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TOWARDS FAIR PRINCIPLES FOR RESEARCH INFORMATION: REPORT ON A SERIES OF WORKSHOPS

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This is a summary report of the series of workshops on FAIR research information in open infrastructures that was jointly organised by the State Scientific and Technical Library of Ukraine (SSTL) and Leibniz Information Centre for Science and Technology (TIB) which have been collaborating under the framework of Joint German-Ukrainian project supported by the Federal Ministry of Education and Research of Germany and the Ministry of Science and Education of Ukraine. The workshops successfully harnessed the enthusiasm and experience of librarians, researchers, software providers, public funding body representatives, content providers, scientometricians and information specialists in an attempt to shed light and define criteria which assist discovery and reuse of research information by third-parties and make it FAIR. The series of workshops consisted of four separate workshops which addressed single aspects of FAIR – findability, accessibility, interoperability and reuse concerning research information. Due to Covid-19 travel restrictions workshops were held online between September 2020 and January 2021.

Keywords: research information, metadata, FAIR principles, data stewardship.

BACKGROUND

To take advantage of the digital revolution, to accelerate research and to engage the power of machine analysis at scale while ensuring transparency, reproducibility and societal utility, data and other digital objects created by and used for research need to be findable, accessible, interoperable and reusable (Collins et al., 2018). There are several initiatives to realize FAIRness for key components of research ecosystem like research data (RDAFAIR Data Maturity Model, 2020), research software (Lamprecht et al., 2020), metrics (Aronsen et al., 2021) whereas research information, being an essential component, has been receiving a disproportionately small amount of attention. Moreover, in recent years, the rate and volume at which research information has been created and the need to make it readily available for various applications and reuse has gathered pace and increased exponentially. The series of workshops «FAIR Research Information in Open Infrastructures» aimed at filling the existing gap and to contribute

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to the discussion around FAIR principles, which has been actively going since 2016 when FAIR principles were published (Wilkinson et al., 2016). Some scientists (Blümel et al., 2014) define research information as *«data about research projects, organizations, researchers or research outputs such as publications or patents which is spread across the web, usually residing in institutional and personal web pages or in semi-opened databases and information systems»*. Applying FAIR principles to research information can bring many benefits to a diverse group of stakeholders of the scientific ecosystem and greatly support the open science movement.

STRUCTURE OF WORKSHOPS

It was decided to dedicate a 2-hours' time slot to each workshop to cover the key aspects of a given topic and allow enough time for efficient discussions. Prior to the event, the organizers distributed seed questions to participants to draw their attention to the issue. The questions included the following: How can each FAIR principle be defined? What are the criteria/requirements for implementing the individual FAIR principles? Who are the stakeholders? What might be barriers? What are the elements that need to be agreed, standardized and implemented by research communities to support FAIR research information? What services, tools that currently exist in the research ecosystem are capable of providing FAIR research information? What are the best-practices studies for supporting FAIR research information? The workshops were structured to gather inputs and insights and consisted of a round of introduction, 20-minutes input talk by an expert followed by a round of feedback, questions and comments, open discussion and summary.

The emphasis of the first workshop has laid on the interoperability aspect of research information and brought together 18 experts from 8 different countries. The inaugural function was presided over by the project manager and head of the Lab Open Research Information at TIB Christian Hauschke along with the Deputy Director for Research of the State Scientific and Technical library of Ukraine Serhii Nazarovets. The input talk was delivered by Pablo de Castro, Open Access Advocacy Librarian at the University of Strathclyde and euroCRIS Secretary. He emphasized that interoperability is the most important of the FAIR principles for the purpose of research information and defined it as a set of standards, procedures, workflows and mappings that allow the information exchange across systems, typically called CRISs (Current research information systems) or RIMSs (Research information management systems) which are designed to host such research information entities. Research information, in his opinion, is a «set of interconnected (harmonised) research information entities (metadata) describing the research process». Furthermore, he elaborated upon the role of CERIF (Common European Research Information Format) to ensure interoperability of research information systems in accordance with FAIR principles. Another issue that was pointed out during the workshop was highly distributed production of research information without proper curation at the source and standardization which results in much rework and information loss. Additionally, the lack of standards for describing research staff, research institutions, projects, publication types and a set of metadata for publications have been recognized as a barrier on the way to FAIR research information. In contrast, it was also mentioned that too many standards are not helpful either, as it is difficult to commit to a specific one.

