

For Official Use

DSTI/EAS/STP/NESTI(2016)5

Organisation de Coopération et de Développement Économiques
Organisation for Economic Co-operation and Development

26-Feb-2016

English - Or. English

DIRECTORATE FOR SCIENCE, TECHNOLOGY AND INNOVATION
COMMITTEE FOR SCIENTIFIC AND TECHNOLOGICAL POLICY

Working Party of National Experts on Science and Technology Indicators

PROPOSAL FOR OECD/NESTI WORK ON THE PROOF OF CONCEPT FOR AN ANALYTICAL
INTERNATIONAL MICRO DATABASE ON PUBLIC R&D PROJECT FUNDING (FUNDSTAT)

Paris, 17-18 March 2016, OECD Headquarters

Delegates are invited to consider initial proposals by the OECD secretariat for future work undertaking a proof of concept for a multi-country database on publicly funded R&D projects. The purpose of such database is to be used for a range of statistical and policy analysis purposes.

For further information, please contact: Economic Analysis and Statistics Division (EAS)
Mr. Fernando GALINDO-RUEDA (STI/EAS); E-mail: fernando.galindo-rueda@oecd.org

JT03390676

Complete document available on OLIS in its original format

This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

DSTI/EAS/STP/NESTI(2016)5
For Official Use

English - Or. English

**PROPOSAL FOR OECD/NESTI WORK ON THE PROOF OF CONCEPT FOR AN
ANALYTICAL INTERNATIONAL MICRO DATABASE ON PUBLIC R&D PROJECT
FUNDING (FUNDSTAT)**

1. Background and formulation of the policy user interest

1. This document provides a proposal for work aimed at assessing the scope for developing a multi-country data infrastructure that can support a fine-grained analysis of the distribution and potential impact of R&D resources dedicated by governments to projects in or directed towards specific domains or challenges.

2. Government funding of R&D represents a key STI policy instrument. The OECD has provided international comparisons of the aggregate level and nature of this support since the early 1960s, and developed and expanded its methodologies to shed light on the socioeconomic objectives served by this funding as implied by budgetary information (www.oecd.org/sti/rds). This is one of the main basis upon which the broad international measurement framework for science and innovation has developed and continues to evolve. Over time, this picture has become increasingly richer by capturing different dimensions of research and innovation output, while increasing attention has been paid to the behaviour of individual units and the dynamics that give rise to aggregate patterns. However, this extension to the analysis of micro-level behaviours has not been extended, at an international level, to the analysis of government funding efforts.

3. The lack of global or, often, national “micro” data infrastructure on funding efforts has thwarted efforts to address some of the most prominent policy questions on the impact of public research funding decisions. Here, the term “micro” refers to research activities or projects, the researchers and the institutions benefitting from funding, as the smallest possible units of analysis. Working at this level of analysis matters greatly because the impacts of research are highly uncertain, are diffused across domains and geographical areas. They can also extend over long time horizons, often requiring complementary investments. Therefore, a high degree of granularity is required to track where money goes to and where it does not. Following the money and following the knowledge and the people linked to that funding allows testing hypotheses about how public funding drives change. In the absence of such detail, any empirical investigation is doomed to fail given the lack of identification and statistical power if the funding interventions do not have the size of large fiscal policy interventions. This evidence can then lead to wrong policy conclusions about the effectiveness and value for money of support policies at a micro level, and puts this policy area at a disadvantage with respect to others where impacts are relatively easier to identify and attribute.

4. Over the past decade, a number of consultations and discussions in the context of the CSTP, NESTI and also within its Advisory Board, a number of recurrent themes have emerged as requiring investment in the STI data infrastructure. Among them, a keynote speech at the OECD Blue Sky Forum of 2006 on the future of S&T indicators and data directly alluded to the need to understand the role of public funding of R&D in the ecology of innovation and inform how policy makers “can work toward an effective distribution of funds among different fields” (Marburger, 2006). The Blue Sky Forum pointed to the need to address in a coherent fashion challenges related to a) coordinating STI research efforts; b) mapping inputs to outputs; c) promoting data access and interoperability; d) increasing policy relevance.

