DARIAH-DE

Report zur Aufnahme zukünftiger neuer Dienste
(R 3.2.7)

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DARIAH-DE
Construction of Research Infrastructures for the e-Humanities

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Date	Author	Comment
12.09.2015	Xi Kong	First draft. Transferred DARIAH Service Life Cycle and assorted criteria of AG SLC from the DARIAH-DE wiki pages.
12.18.2015	Xi Kong	Revised the document. Wrote the introduction.
12.21.2015	Xi Kong Ulrich Schwardmann	More revision. Added monitoring requirements for the TESTING and HAND-OVER State. Changed Figure 2, PRODUCTION State doesn't point to 'garbage can' anymore.
5.1.2016	Xi Kong	Revision of "Introduction", included comment from Peter Gietz and Heiko Hütter.
29.1.2016	Xi Kong	Small revision, included comment from Tibor Kálmán.
29.02.2016	Xi Kong	Included comments from Carsten Thiel

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1. Introduction

This document describes the integration of a new or existing (software) service into the DARIAH-DE infrastructure framework. The main inputs of this document came from and most of this text was written by the working group: AG Service Life Cycle, AG SLC. The tasks of AG SLC are among other things to develop the process and best practice for acceptance of external digital humanity tools or services integrated in the DARIAH-DE research infrastructure framework, for more information see AG SLC[1].

To integrate in the DARIAH-DE research infrastructure framework, a service has to pass through a chain of states, which are described in 2.2. The criteria for each state are further listed in 3. These criteria are result from eight criteria catalogs covering a large spectrum of expertise such as digital humanity discipline related, infrastructure service provision, usability aspect, see also "Labeling der Kriterien"[2].

The criteria will further be maintained and updated also after DARAIH-DE II, i.e. DARIAH-DE III, to keep the best practice. However, these changes will be maintained in a more collaborative, efficient und comfortable form, e.g. wiki-pages.
The authors of this document are AG SLC. Only minor changes have been done to keep originality and authority. Fluency and/or style of the expressions/language might be improved in accord with further maintenance and updates of technical criteria.

2. DARIAH-DE Service Life Cycle

DARIAH-DE Service Life Cycle has set up the steps in the integration process, which a new or existing service needs to follow to integrate it in the DARIAH-DE research infrastructure. For better understanding, the DARIAH-DE formal service architecture will be described first, followed by detailed description of each state of the service life cycle.

2.1. DARIAH-DE Formal Service Architecture

DARIAH-DE offers, inter alia, software-, platform- and infrastructure-hosting-service. Figure 1: DARIAH Formal Service Architecture shows the DARIAH formal service architecture.

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[1] https://wiki.de.dariah.eu/display/DARIAH2/AG+Service+Lifecycle
[2] https://wiki.de.dariah.eu/pages/viewpage.action?pageId=39321826 - Labeling-derKriterienausdem"Wust"derKriterienkataloge-ListederKatalogeundUltrakurzzusammenfassung
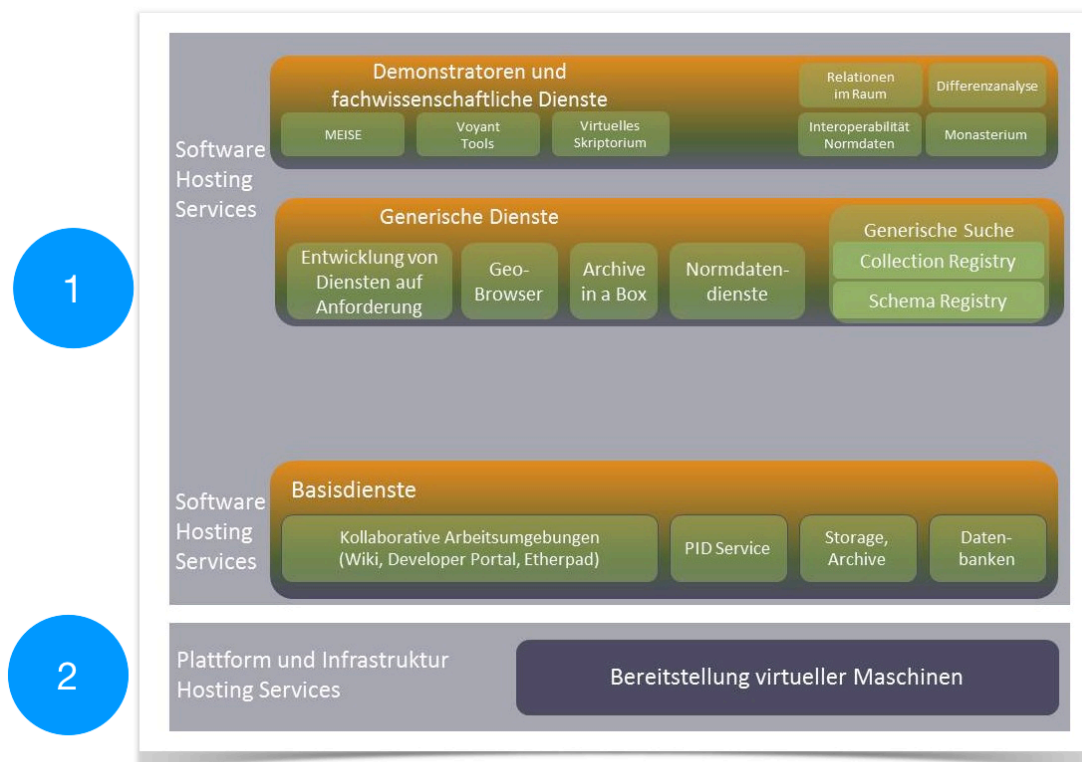
Figure 1: DARIAH-DE Formal Service Architecture

