DATA SCIENCE FOR SCIENCE AND SOCIETY

Deadline October 1st, 2020

CALLS 2020

Fondazione
CARIPLO

TUTE SERVARE MUNIFICE DONARE · 1816

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1. INTRODUCTION

Data Science for science and society is a Call for proposal promoted by the Scientific Research Area in collaboration with Environment, Arts and Culture and Social Services Areas. It aims to enhance the understanding of complex topics of social relevance through robust and evidence-based data.

2. BACKGROUND

Data Science is an interdisciplinary field of study aimed at extracting knowledge from data.
Born in the context of the digital revolution, the large availability of "big data"[1] together with sophisticated methods of analysis and high-performance computer infrastructures, Data Science takes advantage of techniques deriving from multiple disciplines – mathematics, statistics, ICT and social sciences – and integrates artificial intelligence, operational research, data mining and machine learning approaches.
Thanks to its analysis, synthesis and predictive tools, this field of study is rapidly changing our way of doing business, socializing, doing research and making decisions. Indeed, analyses and models based on large dataset provide new opportunities for a better investigation of complex social, economic, biological, environmental and cultural phenomena, thus becoming useful not only for the validation of already existing theories but also for the design of innovative interventions.
In the last few months, the health emergency caused by the Covid-19 pandemic has further demonstrated the potential of this field of study: the collection of mobile phone data allowed the tracing of citizens' mobility, forecasts about the spread of Coronavirus guided the decisions of political and health authorities. Finally, the possibility to run large scale tests is accelerating drug discovery to fight the disease.
Production and systematic use of large volumes of data go along with the concern of protection and confidentiality of the processed data. Through EU Regulation 2016/679 (GDPR), the European Union tried to harmonize rules about the protection of personal data; however, the discipline is rapidly evolving, thus Data Science may contribute to the advancement of the public good by combining

knowledge and data protection issues, in respect of all the involved subjects.

3. AIMS

Aware of the centrality/importance? that data will have in shaping future scenarios and in designing innovative interventions in the service of people and organizations, Fondazione Cariplo intends to support research projects with the aim of improving the understanding of complex and socially relevant topics thanks to the methods and techniques of Data Science.

In particular, the Foundation's intervention will focus on five fields of study, as representation of the four Philanthropic Areas:

The Environment Area, considering the impact on human health of primary and secondary particulate emissions in the atmosphere, identifies as the field of study the contribution of intensive farming and industrial agriculture to the air pollution of the Po valley.

The Art and Culture Area proposes the mapping and analysis of the historical heritage currently disused or underutilized within the Foundation's geographical area, with the aim of identifying positive and negative aspects encountered in the re-use and reactivation processes of historical and architectural interest assets, pursuant to the provision of the legislative decree 42/2004. Furthermore, considering how the health emergency due to the Covid-19 pandemic challenged cultural places to experiment with new ways of public engagement, a second possible area of study is the exploration of the consumption and cultural attitude of the public, also related to new forms of accessibility.

The Scientific Research Area, considering the impact of the Covid-19 pandemic on subjects presenting a compromised or fragile health status, identifies as field of study the management of chronic patients suffering from multiple diseases in the context of health emergencies, also including the evaluation of the relationships in which chronic patients are integrated.

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[1] As defined by Doug Laney (2001), this expression means a collection of data so extensive in terms of volume, speed and variety, that it cannot be treated with traditional software and hardware systems and therefore requires specific analytical technologies and methods.

Finally, the Social Services Area promotes studies focused on poverty; particular attention should be paid to the analysis of the effects of the measures already in place to improve the economic situation and social inclusion of the beneficiaries and to the identification of predictive elements determining the onset of poverty itself for an early identification of vulnerable people.

On the basis of the above outlined fields of study, applicants are required to formulate original working hypotheses, represent the datasets already available or to be acquired/established and develop robust research designs aimed at generating new knowledge to be employed for policy and decision making.

The Foundation strongly encourages research approaches characterized by interdisciplinarity, innovation of methods and expected results, integration of different data sources and the use of non-conventional data (i.e. from the web, from digital trails from mobile phones, GPS and satellites).

Consistently with the labour market needs for professional profiles and skills in the field of Data Science, particular consideration will be given to training and professional growth opportunities for the young researchers involved in the projects. Accordingly, as part of the research proposals, it will be possible to consider the participation to courses or seminars and provide for internships or visits to highly qualified national or international organizations.

