

CLARIAH-DE and the European Research Infrastructure Level

Technology Watch Report 3 (AP4.5)

March 2021

1 Introduction

This is the third of three reports¹ composing the *technology watch of CLARIAH-DE*. The aim of all three reports is to give an overview of technological developments relevant to the project and its partners, and to offer recommendations concerning their adaptation within *CLARIAH-DE*. The first technology watch report discussed digital repository solutions from the perspective of research infrastructures². Simultaneously, an evaluation of current PID solutions was published³. The second technology watch report, published as *DARIAH-DE Working Paper*, discussed certification schemes from the perspective of a humanities research infrastructure⁴.

The current report maps the relations of *CLARIAH-DE* with the European research infrastructure level and takes a more strategic and governance-related perspective, as compared to the other reports. It aims at aggregating an overview of the most relevant projects and initiatives *CLARIAH-DE* has to be aware of, connects to, or cooperates with for the sake of providing support to its users, i.e. researchers affiliated with the humanities. For the sake of clarity, we decided to arrange the format in a table.

CLARIAH-DE is the merger of the two established German research infrastructures *CLARIN-D* and *DARIAH-DE*, which also function as German nodes for the respective *ERICs* (European Research Infrastructure Consortium). An important task for *CLARIAH-DE* is the evaluation and, where possible, the integration of infrastructure components or services. The evaluation of other initiatives and resources is of interest for a broader audience because a merger of research infrastructures comes with challenges.

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¹ For further information: All *CLARIAH-DE* related publications are available as Zotero bibliography: <https://www.zotero.org/groups/2494199/clariah-de/library>

² See: Arnold, Denis, Fisseni, Bernhard, Helfer, Felix, Buddenbohm, Stefan, & Kiraly, Peter. (2020, March 31). Repository Solutions - Technology Watch Report 1. Zenodo. <http://doi.org/10.5281/zenodo.3873027>

³ Although not a TechWatch report but of interest in this context. The *CLARIAH-DE* report on current PID solutions with focus on *CLARIN* and *DARIAH*: Buddenbohm, Stefan & Eckart, Thomas. (2020, April 8). Persistent Identifiers in CLARIAH-DE Summary & Best Practices (AP4.1.5). Zenodo. <http://doi.org/10.5281/zenodo.3744091>

⁴ See: Eckart, Thomas, Gradl, Tobias, Jegan, Robin, Margaretha, Eliza, Werthmann, Antonina, Helfer, Felix, Buddenbohm, Stefan (in publishing). "CLARIAH-DE Cross-Service Search: Prospects and Benefits of Merging Subject-specific Services". *DARIAH-DE Working Papers* Nr. 41. Göttingen: DARIAH-DE, 2021. URN: urn:nbn:de:gbv:7-dariah-2021-1-9. See also: Buddenbohm, Stefan. (2020, November). CLARIAH-DE - Aligning two Research Infrastructures: Experiences and Challenges. Presented at the Scholarly Primitives - DARIAH Annual Event 2020, Zagreb, Croatia: Zenodo. <http://doi.org/10.5281/zenodo.4266478>

Such challenges are often related to legacies or restrictions in at least two areas:

- Technical or infrastructural legacies: certain software stacks, standards, APIs, or reliance on components that lay in the responsibility of third parties, e.g., a data center, and may not easily be subjected to change.
- Science- and user-related legacies, e.g., simple cases like a well-established branding of services, or more complex aspects like the practices of how to describe, present, or work with research data; use of selected metadata schemas; publishing practices.

These two examples illustrate that decisions in a merger or integration process are always attached to the past⁵. Although this is a commonplace for most informed readers, it is helpful to keep this in mind as context for this report. Only against this background can certain decisions or deficiencies (and very often delays) be explained. The value for a research infrastructure to acquire honest communication in this regard may not be underestimated, as it adds to the level of trust and understanding among its users.