5. The standards system put in place through the Frascati Manual has helped to trace R&D funds across sectors at an aggregate level. This in turn has stimulated demand for more disaggregated information on how much support is provided through different instruments, and on how much support targets specific areas (as reflected, for instance, in a recent commitment by G7 health ministers to monitor how much public funding is allocated to dementia research). Similar questions arise in the context of understanding how public funding supports different disciplinary or application areas (in particular general-purpose technologies). Country and sector-level data are no longer considered sufficient and efforts to dig deeper starting from higher level aggregates, such as budgetary data, or through surveys, have proved difficult because of the reliance on judgements from data providers and data collectors which are very hard to implement in a consistent fashion across countries. This is particularly challenging when dealing with attributes that are not necessarily mutually exclusive and where one unit of spend could be meaningfully categorised in different categories such as research domains, application areas, etc...

6. This proposal is concerned with the proof of concept for a multi-country project-level database for policy analysis purposes. There are however a broader range of possible interests in and uses for multi-country data on publicly-funded R&D projects. For example:

- Funding agencies can be interested in identifying who is funding what and who is receiving funding from whom, in order to improve funding portfolio selection and practices, such as identifying relevant project reviewers, assess the novelty of proposals, identify emergent areas and opportunities for international funding collaboration, etc..
- Researchers interested in identifying what opportunities there may be for collaboration (as well as potential duplications).
- Civil society organisations have an interest in mapping research to specific areas of concern and possibly also in the transparency and governance with which funds are allocated.
- Policy makers can also be interested in the information to assist in their oversight of funding organisations, gaining a broad or macro view of research funding across the entire landscape, and identify opportunities for strategic international collaboration.

7. The boundary between policy analysis and other purposes is not always clear, as analysis can potential inform policy debates and decisions at various levels, and the outcomes of analysis with a general policy motivation can have a direct relevance a direct utility to a wide range of users. From that perspective, this analytical project could provide a contribution to a broader CSTP-level initiative on this dimension of research funding digitalisation and international collaboration [DSTI/STP(2016)1]. To the extent that such a database could be a relevant tool for social scientists there is a close link to the Global Science Forum's interests in data infrastructures. The identification of these analytical needs and the experience of alternative approaches provide the basis for a proposal that has project level data as the chosen unit of analysis.

2. Projects as the unit of observation

R&D projects as key units of analysis in the Frascati Manual

8. In the revised Frascati Manual (OECD, 2015), paragraph 2.12 defines an “R&D activity” as the “sum of actions deliberately undertaken by R&D performers in order to generate new knowledge. In most cases, R&D activities can be grouped to form “R&D projects”. Each R&D project consists of a set of R&D activities, is organised and managed for a specific purpose, and has its own objectives and expected outcomes, even at the lowest level of formal activity.”

9. The notion of project as an organised, goal-oriented set of activities not only helps identify whether any given activity conforms to the definition of R&D but is also the basic unit of analysis that enables the characterisation of the units that carry out the R&D and the efforts they undertake. For example, paragraph 2.43 notes that “in order to distribute R&D efforts and/or classify the units that undertake such efforts, two R&D projects can be said to belong to the same field if their content is the same or sufficiently similar”. The criteria that give rise to the Fields of R&D classification and can help inform the assessment of the degree of similarity of the subject matter content of projects related to the knowledge sources drawn upon for the R&D activity carried out; the objects of interest – the phenomena to be understood or the problems to be solved as part of R&D; the methods, techniques and professional profiles of the scientists and other R&D workers; and the areas of application, for example, in the OECD classification of Fields of R&D (FORD), the medical sciences and agricultural sciences are specifically defined by their applications to human health and agricultural activities.

Data linking and analytical potential

10. In addition to these features of projects that render them as relevant units of analysis, projects have valuable properties for analytical purposes as they are entities that can be mapped to individuals responsible for their delivery, the institutions to which they are affiliated. Most importantly, they can be linked in principle to the outputs that these projects generate, or other resources dedicated to such activities, such as those mentioned in **Box 1**. “Linkability” is critical for supporting any form of impact analysis.

