Data Stewardship Wizard in the FAIR Ecosystem

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Data Stewardship Wizard as a tool supporting the creation of **smart data management plans** entered a new collaboration with important stakeholders of the **FAIR Ecosystem**. Together with other tools such as **CEDAR**, **FAIRsharing**, or **Castor EDC** and organisations including **GO FAIR** and **ZonMw** (the Netherlands Organisation for Health Research and Development), the DS Wizard becomes a part of a lifecycle that covers the process of **FAIR Data Management** on its all stages. It supports the researchers from **planning and applying for funding** up to storing data and metadata to **FAIR storages**. The DS Wizard already **provides integrations**, for example, with FAIRsharing that provides a **high-quality curated source** of databases, standards, and policies. Other integrations and helpful features are planned for the collaboration. The ultimate goal of the project is to help researchers, data stewards, and funders to **automate the process**, **communicate efficiently** and **focus on FAIR research instead of administration**.

Metadata for Machines = M4M

Specialized M4M workshops are organized for domain communities to collaborate together with metadata experts on creation of **reusable metadata templates** following the chosen **community standards**. The templates can be created and published using user-friendly metadata editors that can turn them into simple web forms in order to gather input in a **machine-actionable format**. Project managers gather the questions for metadata templates required for the grant applications based on past projects. Then they can group the questions into general, specific (but optional), and then also domain-relevant. Finally, possible answers can be predefined.

Funding Metadata Forms

Later on, when a funder (or group of them) define a new call for a research project, they can use appropriate metadata templates. The **templates can be embedded** in the **Data Stewardship** tool of the FAIR ecosystem using **integration with FAIR Data repositories**. Then, during the project planning in the tool, researchers or project managers are required to **include the metadata** according to the templates. Those metadata are together with other crucial project-related information parts of the **Data Management Plan**. Such a plan will fulfil the funder's needs for the decision making about funding.

FAIRness Evaluation

The final step in this FAIR project funding cycle occurs when the funder triggers an **automated FAIR maturity evaluation**. It serves to **objectively and in real-time** asses the level of FAIRness of the research outputs. This evaluation tools and methods are delivered by the trusted third-party evaluators to the funder. Again, thanks to the **integration of tools in the FAIR ecosystem**, the evaluator tool will automatically fetch all necessary data from FAIR repositories, compute the score, and provide feedback in the form of a report. Evaluation can then serve for funder's needs and for certification of the project outputs.

Storing Products in FAIR Repository

Metadata and digital products of the project are stored to selected FAIR repositories according to funder's requirements and the latest approved **Data Management Plan**. The repositories provide FAIR metadata and provenance for researchers so they can be sure that their outputs **meet FAIR criteria**. Moreover, consistency and other checks of quality can be done to **provide feedback** to them. Thanks to indexing and **integration of various repositories**, the outputs will be visible to multiple stakeholder groups.

FAIR (Meta)Data Repositories

After preparing the metadata template, it is supposed to be published in a suitable and open FAIR Data Repository where the template will be **findable**, **clearly described**, and **reusable** also by others. Smart metadata editors provide seamless integration with such repositories and allow users to **register their templates** and other elements directly. From the other perspective, high-quality repositories maintain **curated content** to provide only relevant and **verified templates** for others, including templates and its parts to be used in other templates.

Application with Approved DMP

Grant applicant will develop the Data Management Plan using the specialized Data Stewardship tool and template related for the grant and funder. Metadata entered previously in template forms in other tools can be loaded into the questionnaire to **avoid duplication**. After filling other required (and optional) information about the project, the applicant can finalize the plan and submit it for **validation**. Data steward as an expert in data management will assess it and decide if it can be **submitted to the funder**. During this process, the Data Stewardship tool **mediates** the communication and informs the stakeholders about their tasks, current state of the plan, as well as about all the important changes made.

Research Project Execution

With respect to the approved Data Management Plan, researchers execute the **funded project**. As they complete the set milestones and produce (intermediary) **research outputs**, the progress of the project is documented for **monitoring** by the funder. The plan provides guidance to researchers on the way to achieve all the project's goals, including following **FAIR principles** in all phases of the project. Naturally, **adjustments in the plan** are supported as well as the related cooperation with the funder.

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