Although *CLARIAH-DE* is a national research infrastructure, meaning that it has been developed by German partners and funded by the *Federal German Ministry of Education and Research* (BMBF), the services and resources are open to researchers from the entire European research area⁶. *CLARIAH-DE* encourages their use by researchers beyond the national level and considers this a valuable opportunity for feedback and increased uptake. This fact is underlined by the long-standing close cooperation with the respective *ERICs* in this regard, *CLARIN* and *DARIAH*. Apart from this, the national research infrastructure scheme *NFDI*⁷ will be included to consider this ongoing process in Germany as well.

2 What this document is about

The focus of this output lies on the connection and interoperability of the *CLARIAH-DE* infrastructure with other projects that can be considered compatible, supplementary, or conflicting on a technical level. Relevant criteria for a condensed summary are listed below:

- General metadata about the project or initiative which may include:
 - Funding
 - Duration
 - Stakeholders
 - Goals
 - Resources
 - Position in the European research environment
- Potential connections, overlaps, or conflicts with *CLARIAH-DE* in the area of technology, infrastructure components, or similar aspects. This may include:
 - Authentication and Authorization Infrastructure (AAI)
 - Available resources / research data
 - Available tools, services, and interfaces
 - Used standards
 - General abilities or competencies
- Synergies and potentials of cooperation or integration work.

To present a selection of relevant projects and the above listed criteria clearly, the [comparison matrix](#) displayed below has been designed. The matrix does not claim completeness but covers the most relevant European initiatives for *CLARIAH-DE* from the perspective of Work Package 4, which is devoted to the technical integration. The matrix reflects the state of March 2021. The authors have selected those aspects they considered relevant or where synergies and integration benefits seemed to be most obvious.

3 Discussion

The potential benefits of cooperation or even integration with external initiatives and projects must take into account the different structures and objectives of these projects. A useful differentiation to allow for an informed decision may be based on the following characteristics:

- Project duration: The often short duration of research projects makes a sustainable cooperation a problematic endeavor in the context of infrastructure projects. Consequently, projects with a long-time funding perspective are natural candidates for cooperation. The uptake and long-term provision of research results from short-lived projects, however, is a central task for a project like *CLARIAH-DE*.
- Project size: Large research initiatives typically have the organizational and personnel capacities that are required to build formalised and stable relations and to provide the resources required for continuous technical integration and coordination.
- Thematic focus: A complex infrastructure like *CLARIAH-DE* provides and requires services and expertise of all kinds. Naturally, this is reflected in the broad scope of possible cooperation partners which may include advocacy or standardization initiatives, larger funding or coordination frameworks, research infrastructures with similar, overlapping, or complementary technical requirements, yet focusing on different research questions, communities, etc.
- Intended cooperation: Specific requirements for the respective partner and the structure of the cooperation are derived from the type of operation desired. This results in different requirements for projects with similar objectives

and size as compared to, for instance, initiatives solely offering a communication platform for participants of all kinds of communities. This might also refer to a 'direction' of cooperation, including contributing from a provider perspective or acting exclusively as a user of external resources, services, or expertise.

- Previous experiences and connections: Existing connections and the availability of suitable personnel are an invaluable advantage, especially for a planned long-term cooperation, but also to alleviate initial expenses. In this regard, a closer look at existing connections or tried and tested cooperations (at least in some areas) is useful for estimating effort and the likelihood of cultural or organisational 'mismatch'.













CLARIAH-DE finds itself as a temporarily funded project within these variables, but the situation is a little bit different, fortunately. *CLARIAH-DE* relies on the established portfolios and relations of *CLARIN-D* and *DARIAH-DE*, which both look back at a history of more than ten years of sustained infrastructure provision. *CLARIAH-DE* itself is currently working on sustainability measures for its service portfolio. An important part of this may likely be the creation of a registered association (eingetragener Verein, e.V.). Such an association, although not itself providing the resources, could be a stable national node on the European level (*EOSC*, *ERICs*) and the national level as well⁸.

⁵ An illustrative article on legacies in *CLARIAH-DE* with the example of search logics is available in the aforementioned *DARIAH-DE Working Paper*.