Box 1. OECD experiences working with related S&T micro data sources

OECD work with S&T administrative and/or commercial microdata

OECD has a strong tradition of work with **patent** data and more recently data on other types of IP. The OECD/STI Micro-data Lab contains records on IP rights documents from several administrative sources encompassing patents, trademarks and design rights. While patent data mainly rely on the Worldwide Statistical Patent Database (PATSTAT) maintained by the EPO, trademarks and design registrations are gathered from different IP offices (IP Australia, JPO, OHIM, USPTO). Several patent-related dataset are made available to researchers upon request (from a secure password-protected server). The datasets can be used as a complement to other existing patent data sets (e.g. PATSTAT) (www.oecd.org/sti/inno/intellectual-property-statistics-and-analysis.htm#ipdata). The work on **bibliometric** data (data on scientific publications) is more recent and relies on databases licensed from commercial parties with proprietary rights to publication indices, or through partnerships with organisations with legal access to those databases. Databases on scientific and technological outputs only provide information on completed work and in addition to containing no resource related information they have little to say about ongoing research and represent a less timely source of information about research trends. (www.oecd.org/sti/inno/scientometrics.htm)

OECD work with S&T statistical micro-data

When it comes to access of statistical microdata, the main access challenge has to do with preservation of confidentiality and broader compliance with the legal framework under which statistical data collection takes place within countries. Because with rare exceptions, it is not possible nor practical to have OECD officials access statistical microdata, the preferred mechanism entails a compromise in the form of distributed analysis whereby participating statistical agencies (or other actors with formal access to the data) agree to undertake comparable analysis on similarly structured statistical databases. The outputs of the analysis are not confidential and thus can be shared for a second round of analysis in which policy variations within and across countries can be used to produce new indicators and construct counterfactuals for the assessment of impacts. Multi-country microdata distributed work with business RD and Innovation data is well advanced. There is plenty of experience of work at this level, which started with the project on the analysis of innovation in firms, using principally innovation survey microdata, (e.g. OECD, 2009). This has been followed by the ongoing R&D microdata project, which is part of the new generation of OECD/distributed microdata projects. There is however no analogue to this in the case of public sector institutions, with some exceptions such as recent demonstration work with HEIs within the TIP Working Party and work by NESTI demonstrating the potential of procurement databases.

Drawbacks associated to work with project data

11. The main drawback associated to the focus on projects stems from the existence of large pools of R&D activity which, while consistent with a broader notion of project, do not have a formal administrative representation as such and for which there is no underlying, readily available data. This applies in the case of work carried out by individual or small groups of researchers with a significant degree of discretion on the allocation of their time to research outside from other non-research commitments. These researchers may just be expected to report on their outputs on a regular or occasional basis, but do not have to provide in advance a work content description or specify a specific time or resource budget allocated to them. This implies that a focus on available, recorded projects will necessarily exclude a significant pool of R&D activity, whose relative size will vary by country and disciplinary area, and possibly several other dimensions. This implies that the work cannot aim to provide a representation of all R&D funding, which restricts its potential applications.

12. For this reason, it is important to emphasize the relevance of any such work to be carried out under the oversight of a community of experts with broader awareness of the limitations of the data, in order to ensure that the relevance of any findings is not overstated.

3. Opportunities and challenges

13. Coordination challenges and limited incentives for data sharing at the required level of granularity represent a major obstacle for the analysis of R&D funding at the project level. Standards for recording and sharing data on public support for R&D across different administrative systems are not fully developed (in spite of very significant progress driven by digitalisation) nor fully widely adopted.

14. Valuable information on research projects is stored in the databases of funding agencies and research institutions, as well as in generic public spending databases which have been created with a wide range of, principally internal, administrative purposes. Some examples are presented in **Annex 1**, representing a combination of databases arising out of the self-interest of the organisations making the data available and/or mandatory reporting requirements.

