



D5.4 - Implementation of a centralized helpdesk and marketplace mockup

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Dorian Seillier

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D5.4 – Implementation of a centralized helpdesk and marketplace mockup

DESIR

DARIAH ERIC Sustainability Refined

INFRADEV-03-2016-2017 - Individual support to ESFRI and other world-class research infrastructures

Grant Agreement no.: 731081

Date: 29-03-2019

Version: 1.0



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DESIR

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0.4	27.12.2018	Yoann Moranville	DARIAH	Addition of Annex: User guide
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Executive Summary

The aim of the deliverable D5.4 is two-fold: on the one hand it details the implementation of a centralised DARIAH helpdesk that helps streamline the process of answering users requests. On the other hand it presents a design study of the future SSH Open Marketplace which is expected to be one of the main pillars of the operational phase of DARIAH.

The first part of the report describes the implementation of a centralised helpdesk which replaces the current contact form in the DARIAH website. The helpdesk, built with the help of CLARIN-D (the German node of CLARIN ERIC), will be the main entry point to provide users with a personalised support service. The helpdesk is currently structured around 7 categories: General, Education and Training, Join DARIAH, Open Science, Technical Issues, Tools and Services, Working Groups. A responsible person has been appointed for each category. It is based on OTRS¹, a ticketing system, to ensure an organised, efficient and centralised mechanism to support user requests.

The second part of the report is a design study for the SSH Open Marketplace. The Marketplace is expected to be one of the main building blocks of DARIAH in the following years. It is planned as an easy-entry place where scholars can find solutions for the digital aspects of their research. Solutions can be tools, services, learning and teaching material, datasets, repositories, etc. Instead of being just a list of links or database of resources it will contextualise and interrelate all the resources offered, with screenshots, tutorials and links to training material, user stories and showcases.

The first concept of the Marketplace relies on the review of similar past and present similar initiatives and valuable experiences from DARIAH, such as TERESAH and the in-kind contributions tool. The report gives an overview of the already existing landscape of discovery frameworks (TERESAH, TAPoR, EGI, DIRT Directory, EOSC-hub marketplace etc.) to identify common functionalities and options to reuse existing data. Furthermore, particular attention is given to user stories. Although a direct interaction with potential users will be needed during the development phase, first concrete user stories have been formulated. Furthermore, the report lists functional, technical and administrative requirements needed for the implementation of the platform.

This preliminary work led to the elaboration of mockups, which are early layouts of some pages of the future SSH Open Marketplace. Indubitably, the interactions within and beyond the project SSHOC² will contribute to redefine and very likely expand some of the ideas

¹ <https://community.otrs.com/>

² <https://www.sshopencloud.eu/>

presented in this report. Nevertheless, this document plays an essential role in planning next steps towards the implementation of the platform.

The SSH Open Marketplace will be further developed in the context of the Horizon 2020 funded project SSHOC, which will realise the Social Sciences and Humanities part of the European Open Science Cloud (EOSC) by offering a scalable and flexible access to research data and related services adapted to the needs of the SSH community.

Nature of the deliverable		
	R	Document, report
✓	DEM	Demonstrator, pilot, prototype
	DEC	Websites, patent fillings, videos, etc.
	OTHER	
Dissemination level		
✓	P	Public
	CO	Confidential only for members of the consortium (including the Commission Services)
	EU-RES	Classified Information: RESTREINT UE (Commission Decision 2005/444/EC)
	EU-CON	Classified Information: CONFIDENTIEL UE (Commission Decision 2005/444/EC)
	EU-SEC	Classified Information: SECRET UE (Commission Decision 2005/444/EC)

Disclaimer

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Note of the authors

The document contains two disconnected reports: the first part is related to the implementation of an online helpdesk on the DARIAH website, the second part describes in details first reflections over the implementation of a Marketplace for Social Sciences and Humanities in the long run. The original deliverable contained only the first part, the second part being a late addition to the Grant Agreement. We expected possible interrelations between the two parts, however we found none so far. Therefore, the two sections are to be considered separated from each other. To facilitate readability, the distinction is clearly made in the document. After submission to the Participant Portal, the two sections of this report will be disseminated separately.

Centralised Helpdesk

Introduction

This deliverable is two-folded: on the one hand, it implements an helpdesk to strengthen and accelerate communications with external stakeholders and enquirers, project the DARIAH brand and increase user satisfaction with DARIAH as an organization. On the other hand, it develops a first design study for the future marketplace. The current version of the deliverable (M24), describes only the implementation of the centralised helpdesk. The full version of D5.4 will be submitted at M27, including the Marketplace mockups.

This document is therefore the explanation of the execution and use of the DARIAH centralised Helpdesk, and its actors within the DCO.

1. Collaboration

The first step for building the Helpesk consisted at contacting potential partners, within and beyond the DARIAH consortium, in order to use an already existing solution. As stated in the Grant Agreement, the solution that was thought of being used was the DARIAH-DE Helpdesk. However, due to the DARIAH-DE project ending in February 2019, and that its Helpdesk would be discontinued and moved to the CLARIN-D Helpdesk⁴, we have contacted a few partners (including Huma-Num, MAN Poznan, GWDG) and CLARIN-D in order to assert what they were using and how, if at all possible, we could use their system to provide a Helpdesk for our users' needs.

Three of them are using OTRS and one is using a more professional and expensive solution (Jira ServiceDesk), therefore we directly went to the conclusion we should use OTRS – also because we could move the service from partners to partners more easily if needs be. Again, since DARIAH-DE was moving its helpdesk to CLARIN-D, we decided to follow this idea and to establish a partnership with CLARIN-D by using their system. By mid-September 2018, we got the green light to begin a testing phase with their platform and they started creating accounts and ticket queues (can be seen as “subjects” of the Helpdesk) so we could experiment and prepare the production Helpdesk.

2. Info Mailing list review

To decide what different subjects the Helpdesk would be susceptible to have, we engaged in a review of all the emails that went through our main communication channel, the info@dariah.eu mailing list. Since January 2016 and until October 2018, over 500 emails have been retrieved on this mailing list (excluding spams) and we have categorized those emails into categories to extrapolate the most relevant questions that could create the

⁴ <https://www.clarin-d.net/de/hilfe>

helpdesk categories. It should be noted that since mid-2018 internal emails go through a dedicated DCO mailing list.

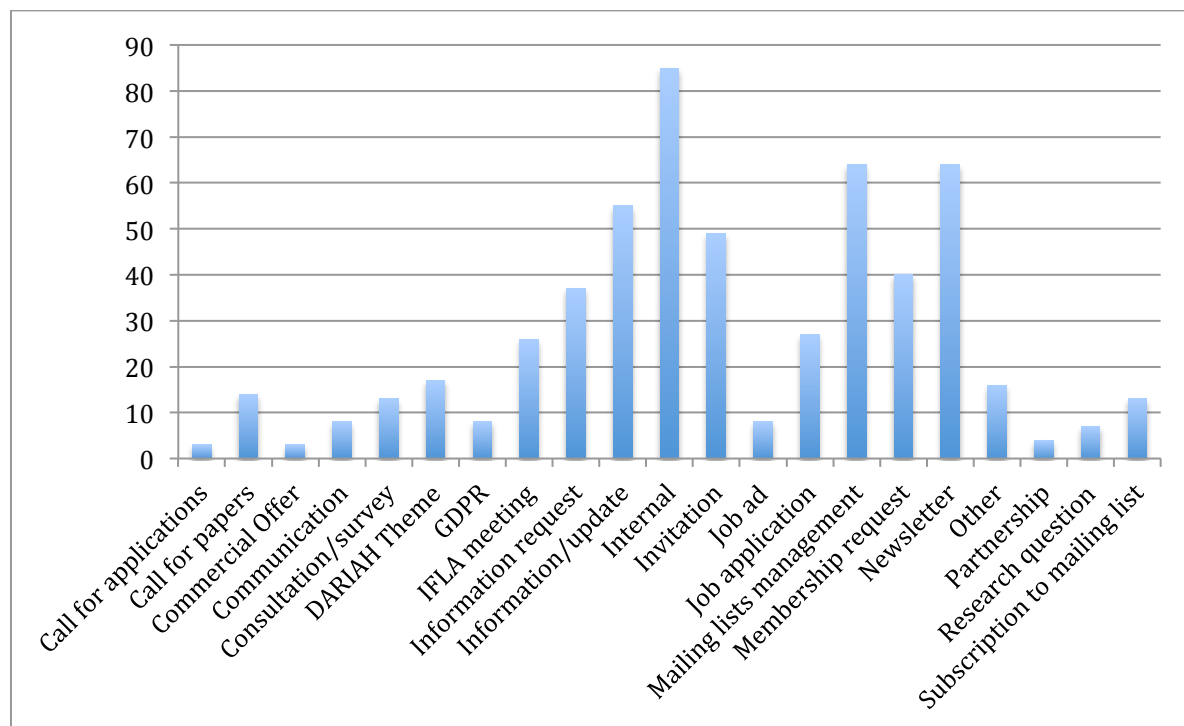


Image 1: DARIAH Info Mailing list statistics

Some other categories were created in order to have a main channel for questions that normally go through other routes (like personal emails) and that are part of the DARIAH 4 pillars⁵ (Marketplace, currently labelled Tools and Services in the Helpdesk), Education and Training, Foresight and Policy work, Working Groups). Of course, those subjects have been divided in order to have the most appropriate DARIAH staff members taking care of them.