⁶ See the strategy of the German Federal Ministry of Education and Research on internationalisation: <https://www.bmbf.de/en/internationalization-strategy-2209.html>












⁷ See: *NFDI* is the *National Research Data Infrastructure*, a funding scheme set up by the DFG leading to an array of national disciplinary oriented research data infrastructures: https://www.dfg.de/en/research_funding/programmes/nfdi/index.html

⁸ Due to usability and design aspects, we did not integrate a classical bibliography into this report. Additionally to the bibliographic information given in the footnotes, relevant websites and services are linked to within the text and matrix.

Entity category ⁹	European Research Infrastructure Consortia		Funding framework					National Research Infrastructure	European Research Infrastructure	Resources aggregator	European Research Infrastructure, Open Access network	Standardisation / Advocacy entities
Entity	CLARIN	DARIAH-EU	EOSC	SSHOC	FREYA	OPERAS	TRIPLE	NFDI	EUDAT	Europeana	OpenAIRE	RDA
												
URL	https://www.clarin.eu/	https://www.dariah.eu/	https://eosc-portal.eu/	https://sshopencloud.eu/	https://www.proiect-freya.eu/	https://operas.hypotheses.org/	https://www.qotriple.eu/	https://www.nfdi.de/	https://www.eudat.eu/	https://www.europeana.eu/	https://www.openaire.eu/	https://www.rd-alliance.org/
Role / aim / structure	<ul style="list-style-type: none"> - a research infrastructure for the humanities and social sciences with an emphasis on language data and tools - is organised along centers which are usually holding collections of research data - strong relation between researchers and infrastructure providers - an important stakeholder of CLARIAH-DE - provides resources - is interested in the sustainability of national contributions 	<ul style="list-style-type: none"> - a "pan-european research infrastructure for the arts and humanities scholars" - an umbrella for integrating the various national contributions into a larger, cohesive DARIAH strategy (Strategic Action Plans) - community-driven - gathers a diverse range of national partners - an important node for CLARIAH-DE to gain impact on the European level 	<ul style="list-style-type: none"> - will enhance access to research services and resources for 1.7 million researchers in the EU - hereditary infrastructural/project landscape as challenge: new projects (SSHOC, TRIPLE) on the one hand, established ERICa (CLARIN, DARIAH) on the other hand - therefore substantial effort devoted to integrating existing and upcoming services with one another 	<ul style="list-style-type: none"> <i>Social Sciences and Humanities Open Cloud</i> - is the SSH contribution to EOSC - "will transform the current social sciences & humanities data landscape with its disciplinary silos and separate facilities into an integrated, cloud-based network of interconnected data infrastructures" - temporary project - consists of partners like CLARIN, CESSDA, and DARIAH, which provide a level of strategic sustainability 	<ul style="list-style-type: none"> - "aims to extend the infrastructure for persistent identifiers (PIDs) as a core component of open research, in the EU and globally" - part of EOSC - PID is of crucial importance and part of many services: be they for the provision of publications, research data, or identifiers for entities such as research organisations or researchers (ORCID) - collaborated with RDA, an important standardisation entity for CLARIAH-DE 	<ul style="list-style-type: none"> <i>Open Scholarly Communication in the European Research Area for Social Sciences and Humanities</i> - topics such as the FAIR principles or OpenScience are advocated - focuses on aspects related to the scientific publishing and information ecosystem, which lay not at the core of CLARIAH-DE - however, OPERAS is important for CLARIAH-DE with regard to community engagement 	<ul style="list-style-type: none"> <i>Transforming Research through Innovative Practices for Linked Interdisciplinary Exploration</i> - "will provide a single access point that