Joint Statement

on

FAIR Digital Object Framework

1.1.2020

Science and innovation are increasingly dependent on complex data and on machines to analyze it. There is a need to design and develop large integrative infrastructures for the digital artifacts that are populating the Internet. Such integrative infrastructures will facilitate findability, accessibility, interoperability and reusability (FAIR) of data and other objects, especially for machines. For at least two decades, scientists doing data-driven research have been aware of the need to improve this integration and have been taking a variety of measures. This has led to an emergence and mixing (creolization) of standards, tools, interfaces, etc. This fragmentation and heterogeneity have been aggravated by new technologies and commercial offerings, which are increasingly seen as hampering cross-discipline data-driven science and requiring urgent measures for harmonization and convergence. An analysis of earlier examples of building large integrative infrastructures shows that convergence can often be achieved by employing the well-known hourglass strategy[1], i.e., the convergence mechanisms need to be minimal, allowing maximum flexibility for both implementations and applications.

Years of discussions in various venues led to the FAIR Principles, which are now agreed to be an essential element of this convergence process. They fulfil the basic requirements of broad acceptance and not hampering scientific dynamics. Years of discussions in various venues also led to the concept and definition of Digital Objects (DO)[2], which combine powerful principles of abstraction, stable binding and encapsulation to control complexity. It also became evident that the DO concept was reasonably compliant with the FAIR principles and that we could build on it by adding principles of semantic relationships, such as employed by the Linked Data Platform, to get to a FAIR Digital Object Framework (FDOF)[3]. FDOF has the potential to work as the center of the emerging Internet of FAIR Data and Services, allowing designers to choose alternative implementation paths and yet remain interoperable.

The signatories declare that they support the notion of the FAIR Digital Object Framework and investments for its further specification and implementation. We also support the building of an international organization to drive the specification and implementation work: (1) to determine an appropriate organizational structure for the FDO work and (2) to complete work on specification and implementations.

names and logos

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[1] https://cacm.acm.org/magazines/2019/7/237714-on-the-hourglass-model/fulltext#R5

[2] https://www.doi.org/topics/2006_05_02_Kahn_Framework.pdf; http://hdl.handle.net/11304/5d760a3e-991d-11e5-9bb4-2b0aad496318

[3] https://github.com/GEDE-RDA-Europe/GEDE/tree/master/FAIR%20Digital%20Objects