The second workshop entitled *«Accessibility of Research Information»* put forward an interactive session aiming to explore the benefits of making research information available and obtainable for interested actors and identify criteria for accessibility of research information. Open Science expert and project leader of EIFL (Electronic Information for Libraries) Iryna Kuchma addressed the importance of metadata usage licensing for achieving accessibility of research information in her input presentation. The speaker called for special attention to be paid to a number of important initiatives and tools, in particular: the GO FAIR initiative that aims to implement the FAIR data principles, the Force11 community (the Future of Research Communication and e-Scholarship) that help facilitate the change toward improved knowledge creation and sharing, explore an online tool FAIR-Aware developed by the FAIRsFAIR project. She outlined that the research community should be made to curate all digital assets to satisfy the FAIR principle of accessibility. This is especially true in a time of COVID-19 crisis, when the scientific community needs to accelerate research to save people's lives. Another points which caused vibrant discussion were establishment of research information trust, provenance and stewardship.

On the third workshop keynote speaker Stephanie van de Sandt, researcher from European Organization for Nuclear Research (CERN), provided insight into the etymology of the term *«reuse»* and defined it *«as the use of any research resource regardless of time, purpose, transformation and user»*. The funders representatives – Jürgen Güdler of Deutsche Forschungsgemeinschaft (DFG) – Germany's biggest research funder, Yuliya Bezvershenko Director General of the Directorate on Science and Innovation of Ministry of Science and Education of Ukraine and Olga Polotska executive director of National Research Foundation of Ukraine provided their view on setting an open and reusable research information and suggested options how to foster research information quality via research information reuse.

The focus of the final and fourth workshop of the series was on the findability of research information, which remains a challenge for both humans and machines. Participants discussed the perspective of PIDs (persistent identifiers) in simplifying findability of research information, discoverability issues, the expediency of assigning persistent identifiers to research information dumps etc. The session also touched questions on how to make research information findable for the public, how we can better advertise it and raise awareness among citizens.

A total of 24 experts from 23 different organizations participated in the workshops and contributed to the topic of FAIR research information. As stated in the objectives of the FAIR Research Information in Open Infrastructures project, the FAIR principles were reconsidered and interpreted by the participants for application in the research infrastructures in Germany and Ukraine and to find a common way towards FAIR research information. Currently, a Roadmap to FAIR Research Information is being developed on this base. The project website can be found at: https://projects.tib.eu/fairio/.

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ПРИНЦИПИ FAIR ДЛЯ ДОСЛІДНИЦЬКОЇ ІНФОРМАЦІЇ: ЗВІТ ІЗ СЕРІЇ ВОРКШОПІВ

Короткий звіт про серію вебінарів, присвячених застосуванню принципів FAIR для дослідницької інформації у відкритих інфраструктурах, які булоорганізовано Державною науково-технічною бібліотекою України та Лейбніцьким інформаційним центром науки та техніки у рамках українсько-німецького науково-дослідного проєкту за підтримки Міністерства освіти і науки України та Федерального міністерства освіти та наукових досліджень Німеччини. У заходах взяли участь бібліотекарі, дослідники, розробники програмного забезпечення, представники грантодавчих організацій, наукометристи та інформаційні фахівці, які дискутували про критерії, яким має відповідати дослідницька інформація. Серія складалась із 4 вебінарів, на яких було окремо розглянуто кожен із принципів FAIR – відшукуваність, доступність, сумісність та повторне використаннядослідницької інформації. В умовах пандемії Covid-19 заходи було проведено дистанційно у часовому проміжку між вереснем 2020 та січнем 2021 року.
Ключові слова: дослідницька інформація, метадані, принципи FAIR, управління даними.