allows you to explore, find, access and reuse materials such as literature, data, projects and researcher profiles at European scale" - "will be one of the dedicated services of OPERAS, the research infrastructure supporting open scholarly communication in the social sciences and humanities in the European Research Area" 	<ul style="list-style-type: none"> <i>National Research Data Infrastructure</i> - consists of 9 consortia covering different scientific fields like biodiversity, chemistry, health, and culture - "has the objective to systematically index, edit, interconnect and make available the valuable stock of data from science and research" - aim: to make research data from various fields findable, accessible, interoperable, and reusable on a national level 	<ul style="list-style-type: none"> <i>EUDAT Collaborative Data Infrastructure (EUDAT CDI)</i> - "one of the largest infrastructures of integrated data services and resources supporting research in Europe" - "has been developed in close collaboration with over 50 research communities spanning across many different scientific disciplines and involved at all stages of the design process" 	<ul style="list-style-type: none"> - a "web portal created by the European Union containing digitised museum collections of more than 3,000 institutions across Europe" - aim: to "develop expertise, tools and policies to embrace digital change and encourage partnerships that foster innovation" - offers: digital collections, several APIs for accessing them, other digital tools and services centered around the cultural heritage sector 	<ul style="list-style-type: none"> - "European project supporting Open Science" - aims: "to support the implementation of Open Access in Europe"; to "shift scholarly communication towards openness and transparency and facilitate innovative ways to communicate and monitor research" 	<ul style="list-style-type: none"> - "community-driven initiative [...]" - aim: to build "the social and technical infrastructure to enable open sharing and re-use of data" - an important advocacy and information node with regard to standardisation (RDA Germany in particular) - relations to services such as information retrieval, PID, research data repositories - CLARIAH-DE is not directly represented in the RDA but maintains contacts through CLARIAH-DE-affiliated persons
Stakeholders / Users	<ul style="list-style-type: none"> - researchers, scholars, and students from the humanities and social sciences - national members - infrastructure institutions and providers - European research funding schemes 	<ul style="list-style-type: none"> - researchers, scholars, and students from the arts and humanities - national members - infrastructure institutions and providers - European research funding schemes 	<ul style="list-style-type: none"> - European researchers and other professionals - research infrastructures for which EOSC is an access gate to a broad research audience 	<ul style="list-style-type: none"> - social sciences and humanities scholars and researchers - research and data infrastructures 	<ul style="list-style-type: none"> - Research Data Alliance (RDA) and other research infrastructures 	<ul style="list-style-type: none"> - SSH scholarly communication stakeholders: researchers, research institutions, research funders 	<ul style="list-style-type: none"> - academic: researchers, research institutions, scientific information ecosystem - non-academic: media organisations, civil society associations, public authorities, policy makers 	<ul style="list-style-type: none"> - researchers from all disciplines - research infrastructures 	<ul style="list-style-type: none"> - European researchers and practitioners from various research disciplines 	<ul style="list-style-type: none"> - scholarly stakeholders in general: researchers, research institutions 	<ul style="list-style-type: none"> - scholarly communication stakeholders in general: researchers, research institutions, research funders 	<ul style="list-style-type: none"> - research infrastructures