Subject for the Helpdesk	Responsible role
Education and training	DARIAH VCC2 co-chair
General	Outreach and Communications Officer
Join DARIAH	Secretary General
Open Science	Open Science Officer
Technical issues	Developer, Research Associate
Tools and services	Developer, Research Associate
Working groups	Chief Implementation Officer - Team

Image 2: Subjects and associated users

⁵ These pillars have been identified in the DARIAH Strategic Plan, which follows the DARIAH Strategic Actions Plan (STRAPL) published in 2017. The document is currently being reviewed by DARIAH Boards and therefore, at the time of writing, is not publicly available.

3. Creation of a WordPress plugin

A Helpdesk can be separated from all other services, but we wanted to have a webpage in our website that could connect seamlessly to the OTRS service so tickets could be created without a hassle for neither the user, nor the OTRS operators. Thanks to the Web Services available on OTRS, we could simply create a plugin and sending simple requests built with WSDL to make actions like creating tickets in OTRS.

This plugin is available as Open Source on the DARIAH ERIC's Github repositories⁶.

Conclusion

The Helpdesk created will also be able to be used in conjunction of the future Marketplace that will be developed in the SSHOC project.

We plan to have a review of the use of each category by the end of the project, in order to be able to pinpoint over/under used categories and to redesign them if needed. This review and its outcome will be detailed in the DESIR final report due M36 (December 2019).

⁶ <https://github.com/DARIAH-ERIC/contact-helpdesk>

Annex 1 - User Guide (v1.1: 28.03.2019)

For users on the website

Users accessing the contact page will see the following form.

After entering their name, email, title of message, message itself and selecting a subject from a list (See Helpdesk queues), the user will have to complete a Captcha in order to be able to send his/her issue. After this, the user will not see what is happening as it will be in the hand of the ticket owner which is dependant on which category the user decided to write the ticket for.

An email is automatically sent to the user with the ticket number that was just created and a reply-to set to support@clarin-d.de, so if the user responds to this email, he/she will have the possibility to add more information to the problem mentioned.

DARIAH

Contact

Your Name *

Your Email *

Subject *

Open Science

Title of your message *

Your Message *

☐ I'm not a robot

reCAPTCHA
Privacy - Terms

Image 3: New contact form for users of the dariah.eu website

For the DCO

The Helpdesk being used is under the supervision of CLARIN-D and its web address is <https://support.clarin-d.de/> so users with an account (queues' owners as seen in Image 2 can connect there and write on their assigned tickets.



CLARIN-D

Welcome to CLARIN-D Helpdesk

* Username:

* Password:

Login

[Lost your password?](#)

Image 4: Helpdesk login page

Once login, a view similar as the one seen below is displayed, known as the Dashboard which will be the main view, apart from the ticket's view.

Dashboard

Reminder Tickets

My locked tickets (0) | My watched tickets (0) | My responsibilities (0) | Tickets in My Queues (0) | All tickets (0)

	TICKET#
none	

Escalated Tickets

My locked tickets (0) | My watched tickets (0) | My responsibilities (0) | Tickets in My Queues (0) | **All tickets (0)**

	TICKET#
none	

New Tickets

My locked tickets (0) | My watched tickets (0) | **My responsibilities (0)** | Tickets in My Queues (0) | All tickets (0)

	TICKET#
none	

Open Tickets / Need to be answered

My locked tickets (0) | My watched tickets (0) | My responsibilities (0) | Tickets in My Queues (0) | **All tickets (0)**

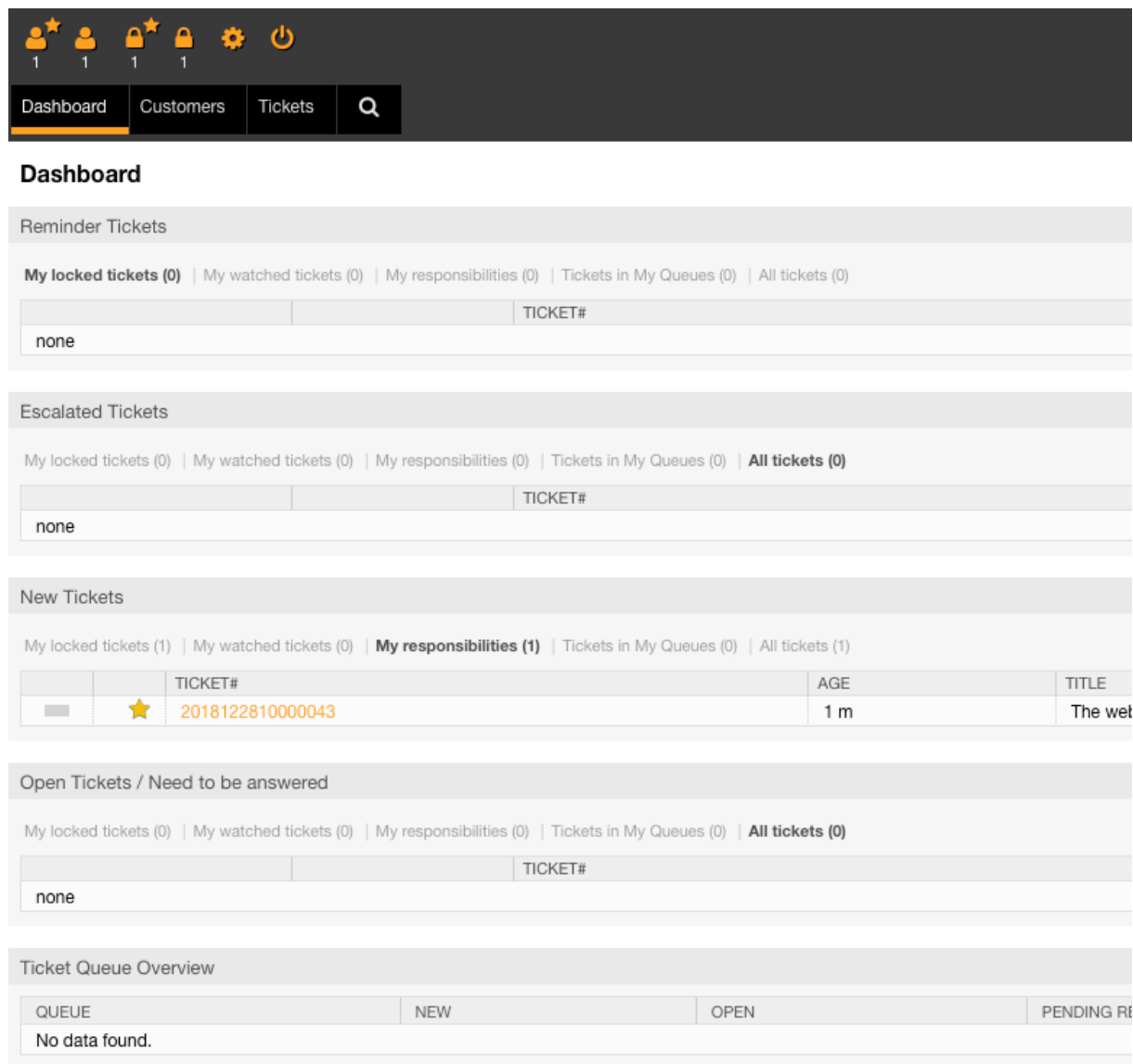
	TICKET#
none	

Ticket Queue Overview

QUEUE	NEW	OPEN
No data found.		

Image 5: Helpdesk Dashboard

When a ticket is created by a user and therefore assigned to one of the agents (depending on the subject), the Dashboard will point to the new tickets available for the user, as seen below.



The screenshot shows a Helpdesk Dashboard with a dark header bar containing icons for user profile, notifications (1), lock, settings, and power. Below the header is a navigation bar with 'Dashboard' (selected), 'Customers', and 'Tickets' tabs, along with a search icon.

Dashboard

Reminder Tickets

My locked tickets (0) | My watched tickets (0) | My responsibilities (0) | Tickets in My Queues (0) | All tickets (0)

TICKET#
none

Escalated Tickets

My locked tickets (0) | My watched tickets (0) | My responsibilities (0) | Tickets in My Queues (0) | **All tickets (0)**

TICKET#
none

New Tickets

My locked tickets (1) | My watched tickets (0) | **My responsibilities (1)** | Tickets in My Queues (0) | All tickets (1)

	TICKET#	AGE	TITLE
	2018122810000043	1 m	The wet

Open Tickets / Need to be answered

My locked tickets (0) | My watched tickets (0) | My responsibilities (0) | Tickets in My Queues (0) | **All tickets (0)**

TICKET#
none

Ticket Queue Overview

QUEUE	NEW	OPEN	PENDING R
No data found.			

Image 6: Helpdesk Dashboard with a new ticket

Of course the agent will be notified by email that a new ticket has been attributed to him/herself, such as the one seen below.