15. Several countries have recently witnessed a move towards making information openly accessible online and, in some cases, searchable and useable (see **Box 3**). These initiatives often pursue higher degree of transparency and improved coordination across different agencies, and can be seen as part of broader initiatives for the better use of government data.

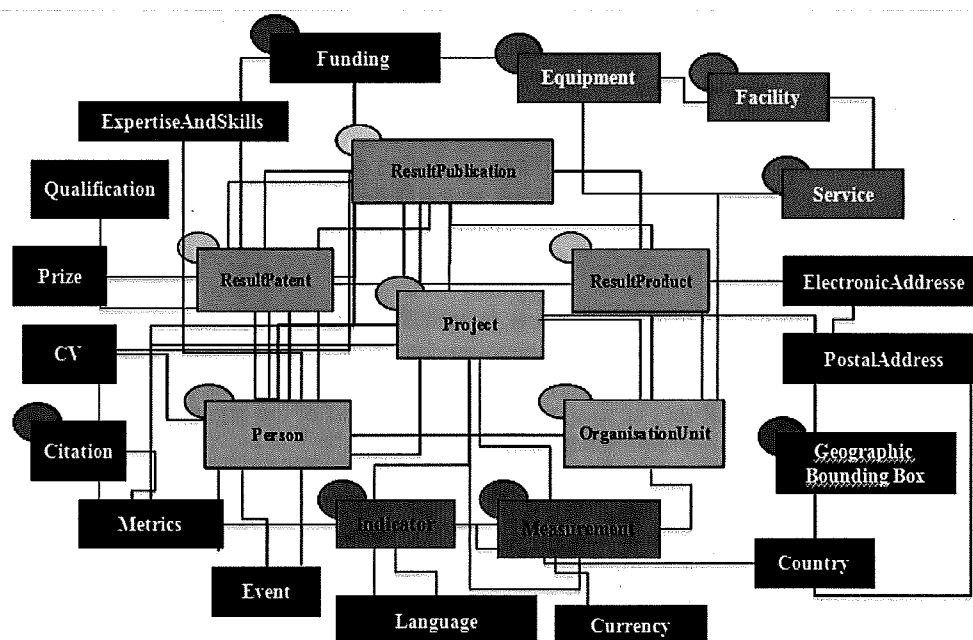
16. Whilst different funding agencies and institutions have their own databases, these are rarely interoperable and searching across them is difficult. At the international scale, there are very few project databases that can be easily searched to provide information across countries and/or research domains. Subject-specific interests in mapping how much funding goes to specific application areas, such as individual diseases in the case of health-related R&D. This has led to scattered efforts on areas such as dementia¹ or cancer². It is also important to note that not all relevant data are or can be made publicly accessible.³

-
1. The International Alzheimer's Disease Research Portfolio (<http://iadrp.nia.nih.gov/>) brings together information on research projects funded by public and private organisations from a number of countries. It is based on the adoption of a common Alzheimer's Disease Research Ontology.
 2. The International Cancer Research Partnership (www.icrpartnership.org) provides online access to research project information from nearly 100 cancer research funding organisations from 8 OECD countries.
 3. For example, in the case of impact analysis, it can be important to gather information about the processes that determine the selection of projects for funding, including rating scores, and descriptions of unfunded

Box 2. Standards and openness relevant to research funding data

Websites containing information on funded projects are not always open and free for all, but some have been developed using Open Source, Open Standards and some version of commons or open government licence to enable the code to be reused by third parties. Application Programming Interfaces (APIs⁴) are provided as a way of accessing the information directly from external information systems. This allows third parties to link the chosen data to other data sets and analyse the information for their own purposes.

This project would benefit from progress towards the adoption of standards that facilitate the analysis and interpretation of funding data. Key issues for standards relate to the establishment of linkages and the disambiguation of entities (projects, individuals, institutions...). For example, CERIF is an international standard relational data model for storage and interoperability of research information and it is the subject of an official EU Recommendation to Member States. It provides a reference model for the development of Research Information Systems (CRIS) and a standard exchange format (CERIF-XML) for interoperability between systems. Its coverage includes several aspects of RI (projects, persons, organisations, funding, publications, datasets, patents, products, bibliometrics, impact indicators, equipment, etc...).



