D-SPIN

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Help Desk Concept

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1. Introduction

D-SPIN is the German complement to the European CLARIN initiative (Common Language Resources and Technology Infrastructure, www.clarin.eu). "The project D-SPIN provides the basis for a stable and sustainable infrastructure of language resources and language technologies, serving above all empirical research in humanities and social sciences."[1]

This report is a deliverable of D-SPIN WP 6 "Training and Education" at the end of CLARIN/D-SPIN's preparation phase[2]. It aims to lay the foundations of a concept for a help desk for CLARIN/D-SPIN as a research infrastructure, covering aspects of user support and knowledge sharing between D-SPIN and its users, i.e. researchers, as well as within the research infrastructure itself.

Since the ideas and suggestions collected herein have not yet been properly circulated for comments among the consortium members, this document is merely a preparatory step and is intended to serve as a reference point for follow-up discussions and decision-making processes at subsequent phases of constructing the CLARIN/D-SPIN infrastructure.

The document is structured as follows: Section 2 presents preliminary considerations and an analysis regarding the overall context of e-research processes and the role that research infrastructures play in that context with respect to supporting e-research processes. Other established models of research support will be considered in order to identify stakeholders and their roles in the given context. Section 3 provides a more in-depth analysis of roles and stakeholders in research infrastructures in order to discuss some strategic issues regarding user support and to propose recommendations addressing those issues. Sections 4 and 5 consider two related fields as sources of inspiration regarding user support and knowledge sharing: IT service management and collaborative software development. Based on these considerations, sections 6 and 7 discuss certain activities and instruments that we perceive to be of relevance to a future strategy of user support within CLARIN/D-SPIN. Section 8, finally, derives an overall concept of a help desk for CLARIN/D-SPIN by identifying and integrating four core areas of engagement: (1) Strategic operations, (2) Consultancy services, (3) User support services and (4) Technical instruments.

[1] http://weblicht.sfs.uni-tuebingen.de/englisch/index.shtml - see also http://d-spin.org/

[2] The editor wishes to thank Cafer Travaci for valuable hints regarding ITIL (cf. page 25) and for developing the user-side diagnostics page prototype (cf. page 36), Sandra Volkmann for filling the support features matrix (page 24) and for editorial assistance, and Kathrin Beck for helpful comments and reviewing.

2. Supporting academic users and e-research processes

In this section, we consider several ways to support academic users in e-research processes. The increase in technology-enabled research has raised the need to support academics in their research practice and created a serious gap between general-purpose technical support and the researchers' specialized needs. In reaction to that, models of organized support for e-research have been established at various levels of the organizational structure of research institutions and beyond. We consider three established models of supporting computational research in the humanities: (1) the professional intermediary, (2) the competence center, (3) research infrastructures. These levels complement each other and form a combined support strategy to bridge the gap between the requirements for e-research and the traditional model of IT support.

The section is structured as follows: First, we describe the gap between traditional IT support and the needs of academic users. Second, we introduce the three established models of supporting e-research and provide an overview in Table 1 (see page 9), before, third, we consider each of the three models more closely, providing links to current issues and developments where possible.

2.1. The gap between technical support and e-research

With the advent of e-science and e-humanities, established practices and institutions to technically support academic users face a double challenge. On the one hand technical support will most likely encounter more workload as researchers turn into e-researchers, merely since computers are then playing an even more central role in the daily routines of academic work, especially in fields where they have not been used extensively before. On the other hand, in most cases, e-research adds a new dimension of support needs: Researchers often use a) a more diverse portfolio of hardware and software, and b) more specialized hardware and software tailored to support specific research methodology (cf. Rudakova et al. 2010). Mastering that kind of specialized software/hardware frequently requires substantial domain knowledge of research methodologies in order to understand and appreciate the requirements and challenges that its users face (cf. Bruton 2004: 25-6). Most centralised IT support units – especially those of large academic institutions hosting a wide variety of research disciplines – cannot offer close support to all of these specialized groups among their clients, merely for efficiency reasons and out of pressure to reduce costs – or at least not to

increase them. Hence, within an e-research paradigm we face a gap between the domain-specific support needs of e-researchers and the general-purpose "office IT support" that they have at their disposal, which is undoubtedly indispensible (and most likely facing more workload than before) but at the same time becoming increasingly insufficient to the e-researchers' specialised needs.

Researchers and (technical) support units in (e-) humanities are, of course, not the first to face this gap, but compared to others they arguably still appear to be particularly unprepared to this development. The initial reaction towards this gap, especially in natural sciences and engineering, was to adopt a culture of do-it-yourself: Scientists had to either possess or acquire the skills to be their own technical administrators and even to create their own technical instruments and software tools. In the domains of natural sciences and engineering, their general affinity towards technology and the high degree of integration of technology and research rendered this strategy highly successful as well as expensive.[3] Mastering domain-specific technology has been successfully integrated in academic training and teaching in those fields through "lab courses" etc., many research practices rely exclusively on highly advanced technological instruments, both in the shape of hardware and software products. Such D-I-Y-strategies approach a ceiling, when acquiring technical skills and conducting research and teaching may not only concur but also compete with one another as the demands on the aforementioned side start to impede the latter two, as indicated by increasing visibility of counteracting trends such as the demand for improved usability and reduced technical support efforts in maintaining and using research tools for the "technically less skilled scientist".

With the dramatic improvement of computational capabilities in processing and sharing text, image, audio, video, spatial data and generally various kinds of structured and unstructured data and information, and the apparent ease with which these capabilities enter the daily life, albeit lacking several fundamental principles required for scientific data processing, humanities researchers can now also profit substantially from available advanced technological instruments and their integration into research processes. However, the aforementioned gap between general "office IT support" and support for domain-specific scientific computing may appear even more severe in the e-humanities than in natural

[3] Similar challenges have also been dealt with outside the academic sector (cf. Rudakova et al. 2010: 869), where specialised computer-based solutions have entered various business sectors, resulting in a need for more intensive IT support. We will return to these considerations when we discuss the help desk as one support instrument in section 5.2.

sciences and engineering, since the humanities arguably cannot yet rely on a similarly successful, wide-spread and well-established culture of integrating technology into their research processes and academic training programmes.