From OTRS Notification Master <support@clarin-d.de> ☆
Subject [Ticket#2018122810000043] Ticket owner assigned to you! (The website is not worki [...])
To Me <yoann.moranville@dariah.eu> ★

Hi Yoann,

Ticket [2018122810000043] is assigned to you by Dariah Webform.

Comment:

For test purposes.
The website is currently displaying errors on many pages.

<https://support.clarin-d.de/otrs/index.pl?Action=AgentTicketZoom;TicketID=4367>

Your OTRS Notification Master

Image 7: Email received from OTRS to warn about a new ticket created

In the detailed view of the newly created ticket, a few options are available and some will be detailed in this document, as they will be required in the agent's use of OTRS.

Ticket#2018122810000043 – The website is not working properly (test)

Back | Unlock | History | Priority | Link | Owner | **1 Responsible** | Customer | **3 Note** | E-Mail Outbound | Merge | Pending | **4 Close** | - Move -

▼ Article Overview - 1 Article(s)

☆	NO.	TYPE		FROM	SUBJECT
	1	agent – webrequest	→	Yoann Test	The we

▼ Article #1 – The website is not working properly (test)

Mark | Print | Split | Forward | **2 - Reply -**

From: Yoann Test
To: DARIAH-ERIC::technical
Subject: The website is not working properly (test)

For test purposes.
The website is currently displaying errors on many pages.

Image 8: Detailed view of a ticket

Another important information on the detailed view is seen on the right side of the screen, see screenshot made below, as it contains the email address of the ticket creator as "CustomerID".

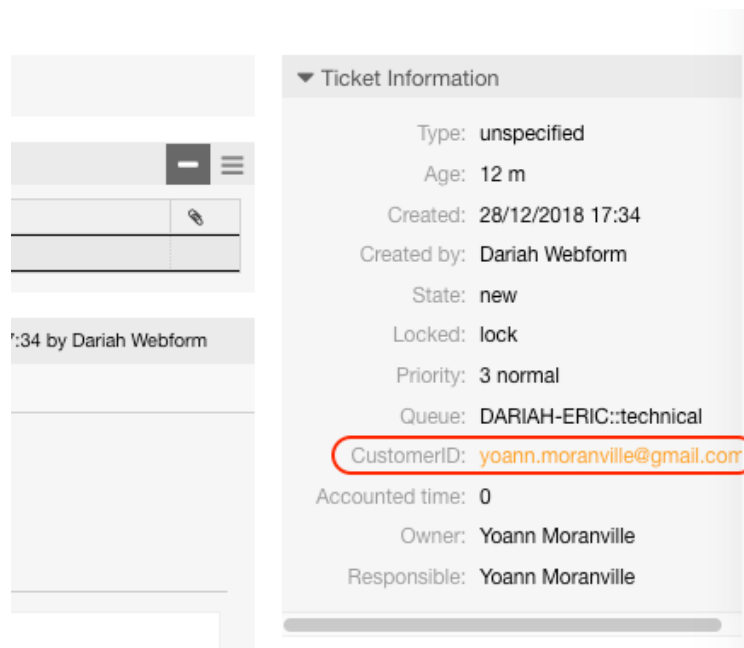


Image 9: Detailed view of a ticket, right-end side

The Image 8 contains 4 different actions detailed here:

1 – Responsible: By selecting this option, one can modify who is responsible of the current ticket, useful when a category was wrongly chosen. For example, a ticket that was created in the category “General” but falls into the category “Working Groups” should then be set to another responsible person, the DARIAH CIO in this case.

Change Responsible of Ticket: 2018122810000043 - The website is not working proper

All fields marked with an asterisk (*) are mandatory.

[Cancel & close window](#)

Ticket Settings

* Title:
The website is not working properly (test)

Responsible:
-

Add Article

* Subject:
Responsible Update!

* Text:

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2 - Reply: Replying to the actual customer, namely the user who created the ticket. In order to let the person know that it has been worked on and that the problem is now resolved, or in order to ask for more information, etc. Here the “To” field is not always set to the correct email address, so please use Image 9 to add the correct email address in this field. This email is sent with a correct Dariah.eu email address and contains a default signature to use.

Compose answer for ticket: 2018122810000043 - The website is not working properly (test)

All fields marked with an asterisk (*) are mandatory.

The ticket has been locked. [Undo & close window](#)

From: DARIAH-EU Helpdesk <helpdesk@dariah.eu>

★ To:

Cc:

Bcc:

★ Subject: **Re: [Ticket#2018122810000043] The website is not working properly (test)**

Options: [\[Address book \]](#)

★ Text:

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Dear ,

Thank you for your request.
Your DARIAH-Helpdesk team

--

DARIAH ERIC
c/o TGIR Huma-Num
CNRS UMS 3598
54, Boulevard Raspail
75006 Paris
France
Email: info@dariah.eu - Web: <https://www.dariah.eu/>

--

28/12/2018 17:34 - Yoann Test wrote:

Image 11: Reply to customer

3 - Note: In order to take internal notes on the ticket, for example, stating what actions have been taken in order to resolve this particular issue.

Add Note to Ticket: 2018122810000043 - The website is not working properly (test)
All fields marked with an asterisk (*) are mandatory.
[Cancel & close window](#)

▼ Add Article

*Subject:

Note

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Note type:

note-internal

Time units (work units):

☒ Submit

Image 12: Add note to a ticket

4 – Close: When the ticket is resolved and that the user has been contacted about it, it is time to close a ticket in order to archive it. It can be “closed successfully” or “unsuccessfully” depending if the issues has been resolved or not.

Close Ticket: 2018122810000043 - The website is not working properly (test)

All fields marked with an asterisk (*) are mandatory.

[Cancel & close window](#)

Ticket Settings

Next state:

✓ closed successful
closed unsuccessful

Add Article

* Subject:
Close

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Time units (work units):

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Image 13: Close a ticket once it has been resolved

Marketplace Mockups

1. Project description

The SSH Open Marketplace (not to be confused with the "EOSC-hub Marketplace"⁷) will be an easy-entry place where scholars from the broader SSH domain will find solutions and resources for the digital aspects of their research. 'Resources' can be software and tools as well as datasets, but mainly services, ready for direct use. The idea is to focus on the methodical, dynamic aspects of the research process to enable sharing and re-use not just of resources but workflows and methodologies, to promote Open Methods next to Open Data and Open Source. The marketplace won't be a research data repository.

The crucial difference to similar catalogues or registries of the past is that the SSH Open Marketplace will adopt aspects of an app store. Instead of being just a list of links or database of resources, it will contextualise and interrelate tools, services and datasets offered, with screenshots, tutorials and links to training material, user stories and showcases. It will also encompass community features like user feedback, ratings, the integration of other related channels (Twitter, GitHub, Facebook, project websites), allow categorisation according to multiple classification schemes, such as TaDiRAH and NeMO, and contain qualified links to involved actors – persons and institutions, who authored, contributed to, funded or host a given resource. We are confident that these features add highly to the usefulness of the Marketplace and to the quality and actuality of the entries.

The Marketplace will provide at least the following features for its entries:

- **contextualisation**: related material like code, data or tutorials is linked, delivering broader context to discovered resources;
- **serendipity**: users will find useful things they weren't even looking for;
- **community**: user feedback, comments section, ratings, popularity measures (number of views), establishing something like a "Stack Overflow" for the Digital Humanities⁸;
- **assessment** (by editors and the community): to help decide if something is useful for a specific purpose or not;
- **support**: users will have access to related training material to support their use of tools;

⁷ The European Open Science Cloud Marketplace: <https://marketplace.eosc-portal.eu/>

⁸ Stack Overflow: <https://stackoverflow.com/>

- **gap analysis** (feature request): what kind of tool doesn't exist yet and should be developed as it would address specific research needs?

2. Overview of existing platforms

Part of the conceptualisation of the SSH Open Marketplace is a selected view on the already existing landscape of discovery frameworks, in the shape of registries or catalogues. This serves two purposes for the concept: firstly a survey of the most common functionalities of the platforms - some of them being essential also for the SSH Open Marketplace - and secondly options to reuse already existing data, e.g. via a mapping of selected resources or analysing the applied metadata schemas and procedures for data refinement.

	TERESA H	TAPoR	EGI	EOSC-hub MP	eInfra	DiRT Directory	Humanities Data	ROHUB
Search								
Filters, Facets								
Clusters								
"Tool(s)" of the month								
Latest "tools"								
Add to cart					Not exactly			Not exactly
Explore via categories								
Data acquisition possible								

Table 1: Overview of existing platforms

The table gives an overview of some important functions and requirements of some already existing platforms and services. For this purpose, the platforms were analysed with regard to their individual functionalities. Thus the table shows where there may still be a need for

functions, which functions are already sufficiently used and, in particular, which functions are essential. Basically it can be stated that already a range of functionalities are offered on the platforms, although each platform has different main focuses.

It is clear that some functions such as searching, filtering and categorizing are basic requirements that should also be included in the SSH Open Marketplace. But so far no site offers the functionality of clusters⁹ and only a few sites regularly inform their users about new (or unseen) application possibilities for example in the form of categories like “tool of the month” or “latest tools”.