Source: <http://eurocris.org/cerif/main-features-cerif>

The diagram above provides a perspective on the central role played by the project construct and the range of possible relationships and attributes that widely adopted standards and interoperable systems can support. However, standards are not the solution to all problems associated with the creation of these databases. There has to be a workable "business model" for these to be sustainable.

projects. Quasi-experimental designs can sometimes be derived with this information to assess the impact of funding on research performance and outcomes.

4. An Application-Programming Interface (API) is a set of programming instructions and standards for accessing a web-based software application

4. Rationale for OECD and NESTI engagement

17. The intention behind this project is to assess the potential of administrative data systems of public funding to support the micro-data analysis of public funding of R&D, strengthening OECD's data and analytical offering to policy makers. This is an area where OECD can learn a great deal from and disseminate information on initiatives developed within countries and also by private data providers (see Box3),

Box 3. Examples of private sector engagement in data infrastructures on R&D funding

The *Dimensions for Funders*⁵ database developed by ÜberResearch is reported to contain information on more than 1.7M projects from 150 distinct funding organisations, accounting for USD 874 billion of funded research. ÜberResearch is a portfolio company of Digital Science which is in turn part of the MacMillan (Nature) group that is ultimately controlled by the German Holtzbrinck Publishing Group. *Dimensions* is mainly intended to support funding organisations facing investment decisions regarding who to fund, proposal comparisons, identification of suitable reviewers, portfolio analysis, reporting and comparison. *Dimensions* also provides the functionality of a private application instance that allows to include grant applications, rejected proposals, and even progress reports.

SciVal® Funding⁶ is an Elsevier product that is primarily intended to "help researchers, administrators and research development professionals find new funding opportunities" but that also provides the possibility to review award history, along with details of investigators who have successfully won grants in the past. According to Elsevier, SciVal Funding covers grants from Australia, Canada, European Commission, India, Ireland, New Zealand, Singapore, South Africa, the United Kingdom, and the United States. As part of the SciVal tool, Elsevier provides a number of functionalities that exploit other data assets.

18. However, there is plenty of scope for OECD and NESTI in particular to make a meaningful contribution that is oriented towards meeting the needs of policy makers:

- The importance of developing the R&D micro-data agenda as foreseen in the OECD Frascati Manual 2015 and previously in the 2010 OECD Innovation Strategy, as well as in the Daejeon Declaration (www.oecd.org/sti/daejeon-declaration-2015.htm).
- Leverage on the current use of funding administrative data by national statisticians within their countries to gain a better understanding of data features and their usability for analytical purposes. For example, grant data is often used to identify R&D performers and improve coverage of statistical registers.
- The need for delegate engagement in the analysis of the coherence and representativeness of funding micro-data by comparison with more comprehensive and complete, but less detailed, official aggregate statistics.
- The importance of assessing the relevance of classification guidelines proposed by NESTI issues for aggregate statistics.
- There is also scope for identifying policy recommendations that CSTP might wish to endorse in order to facilitate the governance of public information on S&T policies, in an internationally consistent fashion.

5. www.uberresearch.com/dimensions-for-funders

6. www.elsevier.com/solutions/scival-funding

19. Such a project could help identify action points similar to those that previously unlocked the potential of patent databases for the analysis of S&T while furthering the micro-data agenda laid out in the new Frascati Manual. A major benefit stands to come out from testing the extent to which some application of big data can deliver satisfactory statistical results, a key question that national statistical agencies are currently facing and that could be a major topic of discussion at the 2016 Blue Sky Forum.

5. Approach towards implementation and expected outcomes

20. The main objective is to report on the likely properties and feasibility of a FUNDSTAT-type database and provide a range of recommendations for possible follow-up. This would be supported by a pilot database drawing on openly available data and inputs from participating countries. Subject to data availability, the analysis of the pilot database could give rise to some demonstrator pieces of analysis.