Precisely these developments are behind the motivation to establish research infrastructures to support e-research processes. However, research infrastructures are not the only actors striving to support e-researchers in the humanities, and coordination with other established instruments is mandatory. From our perspective, there are three major models of organized support for computationally intensive research and scientific computing in the humanities, which we will characterize in the following subsections.

2.2. Models of organized support for e-research processes

In order for a research infrastructure like CLARIN/D-SPIN to develop a coherent support strategy it is necessary to communicate and coordinate efforts among a number of stakeholders. As mentioned above, we will consider three models of support units as stakeholders in supporting e-research processes: Starting from a local perspective, we consider three levels of aggregation, when we discuss (1) the professional intermediary, (2) the competence center, and (3) research infrastructures. As the relations and interactions between them are manifold, we have opted for a general scheme as shown in Figure 1. The term "aggregation" in the given setting refers to relations such as the professional

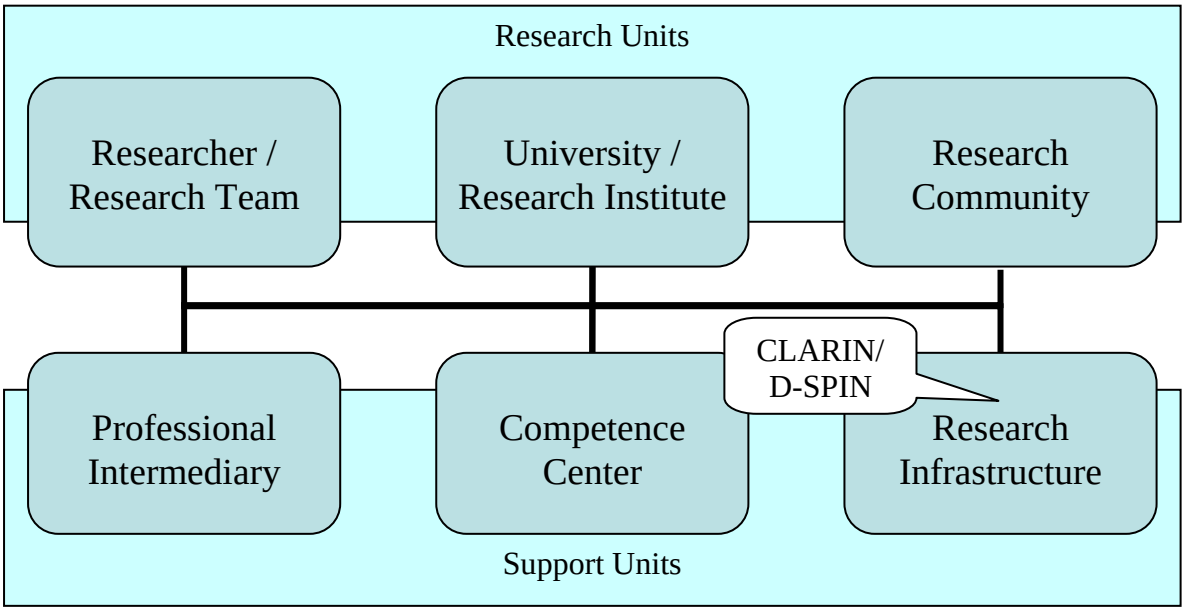

Figure 1: Organisational models of research support: Three types of research units (upper row) and support units (lower row) arranged correspondingly at three levels of aggregation (increasing from left to right).

intermediary being affiliated with or employed at a competence center, while a collaborative federation of competence centers constitutes or allows creating a research infrastructure.

	Professional Intermediary	**Competence Center**	**Research Infrastructure**
Supports whom?	A few individual projects or a small group	Several research groups from one or more institutions	One or more national and international research communities
Is reachable …	Locally and in person	Regionally, as an institution, ideally via a service desk	Online, as a virtual organization, via a virtual service desk
Is involved in the local research through …	Close advice and informal counseling Possibly involved as co-researcher	General advice, institutionalized counseling Hosting/employing "professional intermediaries"	General information, no direct counseling Virtual contact hub to competence centers and professional intermediaries
Training capabilities	Gives local courses Offers consultation hours Participates in the creation of teaching materials Conducts courses at special training events	Offers qualification programs Participates in local degree programs Organizes and administrates workshops and training events	Allows the community to coordinate training events Advocates training events, surveys and standardizes training activities and materials
Funding strategies	Employed at a competence centre Offers consulting and participation in applying for project funding	Acquires regional funding Teams up with other centres to acquire national and international funding	Acquires national and international funding for coordinated efforts
Visibility to others	Limited (except through publications), regional and peer-to-peer	High, regional and national	High, national and international

Table 1: Contrasting and relating the three models of e-research support

2.2.1. The professional intermediary

In any portfolio of support services, personal contact plays an important role. Having "someone close at hand" when it comes to supporting specialized computing needs can be both very efficient and comfortable. In that respect, research infrastructures may serve to establish such contacts and collaboration. Accordingly, regarding the relation between social research infrastructures and online community portals, the German Council of Science and Humanities[4] (Wissenschaftsrat) states:

> "Interaktive Fachportale und Online-Plattformen für die Geistes- und Sozialwissenschaften können als virtuelle Orte der Zirkulation von Expertise, Anregungen und Forschungsideen im weitesten Sinne auch zu den sozialen Forschungsinfrastrukturen gerechnet werden. Sie ergänzen den persönlichen Austausch, aber sie ersetzen ihn nicht." (Wissenschaftsrat 2011: 68)

> "Interactive community portals and online platforms for the humanities and social sciences, serving as virtual spaces for the circulation of expertise, inspiration and research ideas, may in some sense belong to social research infrastructures, too. They add to personal communication, but they do not replace it." (Own translation)

Edmond suggests and discusses a support model where the aforementioned gap between scientific computing needs and general purpose IT support is filled by one or more people having "broad knowledge of computing and research and a mandate to disseminate this information." Several roles need to be filled here, including consulting, translation between areas of expertise, contributing expertise to faculty members' applications for research funding, dissemination as well as communication with marketing and project management (Edmond 2005:373, 378). Edmond states that "it is possible to combine these roles with that of longer term project overview and management, thereby creating the role of the Digital Humanities Intermediary (DHI)."