However, not all requirements can be illustrated using this table, as an evaluation in these categories is hardly possible. This includes the visibility of the content. For a far-reaching visibility the findability over search engines is essential. It should be noted that (potential) users might not often search for a specific page or specific service. Findability should therefore be geared to the search behaviour of the user. For this end, clusters - e.g. discipline- or method-specific - would be helpful to offer the users an orientation.

Also hardly displayable in the table, but nevertheless essential for the pages is the up-to-dateness and the proof of quality of the data and services offered there. This is quite easily possible via a time stamp and a documentation of the criteria for the description of a service or resource.

The latter aspects are more related to the content of a platform instead of its functions. One could say that a marketplace could be quite successful with only a few features as long as the data available is broad and of high quality but it can't be successful with only a small amount of resources or with resources applying a poor metadata schema even with many features.

3. User stories

The initial design for the marketplace mockups derives mainly from three more or less correlating sources:

1. Already existing comparable resources like the listed platforms above (such as TERESAH, TaPoR, etc.);
2. Existing groundwork within the DARIAH universe like the various DARIAH websites with lists or the DESIR gap analysis;
3. User stories, which are the main topic of this chapter.

⁹ Very short description: https://en.wikipedia.org/wiki/Document_clustering#Clustering_in_search_engines

Optimal conditions for the design of the marketplace would include more and extensive work on the side of requirements engineering and would involve direct interaction with potential users, for instance participatory design¹⁰ or by Guerilla testing¹¹. As there is already a vast range of experiences with the user community available and the main work of the marketplace design will be undertaken in the project “SSHOC”, the creation of user stories turns intentionally out short and towards just a few functions of the marketplace.

A list of important basic assumptions (partly also to be seen as use cases) for the marketplace’s scope of service includes the following:

- **Research support:** The user, usually a researcher, is searching for suitable tools and resources for specific tasks in her/his research. We assume that the ordinary user will have an affiliation with arts and humanities and social sciences. The platform has to make it obvious for which subject areas it offers support. This kind of user will consult the platform until she/he has found what she/he was looking for, usually by utilising the browsing or search facets of the marketplace. This will be the main function or request towards the platform: a researcher looking for tools and resources with more or less detailed features. The platform has to be furnished with information for users coming from other disciplines than the Social Sciences and Humanities, by at least explaining what she/he will find or not find on the marketplace, and eventually propose them other alternatives.
- **Stay informed:** The user is interested in an up to date overview of the existing services and resources for Digital Aspects of SSH Research. What are current trends in methods and services? This user may return to the platform at intervals and will likely use the browsing functions of the platform or news item-related functions like “tool of the month” or user experiences. For this end certain processes are necessary, e.g. to integrate new data, update the existing data or highlight specific data.
- **Form follows function:** The marketplace should be as easy as possible to be used and oriented towards established use patterns, mainly the concept of an app store. On the one hand because such approaches are well established and therefore easy to use, on the other hand because the marketplace’s main purpose is to immediately¹² recommend services and resources for specific research contexts.
- **Frequency of use:** In most cases the user will visit the marketplace as long as she/he has found what she/he was looking for: suitable tools and resources. Regular

¹⁰ A detailed description of the application of participatory design for the creation of a virtual research environment for history may be found in Meiners, Buddenbohm, Thiel (2015): Participatory Design bei der Erstellung einer Virtuellen Forschungsumgebung für die Geschichtswissenschaft. DARIAH-DE Working Paper Nr. 13, URN: urn:nbn:de:gbv:7-dariah-2014-5-4

¹¹ More background on guerrilla testing and how it may be applied can be found here:

<https://usabilitygeek.com/guerrilla-usability-testing-how-to/>

¹² This means without prerequisites or long queries.

visits to the marketplace, although conceivable, will likely be seldom but can develop over time with growing community uptake and the addition of user generated content such as recommendations or testimonials. The design of the marketplace should mainly aim at satisfying the user with her/his specific search request and not oriented towards delivering news items on a regular base.

- **Social/ community function:** Comments, testimonials or recommendation of tools and resources. Exchange with other users (“social marketplace for services¹³”). The community uptake of the marketplace will determine how valuable the social factor will become. If this kind of content enhances the platform, other functions become conceivable like e.g. feature requests. On the other hand the platform has to handle this kind of data according to legal regulations, e.g. via a necessary activation of comments before publication.
- **Cross-linkage with other resources:** <https://openmethods.dariah.eu/about/> as platform to highlight or describe in depth certain services; the Standardization Survival Kit: <http://ssk.huma-num.fr/#/scenarios> as platform collecting research use case scenarios for best practices in the Digital Humanities (developed within the PARTHENOS project) or #dariahTeach as platform collecting a range of Digital Humanities related teaching activities: <https://teach.dariah.eu/>. This is a challenging but potentially very fruitful aspect of the platform. By linking other sources the content can be extended or enriched.
- **Visibility and reputation:** The marketplace has on the one hand to be networked well with relevant other sources (e.g. the SSH ERICs) on the other hand it would be nice to find the marketplace through a simple search request (e.g. Google). This aspect is related to the abovementioned cross-linkage with other resources. It is important for the user to see that our platform is visible in the relevant areas as well as that it is well-reputed and it generates trust in our content.
- **Easy and intuitive handling of the platform:** Various options for browsing the content, e.g. with facets or filtering options. Filtering options should not only cover the technical details of the tools and resources. Applications should be easily accessible, e.g. not only on several subpages. It would be helpful to include a section for frequently asked questions in order to make it easier for users to use the site and navigate through it.

3.1 Selected user stories

For a more concrete execution of the marketplace, specific requirements must first be highlighted. As a basis for the functional requirements, concrete user stories were formulated. Different perspectives, as far as possible the point of view of everyone involved

¹³ Blanke, T./ Bryant, M./ Hedges, M./ Aschenbrenner, A./ Priddy, M. (2011): Preparing DARIAH. In: IEEE 7th International Conference on E-Science, pp. 158-165. DOI: 10.1109/eScience.2011.30

in the marketplace, were pointed out, even though the role of the researcher might probably be the main user of the marketplace. The user stories allow to work out different needs that users might have on the marketplace, from which important functions and applications can be derived.

User Story ID	As a (role)	I want to (something)	So that (benefit)	Test case and/or Input-/Output-Data
us1.1	researcher	Get an overview of the existing tools for text annotation	I can find the most relevant tool for digital annotation of text (or supporting my research task in general)	Generate a list of tools and other resources that are relevant in the context of digital annotation and also highlight possible other relevant resources
us1.2	researcher	Get an overview of datasets available for reuse	Find dataset for X	Generate a list of existing dataset available
us1.3	researcher	Store my data safely and long-term	My research work/data is safe from losses in future	Generate a list of specific repositories and possibilities
us1.4	researcher	Announce/Share my own dataset (resulting from my research work)	It can be found and reused	Provide a form where researchers can provide information on their dataset (i.e. link) to be shared on the Marketplace
us2.1	researcher / praxeologist	Get an overview of tools for digital annotation of text	I can identify gaps, for which further development would be conceivable or with whom I could cooperate.	Generate a list of tools and other relevant resources and possibly include more detailed technical information and contact information

us3.1	student	Search for DH summer schools or similar (training) events	I get recommendations for DH summer schools in order to select the one I want to attend	Generate a list of relevant events that considers geographic and seasonal parameters, e.g. all DH summer schools in Germany from June to September
us3.2	student	Get support/help on using of tools (e.g. regarding data handling and analysis, usage of tools)	I understand how to use tools including feeding them with data	Get list of training material for given tool
us3.3	student	Get an overview of solutions that deal with my research question	I get help with solving my research question/problem.	Get a list of solutions that deal with my questions
us4.1	general public	Browse information regarding current developments in Digital Humanities	Learn about methods/solutions and tools in the Digital Humanities	Get a list of Digital Humanities resources (projects, datasets, tools) in order to learn this domain specific methods and tools
us5.1	scholar	Find tools that apply certain methods or data standards	I can use them in my course of bachelor students	Get a list of specific tools and other resources that come with a "good" documentation
us6.1	administrator	I want I get regular updates on the user generated content	I can keep track of the user generated content on my platform, when new content appears and I can activate or delete it	Send E-mail notifications for new user generated content

us6.2	administrator	Import metadata from similar platforms (like DiRT)	I can enrich the content of my platform	API, interoperable metadata schemas to harvest content: consider technical and legal implications
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Table 2: Selected user stories

4. Requirements

This section lists various requirements that the marketplace should meet. It differentiates between functional requirements, technical and administrative requirements. This list is not a substitute for a comprehensive functional specification documentation but should lead up to a detailed concept for the SSH Open Marketplace and be sufficient to produce informative mockups.

It is clear that the conclusions and specific ideas in this document are not set in stone in terms of an implementation. The first version of the SSH Open Marketplace will be developed within the SSHOC project's dedicated work package. This document is some kind of groundwork created within the DESIR project. Its deliberations will be handed over to SSHOC but the decision on the specific design of the marketplace lies within the SSHOC project.

What is important from the DESIR perspective is to highlight the most relevant experiences, drawbacks and community requirements from the DARIAH universe. These experiences are reflected in the requirements below but also in the other chapters of this document.