⁹ Categories partly based on: Marieke Willems, & Leonardo Marino. (2019). MS2 Community database creation & management (Version v1.0). Zenodo. <https://doi.org/10.5281/zenodo.4405214>

												
Duration and extent	ERIC since 2012 - 21 member countries - 3 observer countries - 68 CLARIN centers - established and stable European research infrastructure	ERIC since 2014 - 19 member countries - 11 observer countries - 197 partner institutions - 26 cooperating partners	Since 2017 (starting with EOSCPilot) - EOSC Association: - members from 28 countries - participants in EOSCHub: " 100 partners from 53 countries "	2019-2022 - 20 funded parties comprising app. 45 contributing partners - CLARIN and DARIAH as umbrella for LTPs (Linked Third Parties)	2017-2020 - 12 partner institutions	2017 - 43 members from 16 countries	2019-2023 - consortium of 19 partners from 13 European countries	2019-2028 - 9 consortia (first round of applications)	Since 2018 self-sustained network, maintained at least until 2026 - "has been signed by over 20 of the most renowned European data centres and research organisations " from 16 different countries	Launched in 2008 - 35 member states	2006-2023 (different project phases) - 36 regular members (34 different countries) - 11 associate members (8 different countries)	Launched in 2013 - more than 10,000 members from 145 countries - <i>RDA Europe 4.0</i> (2018-2020): "was run by a consortium comprising 5 Partners and 9 Third Parties"
Position / Role within the European research area	- network function for the national members and partner towards the European level: EOSC and cooperation with other ERICs - collects (resp. offers) in kind contributions from its national partners to the European level - is able to take part as Linked Third Parties (LTP) in European projects, e.g., in the EOSC	- network function for the national members and partner towards the European level: EOSC and cooperation with other ERICs - similar to CLARIN: DARIAH is active as applicant for funding and in this function includes LTP in projects	- part of the <i>European Cloud Initiative</i> - an important current strategic framework to which projects like SSHOC orient to - important for CLARIAH-DE to keep itself informed on the European developments with regard to research infrastructures	- functions as hinge between national partners and research infrastructures, on the ERIC level, and the EOSC level - the opportunity to address the whole European research audience is of interest for CLARIAH-DE - "populate EOSC with the scientific data resources and computational tools from research infrastructures - drive usage by Europe's 1.7 M researchers"	- "worked to support the EOSC by developing a PID infrastructure that facilitates and boosts this ecosystem" - "collaborated extensively with the EOSC-projects <i>OpenAIRE Advance</i> and <i>EOSC-hub</i> "	- "is dedicated to open scholarly communication in the social sciences and humanities" - encapsulates several other projects like <i>TRIPLE</i> or branches like <i>OPERAS-P</i>	- "will be a major component of the SSH marketplace, which will be the entry door of the EOSC for all the different SSH services" - if <i>TRIPLE</i> gains uptake as an information hub for the academic audience, it will be clearly addressed by <i>CLARIAH-DE</i>	- "an important framework for CLARIAH-DE-provided offerings" - consists of several, usually discipline-oriented, consortia which partly will address the same audience as <i>CLARIAH-DE</i> - <i>CLARIAH-DE</i> may as well be useful as a provider of basic infrastructure components such as the AAI	- "supports the vision of the EOSC offering open and seamless services for storage, management, analysis, and re-use of research data, across borders and scientific disciplines"	- governed by the <i>Europeana</i> Foundation - large aggregator of European cultural artifacts - a number of projects (the <i>Europeana Group</i>) contribute technology solutions and content to <i>Europeana</i>	- European Open Science network - "has a large network in every member state and beyond" - "consists of Open Science experts in HEIs, data centres, and infrastructure consortia which give regular training and advice at national level about all aspects of OpenScience"	<i>RDA Europe 4.0</i> : - "is mandated to ensure that European political, research, industrial and digital infrastructure stakeholders are aware of, engaged with and actively involved in the global RDA activities"
Current state of activity	- funded in 2012, active and expanding - in some partner countries an ongoing merger process on the national level with <i>DARIAH</i>	- funded in 2014, active and expanding	- funded, active and expanding, supported by <i>Horizon Europe</i> (2021-2027)	- funded in 2019, active and expanding	- funded in 2017, ended	- funded 2017, active and expanding	- active, prototype available in autumn 2021	- funded in 2019, active and expanding	- funded 2012-2018, active and expanding - since 2016 maintained by 20 members and since 2018 in the form of a limited liability company, <i>EUDAT Ltd.</i>	- funded in 2008, active and expanding	- <i>OpenAIRE Advance</i> (2018-2021) - <i>OpenAIRE Nexus</i> (2021-2023)	- funded in 2013, active and expanding
Resources	- research data, tools, and services from the humanities and social sciences with a focus on digital language resources - offers researchers access to a broad range of research data in various formats with an emphasis on language and linguistic topics (among others)	- research data, tools, and services from the humanities with a focus on textual resources - usually not the holder of the resources but cooperates with GLAM institutions advocating a FAIR and OA policy - accessible resources range from digital editions over digitized corpora to image material	- research and data infrastructures, large-scale approach to manage research data in Europe	- scholarly communication and data infrastructures in the social sciences and humanities	- research data, research infrastructures, PID systems	- scholarly communication resources in the social sciences and humanities	- <i>GOTRIPLE</i> = discovery service: SSH research publications and data, research projects, researcher profiles	- all kinds of research resources (data, tools, services).	- heterogeneous research data management services and storage resources - resilient network geographically distributed across 15 European nations - data storage alongside some of Europe's most powerful supercomputers	- cultural heritage European museums, galleries, libraries, and archives - digital tools for working with cultural heritage data	- various services for RDM (repository, publication platform, DMP generation, citation management) - scholarly communication resources - publication metadata	- research data from various disciplines - research infrastructures