Edmond continues by considering three types of candidates for this position – (1) the library scientist, (2) someone coming from a technical background, (3) a scholar-administrator with a strong interest in technology – and illustrates some of their typically associated traits to the always individual set of strengths and weaknesses. Throughout her text, Edmonds provides

[4] http://www.wissenschaftsrat.de/

quite a comprehensive vision of the required skillset and the job description of a professional intermediary in humanities computing, as well as some of the particular challenges they may face.

2.2.2. Competence centers for humanities computing and e-humanities

Support for computational research in the humanities is frequently institutionalized in the form of competence centers for humanities computing. In their consideration of "Institutional models for humanities computing", McCarthy and Kirschenbaum (2003) distinguish between several types of centers, providing a comprehensive classification of a large number of humanities computing centers, units, and institutions at that point in time[5]. While that sort of classification, which is presumably difficult to maintain over time, may be of interest as a whole, we would like to draw the attention to one specific aspect: In order to develop their classification, McCarthy and Kirschenbaum (2003) have compiled a list of questions that they use to classify individual centers. They consider the centers' mission with respect to the four dimensions of 1) research, 2) training, 3) support, and 4) institutional connection, cf. Table 2.

These four dimensions and their corresponding questions (cf. Table 2) appear to be a useful way of identifying a center's mission or "business strategy", which is a fundamental prerequisite for developing a customer support strategy or choosing the appropriate support instruments. These dimensions also allow identifying possible gaps in the portfolio of (advisory) services of any individual center or merely revealing differences between the centers' approaches to supporting humanities computing. It is important to emphasize that the application of these questions is not meant as an evaluation or to introduce any kind of competitive perspective, rather it merely serves to identify a center's position, approach, and potential. As the authors clearly state: "No judgment is expressed or implied as to the worth of the centres under consideration." (McCarthy and Kirschenbaum 2003: 466)

[5] McCarthy and Kirschenbaum's list of centers (2003) has since been transferred into an online resource, and following its links one is quickly lead to centerNet (http://digitalhumanities.org/centernet/), which has already been recognized by CLARIN/D-SPIN as a relevant partner initiative to liaise with (Geyken et al. 2010: 7).

Research

1. "Does the center pursue research in humanities computing?
    a. If so, is this research academic?
    b. Is this research undertaken by the centre
        i. either as a whole or
        ii. through projects conducted by some or all of its members for whom such research is part of their job description, or
        iii. is its direction determined by members of other departments?" (pp. 465-466)
2. "Does the center pursue technological research?
    a. If so, is this research conducted
        i. independently or
        ii. in concert with (other) academic departments
        iii. by contract with external organizations, or
        iv. based on funding to develop resources on a national level?" (p. 475)

Training

3. "Does the centre offer its own courses or programmes?
    a. If so, are these academic, i.e. count toward a degree or other formally recognized certification, either
        i. in humanities computing or
        ii. as a component of a joint degree?
    b. Do its members supervise or co-supervise thesis projects at the M.A. or Ph.D. level?" (p. 465)

Support

4. "Does the centre provide support for members of academic departments and students?
    a. If so, is this support specifically *collegial*, i.e. given by one colleague to another, ranging from
        i. occasional consulting to
        ii. full-scale collaboration at the level of co-investigator?" (p. 466)
    b. Does the center
        i. primarily offer "technological support to research and teaching taking place in or governed by members of academic departments" (p. 475) or
        ii. offer both technological support and research-specific methodological advice and support?

Institutional Connection

5. "Does the centre make academic appointments or share them with one or more other departments?
6. Does the centre participate in institution-wide decision-making in issues related to IT in teaching and research?" (p. 466)

Table 2: Describing support strategies of humanities computing centers along four dimensions: Questions adopted from McCarthy and Kirschenbaum (2003)[6]

[6] The list of questions is taken from the introduction section of McCarthy and Kirschenbaum (2003) and

DARIAH[7] and centerNet[8] are two current European and international initiatives at the scale of research infrastructures that focus specifically on establishing an alliance and network of centers of competence in e-humanities and humanities computing[9]. Within this area, there is a lot of room for specialization and a wide range of research fields, disciplines and methodologies need to be covered and supported through a potentially large variety of technologies, consultancy and services. Their consideration leads us straight to the next instrument of organized e-research support: Research infrastructures, which will be considered in the following subsection.

2.2.3. Research infrastructures to support research communities

As we have outlined in the previous sections, research infrastructures are one particular model in a support portfolio for e-research processes, beside institutionalized centers and professional individuals. Research infrastructures are large-scale support instruments, intended to support research communities as a whole by providing information and knowledge sharing services to the community members. In addition, they or their partner sites may provide platforms through which the communities may offer their services (including software tools and related services) to peers, potential users, interested researchers and (with some obvious limitations) even to the wider public.

We have also tried to make clear, that several types of activities, offers or strategies are involved in supporting e-research processes and e-researchers. Inspired by McCarthy and Kirschenbaum (2003), the general dimensions can be identified as being (1) Research engagement, (2) Training activities (3) Support services, and (4) Institutional connection. We will not consider (1) and (4) in more detail here. The issue of (2) Training activities is highly relevant for research infrastructures and has been attended to in the context of CLARIN/D-SPIN WP6. We refer to our previous reports, especially regarding university courses (Ahlborn & Binder 2010) and summer schools (Binder et al. 2010). They will not be further considered in this report. Rather, in this document we will now focus on (3) Support services.

We propose the following two key objectives in supporting e-research processes through research infrastructures:

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expanded according to some of the distinctions made further on in their paper. Source page numbers are indicated.

[7] http://dariah.eu/

[8] http://digitalhumanities.org/centernet/

[9] For a more comprehensive list of current related initiatives, see the D-SPIN's Final Report on the liaison activities with other projects and initiatives and Roadmap Report (Geyken et al. 2010).

(1) Technological assistance for collegial support (including assistance in managing, bookkeeping and reporting support activities)

(2) Providing user support for specific technologies, software tools and services that are offered within the research infrastructures

Both these objectives are not unique to research infrastructures. Corresponding objectives are being pursued particularly in institutionalized (IT) service support. We will discuss recent developments and corresponding instruments in section 5 below, where we discuss aspects of “IT service management and research infrastructures”.

