# RePlay-DH

**Re**alization of a **pla**tform and accommodating services for research data management in the research communit**y** **D**igital **H**umanities

www.ub.uni-stuttgart.de/replay

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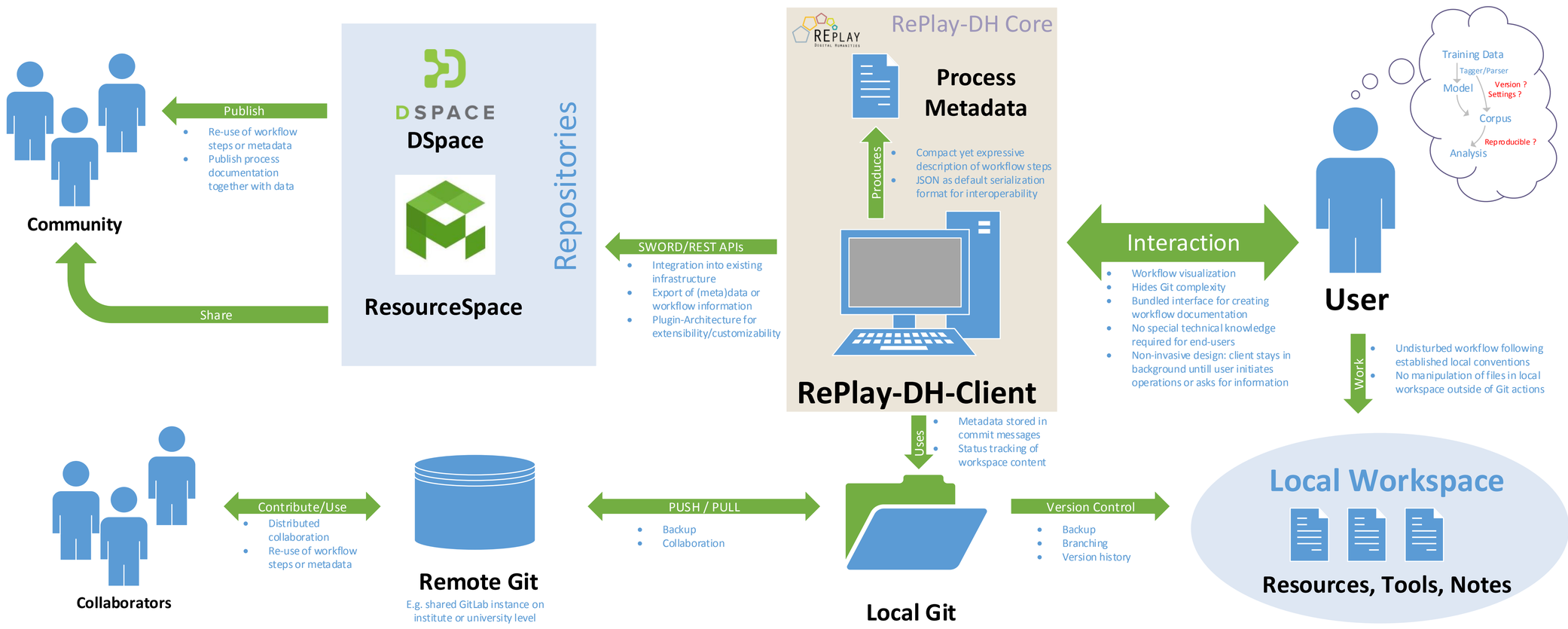
# Supporting Sustainable Process Documentation

## Motivation

- Documentation of complex research processes is often **lacking**.
- If done at all, it usually is performed **after** the process.
- Sustainable process documentation requires lots of additional **effort**.
- Existing version control solutions or workflow management systems are typically **not suitable** for processes in the fields of **CL** and **DH**.

## Goals

- Assist in creating documentation already during an active research workflow.
- Provide a simple metadata schema for workflow documentation.
- Minimize effort required from researchers for clean process documentation.
- **Idea:** Build on Git as foundation for workflow tracking, but hide the complexity by channeling all the documentation work through a single graphical application.




## Process Metadata

**Workflows are modeled as directed acyclic graphs of interdependent steps. We collect and store metadata for individual workflow steps, following a simple schema:**

**Title:** User-defined short label for the workflow step.

**Description:** More detailed human readable description of the workflow step as free text.

**Input (0..n):** Resources used to perform the action (e.g. corpora, model files, annotation guidelines).

**Output (0..n):** Resources generated or modified by the workflow step (annotation files, notes, . . . ).

**Tool (0..1):** The executable resource or web-service used for processing (including configuration parameters).

**Person (0..n):** Human subjects involved in the workflow step (e.g. annotators, curators, experiment participants).

**Custom properties (0..n):** Arbitrary classic textual key-value metadata entries to provide additional machine readable information.

**Serialization format for our process metadata is JSON, making it easy to process for others.**

## Local Git

**Each local workspace is put under version control, directly providing several benefits:**

- Once recorded in a workflow, no data or information gets lost (effectively a local backup).
- Process metadata collected during the workflow is stored together with the physical data in every Git commit.
- By means of branching users can comfortably try alternatives in their workflow without clogging the workspace with additional files.

## Remote Git

**Local workspaces in the RePlay-DH client can be linked to a remote Git repository such as an institute or university GitLab instance:**

- Distributed storage provides an additional layer of backup for important research data.
- Remote Git can be used as archiving solution.
- Multiple users can collaborate on the same project and data through a shared remote repository.

## Design Principles

**Independence:** No external infrastructure or additional third-party software required for the basic client. Workflow documentation and local object metadata management in a simple schema following Dublin Core [1] available.

**Extensibility:** Plugin-architecture to incorporate the client into existing institutional infrastructure such as repositories for metadata or publishing.

## External Repositories

**Planned interfacing of the client with repositories for different domains:**

**Public Domain:** Repository software DSpace [2] (`http://www.dspace.org`) for publishing data with a persistent identifier (DOI).

**Shared Domain:** With better rights management ResourceSpace (`https://www.resourcespace.com`) allows to share data within defined communities.

[1] Andy Powell, Mikael Nilsson, Ambjörn Naeve, and Pete Johnston. Dublin core metadata initiative - abstract model, 2005. White Paper.

[2] MacKenzie Smith. Dspace: An institutional repository from the mit libraries and hewlett packard laboratories. In Maristella Agosti and Constantino Thanos, editors, *Research and Advanced Technology for Digital Libraries*, volume 2458 of *Lecture Notes in Computer Science*, pages 543–549. Springer Berlin Heidelberg, 2002.

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