

Finding Interdisciplinary Connections

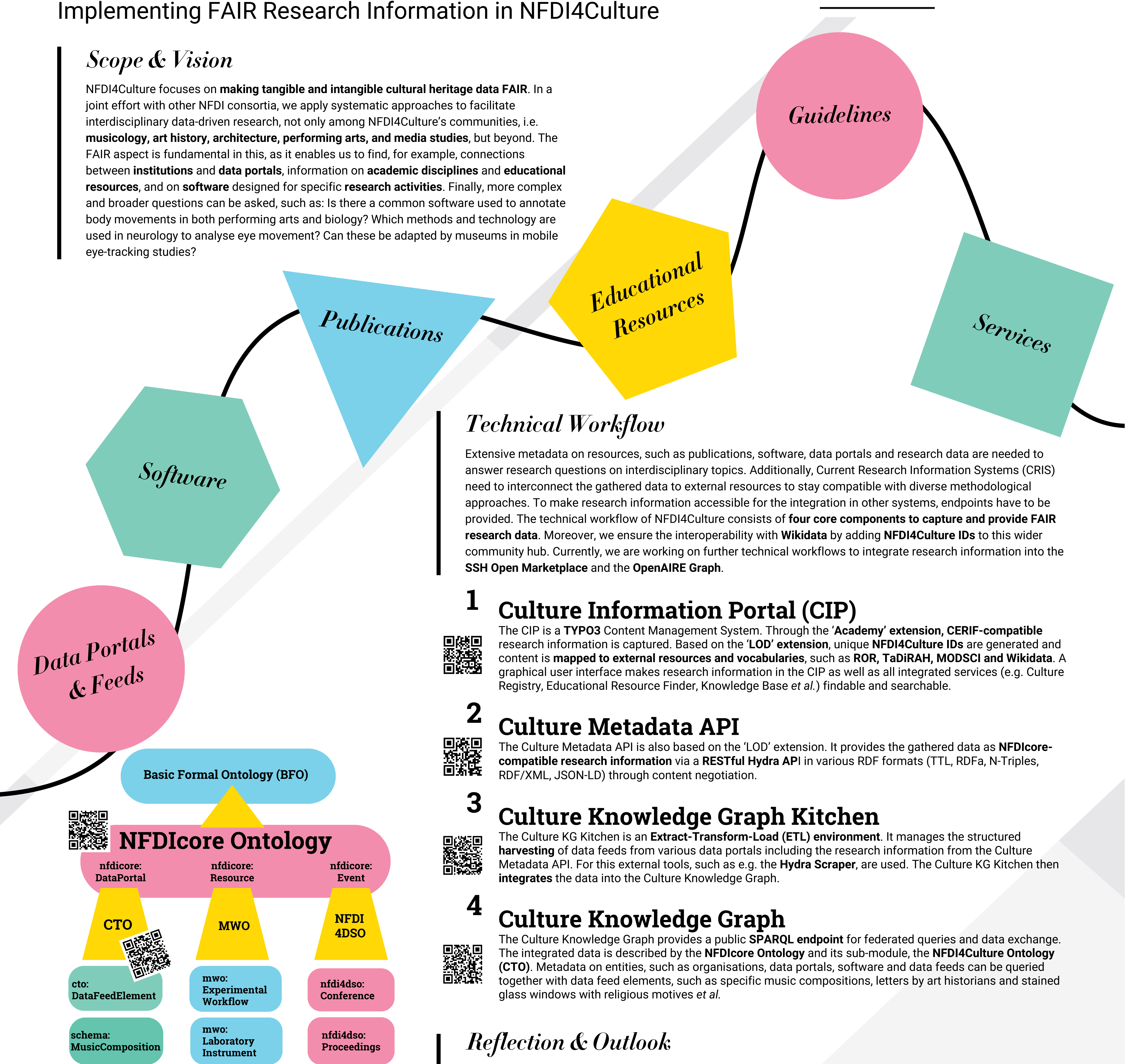
Implementing FAIR Research Information in NFDI4Culture



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Scope & Vision

NFDI4Culture focuses on **making tangible and intangible cultural heritage data FAIR**. In a joint effort with other NFDI consortia, we apply systematic approaches to facilitate interdisciplinary data-driven research, not only among NFDI4Culture's communities, i.e. **musicology, art history, architecture, performing arts, and media studies**, but beyond. The FAIR aspect is fundamental in this, as it enables us to find, for example, connections between **institutions** and **data portals**, information on **academic disciplines** and **educational resources**, and on **software** designed for specific **research activities**. Finally, more complex and broader questions can be asked, such as: Is there a common software used to annotate body movements in both performing arts and biology? Which methods and technology are used in neurology to analyse eye movement? Can these be adapted by museums in mobile eye-tracking studies?



Technical Workflow

Extensive metadata on resources, such as publications, software, data portals and research data are needed to answer research questions on interdisciplinary topics. Additionally, Current Research Information Systems (CRIS) need to interconnect the gathered data to external resources to stay compatible with diverse methodological approaches. To make research information accessible for the integration in other systems, endpoints have to be provided. The technical workflow of NFDI4Culture consists of **four core components to capture and provide FAIR research data**. Moreover, we ensure the interoperability with **Wikidata** by adding **NFDI4Culture IDs** to this wider community hub. Currently, we are working on further technical workflows to integrate research information into the **SSH Open Marketplace** and the **OpenAIRE Graph**.

1 Culture Information Portal (CIP)



The CIP is a **TYPO3** Content Management System. Through the '**Academy**' extension, **CERIF-compatible** research information is captured. Based on the '**LOD**' extension, unique **NFDI4Culture IDs** are generated and content is **mapped to external resources and vocabularies**, such as **ROR, TaDiRAH, MODS** and **Wikidata**. A graphical user interface makes research information in the CIP as well as all integrated services (e.g. Culture Registry, Educational Resource Finder, Knowledge Base et al.) findable and searchable.

2 Culture Metadata API



The Culture Metadata API is also based on the '**LOD**' extension. It provides the gathered data as **NFDIcore-compatible research information** via a **RESTful Hydra API** in various RDF formats (TTL, RDFa, N-Triples, RDF/XML, JSON-LD) through content negotiation.

3 Culture Knowledge Graph Kitchen



The Culture KG Kitchen is an **Extract-Transform-Load (ETL) environment**. It manages the structured **harvesting** of data feeds from various data portals including the research information from the Culture Metadata API. For this external tools, such as e.g. the **Hydra Scraper**, are used. The Culture KG Kitchen then **integrates** the data into the Culture Knowledge Graph.

4 Culture Knowledge Graph



The Culture Knowledge Graph provides a public **SPARQL endpoint** for federated queries and data exchange. The integrated data is described by the **NFDIcore Ontology** and its sub-module, the **NFDI4Culture Ontology (CTO)**. Metadata on entities, such as organisations, data portals, software and data feeds can be queried together with data feed elements, such as specific music compositions, letters by art historians and stained glass windows with religious motives et al.

Reflection & Outlook

NFDI4Culture has established workflows that contribute to making visible the interconnections in the diverse research landscape of its communities. Through the cross-consortium use of the NFDIcore ontology, links and connections to other disciplines can be found. The NFDI4Culture Knowledge Graph was white-listed for federated queries from Wikidata, the result of one of our efforts to extend the FAIRness of research information beyond the NFDI. The key next step is working on technical workflows to systematically provide research information gathered in the Culture Information Portal to the **OpenAIRE Graph** via an **OAI-PMH extension** for TYPO3 and to the **SSH Open Marketplace**. These are key steps towards opening the data to the European community and the EOSC.

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