3. User support in research infrastructures

It has frequently been mentioned that research infrastructures need to closely tie in with users (researchers) and the (research) communities that they aim to serve[10]. Before we can propose specific strategies or instruments towards these goals we need to identify the stakeholders in infrastructure-supported e-research processes. Based on these findings we may discuss relevant aspects, such as which kinds of support needs shall be served by the research infrastructure, and to which degree these support services shall be centralized. In any consideration we need to keep a user-centric perspective. These issues will be discussed in the following subsections.

3.1. Interacting parties and their roles

Before we can develop a perspective on user support, we need to clearly identify the role of CLARIN/D-SPIN within the e-science-paradigm, and we need to know who the users of the evolving research infrastructures are.

First of all, it is important to understand that the role of CLARIN/D-SPIN is not that of a research community, but of a research infrastructure. CLARIN/D-SPIN is an entity that is meant to serve one or several research communities and to enable those communities to use language resources and technology for their scientific purposes – hence, CLARIN/D-SPIN is a specialized research infrastructure with a clearly defined domain of expertise and a clear mission to provide specific services. These services will be developed, hosted and provided at specialized centers (cf. Wittenburg 2009). To fulfill that role, CLARIN/D-SPIN itself is in turn using services from general-purpose research infrastructures, delivered through their organizational bodies such as DFN, GEANT, etc. (cf. Geyken et al. 2010). In other words, domain-specific research infrastructures such as CLARIN/D-SPIN are taking an intermediary position between general research infrastructure bodies and particular research communities.

From the perspective of specific research communities that usually do not directly interact with general research infrastructure bodies, CLARIN/D-SPIN is the (usually remote and virtual) point of contact regarding domain-specific aspects of research infrastructures, e.g. regarding data repositories or tools. A corresponding global view on this "service cascade" is

[10] See, for instance, the section on relevance criteria (Relevanzkriterien) for research infrastructures in the humanities and social sciences as provided by the German Council of Science and Humanities (Wissenschaftsrat 2011: 26).

illustrated in Figure 2, as presented by the High Level Expert Group on Scientific Data (cf. European Commission et al. 2010).

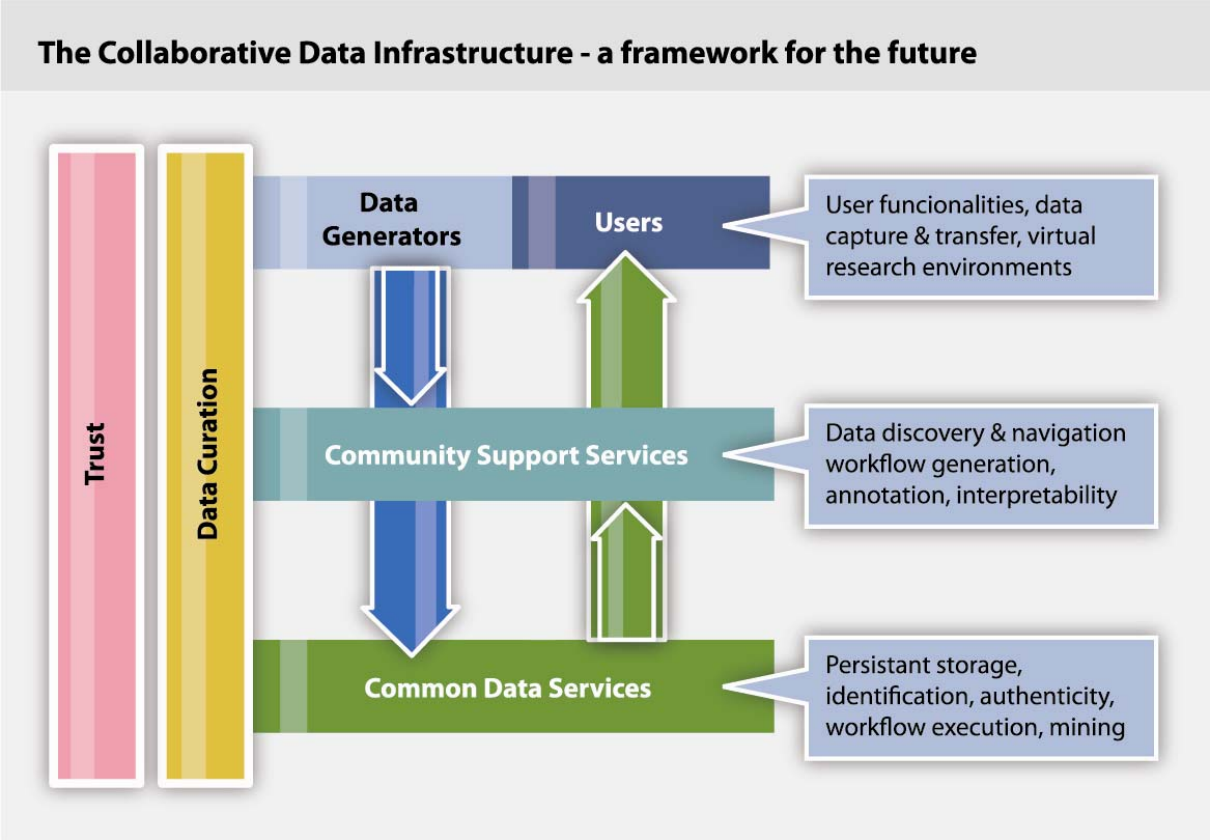


Figure 2: The Collaborative Data Infrastructure as envisioned by the High-Level Expert Group on Scientific Data (European Commission et al. 2010)

- Researchers or research communities that want to use LRT for scientific purposes
- Researchers or research communities who have gathered language data
- The LRT community (or individual members) who develop generic or specialized LRT (software and/or data)
- Common research infrastructure service providers, e.g. DFN, computing clusters etc.
- Local research infrastructure providers, such as universities' computing centers and libraries
- Funders of infrastructure projects and initiatives

Table 3: Stakeholders in supporting language-related e-research processes

In a scenario as shown in Figure 2, CLARIN/D-SPIN is taking the intermediary role and provides "community support services". As such, CLARIN/D-SPIN is in contact with

stakeholders at the other levels, mediating between providers of common data services on the one hand, and data generators and users on the other (cf. Table 3).

Data generators' questions

1. How much effort is it to integrate my data / tools / portal? (Time, Money, Staff)
2. Where are Showcases from my community?
3. Who has which rights regarding access to data and tools? Who determines that?
4. Can I trust this "infrastructure / organization"?