It is also important to consider the various perspectives on the SSH Open Marketplace. Most importantly, the end user's requirements have to be covered by the platform. Beyond this the administrator's or service provider's perspectives seems nearly as important. This comes from the rich DARIAH experience with various projects and services and the insight that a major part of the success or failure of a project or service comes with the community uptake. The community uptake will be especially important for a service like the SSH Open Marketplace. The term marketplace highlights significance of the social and communication aspects without any doubt.

4.1 Functional requirements

Functional requirements describe features or functions of the marketplace in a technical sense: what it is able to do, mostly aimed at the user.

1) Users can see the following resources:

- a. Tools (generic, specific, per discipline) (us1.1, us2.1, us3.2, us4.1, us5.1)
 - i. e.g. [Gephi](#), [AntConc](#), [TextGrid](#), [Geo-Browser](#)
 - ii. Voyant Tools (and an example [research paper](#))
- b. Services (us1.1, us2.1, us3.2, us4.1, us5.1)
 - i. e.g. [Hypotheses](#), [Isidore](#), [AAI](#)
- c. Training Material (us3.1, us3.2)
 - i. e.g. [DARIAHTeach](#), [PARTHENOS training suite](#)
 - ii. DH Summer schools or training events
- d. Datasets (us 1.2)
 - i. e.g. [Corpus of German-Language Fiction](#) (and what researchers did with it: on [Twitter](#), in [research](#) and as app for [web](#), [Android](#) and [iOS](#))
 - ii. e.g. [Fictionality Data Set](#) (and the according [research paper](#))
- e. Repositories (us1.3, us1.4)
 - i. e.g. [Nakala](#), [DARIAH-DE Repository](#), [TextGrid Repository](#) (and one of its project example: [Theodor Fontane Notebooks](#)), [figshare](#), [Zenodo](#), [Wikimedia Commons](#)
- f. Projects
 - i. e.g. [TEI projects](#)
- g. Functional websites
 - i. e.g. <http://www.sixdegreesoffrancisbacon.com/>, <http://moviegalaxies.com/>, [Encyclopedia of Romantic Nationalism in Europe \(ERNiE\)](#), [the sourcecaster](#)
- h. Solutions/recipe (us3.3, us4.1)
 - i. [Standardization Survival Kit](#), [Methodica](#)

2) Users can search any of this data

- a. By Simple search
- b. By Categories/Types
- c. By Advanced search

3) Users can login through Federated Authentication (AAI)

- a. e.g. by the DARIAH AAI to steer user comments and feedback or to allow to store or export result lists in a personal (DARIAH) space

4) Users can leave feedback on different resources provided

5) Each resource can feature/have following linked/attached items:

- a. User feedback (see 4.)
- b. User stories
- c. Links to training material (like tutorials)
- d. Showcases
- e. Contacts
- f. Ratings
- g. Screenshots
- h. Twitter hashtags
- i. Vocabularies (NeMO, TaDiRAH)

4.2 Technical and administrative requirements

Technical and administrative requirements can be seen as “below the surface structure”, necessary to enable a smooth functioning for the user, interoperability with other services or the potential for future enhancement of the marketplace. This section also pays attention to the requirement of efficiency and further development. They have to be seen apart from the functional requirements above which take more into the account the end users’ perspective. The following requirements to a large part do reflect the experiences from DARIAH with various services and projects:

1) Cross-browser/platform support including mobile/tablet:

- a. Chrome
- b. Firefox
- c. Safari
- d. IE
- e. Edge
- f. Opera

2) Development using Responsive Web Design

3) API and mapping function for import of data from: e.g. from sources like the DARIAH In-kind registry¹⁴ or other platforms. This has also to be considered for the decision for a metadata schema.

- a. In-kind tool (will feature a "Marketplace-ready" button)
- b. DH Course Registry (has an API)
- c. Data Repositories (NAKALA, EASY, DARIAH-DE Repository, TextGrid Repository, ...)
- d. ...

4) Website should be developed with WCAG 2.1 in mind. We could target at AA level.

5) Restricted costs for maintenance and editorial treatment of the data: all processes and data have to be designed in a way that they can run without extensive maintenance and editorial treatment on an irregular base. It is likely that there won't be dedicated resources in terms of working hours available at all times.

6) Editorial functions such as highlighting or commenting of certain entries (see functional requirements): These functions have to be designed as easy as possible regarding usage to encourage user and community generated content. However legal aspects have also to be taken into account.

7) User administration: e.g. activate new accounts. This should possibly be covered within other infrastructures, e.g. the DARIAH AAI (federated authentication).

8) Communication with the authors of individual entries: e.g. a notification function for the authors ("Do you want to update your entry?", or if someone interacts with this entry, e.g. with a comment). This can facilitate the quality and actuality of the data.

9) Metadata schema that enables interoperability with other catalogues: the potential depth of metadata depends on the granularity of the used metadata schema. Although a maximum of granularity is desirable, this only works out under optimal conditions, e.g. regular editorial treatment or involvement of community. The metadata schema for the marketplace has therefore to find a compromise between a flat schema like DC simple and a very granular schema like TEI.

¹⁴ <https://dariah-beta.dans.knaw.nl/docs/about.md>

5. Some experiences and groundwork from DARIAH

5.1 DESIR Gap Analysis

In 2017 a Gap Analysis¹⁵ of the DARIAH research infrastructure has been compiled in work package 4 Technology of the DESIR project. Aim of this report was an overview of the various resources and services available under the DARIAH label and to determine whether certain gaps in an infrastructural sense can be identified. The search for gaps focussed on specific technology areas (visualisation, text-analytic services, scholarly content management and entity-based search) but nevertheless the aim was to get a complete overview of the existing resources and services.

We have to admit that within the current situation of DARIAH no central registry for the tools and resources is available until the marketplace is launched. Instead, the services are offered in a quite motley landscape of national DARIAH-related websites, so that they sometimes have to be searched in a cumbersome way. That means, among other things, that the results of the Gap Analysis have to have a fragmentary character. The broad range of services among the DARIAH partners - this is a finding of the gap analysis - makes it very difficult to identify major gaps.

But the inventory and its analysis allow identifying centres of gravity in DARIAH in relation to the other service categories. We have found that a bulk of the DARIAH services focus on scholarly content management and text-analytic services. In both categories the services are mostly content-related like repositories, tutorials and blogs or concentrated on virtual research environments and data analysis tools. In some areas DARIAH is only represented with lesser services which might be a gap but could also mean that the areas are already covered in a satisfying way. An interesting point was that some services could not be assigned to any of the categories.

A large part of the services is exclusively research oriented and not intended to be offered on terms of a sustainable provision and as a service for the community. That means that the services may be quite specific or hardly interoperable. These tools still need to be brought into a larger context. This finding is indeed on relatively unsure footing and would deserve a further analysis. However, due to the lack of standardization and centralization, the number and applicability of the tools, as well as the numerous possibilities for researchers, which actually exist, are still confusing.

As a result of the lack of availability to standardized data, the functionality of the services often remain unclear to the users. Comparability and quality assessment of tools are not given; in some cases it is even uncertain whether the services are still provided/updated. So far there are no common software quality guidelines.

¹⁵ Stefan Buddenbohm, Raisa Barthauer. D4.1 - Gap Analysis of DARIAH Research Infrastructure. [Research Report] DARIAH. 2017, <https://hal.archives-ouvertes.fr/hal-01663594v2/document>

The evaluation of services according to their maintenance and availability status is on the feature list for the DARIAH Marketplace as this is an important function for the users.