Scope definition

21. Primary candidates for analysis and comparisons are scientific research administrative databases at project level that are curated by government agencies such as research councils or national science foundations or institutes. Some of these are in the public domain in some countries and, to some extent, subject to analytical work. These databases typically contain a range of fields, each providing a range of potential applications:

- Project name and ID, for unique identification of the observation of analysis.
- Project status (e.g. in progress/complete/cancelled). Non successful applications are not disclosed.
- Type of award/contract. Although grants is the most common mechanism, one cannot exclude the possibility of other relationships giving rise to flows of funds, such as procurement actions, advances and loans, etc...
- Project duration, with different possible levels of granularity.
- Identities of beneficiary organisation (and possibly IDs), not necessarily disambiguated within the database. In the case of multiple beneficiaries not all may be included.
- Principal investigator(s) (and possibly IDs)
- Amount of the total award. This magnitude tends to refer to the complete project. Different databases deal differently with modifications to the awards, e.g. if additional funding is agreed or if part is not disbursed or clawed back from beneficiaries. The distribution of funds across partners may not always be available.
- Abstract / description of project. This provides information that was hitherto difficult to process. The advent of natural language processing (NLP) techniques makes it possible to adopt far more efficient, automated, and replicable processes.

22. It could also be envisaged to extend the exercise to databases that comprise a different range of project-level spending databases, such as public procurement databases. Government purchases of R&D services also represent funding for R&D and have a number of functional similarities to grant awards which are the predominant element in databases of research agencies. For the same reason, it seems appropriate not to exclude from the scope of the exercise beneficiaries outside academia, as research funding covers several other types of organisations, including firms.

Database description and data gathering

23. In order to arrive at an international project-level micro-database, the accessibility, scope, similarities and differences in available databases -and the frameworks that govern these administrative sources- need to be first compared and tested against a number of potential statistical applications. This strand of the work would envisage:

- Stock-taking and description of potentially relevant national funding/spending databases, drawing on input from delegates and their national contacts.
- Creation of a space (instance) in the OECD/STI microdata lab for pooling and analysing available data.
- Investigation of scope for incorporating into the microdata lab national data not outside of the public domain, under agreement with national organisations.
- Investigation and reporting of commonalities and differences across national databases, with particular attention to (a) access and use conditions, (b) data coverage, (c) standards used and interoperability.

Coverage benchmarking

24. As previously noted, it is important to put into context what proportion of national R&D funding is covered by available databases. This can help inform the assessment of potential biases arising from the analysis of the data.

Data-driven Fields of R&D and application areas

25. Topic modelling is a type of statistical model for discovering abstract topics that occur in documents. This type of technique can be applied to the construction of R&D funding taxonomies based on the information contained in project descriptions, concerning both the domains of research but also the application or challenges addressed. OECD has a classification of Fields of R&D (previously called Fields of S&T) that needs updating but lacks the relevant evidence basis required to facilitate the identification of an alternative that is demonstrably an improvement upon the current classification. Also, the NABS classification on socioeconomic objectives is comprehensive but does not provide the often desired level of detail for a range of purposes.

26. This approach can provide a flexible complement to current approaches focused on choice among mutually exclusive categories and could assist with the revision of the existing classifications, thus highlighting the complementary and mutually reinforcing nature of these apparently very distinct activities.

Mapping research funding and emergent areas

27. Pooled databases on public support for R&D projects in different types of organisations could be made available in a suitable format that would also provide a basis for a complete R&D mapping, establishing the co-occurrence of key terms and potentially linking to other sources. The specialisation profiles of individual countries and agencies could be mapped against the general base map obtained from the analysis of patterns across the combined database.⁷ Another potential application would be to identify the relevance of an emerging or interdisciplinary research area that is not captured in the existing classifications.

7. A number of organisations participating at NESTI have, in an independent fashion, already undertaken bilateral funding profile comparisons.

Engagement and next steps

28. In order to proceed, this project requires a combination of data systems and R&D statistical expertise within the OECD secretariat, but it cannot go ahead without the active engagement of delegates and their national teams, who should establish an active link with science and innovation support data administrators in the agencies in charge of allocating the funding on a project basis. The input of national R&D statistics experts is also necessary to establish the extent to which these databases cover the broad range of public R&D funding, checking the consistency with Government budget data (GBARD) and what biases may be introduced by looking only at available project-level data.