Users' questions

1. Can my research profit from using the infrastructure? If so, how?
2. How can I …
    a. Get access to it
    b. Get support for using it
    c. Cite data and publications?
    d. Comment on data and resources and enrich the data and resources that are offered?
    e. Collaborate, e.g. share comments and enrichments and include them in publications?
3. Availability and access: Life-long or dependent on (temporary) affiliations?

Research infrastructures' (internal) questions

1. What is our own role in the context of research infrastructures and communities?
2. Who would like to collaborate with us? (Who are our users?)
3. Who would like to work for us? (Staff recruitment?)
4. What is our relation to other research infrastructure initiatives?
   How do we collaborate?

Common data services' questions

1. Who are you? (And how many?)
2. What are you working on?
3. What do you need?
4. How much of it?
5. How much effort is it to provide you with data / tools / portal? (Time, Money, Staff)

Table 4: Possible questions among interacting parties in an e-research infrastructure scenario

As a result, these stakeholders approach CLARIN/D-SPIN with questions that are relevant from their perspective, but which may seem difficult to answer from the other perspective. Such questions may be summarized as shown in Table 4. Some of these questions and their answers may be suitable for being communicated via a help desk. Note that the roles and questions as shown in Table 4 as well as the list of stakeholders shown in Table 3 may still need to be complemented by the perspective of funders of infrastructures.

3.2. Keeping the user's local perspective

The users, i.e. researchers, however, might have a somewhat different perspective. When they use research infrastructure services, there may be issues that they need to solve in collaboration with local service providers, such as issues in internet connectivity, institutional identity management, email communication, technical support with local equipment, counseling etc. Furthermore, users have established points of contact that they use in case of questions. Data resources may be obtained from local or remote libraries or other providers; researchers may seek (non-technical) methodological advice from local colleagues or (online) research communities, possibly using mailing lists or some other networked communication. Such interplay of local and remote interactions is illustrated in Figure 3.

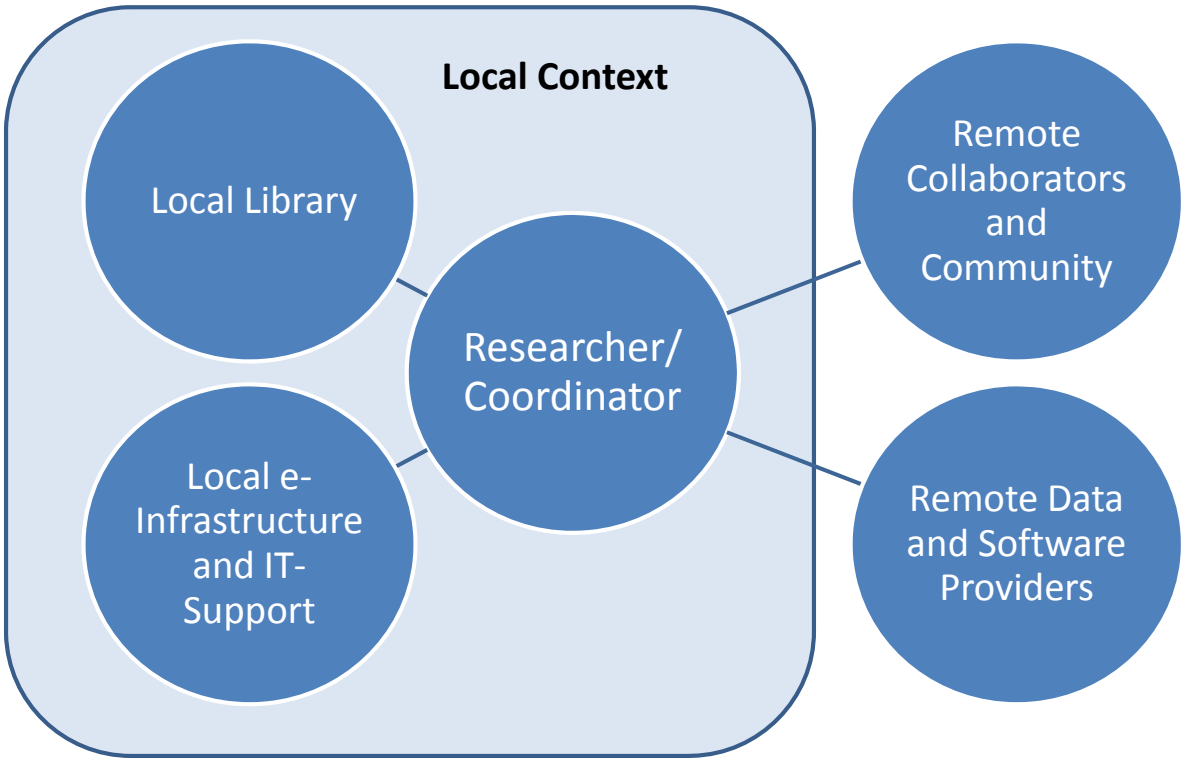


Figure 3: Local vs. remote interactions in an e-research setting

Hence, considering both a bird's eye view and a user's perspective on e-research processes and corresponding knowledge sharing and support needs, CLARIN/D-SPIN is connected to various stakeholders.

Based on communications between CLARIN and these stakeholders, knowledge sharing needs become obvious that might benefit from certain instruments of knowledge sharing or service support. In order to be able to decide on any appropriate measures, it is necessary to clearly define such knowledge sharing and support needs and to decide, which kinds of them shall be served in which ways.

3.3. Technical advice versus (research) expert advice

Fundamental knowledge sharing needs among e-researchers who may benefit from using LRT can be expected to comprise aspects such as (1) which kinds of research questions can currently be supported by computational methods and to which degrees, (2) how to best tackle respective current research questions by applying computational tools and methods where appropriate, and (3) which questions cannot yet be supported by computational methods. Most of these knowledge sharing challenges are specific to certain research domains, and many of them are not only relevant for researcher but also especially of interest in the context of academic teaching.

Such general scientific or domain-specific methodological issues are not in the focus of this help desk concept. Instead we see those issues within the responsibilities of individual competence centers or professional intermediaries. Concerning a help desk concept for CLARIN/D-SPIN, we are envisioning an instrument that will help skilled users in solving technical problems that arise from using resources that are offered by the research infrastructure consortium. In addition, such a help desk shall allow for requesting new functionality and for communicating the current status of the computational infrastructure in use. Hence from our current perspective, we derive the following recommendations as shown in Table 5.