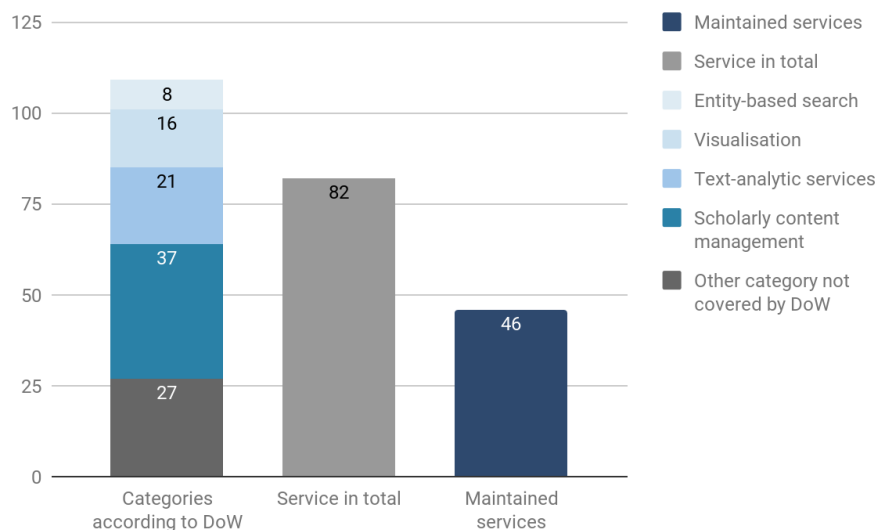


Image 1: Service categories

Quantity und Service

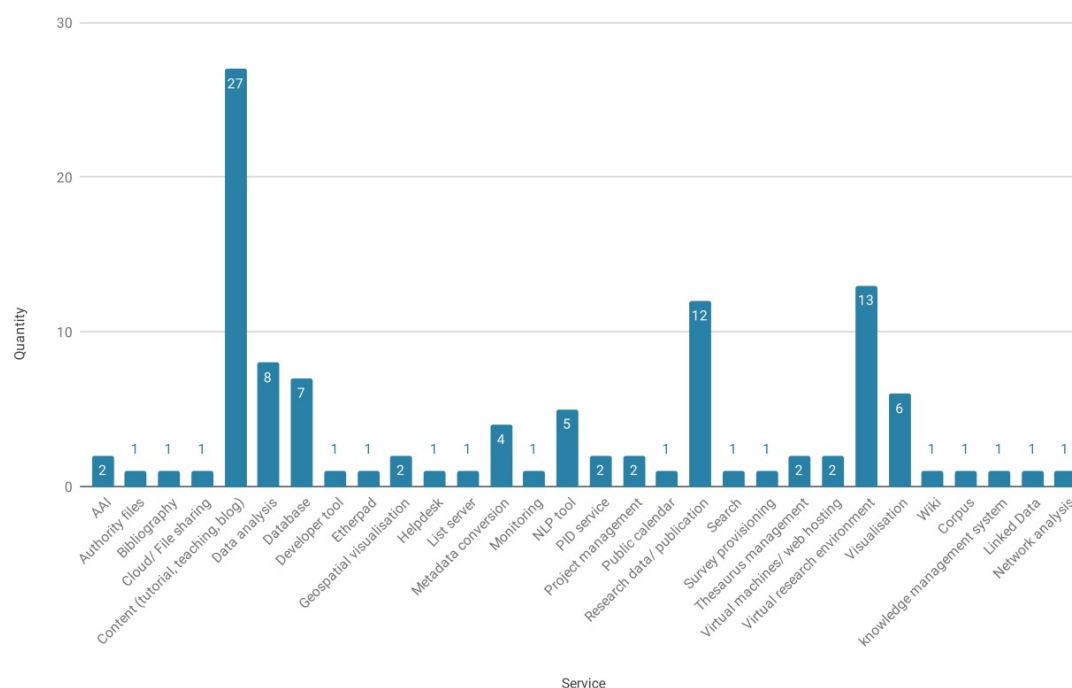


Image 2: Frequency of services

5.2 Conclusions

Even though the gap analysis did not highlight any deep gaps in the actual sense, there are still some requirements regarding the usability of the Marketplace. Before the individual services are transferred to the Marketplace, they must be checked for their actuality, maintainability and applicability for the community. As shown above, the user friendliness and application orientation are also expandable.

The first decisive factor for the successful use of the Marketplace is the clarity of the data. A logical structuring of the data is the best way to do this, whereby the question of a meaningful ordering scheme arises. It certainly makes sense to consider the needs of the user in this structuring.

An important point is the actuality of the data. There must be a way to make the up-to-dateness of the data transparent in order to assure users whether it is still usable. The data must also be provided clearly.

So far, some of the services are still provided exclusively in the national language of the offering institutions. In order to increase the usability of the services, they should also be available in an English version.

In addition, the information density for the services must be increased. Data and services must be comparable in their applicability so that users can find out more quickly and easily what kind of service it is and how it can be used.

6. DARIAH Inkind contributions database

6.1 What are DARIAH Inkind contributions?

The *Report on Integrated Service Needs: DARIAH (Inkind) Contributions*¹⁶ written in the Humanities at Scale project summarizes the demand for inkind contributions as following: "To establish a DARIAH ecosystem, in order to make available, assess, and evaluate national (in kind) contributions to the DARIAH infrastructure by taking into account existing best practises and quality requirements. DARIAH members can contribute to the DARIAH community with a diverse range of resources, services and activities. Through an online tool¹⁷ the contributions will be collected and disseminated. Furthermore, the contributions will be evaluated using a self-assessment and peer review process which verifies the compatibility of the service or activity to the infrastructure, therefore allowing researchers to find matching services and activities more easily. Additionally, the tool will also be used to collect, value and monitor national in-kind contributions."¹⁸

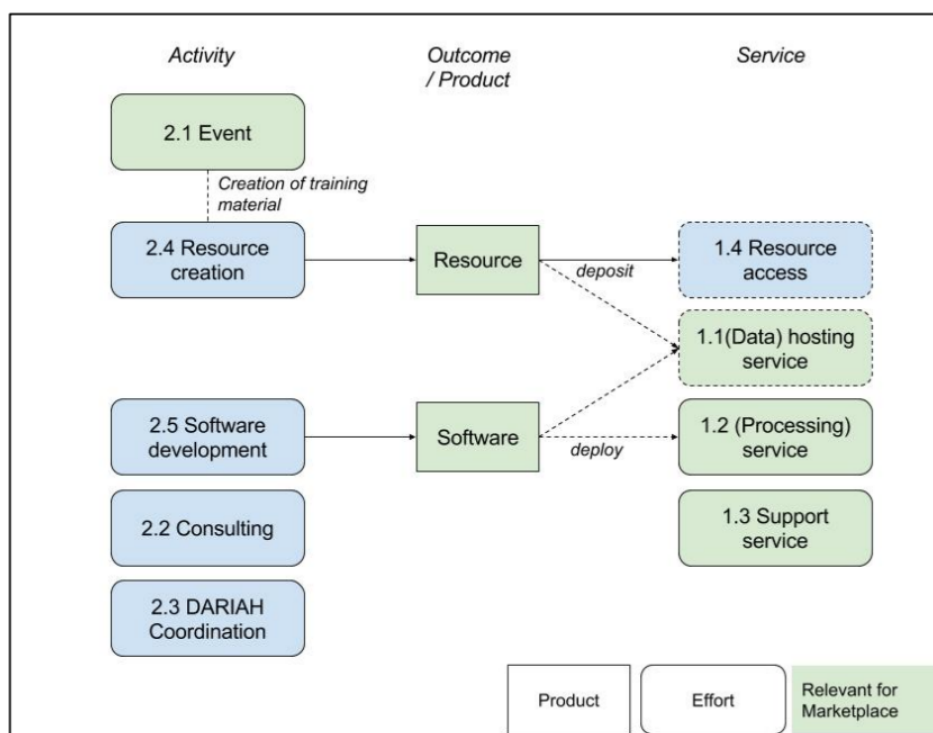


Image 3: Types of inkinds and the relations between activities and services

¹⁶ Lisa De Leeuw, Femmy Admiraal, Matej Ďurčo, Nicolas Larousse, Michael Mertens, et al. D5.1 Report on Integrated Service Needs: DARIAH (in kind) contributions - Concept and Procedures. [Other] DARIAH. 2017. Wience <https://hal.archives-ouvertes.fr/hal-01628733v2/document>

¹⁷ The online tool is available as beta version: <https://dariah-beta.dans.knaw.nl/docs/about.md>

¹⁸ <https://hal.archives-ouvertes.fr/hal-01628733v2/document> page 7

In more detail the character of inkind is described in the same document: “A contribution selected by National Coordinator as in kind for a given member country and year. In kind contributions are one type of support for non-profit organizations. Conversely to cash contributions, in kind contributions represent the provision of goods or services to an organisation by one of its members, valued in monetary terms according to rules agreed upon beforehand by the members of the organisation, and accounted for as part of the member’s contribution to the budget. An in kind contribution can consist either of the direct provision of a tangible asset to the infrastructure or of expenditure incurred directly by the contributor, which benefits the infrastructure and satisfies its objections. They include goods, use of services and facilities, professional services or expertise in the form of staff time, provision of or access to equipment, special materials. They are regarded as necessary to carry out the tasks and achieve the goals commonly agreed by the members. They would have to be paid for if they were not provided by a member. From the point of view of DARIAH, in kind contributions represent a stream of revenue, though they are not monetary. In kind contributions are commonly used in RI consortia and may represent a large portion of the RI’s revenue. In kind donations build relationships within an organization as the provider can support the mission and programs without investing cash.”¹⁹

6.2 Process for collecting Inkind and assessment of effort

The collection and reviewing process for the DARIAH Inkind Contributions has been aligned in the last two years by the DARIAH ERIC. Part of this alignment is the provision of a database tool, where all inkind are registered and described. For this end the TaDiRAH taxonomy²⁰ is being applied. It is in the responsibility of the DARIAH National Coordinators to collect and describe the national inkind on a yearly basis. After the registration of the inkind in the database is completed, a review of the individual entries for plausibility and integrity is being undertaken. Reviewed entries are recognizable but also other entries without review, for instance from former years, are visible. Some statistical functions are available, e.g. list all entries per country or category.

The reasoning behind the inkind collection above all is not to gather an overview of all available resources (the main topic in the context of the marketplace) but to achieve a comparability of the national DARIAH efforts in terms of costs. But of course the annual updated overview of the national DARIAH efforts is important for the marketplace activity and the use of it should be taken into consideration here.

The effort behind the inkind registration depends largely on the number and character of the inkind. As illustration may serve the German situation. The German DARIAH contribution - or DARIAH-DE - consists of several partners (research institutions, university data centres, libraries, archives) that account alone for 64 inkind contributions in 2017. The number of 64 inkind includes some merged inkind such as workshop series or summer

¹⁹ <https://hal.archives-ouvertes.fr/hal-01628733v2/document> page 10.

