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EDITORIAL

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RESEARCH DATA MANAGEMENT: a necessary demand for new knowledge creation

The opening, sharing and reuse of research data are common practice on contemporary Data Science discussions around the world. The importance of this subject lies not only on the increase on transparency and visibility of publicly funded research, but mostly on the range of options created to generate new informational resources, strongly contributing to the advancement of science.

In Brazil, this discussion rises at universities and research institutes where it needs to embrace the open Science philosophy that seeks, among other practices, open access to scientific information and to research data. Furthermore, it looks to promote collaborative actions that encourage sharing and reuse of data among researchers.

However, due to data's inherent characteristics at each different field of knowledge, in addition to treat and store them for a long period of time, it is it is paramount rethink which of the best management practices should be adopted. According to Henning et al (2018) "This management should promote the identification of theoretical principles that support the processes of organization, meaning and recovery, providing coherence through the development of support standards and metrics. FAIR principles arise from within this context, as an acronym for Findable, Accessible, Interoperable and Reusable, considered, worldwide guiding elements of all processes of research data management."

These principles can be translated and summarized as follows: 1) Findable – data and metadata require a global and exclusive persistent identifier; should be described with rich metadata and researchable through repositories; 2) Accessible – data and metadata should be recovered through its identifier using standard communication protocols; these protocols should be of free and open source and grant access authorization and authentication and the metadata should be accessible even if data is no longer available; 3) Interoperable – data and metadata are required to be coded in language representation and to make FAIR use compatible standards and vocabularies; 4) Reusable – data and metadata are associated to relevant attributes and to its provenance; should adopt well defined user's license and comply to community standards (WILKINSON, et. al, 2016).

Such guidelines, although created within the context of open science, do not intend to impose standards, let alone treat moral and ethical issues related to data opening. They function merely as a management, sharing and interoperability guide oriented to the data reuse.

However, its implementation is not an easy task. Several difficulties arise such as conceptual understanding that leads to several doubts and interpretations, the demand for specialized workforce, as of yet rarely present in labor market, and the lack of financial resources for the implementation of these principles.

Research data opening was strengthened in 2017, when an European Commission started to require a FAIR Data Management Plan as counterpart for the release of financial resources for projects they financed. Since then, several universities and fostering agencies all over the world have started to do the same, which lead the entire scientific community to consider new ways for research data management, treatment, storage and preservation.

This reality found its way to Brazil through the São Paulo Research Foundation (FAPESP) who realized the need for data management for good research. Since the end of 2017, this Brazilian fostering agency demands a data management plan for some of the thematic projects from applicants to research financing.[1]

In December 2017, the Oswaldo Cruz Foundation (FIOCRUZ), worried about its alignment to international Open Science practices, published a report named: Open Science and open data: mapping and analysis of policies, infrastructures and strategies on national and international perspective (SANTOS, HENNING, ALMEIDA, 2017). This work presented an analysis of international initiatives on policies, governance and infrastructures of open data, as a result from the research conducted by the Working Group in Open Science (SANTOS, GUANAES, 2018).

Furthermore, it is being drafted a Data Management Plan to be used by all of its research units. The Brazilian Institute of Science and Technology Information (IBICT) has recently joined the GO FAIR initiative supported by the Dutch German and French governments, and that have the mission to help all the associated countries to adhere to FAIR principles as part f the Global Internet of FAIR services and data.

GO FAIR Brazil became a regional office of international GO FAIR, under management by Dr. Luana Sales. The Brazilian office is responsible to disseminate and give support, all over the country, to FAIR principles and services implementation activities, working on all fields of knowledge.

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GO FAIR Brazil Implementation Network Manifesto was launched in December 2018 on an event for the Brazilian scientific community at the Ministry of Science, Technology, Innovations and Communications (MCTIC). Several education and research institutions are involved, such as IBICT, FIOCRUZ, the National Commission of Nuclear Energy (CNEN), the Federal University of Rio de Janeiro State (UNIRIO), the Federal University of Santa Catarina (UFSC) and is under negotiation with de Brazilian Company of Agricultural Research (EMBRAPA), among others.

The first GO FAIR network formed in Brazil was on the health field, during the 10th Regional Congress of Information in Health Science (CRICS10), in December 2018, under coordination of Dr. Viviane Veiga, from the Institute of Health Communication and Scientific Information and Technology (ICICT/FIOCRUZ).

In march, 12th 2019 began negotiations for the creation of the subnetwork GO FAIR Brazil Health – Nursing and Biosciences, which will be the responsibility of Professor Simone Alencar from the Unirio Post Graduate Program in Nursing and Biosciences. It is a moment f opportunities in front of the challenges that are being presented on the construction of a new scientific paradigm. Such challenges are massive, considering the difficulties on the development of a new culture of sharing and reusing scientific data. However, all the activities presented show that Brazilian science has taken its first steps towards the use of FAIR ecosystem on its scientific practices.

[1] http://www.fapesp.br/gestaodedados/

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