Regarding technical advice vs. methodological advice,

1. CLARIN/D-SPIN consortium partners should each focus on providing technical support and advice to users specifically for the tools that are offered by the partners – the need for methodological advice shall be served by collaborators (centers or individuals) from the respective fields and not by CLARIN/D-SPIN itself.

2. CLARIN/D-SPIN needs to maintain close contact with those "field experts" and especially seek for collaborations on the creation of teaching materials and textbooks – so that the visibility of computational resources and tools within the methodological discussions is ensured.

Table 5: Recommendations regarding "Technical advice vs. methodological advice"

3.4. Centralized versus distributed service support

When developing a strategy for user support within research infrastructures, one question that needs to be addressed is the degree of centralization. More precisely, decisions need to be taken on whether certain support instruments shall be offered at various sites or whether they shall be integrated into a single offer.

The term *help desk* as a support instrument is usually defined as a "single point of contact" (cf. OCG 2007, see also section 5.2 "The Help Desk" below), which would imply a maximum degree of centralization. There are, however, several convincing arguments that call for an intermediary degree of centralization, to which we provide pointers in this subsection. An additional aspect specific to research infrastructures is the need to cooperate with established points of contact, to which we return in section 6.1 below.

In a detailed analysis, Bruton (2004: 105-115) distinguishes between the levels of (1) central, (2) regional, and (3) local support functions, and assigns different responsibilities to each of these levels. A small selection of the support functions that Bruton assigns to these levels is presented in Table 6. Bruton (2004: 109) also provides explicit warnings against exaggerated centralization endeavors, illustrating a number of failures resulting from such strategies.

Central support functions
Steering committee; Contracts repository; Authors and maintains service catalogues; Overall administrative project support office; Monitors operational standards; Describes required operational tools; …
Regional support functions
Main point of user contact; Delivers computing; Operates computing and communications infrastructure; Runs a help desk with first line support on all topics; Conducts user training; …
Local support functions
User-to-user support; Enquiry resolution; Desktop support (second line, installations); …

Table 6: Central, regional, and local support functions based on Bruton (2004: 110-114)

Note that the help desk is placed at the regional level. We will return to such considerations when we discuss the help desk in more detail in section 5.2 “The Help Desk”. For now, we provide the following recommendations for CLARIN/D-SPIN (cf. Table 7):

Regarding the degree of centralization of user support,
1. On the level of technical support, we recommend a per-resource approach. Each resource that is well recognizable – such as a well-known tagger or a well-known corpus collection or search interface – shall have its own separate virtual space for technical support (bug reports, feature requests, manuals, third-party contributions etc.).
2. These individual support spaces shall be well-integrated and reachable from central inventories or catalogues, and in order to improve their quality, they shall be subject to periodical reviewing and criteria-based auditing – possibly within such consortium projects as CLARIN/D-SPIN – to identify potential for improvements in technical support.

Table 7: Recommendations regarding “Centralized versus distributed service support”

4. Knowledge sharing – inspiration from collaborative software development

Several instruments of knowledge sharing and service support have been playing important and successful roles in collaborative software development. This form of virtual collaboration may provide hints for how to enable such successful knowledge sharing. There are basically two kinds of closely interacting factors: technological and cultural aspects. We provide a short collection of considerations from Fogel (2005) and Brügge et al. (2004) and refer to them for further information.

Fogel (2005: 29) lists the following minimum set of instruments for knowledge sharing[11] among collaborating software developers: (1) Website, (2) Mailing List, (3) Version Control, (4) Bug Tracking, and (5) Real Time Chat. There are differences as to who can be expected to use which instruments. These differences call for decisions regarding which instruments shall be offered, for instance, for specific sites or resources within research infrastructures. While websites, mailing lists, and to some degree, real time chats enjoy a considerable degree of acceptance with "digital humanists" – or at least they can be expected to do so – nevertheless, these instruments alone can also act as effective obstacles to those researchers who are not accustomed or trained to work with them. As Brügge et al. (2004: 81, own translation) state regarding open source software, "the number of users that are not interested in the source code exceeds the number of developers by far. Those users usually report defects and suggestions for improvement to their local technical expert, who then initiates the appropriate steps". Here, again, this observation suggests that the model of a "professional intermediary" is the most promising, when it comes to user support.

Table 8 provides a preliminary picture of the visibility of support features for relevant resources within and outside the D-SPIN consortium. While such an overview is an interesting way to identify potential for development and for an exchange of ideas and experience, or simply to monitor ongoing changes in order to discuss strategies reflected in such tables, it is important not to draw premature conclusions. Hence, in this case it is particularly important to note that (1) differences between resources may be well justified through local experiences with the various conceivable support instruments; (2) for various reasons and based on experience, certain instruments might not be intended to be visible to

[11] While we speak of "instruments for knowledge sharing", Fogel, in fact, uses the term "tools for information management", cf. Fogel (2005: 29 "What a project needs").

the general public; (3) results in Table 8 were obtained by a single non-expert through inspecting the websites per hand without contacting the respective sites. Although this method to obtain these results may seem superficial, we assume that it is conservative and somewhat realistic, given the assumptions that the 'user' is a non-expert in terms of LRT or software development and that they rather not spend much time surfing and searching for a possible point of contact for help.

Some of these support instruments, particularly trackers and monitors, may not be intended to be used by 'end users', but certainly they shall be available to 'professional intermediaries' who are trained to work with them, and who maintain local contacts with 'end users'. One way to provide these instruments is to use so-called "canned hosting" sites, which offer specially equipped project hosting space on the web (see Fogel 2005: 64-65 for a discussion). Examples of such canned hosting sites would be SourceForge[12], GitHub[13] Launchpad[14], Google Project Hosting[15], and others.