1. **Software Hosting Services**
   The services are hosted and maintained by DARIAH-DE, DARIAH-DE is responsible for the services. Users use the services according to the DARIAH-DE "Terms of Use".
   For this a "DARIAH Service Hosting Team[3]" has to be implemented, which will consist of
   a) DARIAH-DE e-Humanities Infrastructure Service-Unit, DeISU[4], for all technical aspects and
   b) humanities experts, if necessary.

2. **Platform and Infrastructure Hosting Service**
   The service runs for testing purposes within a virtual machine provided by DARIAH-DE. The service developers are responsible for the service. Users use the service as alpha- and beta-testers and are aware that the service is experimental.

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[3] Siehe auch R 3.3.4
[4] DARIAH-DE e-Humanities Infrastructure Service Unit
https://wiki.de.dariah.eu/pages/viewpage.action?pageId=26149896

2.2. States in the Development of a New Service

During the development a service will pass through a chain of stages determining the service life cycle, see Figure 2: DARIAH-DE Service Life Cycle States. A (formal) decision is required to transfer a service from one state to another. These states are:

- PROPOSAL State

- DEVELOPMENT State

- TESTING State

- HANDOVER State

- PRODUCTION State

- GOOD IDEAS ARCHIVE

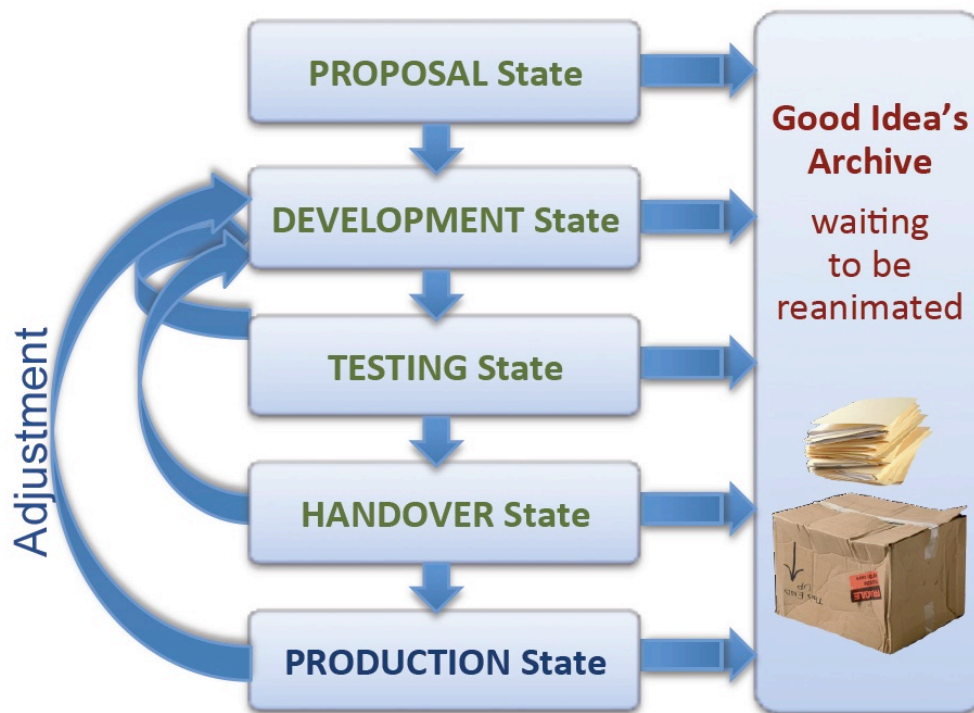**Figure 2: DARIAH-DE Service Life Cycle States**

2.2.1. PROPOSAL State

The Service is described and proposed in the PROPOSAL State. The proposal will contain the following information:

- Proposal including affiliation and contact information (mandatory)
    - Title, partner, coordinator, DARIAH-DE contact person (mandatory)
    - Information about the project, if available (nice if available)

- Relation to DARIAH (mandatory)
  DARIAH-DE is not an exclusive resources provider and cooperates with external research projects.