												
Overlaps with CLARIAH-DE	<ul style="list-style-type: none"> - institutions are part of the <i>CLARIN-EU</i> framework (task forces, working groups, etc.) - shared applications (FCS, VLO, Language Resource Switchboard, etc.) 	<ul style="list-style-type: none"> - AAI federation allows reciprocal use for various services and resources 	<ul style="list-style-type: none"> - potential overlap & complementary solutions for different aspects of research data management - similar focus on federated data and services infrastructure 	<ul style="list-style-type: none"> - <i>CLARIAH-DE</i> brings in its range of resources and tools and tries, wherever feasible, to integrate or connect nationally created resources with other resources and tools 	<ul style="list-style-type: none"> - no direct overlaps or relations with <i>CLARIAH-DE</i> - the issue of PID provision is already covered by established services available in <i>CLARIN</i> and <i>DARIAH</i>. 	<ul style="list-style-type: none"> - while not focussed on research data management per se, <i>OPERAS</i> provides distributed <i>services</i> focused on social sciences and humanities 	<ul style="list-style-type: none"> - potential overlaps in the area of research data (<i>CLARIAH-DE</i> Cross-Service Search), even though <i>TRIPLE</i> addresses the Social Sciences as a target group in addition to the Arts, Humanities, and Cultural Studies 	<ul style="list-style-type: none"> - partial overlap in focus on resources, targeted research communities, and provided functionality 	<ul style="list-style-type: none"> - in part overlapping and complementary solutions for different aspects of data management & search 	<ul style="list-style-type: none"> - overlap in focus on resources, targeted research communities, and (some) provided functionalities (e.g., search) 	<ul style="list-style-type: none"> - focus on many aspects of research data management targeted in <i>CLARIAH-DE</i> (RD management, RD archiving, RD publication, monitoring) 	<ul style="list-style-type: none"> - focus on many aspects of research data management targeted in <i>CLARIAH-DE</i>
Highlights for CLARIAH-DE	<ul style="list-style-type: none"> - commitment to distributed, service-oriented, and integrated research environments based on CMDI metadata - certification schemes (center + Core Trust Seal) for quality assurance and trust - cross-national coordinated development of central applications and services - provisional member of the EOSC association 	<ul style="list-style-type: none"> - <i>DARIAH</i> Strategic plan to align and (where feasible) to connect national contributions - <i>DARIAH-EU</i> as partner within <i>EOSC</i> for the SSH contributions 	<ul style="list-style-type: none"> - broad thematic focus on European research landscape, connections to many important thematic research infrastructures and other relevant public institutions - Marketplace implementation as European service gateway - <i>EOSC</i>-driven data models to describe resources, interfaces, and services 	<ul style="list-style-type: none"> - highly relevant for <i>CLARIAH-DE</i> as it is an important SSH gate to the European research area - includes <i>CLARIN</i> and <i>DARIAH</i> as funded partners, hence, valuable opportunities for technical integration open up - <i>SSH Open Marketplace</i>: will, for the first time, gather a broad and inclusive range of any kind of resources for the SSH (apart from research data); it is a welcomed 'shop window' for <i>CLARIAH-DE</i>'s offerings 	<ul style="list-style-type: none"> - IDForum as communication and discussion platform for all PID-related topics 	<ul style="list-style-type: none"> - wide reach of a sizable number of members - variety of different services and sub-projects (see <i>TRIPLE</i>) 	<ul style="list-style-type: none"> - target group: Humanities and Cultural Studies, Social Sciences - intends to offer connecting points for companies - refers not only to research data and services, but also to projects and researcher profiles (trust building system, recommender system), and other forms of scholarly communication - aim: to develop a multilingual discovery platform (9 languages) 	<ul style="list-style-type: none"> - broad focus on all kinds of research communities - details are still unclear due to the early project phase 	<ul style="list-style-type: none"> - Service catalogue for "Data Hosting, Registration & Management & Sharing" (including <i>B2DROP</i>, <i>B2SHARE</i>, <i>B2SAFE</i>, etc.) 	