[12] SourceForge: http://sourceforge.net/
[13] GitHub: https://github.com/
[14] LaunchPad: https://launchpad.net/
[15] Google Project Hosting: http://code.google.com/projecthosting/

	COSMAS II	DWDS	DTA	Wort-schatz Leipzig	TüBa-D/Z	TÜPP-D/Z	Euro-parl	Falko	GermaNet	Tree Tagger	LoPar	WebLicht	Annis 2	Open CWB
Project Mission	x	x	x		x	x	x	x	x	x	x	x	x	x
Help, FAQ	x	x	x	x				x			x			x
Further Documentation	x	x	x											x
List of Collaborations		x	x									x	x	
List of publications	x	x						x	x			x		x
Email Contact	x	x	x	x	x	x	x	x	x	x	x	x	x	
Personal Contact	x				x	x	x	x	x	x	x	x		
Mailing List													x	x
Wiki / Forum														
Bug Tracker/ Request Tracker														x
Status Monitoring														

Table 8: Support features per resource: Visibility from a non-expert perspective (x = visible).

5. IT service management and research infrastructures

CLARIN/D-SPIN partner sites provide a variety of linguistic tools, data resources and data management tools to researchers (i.e. users) who wish to use or integrate language data and related tools into their e-research processes. This constellation introduces the need to offer some degree of user support. The resulting initial questions of whether to establish a sort of help desk or service desk and how this instrument shall be shaped lead us straight to the field of IT service management (ITSM), where such instruments and related best practices for user support are developed and discussed. Hence, in this subsection we try to gather inspiration from ITSM. We need to carefully assess the suggestions from ITSM, since most of them are designed for established institutions, whereas CLARIN/D-SPIN as a virtual organization might face additional or slightly different challenges. But basically, we are looking for instruments of user support that CLARIN/D-SPIN might consider offering for the benefit of its users.

5.1. IT service management (ITSM) and ITIL

One of the most prominent conceptualizations for ITSM is currently the so-called information technology infrastructure library (ITIL), which is a collection of "best practice advice and guidance on all aspects of managing the day-to-day operation of an organization's information technology (IT) services" (OGC 2007: 3). ITIL is related to the official standard for Service Management, ISO/IEC 20000[16], insofar as it claims to be "useful for archiving the standard" (OGC 2007: 5). The latest series of ITIL publications, known as ITIL Version 3, were published in 2007 by the TSO (The Stationary Office) on behalf of the (British) Office of Government Commerce[17]. ITIL Version 3 comprises five "core" publications, each of which covers a core area of service management: "Service Strategy", "Service Design", "Service Transition", "Service Operation", and "Continual Service Improvement". In ITIL Version 3, the "operational aspects of Service Support and Service Delivery" are covered in the publication entitled "Service Operation" (OGC 2007: ix). Within that publication, the Service Desk is introduced, which will be considered in more detail in section 5.2 below.

[16] ISO/IEC 20000-1:2011 - Information technology -- Service management: http://www.iso.org/iso/iso_catalogue/catalogue_ics/catalogue_detail_ics.htm?csnumber=51986
[17] ITIL® - Core OGC Titles http://www.itil-officialsite.com/Publications/Core.aspx

The discussions around ITIL are manifold and cannot be reproduced here. However we would like to point out that trends from ITSM in general and ITIL in particular[18] are being adopted at various universities and research institutions (e.g. Bick and Börgmann 2008, Wannemacher et al. 2008, Vellguth 2010, von der Heyde 2010) – accompanied, again, by a number of critical discussions and suggestions for adaptations (Wannemacher et al. 2008, Rudakova et al. 2010). This development may have implications for the expectations and experience that academic users have regarding IT support as well as for potential collaborations between (local) IT support units and (virtual) research infrastructures with regard to user support.

Frameworks, such as ITIL, provide a relatively clear-cut and well-defined vocabulary for communicating about user support. Hence we suggest using ITIL or similar frameworks as a source of inspiration when designing features of technical user support within research infrastructures such as CLARIN/D-SPIN.

As far as a user support concept for CLARIN/D-SPIN is concerned, issues of staffing – or at least proposing an assignment of responsibilities – are not covered in this report, and their consideration remains a desideratum for further decision-making processes. An attempt to cover the aspect of business justification for user support in CLARIN/D-SPIN has been made in section 2.1 above. Service measurement and controlling and reporting are not in the focus of this report, apart from a few exceptions to be discussed in the sections 5.2 “The Help Desk” and 7.1 “Status monitoring”.

Current developments and trends in Service Management are being discussed, for instance, in working groups of the international “IT Service Management Forum” (ITSMF)[19] or its German chapter, the “IT Service Management Forum Deutschland e.V.”[20], which also hosts regular conventions. In the special case of academic institutions, there is another relevant body: the ZKI[21], which also maintains working groups on issues in service management[22]. Both organizations maintain periodicals, in which findings and considerations from aspects of service management in research infrastructures may be placed for discussion. See, for instance, Lang (2009) and Fischlin (2008). Returning specifically to the academic

[18] Bick and Börgmann (2008: 111) have identified the ITIL v2 components Service Support and Service Delivery – being two separate ITIL v2 publications that include establishing a Service Desk – to be most relevant in academic settings. In ITIL v3, these “operational aspects of Service Support and Service Delivery” are combined into a single publication: Service Operation (OGC 2007: ix).
[19] itSMF International – The IT Service Management Forum: http://www.itsmfi.org/
[20] IT Service Management Forum Deutschland e.V.: http://www.itsmf.de/
[21] ZKI – Zentren für Kommunikation und Informationsverarbeitung e.V.: http://www.zki.de/
[22] Arbeitskreise des ZKI e.V.: https://www.zki.de/arbeitskreise/

environment, Wannemacher et al (2008) comprises a set of short reports on ITSM from various universities, while the contributions in Bode and Borgeest (2010) provide a comprehensive view on various aspects of information management in one particular academic institution, including reports on setting up a Service Desk (Vellguth 2010) and Incident Management (Hommel and Knittl 2010).

5.2. The Help Desk

In the domain of IT service management (ITSM) a *service desk* is usually seen as

> "The Single Point of Contact between the Service Provider and the Users. A typical Service Desk manages Incidents and Service Requests, and also handles communication with the Users." (OGC 2007: 244)

Related terms may be *help desk*, *call center*, *service desk*, or *customer hotline*, which are sometimes used rather synonymously, although each of them may imply a certain distinct emphasis (cf. OGC 2000: 28). According to Bruton (2004: 211-2), the traditional help desk has served as a pioneering instrument of cultivating a user-centered, service-oriented approach in IT support for a long time. The help desk could be considered the incubator of the "service culture", by which it has apparently been subsumed. Today, its so-to-speak descendent, the service desk, can be approached "not just to solve problems, but to take any form of enquiry" (Bruton 2004: 212). It is usually the central hub between a variety of functions of a IT service department or unit, providing a central point of contact for (internal as well as external) users and staff who seek support for IT services that they rely on. Note that it may make perfect sense to deliberately use the term *help desk*, as opposed to service desk, in order to emphasize a more specific mission, such as to exclusively focus on support in technical issues, as opposed to offering a catch-all point of contact that aims to satisfy basically any customer's or user's needs for support, advise, change or consultancy.