  - o Cooperation and collaboration is the focal point and the objective is, that the results, research data, tools or services obtained from the research projects can be used sustainably and be used by the professional communities for a long period of time.

    At least one of the criteria should be met: Teaching, research, research data, technical infrastructure (mandatory)

  - o The proposal is to be located in the arts and humanities (mandatory)

  - o Fill in the templates with: disciplines, objectives, state of research, methods (mandatory)

- Description of the proposed service (mandatory)

  - o Scientific disciplinal description of the proposed service (mandatory)

  - o Is there a description of the function for the service, e.g. user manual? (nice if available)

  - o Target audience and expected size of the target audience (mandatory)

  - o Is technical information of the service, such as operating system, programming language and used libraries, already known?

    - ▪ If yes: detailed technical description (nice if available)

- Estimation of efforts and costs for development and operation (mandatory)

  - o Does external funding for development, integration, and operation exist? (nice if available)

  - o Which DARIAH resources will be required including estimation of efforts/costs for development, integration and operation? (nice if available)

  - o Fill in the templates with: resources (provided by local data/compute center), select an offer from the selection (menu card), reusability (mandatory)

  - o Dependencies on other services (nice if available)

Two DARIAH-DE Mentors will be assigned by the AG SLC to prepare the decision, if the service may be integrated into the DARIAH-DE infrastructure. The Mentors will escort the service during its life cycle until it reaches either the PRODUCTION State or is being terminated, i.e. moved to the "Good Idea's Archive" State.

A decision by the Executive Board is required, whether the service is worth being developed with support of the DARIAH infrastructure (→ DEVEPLOMENT) or not (→ "Good Idea's Archive"). AG SLC will prepare the recommendation.

2.2.2. DEVELOPMENT State

In the DEVELOPMENT State the service is iteratively being developed, deployed locally in the development environment and tested. The Mentors support the development process and are responsible for using and integration of existing DARIAH-DE services.

Required documentation:

- Manual

- Fact Sheet

- User Guide

- Checklist for decommissioning the operation of the service containing

    o Criteria for decommissioning, e.g. low usage

    o Dependencies and other information which needs to be considered

After meeting all requirements, the mentors decide the transfer to the next state: TESTING State.

2.2.3. TESTING State

During the TESTING State the service has to be deployed on the DARIAH-DE Platform or Infrastructure Service, see 2.1. The service is beta-tested by DARIAH communities, scholars and researchers. After successful tests the Mentors may decide the transfer to the HANDOVER State or, in case of required revisions, back to the DEVELOPMENT State.

2.2.4. HANDOVER State

In the HANDOVER State a quality assurance including the information/requirements of the "hosting factsheet"[5] is performed. The service, the software and its documentation is reviewed by the "DARIAH-DE Service Hosting Team", e.g. DeISU. If OK the service will be recommended as a DARIAH-DE hosted software service to be deployed on the Software Hosting Services, see 2.1.

The Executive Board will decide if the service will go into the PRODUCTION State if recommended by the AG SLC. Otherwise the service will go back into the DEVE-PLOMENT State or further into the "Good Idea's Archive" State.

End of a Service
Hand over following check list during the HANDOVER state

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[5] https://docs.google.com/document/d/1q4MM06iCq-28-28ZKZWLCv_7w8tQlVvI3bmisQwucZM/edit?pref=2&pli=1

- When the service is not longer needed? (e.g. too little users)
- Which dependencies exist?
- At what expense, including cost estimation in cooperation with DeISU, can the service be archived and what is the process?

2.2.5. PRODUCTION State

In the PRODUCTION State the service is deployed and hosted in the Software Hosting Services and maintained by DARIAH, the "DARIAH Service Hosting Team", e.g. DeISU. DARIAH is responsible for the service and its marketing. Users use the service according to the DARIAH "Terms of Use".

During maintenance the service may be further developed and transferred back to the DEVELOPMENT State. The development team may be inside the DARIAH consortium or the original developer team, if available.

2.2.6. "Good Idea's Archive"

"Good Idea's Archive" is a reformulation of the former state. Some of the service ideas proposed might be used in further proposals.

Sustainability aspects

- Archiving by the way of bit preservation, possible fail-safe data storage and distributed backups
- Archiving of data and data-ecosystem

Decision Bodies

To transfer a service from one state to another a (formal) decision is required. The AG SLC prepares the decisions for transferring to the PRODUCTION state. The Executive Committee will decide.

2.3. The Mentors

DARIAH Mentors will be selected and assigned by the AG SLC to prepare the decision, if the service may be integrated into the DARIAH infrastructure. They will guide the service during its life cycle until it reaches either the PRODUCTION State or is being terminated, i.e. moved to the "Good Idea's Archive State.