<ul style="list-style-type: none"> - <i>Europeana Data Model</i> (EDM): large scale aggregation of distributed resources with a multitude of partnering entities 	<ul style="list-style-type: none"> - popular applications/platforms like Zenodo (repository + publication), Amnesia (data anonymization), helpdesk, monitoring of research activities, publication aggregator based on OAI-PMH, public API to access OpenAIRE metadata 	<ul style="list-style-type: none"> - international platform for experts in research data management (currently >30 working and >60 interest groups) - recommendation documents for all kind of RDM aspects
Level of cooperation / Relation to CLARIAH-DE	<ul style="list-style-type: none"> - strategic partner for <i>CLARIAH-DE</i> with regard to search services, language- and linguistic-related research data - overlapping institutional membership 	<ul style="list-style-type: none"> - strategic partner for <i>CLARIAH-DE</i>, particularly at European level - collector of in kind contributions of <i>DARIAH-DE</i> - user of <i>CLARIAH-DE</i> provided services such as AAI 	<ul style="list-style-type: none"> - connection via <i>CLARIN ERIC</i> and <i>DARIAH ERIC</i> (both provider of "thematic services" included in the <i>EOSC</i> marketplace) 	<ul style="list-style-type: none"> - functions as SSH-specific gate to <i>EOSC</i> and comes with opportunities to impel the integration of tools, services, and resources - example: <i>SSHOC</i> cooperated with <i>CLARIAH-DE</i> to integrate <i>CLARIN</i> and <i>DARIAH</i> tools like Switchboard, Virtual Collection Registry, repositories, or other tools with potential for a broader disciplinary uptake 	<ul style="list-style-type: none"> - no direct cooperation 	<ul style="list-style-type: none"> - existing cooperations with <i>DARIAH</i> and <i>CLARIN</i> (among others) 	<ul style="list-style-type: none"> - <i>DARIAH</i> and <i>CLARIN</i> are consortium members - <i>DARIAH</i> as specific communication budget for outreach events targeted at the <i>DARIAH</i> community - members of <i>DARIAH</i> provide in kind contributions - potential partner in <i>NFDI</i> via <i>Text+</i> 	<ul style="list-style-type: none"> - important potential partner via <i>Text+</i> (resources, "cross-cutting topics") - <i>CLARIAH-DE</i> will make its service and resource portfolio accessible for the <i>NFDI</i> consortia in various organisation forms (as part of consortia or offering resources as registered association) 	<ul style="list-style-type: none"> - connection via <i>CLARIN ERIC</i> and <i>GWDC</i> (both part of <i>EUDAT CD</i>) 	<ul style="list-style-type: none"> - connection via <i>CLARIN ERIC</i> (metadata integration of Europeana resources) - connection via <i>DARIAH-EU</i>: "<i>Europeana</i> and <i>DARIAH</i> work to improve the conditions of access to cultural institutions' digital collections and support the academic community in reusing digital cultural heritage for research purposes" 	<ul style="list-style-type: none"> - so far no institutionalised level of cooperation - is a valuable asset to research publications in general; <i>CLARIAH-DE</i> is more of an indirect beneficiary - <i>CLARIAH-DE</i> encourages the use of standards promoting Open Access and FAIR 	<ul style="list-style-type: none"> - overlap in (individual) membership, which ensures that the <i>CLARIAH-DE</i> perspective is transpired within the relevant <i>RDA</i> working groups or discussions