mirror flow statistics - coefficient	Not applicable.
8.2. Comparability - over time	Data is comparable from 2004 onwards. Data coverage was enhanced over the years. In 2004, R&D data and CIS data were used together utilising an ancillary section related to R&D personnel. The first dedicated R&D survey was carried out in 2005. As from 2010, coverage increased to all employment size classes and NACE sectors.
8.2.1. Length of comparable time series	10 years.
8.3. Comparability - domain	All units that reported any R&D activities in the CIS survey are included in the R&D survey. Responses from both answers are checked to ensure coherence. R&D expenditure reported in the CIS is also captured in the R&D survey. CIS data is collected every two years.
9. Coherence	
9.1. Coherence - cross domain	No administrative or external sources exist.
9.1.1. Coherence - sub annual and annual statistics	Annual R&D is comparable from 2004 onwards.
9.1.2. Coherence - National Accounts	Not applicable.
9.2. Coherence - internal	For those enterprises that fall under the CIS coverage every 2nd year, a comparison is carried out, as the intramural expenditure reported in both surveys should be exact. This was possible for the years 2012, 2010, 2008, etc. No other survey except for CIS is comparable to the R&D survey. R&D survey is not comparable to other surveys.
10. Cost and Burden	Total costs amount approximately to €12,400. The time required by R&D enterprises to provide information is equal to 3.5 hours. On the other hand, non-R&D enterprises normally take about an hour to fill in the questionnaire and provide the required information.
11. Confidentiality	
11.1. Confidentiality - policy	The general NSO confidentiality policy can be accessed through: http://nso.gov.mt/en/nso/About_NSO/Documents/NSO_Policies/Confidentiality_of_personal_and_commercial_data.pdf.
11.2. Confidentiality - data treatment	No particular confidentiality treatment is applied.
12. Statistical processing	
12.1. Source data	The target enterprises are the ones which had R&D taking place during the year under study. The main identifiers of the active R&D population are: • the CIS, as it addresses a particular question to R&D; • the Malta Enterprise; • the MCST (Malta Council for Science and Technology). R&D data is collected by means of a survey (face-to-face interviewing).
12.2. Frequency of data collection	Annually.
12.3. Data collection	Data collection is done through face-to-face interviewing.
12.4. Data validation	Complete questionnaires are brought to the office once the interviews are done; and these are vetted initially in front of the interviewer. During vetting, the logic of the questionnaire is checked. The data entry application includes in-built validations which also cater for the logic of the questionnaire. A second round vetting is done more attentively by a statistician. At this stage data is also compared with previous years for consistency and should any queries arise, the enterprise is contacted by telephone.

12.5. Data compilation	Data entry is compiled through an application, with inbuilt validation rules, designed by the NSO's IT unit. Once the data entry is finalised, reports with the required tables are automatically generated within the programme itself. Transmission tables are then completed manually by inputting data resulting in the generated reports, in a spreadsheet with inbuilt validations and formulae to calculate for e.g. totals.
12.6. Adjustment	Not applicable.
13. Comment	Not applicable.