The mentor's job will be:

- **Proposal State**: technical mentor checks feasibility, humanities mentor surveys usefulness for the humanities community

- **Development State**: technical mentoring

- **Testing State**: humanities mentor connects humanities experts for testing the service

- **Handover State**: technical mentoring

- **Production State**: technical mentoring

For each new service to be or not integrated into the DARIAH infrastructure, the following condition should be met:

- at least one infrastructure expert

- at least one humanities expert

2.4. DARIAH Service Hosting Team and Costs

The "DARIAH Service Hosting Team" needs to be defined. It will consist of

a) DeISU for all technical aspects and

b) humanities experts, if necessary.

Hosting and maintaining services and infrastructure requires person-power permanently and creates fixed costs which have to be considered in the following proposals.

3. Criteria of Service Life Cycle States

Criteria for each state of a new or existing service life cycle are listed as follows (as of 21.12.2015). For more updated information see the sorted criteria[6].

3.1. SLC: PROPOSAL

Contact Information
- Proposal including affiliation and contact information

- Have the responsibilities and contact persons been named?

- Fill in the templates with: title, partners, coordinator, DARIAH contact person, project initiators, duration, website

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[6] https://wiki.de.dariah.eu/pages/viewpage.action?pageId=39321826

Correlation with DARIAH

- DARIAH-DE is not an exclusive resources provider and cooperates with external research projects.

- Cooperation and collaboration is the focal point and the objective is, that the results, research data, tools or services obtained from the research projects can be used sustainably and be used by the professional communities for a long period of time.

  At least one of the criteria should be met: Teaching, research, research data, technical infrastructure (mandatory)

- The proposal is to be located in the arts and humanities (mandatory)

- Fill in the templates with: disciplines, objectives, state of research, methods (mandatory)

Service Description

- Scientific disciplinal description of the proposed service (mandatory)

- Is there a description of the function for the service, e.g. user manual? (nice if available)

- Target audience and expected size of the target audience (mandatory)

- Is technical information of the service, such as operating system, programming language and used libraries, already known?

   o If yes: detailed technical description (nice if available)

Cost Estimation

- Estimation of efforts/costs for development and operation

- Fill in the templates with: resources (provided by local data/compute center), select an offer from the selection (menu card), reusability

- The reusability and sustainability of the plugin should be described, even better if it is verified

- Dependencies on other services

3.2. SLC: DEVELOPMENT

License

- An open source license and source code is unconditionally necessary for plugins. Otherwise a reuse can not be guaranteed.

- License: Source code (and any data required to run the software release under an open source license

Standards
- Support for standard file formats
- Availability of an API
- Plugins or APIs should be developed standard compliant and be described

End Devices
- Web based tool with adaptive user interface
- Desktop tool with mobile application
- Desktop tool with cross-platform support

Accessibility
- Import/export functionality
- Localization: support for multiple locales (e. g. German, English, French, etc.)
- An internationalization framework is used

Scaling
Is the reproducibility documented?

Security
- Network requirements
- Security requirements

3.3. SLC: TESTING

Documentation
- Test or verification suite should be available and well documented

Monitoring
- An endpoint for functional monitoring should be available

Check for usability criteria
- Collection of the usability criteria: 1. TGIII R 2.2.2
- See DARIAH II report: R 1.2.2
- See DARIAH II report: R 1.2.3

3.4. SLC: HANDOVER

The following documentation is needed at the end of the HANDVOER State.

Description of the service
- Tasks, features, functions

- Any reference installations
- Expected number of users, expected number of instances
- Institution/contact persons

Documents for the end users
- Include contact persons for the support

Documents for the service administration
- Specifications of run time environment and resources
    - Software: operating system, required libraries and dependencies of the service
    - Hardware: Required resources: CPU, RAM, HDD, network (volume of data transfer)
    - Dependencies on DARIAH-DE services
- Description of deployment process
    - Step-by-Step guideline
    - Example configurations, FAQ, etc.
    - Description of operation functionalities: Include mechanism in case of reboot. The service should have the ability to restart in an automatic way and be functional.
    - Indication of possible limitations or problems
- Monitoring requirements: an endpoint for functional monitoring should be available.
- Include contact person of administration support

Any documentation for further development
- Include contact person

Besides the documentation to be delivered, the contract of service provision or clarifying of sustainable operation or the funding should be done with DeISU.

3.5. SLC: PRODUCTION

The following documentation is needed in the PRODUCTION State:

- For the end users
- For the developers
- For the administrators
- For the support/HelpDesk
- Tutorials, FAQs

- Application examples from the projects

Besides, clarifying of responsibility, maintaining and updating of these documents should also be documented.