Finally, embracing the principles of Responsible Research and Innovation (RRI)[2], Cariplo Foundation aims to promote initiatives fostering communication and interaction between researchers and the civil society. In particular, researchers must propose a communication plan which is inclusive and open to all stakeholders involved in the research; citizen science initiatives nurturing an interplay between science and society are welcome. With specific regard to this Call and in accordance with the open access policy of the Foundation, proposals should provide for modalities to share datasets, metadata and data

originating from the research. This will be vital to allow interoperability, use and re-use of data by the scientific community and, more generally, by civil society. Furthermore, legal and ethical issues related to data management should be adequately considered.

4. GUIDELINES

4.1 Eligible subjects

Public or private non-profit organizations that conduct scientific research.

Third sector organizations and/or public and private non-profit organizations, if owners of databases employed in the research project, can participate as partners only.

Each subject may participate as leading unit in one project only, per field of studies. No restrictions apply for partner units.

By participating tin this Call, organizations accept the portability of the grant. Any change in the host institution requires Cariplo Foundation approval according to the guidelines for presentation ("Guida alla presentazione dei progetti su bandi") and the general criteria for granting contributions ("Criteri generali per la concessione dei contributi"), available on the Foundation website.

4.2 Eligible projects

To be eligible, projects must meet the following requirements:

- develop a research design in the field of Data Science by using methods and techniques typical of this field to generate new knowledge useful for policy indications;

- fall into one of the five fields of study identified by the Call;

- clearly represent the datasets to be used, whether they are already available, to be acquired and/or generated;

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[2] The European movement on the theme of RRI is constantly evolving, as emerges from the debate which has recently led to the so called "Rome declaration on RRI" (https://ec.europa.eu/research/swafs/pdf/rome_declaration_RRI_final_21_November.pdf). Considering the available literature, it is possible to describe RRI as a dynamic and iterative process which intends to match research and innovation to values, needs and expectations of the society. Moreover, RRI aims at actively involving all the stakeholders taking part to activities of research and innovation, making them mutually responsible with respect to both the research process and its results.

- produce new knowledge useful for policy indications and decision making processes of organizations and people;

- involve, train and value young researchers[3];

- outline a communication plan with civil society and, whenever possible, citizen science initiatives;

- provide for modalities for sharing and using the datasets, metadata and data originated by the research, as well as elucidate how legal and ethical aspects related to data management have been considered.

The PIs of all the involved units (leading and partner):

- must submit one proposal only to this Call;

- may participate as PI in more than one Call of the Scientific Research Area, as long as no overlap is displayed between proposals[4];

- cannot be the PI of any other ongoing proposal previously funded by the Scientific Research Area (except for Calls in partnership with other granting agencies)[5].

It is mandatory for the operational headquarter of the leading organization to be located within the geographical area of intervention of the Foundation. This requirement does not apply to potential partners.

The total cost of the project should include additional costs[6] and overhead only, according to the eligibility criteria and the thresholds listed below:

- A03 - "Equipment and software"
  This expenditure item fully covers the costs for newly acquired equipment and software for

multi-year use. It is mandatory to clearly motivate these costs in accordance to the specificity of the project. In this category can also be included costs for equipment renting.

- A04 - "Other amortizable costs"
  This expenditure item can include patent costs and costs related to the protection of intellectual property only.

- A06 - "Temporary staff"
  This expenditure item can only include research personnel costs. The cost for administrative staff is not allowed.

- A07 - "Sub-contractors and consultants"[7]
  This expenditure item can include costs of access to databases and utility services, such as computing power or virtual machines, both in cloud and remote.

- A08 - "Materials and supplies"
  This entry cannot include costs related to office supplies and photocopies.

- A09 - "Overheads"
  This entry cannot exceed 5% of the additional costs.

- A10 - "Travel, publication and dissemination costs"
  This expenditure item can include travel expenses and conference participation fees for the research personnel involved in the project, scientific publications, training activities and of communication activities with the civil society.

The grant will cover 100% of project costs; therefore, the total cost of the project should correspond to the requested amount.

Requested funding should not exceed 125.000 Euros.

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[3] The term "young researcher" in this Call for proposals indicates graduate fellows, PhD students and postdoc not older than 35 years of age at the Call's deadline.

[4] In case of overlapping proposals, only the first one received will be considered.

[5] A proposal is considered ongoing unless the final grant reports - both the scientific and the financial one - have been uploaded on our website before the deadline of this call.

[6] Sum of: A03, A04, A06, A07, A08, A10.

[7] Given the amount of the maximum funding that can be requested, the obligation to acquire the Financial Audit from a

certified auditor cannot be prefigured for this Call. However, in case an organization wishes to acquire - on a voluntary basis and in accordance with its internal procedures - the financial audit, the related cost can be charged in the expenditure item A07. In any case, the prerogatives already recognized to the Foundation regarding the verification of the financed projects remain unaffected, which therefore may order the carrying out of sample accounting-administrative checks as part of its annual planning of audit activities.