29. This type of project also requires effective engagement and discussions with commercial providers of related data solutions as well as academics working on the construction of linked databases on funding and on their analysis. The project may possibly conclude, as in similar contexts, that it is more appropriate for other parties to be ultimately the appropriate providers of a multi-country database. Potential partnership intended to meet the OECD statistical evidence interests could be envisaged. This engagement started at the workshop held by NESTI in April 2015 and is likely to continue with the 2016 Blue Sky Forum.

30. This project has broader synergies with CSTP exploratory work on leveraging the digitalisation of science information to improve science and innovation policies and promote international collaboration. In order to move beyond the proof of concept stage, a degree of policy and administrative co-ordination and standardisation work would need to take place. This stage is beyond NESTI's reach because it requires some form of political/administrative agreement among countries about what types of information should be recorded, in what form, and how these can be made accessible to third parties. For example, project names are insufficient for identifying the potential applicability of the research. These decisions play an important role in the governance of STI systems and it is at the point when the feasibility analysis is complete when a proposal could be presented to CSTP.

ANNEX. EXAMPLES OF ONLINE DATABASES WITH PROJECT FUNDING INFORMATION

European Union

- CORDIS - EU research projects under the 7th Framework Programme (2007-2013). <https://open-data.europa.eu/en/data/dataset/cordisfp7projects> This dataset contains projects funded by the European Union under the seventh framework programme for research and technological development (FP7) from 2007 to 2013. Grant information is provided for each project, including reference, acronym, dates, funding, programmes, participant countries, subjects and objectives. There is also information with organisation information (project participants, coordinators) and another with results in brief written by CORDIS for selected FP7 projects.
- Tenders Electronic Daily (TED) - public procurement notices from the EU and beyond. TED (Tenders Electronic Daily) is the 'Supplement to the Official Journal of the EU ("OJ S")', dedicated to European public procurement. You will find information on public procurement contracts, according to the EU rules on public procurements, of notices published in EU Member States, European Economic Area (EEA) and beyond.

Japan

- The KAKEN database made and published by collaboration with MEXT and JST and the "MHLW GRANTS SYSTEM". <http://kaken.nii.ac.jp/en> . The KAKEN database can be searched in English for selected keywords, for example: <http://kaken.nii.ac.jp/en/p?q=dementia>.

United Kingdom

- **Gateway to Research (GtR)** <http://gtr.rcuk.ac.uk> has been developed by the UK research Councils and Innovate UK (the main Government innovation funding agency) and provides a one stop shop for information on national publicly funded research. It provides abstracts and technical summaries for ongoing and completed projects as well as links to related publications and outcomes.

United States

- NIH RePORT (<http://report.nih.gov>) site. NIH uses the Research, Condition, and Disease Categorization (RCDC) to categorise and report the amount it funded in each of 233 reported categories of disease, condition, or research area.
- The National Science Foundation (NSF). The NSF funds research and education in science and engineering, through grants, contracts, and cooperative agreements. www.nsf.gov/awardsearch/download.jsp
- USA Spending.gov (www.usaspending.gov/) is the publicly accessible, searchable website mandated by the Federal Funding Accountability and Transparency Act of 2006 to give the American public access to information on how their tax dollars are spent. Federal agencies are required to report the name of the entity receiving the award, the amount of the award, the recipient's location, the place of performance location, as well as other information. All the prime recipient transaction data on USAspending.gov is reported by the federal agencies making contract, grant, loan, and other financial assistance awards. Sub-recipient transaction data is reported by the prime recipients.
- **Grants.gov** - Grants.gov lists all current discretionary funding opportunities from 26 agencies of the United States government, including the National Institutes of Health, the National Science Foundation, the Department of Energy, and many others -- in other words, all the most important public funders of research in the United States. Grants.gov is free and does not require a subscription.

GRSD - Global Research Identifier Database