²⁰ The Taxonomy of Digital Research Activities in the Humanities: <http://tadirah.dariah.eu/>

schools, therefore the number of concrete activities and efforts behind is higher than the 64 inkind contributions suggest. Inkind contributions fall into all possible categories, some are ongoing activities, some may be assigned to certain year or period of time. Nearly all inkind contributions have in common, that they are rendered jointly, meaning that the description process of the individual inkind has to consider all involved partners, which is not a problem for the description as such but for the calculation of costs.

As a first step the German inkind contributions are collected on an annual base in a wiki platform accessible for all partners. This step of the process takes several months as all partners have to motivate to describe as complete as possible their efforts. Also the wiki spreadsheet has to be monitored and refined by the national coordinator on a regular base. An addition to this step as specialty of the inkind process is the collection and calculation of cost figures for the individual inkind contributions. This is not of interest in the marketplace context but quite time consuming as several people may be involved for each partner's figures (NC, partner, partner's administration).

After this step is finished, the inkind contributions are transferred to the DANS Inkind Registration Tool²¹. This is in the responsibility of the national coordinator and the most time-consuming part as the inkind contributions not only have to be described (according to the TaDiRAH taxonomy) but also to be self-assessed, meaning to provide sufficient sources and evidences for the given features. This step takes some full working days for all 64 inkind contributions although not each inkind contribution requires a self-assessment, for instance coordination efforts. The process is finished with an external review of all submitted and self-assessed inkind contributions. This is in the responsibility of the DARIAH ERIC. After this the documentation of the inkind contributions is finished and may be used for the purpose of the DARIAH ERIC but also for other means such as the marketplace.

6.3 Scenario, benefits and challenges for data transfer between DARIAH Inkind registry and the SSH Open Marketplace

Although the SSH Open Marketplace won't only cover the DARIAH research infrastructure but will be open to all other relevant services and resources it may be worthwhile to reason the integration of the already existing collection of DARIAH inkind contributions as described above.

6.3.1 What may be the most relevant benefits in using the DARIAH Inkind registry?

It is a growing and annually updated registry of various types of resources and services per each of the 17 partner countries. Currently the registry is based on the TaDiRAH taxonomy. The service is well documented²² and accessible via API. It is likely that the database will improve in terms of quality and quantity over the years as DARIAH itself is expanding and the procedure of collecting the inkind contributions through the National Coordinators Committee will be further refined.

²¹ <https://dariah-beta.dans.knaw.nl/data>

²² <https://dans-labs.github.io/dariah/>

6.3.2 What apparent challenges may be relevant?

With the transfer of data from the DARIAH Inkind registry to the SSH Open Marketplace the issue of updating it arises. An update of the inkind registry happens likely each year and may include completely new entries (=new inkinds) or updated existing entries. This has to be processed to the marketplace in a most convenient and cost efficient manner. It wouldn't make sense to update entries in both places. This leads to the crucial question for the transfer procedure. As said before the inkinds are currently described in the TaDiRAH scheme and it has to be examined what efforts are related to a mapping of the entries.

7. Mockups design

Five different views of the Marketplace were created for the task. These mockups are shown in the Annexes of this document. Here below we briefly describe their purpose and the idea behind the design.

Homepage - Dark theme (Annex 1):

For this landing page version, the goal was to provide access to the key information about a website when a user visits the homepage for the first time: "what is it?" "what is it worth?" and "what can I do with it?". So this homepage is made for informing the user on the main features of the marketplace, the value it offers.

Tool example: Gephi (Annex 2):

This is a low fidelity wireframe where the different pieces of information are displayed through a certain number tabs to avoid information overload on the page.

Homepage - Light theme with SSHOC colours (Annex 3):

This homepage version is more complying with the colours and fonts of the original SSHOC website (blue #0090D6, Open Sans, Poppins). It is more data-driven in the sense that it gives directly the opportunity to dive into content by using categories, featured resources, etc. Still, it provides less contextual information about the Marketplace than the other version (Annex 1).

Tool example: Gephi v2 (Annex 4):

With no tabs activation required to display other information, this mockup tries to bring everything relevant on a single page just by scrolling down.

Dataset example (Annex 5):

It shares the same design pattern as the Gephi v2 (annex 4).

8. Conclusion

The concept of building a Marketplace, an easy-entry point to enable users to find tools and services, was already shaped at the beginning of 2017. It appears in the first version of the DARIAH Strategic Action Plan²³ as one of the 6 objectives (Create and Populate the DARIAH Marketplace) to simplify access to main DARIAH assets. A first public presentation was given by DARIAH Director Frank Fischer during the DARIAH Innovation Forum²⁴ in Aarhus in November 2017.

Before starting operations in order to develop the concept and the platform, we had an overview of ongoing projects and initiatives in which the Marketplace could be integrated. DESIR, a project set out to strengthen DARIAH's long-term sustainability, appeared to be a logical solution. Therefore, a supplementary task had been added to the amendment AMD-731081-4 approved in July 2018.

It was clear that the effort of creating and populating the marketplace could not be solved by a late integration in an already running project. In the meantime, the landscape quickly changed and the option to embed the Marketplace into one of the cluster projects working towards the implementation of the EOSC (European Open Science Cloud) became available.

The project SSHOC officially started the 1st of January 2019 and, within DESIR, we tried to hand over a first design study and requirements in time for the kick-off meeting on the 11th and 12th of March in Utrecht, allowing members of the Marketplace related Work Package in SSHOC to start their work with a solid base and gain considerable time towards a first release of the platform.

This design study builds on previous experiences from DARIAH and as well comparable resources in the Social Sciences and Humanities. For us, it was important not only to analyse their functionalities, but also to understand why some of these initiatives failed or were not sustained anymore.

The viewpoint of the users is crucial to specify functional, technical and administrative requirements and therefore concrete user stories has been formulated, leading to an initial description of features and functions in a technical sense: what can be found in the Marketplace, how users can search tools and datasets, how users can give feedbacks to listed resources etc. In addition, we had an overview of some experiences and groundwork from DARIAH, especially the in-kind contribution database from the Humanities at Scale project and the gap analysis delivered in the framework of Work Package 4 of DESIR.

The result of this early reflection led to the design of several mockups, which are early layouts of what web pages of the Marketplace could look like. In our opinion, interactions with potential end users will be facilitated by the use of these kinds of outputs.

²³ https://www.dariah.eu/wp-content/uploads/2017/02/DARIAH_STRAPL_v06112017.pdf

²⁴ <https://www.dariah.eu/activities/innovation-forum/>

It is important to clarify that requirements listed in this document are not set in stone and we already highlighted the importance that future discussions with end users could eventually modify the final outcome of the platform. From now onwards, all relevant decisions will be taken in the context of the SSHOC project.

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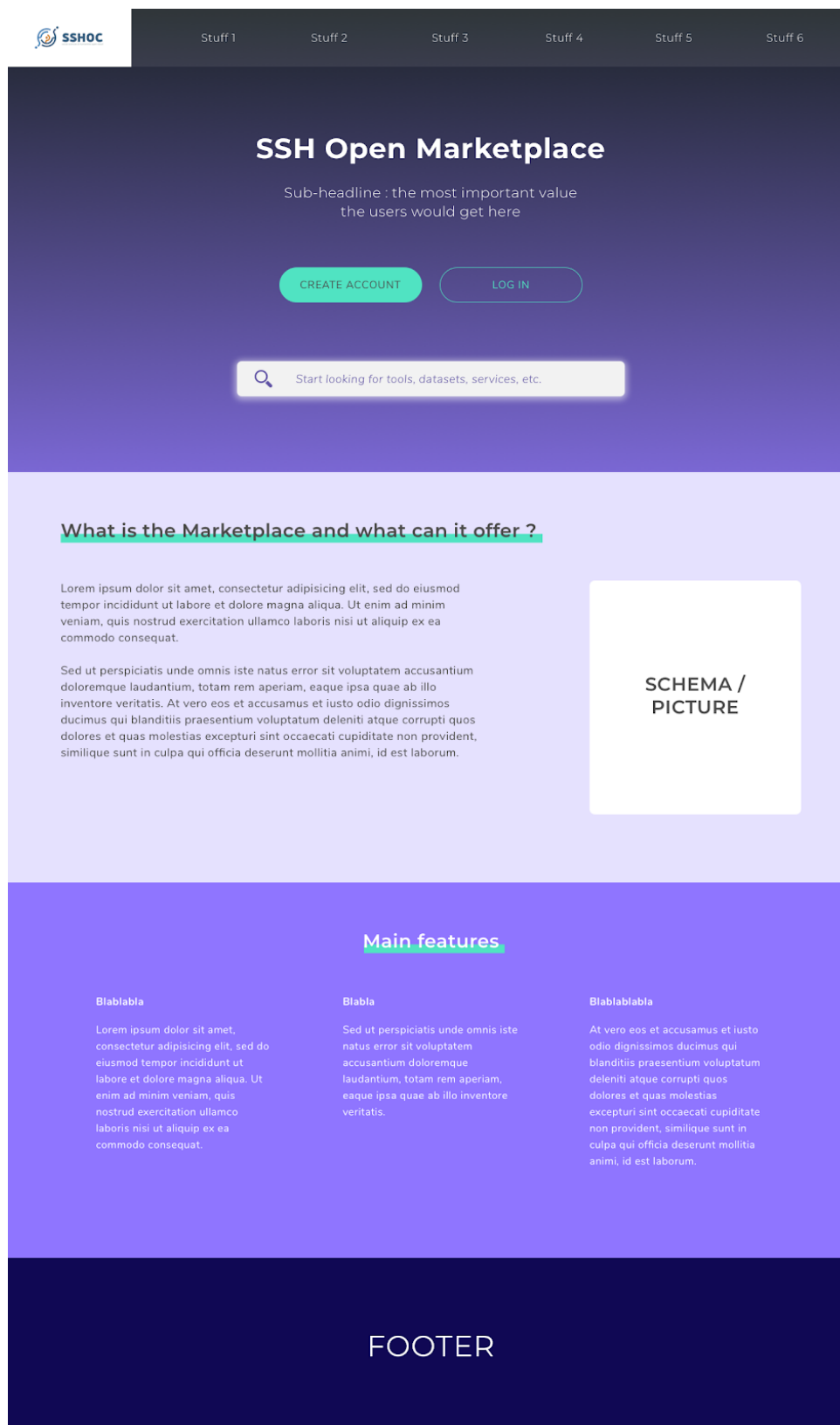
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Annexes