Projects must have a maximum duration of 18 months.

Proposals should provide the following mandatory documents:

- Host institution agreement[8];
- Partnership agreement[9];
- Project form[10], as PDF file;
- Communication Plan form[11], as PDF file;
- Detailed budget, as EXCEL file;
- Authorization for the Transfer of Personal Data to extra-European countries[12].

By participating to this Call, organizations acknowledge, agree and accept that the award of the grant requires the irrevocable acceptance of all the following documents, available online for the download: Intellectual property rights policy, Open access policy and Acknowledgement guidelines for academic papers ("Linee guida per la citazione del contributo nelle comunicazioni scientifiche").

4.3 Criteria

Projects' evaluation will be carried out according to the methods and criteria represented below.

1. DESCRIPTION (5%)

- clarity of the project aims and strategies;
- analysis of the state of the art.

2. APPROACH (20%)

- presence of a logical and well-structured research plan;
- adequacy of datasets, methods and techniques proposed with respect to the research hypothesis;
- adoption of a multidisciplinary approach;
- identification of clear and effective monitoring and back up plans;
- identification of adequate modalities for sharing datasets, metadata and data originated by the research project and consideration of

legal and ethical issues related to data management.

3. INNOVATION (10%)

- originality of the project in terms of the proposed methods and techniques;
- ability of the project to also contribute to the theoretical debate in the specific field of study.

4. OUTCOMES FOR THE COMMUNITY (20%)

- significance of the proposed hypothesis within the specific field of study;
- expected impacts in terms of knowledge advancement for policy indications and decision making processes of people and organizations;
- expected impact in terms of benefits for citizens and the community.

5. RELEVANCE FOR THE FOUNDATION (5%)

- expected impact in terms of value creation for the local community, including the possibility of guiding future philanthropic programs of the Foundation.

6. PRINCIPAL INVESTIGATOR, TEAM AND ORGANIZATION (10%)

- leading unit PI's scientific and managerial leadership;
- expertise of the research team members;
- multidisciplinarity and synergic integration of skills of the partnership in order to involve both methods and domain experts.
- appropriateness of infrastructure and tools to the size and type of the project.

7. YOUNG RESEARCHERS INVOLVEMENT AND TRAINING (15%)

- adequacy of training programs for the professional growth of the young researchers involved in the project.

8. DISSEMINATION (5%)

- presence of a well-structured communication plan in line with the "Linee Guida per la Comunicazione" and the principles of Responsible Research and Innovation;

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[8] The Host Institution agreement form can be downloaded from the website.

[9] To be provided in case the project involves partners; the form can be downloaded from the website.

[10] The Project form can be downloaded from the website.

[11] The Communication Plan form can be downloaded from the website.

[12] The Authorization form can be downloaded from the website.

- identification of citizen science initiatives consistent with the project plan.

9. BUDGET AND PROJECT DURATION (10%)

- budget suitability, coherence and duration of the project.

The evaluation will be carried out by independent international reviewers. The Foundation will assess the coherence of the Economic Plan, the relevance for the Foundation and the adequacy of the Communication Plan.

4.4 Non-eligible projects

Proposals will be considered non-eligible in case they do not comply with the previous paragraph 4.2 "Eligible projects" and/or present the following Features:

- basic research projects without concrete outcomes;

- research project solely aimed at the development of datasets, software, new mathematical models and predictive analysis tools;

- proposals not considering the generation of new knowledge for the common good;

- proposals aimed to set up new research centres.

4.5 Submission process

Applications must be submitted by 5:00 p.m. on October 1st, 2020.

5. AVAILABLE BUDGET, ELIGIBLE/NON-ELIGIBLE COSTS

The budget available for this Call is 2 million Euros and will be equally distributed among the four Philanthropic Areas.

Eligible and non-eligible costs are detailed in the previous section 4.2 Eligible projects.

6. COMMUNICATION AND INFORMATION

Cariplo Foundation, as a private entity, is not required to comply with public procedures and has the faculty not to allocate the entire budget in whole or in part. The text of the Call and all the mentioned documents can be found on the Foundation website (www.fondazionecariplo.it).

7. SUMMARY*

Call	Data Science for science and society
Type	Call with deadline
Deadline	01.10.2020
Available budget	€ 2.000.000
Aim	Improve the understanding of complex and socially relevant topics thanks to the methods and techniques of Data Science
Eligible subjects	Public or private non-profit organizations that conduct scientific research
Funding constraint	Maximum funding € 125.000
Contacts	Environment Area Arts and Culture Area Scientific Research Area Social Services Area Staff contacts at: www.fondazionecariplo.it

* The data shown in the "Summary" are intended as a brief overview of the terms and conditions of the Call only. For a full description, please read carefully the text of the Call.