Deliverable 2:
The identification, categorisation, and mapping of different types of research tools: A categorisation schema

Working Group name: RDA-OfR Mapping the Landscape of Digital Research Tools

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Executive Summary

The second deliverable by the RDA-OfR Mapping the Landscape of Digital Research Tools Working Group (WG) involved the creation of a categorisation schema of digital research tools.

The first phase involved a comprehensive landscape review, conducted over five months (from September 2023 to January 2024), whereby several task groups convened during virtual meetings, plus an extended in person working meeting during the RDA's 21st Plenary in Salzburg, to collate a list of representative digital research tools used during each of the 12 stages of the MaLDReTH RDL model. The number of representative tools listed for each RDL stage varied in length, from four to five tools in the shortest list and 40+ tools in the longest.

The second phase, carried out by a subgroup of four WG members from January to April 2024, involved validating the lists of tools and identifying common categories (types) of tools used during each RDL stage. Due to time constraints, a maximum of three tool categories were identified for each RDL stage. During the final step, the subgroup identified a maximum of three individual digital research tools that serve as representative examples for each tool category.

Aims and Objectives

The WG aimed to conduct a landscape review to identify, categorise, and map different types of digital research tools to the 12 stages of the MaLDReTH RDL model. The objective was to collect examples of individual digital research tools, and to categorise and describe them based on their utility and interoperability.

An overarching aim of this deliverable was to highlight the potential for and current limitations of streamlined flow of research data and metadata throughout the research data lifecycle based on how different types of research tools interoperate. Understanding this is highly valuable in the context of developing the national and international open research commons. In particular, this work aimed to contribute to and build on the work of the RDA's Global Open Research Commons IG and GORC International Model WG. Task Group 5 of the GORC International WG has undertaken an extensive literature review and released a Commons Attributes Model (Version 0.5) that identifies a suite of services and tools that informed the work of this WG.

Methodology and Results

Initial Landscape Review

Over five months (from September 2023 to January 2024), several task groups formed to conduct an in-depth landscape review to collect as much information about individual digital tools for each MaLDReTH stage.

The first phase brought more than 30 RDA community members together during virtual meetings, plus an extended in person working meeting during the RDA's 21st Plenary in Salzburg, to collate a list of representative digital research tools used during each of the 12 stages of the MaLDReTH RDL model (Table 1). Initial thought was given to the *openness* (open or closed source), *disciplinary focus* (disciplinary or agnostic), and *interoperability* features and functionalities of each tool. However, time constraints meant this information was beyond the scope of this WG and, therefore, was omitted from its Deliverables.

The participation of numerous and diverse members, who each brought knowledge of particular types of tools and tools categories, helped to ensure that each stage was well populated with relevant examples of digital research tools.

Table 1. Representative list of digital research tools used during stages of the MaLDReTH Research Data Lifecycle (RDL) model.

MaLDReTH RDL Stage	No. of tools	MaLDReTH RDL Stage	No. of tools
1. Conceptualise	12	7. Store	47
2. Plan	15	8. Publish	27
3. Fund*	15	9. Preserve	11
4. Collect	48	10. Share	10
5. Process	38	11. Access	4
6. Analyse	10	12. Transform	7

**Fund: After some deliberation, the WG decided to omit 'Fund' from the landscape review since the examples identified were not categorised as digital research tools.*

Categorisation of Digital Research Tools

The next phase, carried out by a subgroup of four WG members, involved validating the lists of individual digital research tools and, from those lists (Table 1), identifying common categories of tools used during each RDL stage. Tool categories were chosen based on consensus and well-known terminologies. Given the time and effort limitation, a maximum of three tool categories were identified for each RDL stage and a short description was provided for each tool category.

Identification of Representative Example Tools

During the final phase, the subgroup identified a maximum of three individual digital research tools that serve as representative examples for each tool category (Figure 1). Tools that are commonly used to perform tasks during that stage of the RDL and are, therefore, representative of a specific tool category were selected as examples.

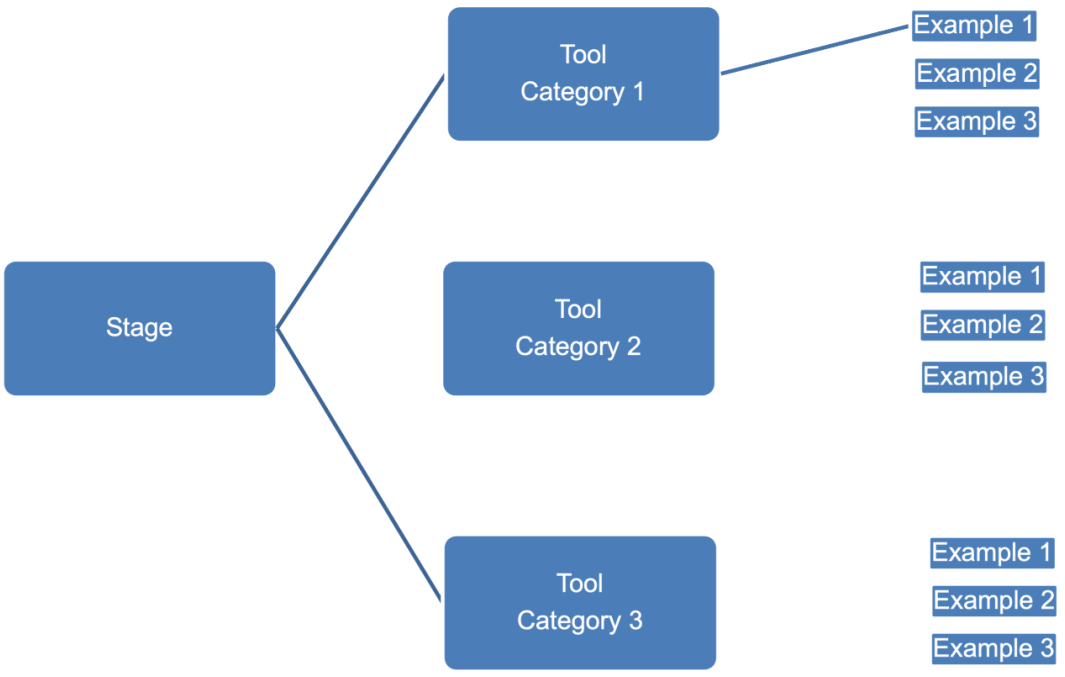

Figure 1. Format for the categorisation schema of types of digital research tools and representative example tools.

From January to April 2024, the concentrated effort of this subgroup progressed the deliverable from a state of uncurated ideation to an organised categorisation schema that forms the foundation for Deliverable 3 (The creation of a preliminary structural framework for an online open access 'map of the digital research tool landscape').

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