- Annex 1 - Homepage - Dark theme, page 44;
- Annex 2 - Tool example: Gephi (Annex 2), page 45;
- Annex 3 - Homepage - Light theme with SSHOC colours, page 46;
- Annex 4 - Tool example: Gephi v2, page 47;
- Annex 5 - Dataset example, page 48.



Annex 1 - Homepage - Dark theme


Menu
Menu
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Menu



Gephi

★★★★☆

254 views

Gephi is a tool for data analysts and scientists keen to explore and understand graphs. Like Photoshop™ but for graph data, the user interacts with the representation, manipulate the structures, shapes and colors to reveal hidden patterns. The goal is to help data analysts to make hypothesis, intuitively discover patterns, isolate structure singularities or faults during data sourcing. It is a complementary tool to traditional statistics, as visual thinking with interactive interfaces is now recognized to facilitate reasoning. This is a software for Exploratory Data Analysis, a paradigm appeared in the Visual Analytics field of research.

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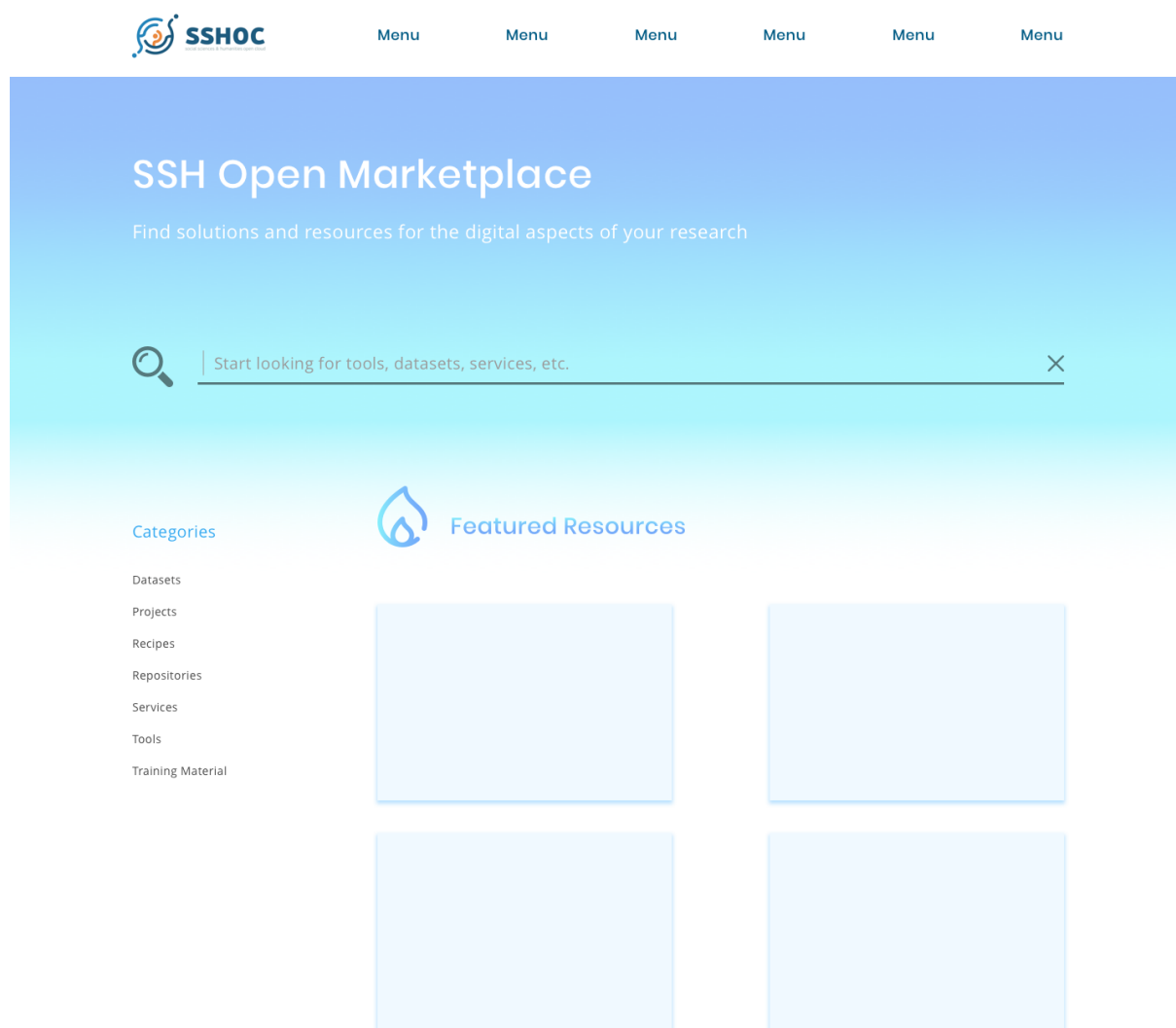
HDMI, or high definition multimedia interface, is a type of audio and video interface that is used for the transmission of uncompressed digital streams. Essentially, HDMI can be considered an alternative method to transmitting data streams, rather than making use of conventional methods such as coaxial cabling, VGA, or component video equipment. What Type of Sources May Be Employed Using HDMI?

Quite a number of devices and sources on the market today will work with the use of HDMI. The Blu-Ray disc player, a relatively new innovation, was created with the use of HDMI specifically in mind. Most personal computers that are sold today are ready for use with HDMI, as are the majority of video game consoles in the stores currently. A set-top box also is usually compatible with HDMI, as are such entertainment options as digital television. Essentially, any type of computer interface today will function with the use of HDMI. How Does HDMI Work?

HDMI will work with a single cable connection to such devices as televisions or personal computers. In general, HDMI will function fine with any television or PC that is standard, enhanced, or high definition in the video component. However, it is important to note that HDMI does work independently of many of the DTV standards, although use of HDMI will not impact the quality of the digital transmission. Generally, these standards apply to some configurations of MPEG movie clips and files. Since these are compressed, HDMI will simply decompress the data and make it possible to view the clip. Are All HDMI Versions The Same For All Devices?

FOOTER

Annex 2 - Tool example: Gephi



Annex 3 - Homepage - Light theme with SSHOC colours


Menu Menu Menu Menu Menu Menu



Tool

Gephi

Gephi is a tool for data analysts and scientists keen to explore and understand graphs. Like Photoshop™ but for graph data, the user interacts with the representation, manipulate the structures, shapes and colors to reveal hidden patterns. The goal is to help data analysts to make hypothesis, intuitively discover patterns, isolate structure singularities or faults during data sourcing. It is a complementary tool to traditional statistics, as visual thinking with interactive interfaces is now recognized to facilitate reasoning. This is a software for Exploratory Data Analysis, a paradigm appeared in the Visual Analytics field of research.

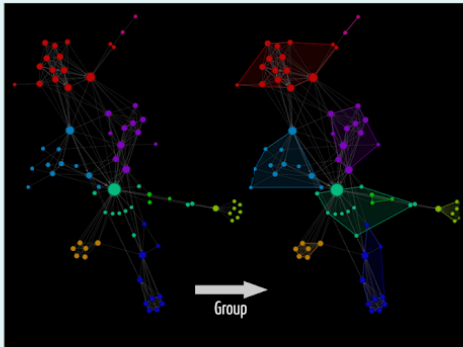
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Discussion



Stormie Hansford

Sep 4, 2018

This tool looks great ! :-)

Write a comment 

FOOTER

Annex 4 - Tool example: Gephi v2


Menu Menu Menu Menu Menu Menu



Dataset

Fictionality

Contains LIWC feature tables for all ~27,000 documents used in this study, R and Python code used to generate statistical results, and all supporting tables. (2016-12-19)

★★★★★

112 views

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Annex 5 – Dataset example