One example of a success story of establishing an institutionalised service desk in an academic setting is described by Vellguth (2010), who phrase some of their initial motivations and challenges in very similar terms to those that motivate the establishing of research infrastructures:

1. (Re)centralization of technological resources in order to reduce redundancy and maintenance efforts

2. Centralization of data in order to reduce fragmentation and to ensure long-term availability
3. Maintaining decentralized responsibilities for content and processes
4. Reduction or prevention of unintended support-related work load on non-support staff (i.e. researchers)

Some challenges, however, reveal contrasts between institutions such as universities and virtual organizations, such as research infrastructures:

5. While universities are concerned with intra-institutional centralization, research infrastructures operate on a different level and aim for inter-institutional centralization of resources.

6. While a university usually aims to provide a single point of contact for a large variety of technical support issues, this is only partially conceivable for research infrastructures like CLARIN/D-SPIN. One the one hand, as far as pointers to resources and expertise (individuals, centers, sites, or materials) are concerned, such information shall indeed be maintained in a central place or at least (automatically) propagated among several established points of contact[23]. On the other hand, technical support shall be provided per "product": Whatever is perceived as a unit or "product", i.e. a single high-impact resource or a (co-located) self-contained set of resources – such as each of these examples for itself: WebLicht, COSMAS-II, DWDS, ELAN, and others – shall provide individual support instruments, for which the local sites shall be responsible. At each site, these support instruments shall be tailored towards that site's individual user group or target audience.

The question of centralization versus fragmentation of one or more service desks cannot be solved in general, that is, without considering the specific contexts of the particular endeavor in service support. ITIL v3 briefly discusses three possibilities: 1) Local Service desk, 2) Centralized Service Desk, 3) Virtual Service Desk (OGC 2007: 111-4). Indicators for maintaining a local service desk are, among others:

[23] How to keep all these points of contact updated and consistent is yet another challenge. See Figure 6 on p. 35 for a pointer to some inspiration.

- "The existence of customized or specialized services that require specialist knowledge
- Specialized groups of users
- Language and cultural or political differences"

Table 9: Some indicators for maintaining a local service desk (OGC 2007: 111)

A *virtual service desk* may be set up to "give the impression of a single, centralized Service Desk", which can be accomplished by using the Internet and special corporate support tools. (OGC 2007: 111). ITIL v2 discusses the concept (OCG 2000: 39-40), albeit on a rather abstract if not hypothetical level. In ITIL v3 this section seems to have been reduced even further, ITIL v3 does not provide further hints on how such virtual service desks may best be set up or run.

- "All persons accessing the Virtual Service Desk should use common processes, procedures and terminology.
- A common, agreed-on language should be used for data entry.
- There will be the need for a physical presence on site by a specialist or maintenance engineer from time to time.
- Network performance should be 'fit for purpose'. […] A narrow bandwidth is not practical if several hundred requests are processed.
- For the Virtual Desk, the support tools in place should allow for 'workload partitioning' and authorized views. (For example, if I am the person looking after local support in, say, Amsterdam, I only want to see requests for that location.) This should include other associated processes and related data, such as planned Changes, asset and configuration data.
- Consistent ownership and management processes for Incidents should be used throughout the Virtual Service Desk, with automated transfers of Incidents and Incident views between local desks." (OGC 2000: 40)

Table 10: Selected considerations when setting up a Virtual Service Desk (OGC 2000: 40)

As discussed in section 3.4 above, we do not propose setting up a single central service desk for a whole research infrastructure such as CLARIN/D-SPIN, due to the limitations that such a centralized instrument would imply (cf. Bruton 2004:105-115). Rather, it seems wise to establish help desks at the "regional level", i.e. at established centers of expertise, such as CLARIN/D-SPIN's major partner sites. A central work package for user support would still be justified, since various coordination activities would be required to sharpen the vision of a coherent support strategy within the research infrastructure.

Furthermore, several communicative responsibilities could be assigned to such a central entity:

- Announcing scheduled maintenance work
- Collecting statistics from various sites
- Informing of new releases and developments of infrastructure tools.

It is important, again, to emphasize that a help desk by itself is not a cure-all to any support needs in e-research processes. The situation seems comparable to that of e-business processes in a wider sense. As Bruton points out, there are different problem areas, some of which may well be supported by a help desk, while some other call for different instruments (Bruton 2002: 52), such as peers, user representatives, or even support by the product author. Accordingly, one important goal of a help desk for CLARIN/D-SPIN would be to enable such different forms of support, for instance by providing pointers to experts or by mediating contact between users and tool authors.

Problem area	**Support provided by**
Advanced usage (programming etc.)	Peers, product author, user representative (if a programmer), user training
Usage of application	User representative, user training, possibly help desk
Application installation and interfacing to system and peripherals	Help desk or local system administrator
Hardware	Manufacturer (via local system administrator)

Table 11: Different support instruments for different problem areas – adopted from Bruton (2002: 52) with slight modifications

In his vision of a "Service-Desk 2.0", Fischlin (2008) criticizes several aspects of the classical service desk model. In particular, he proposes a paradigm shift from "push" to "pull" in order to establish a new or even more user centric culture of communication in IT support. Fischlin considers the possibilities of using web 2.0 technologies such as "rss-feeds", "wikis", and "social tagging" to archive that paradigm shift. Although these technologies arguably cannot cover all required functionalities of service desk tools[24] per se, they can contribute towards a more user-centric communication. In the case of CLARIN/D-SPIN, such tools may be used per resource site, as is already being done at several such sites.

[24] Such functionalities are, for instance, issue tracking and status monitoring.

6. Strategic and pro-active support operations

6.1. Cooperating with established points of contact

Taking the idea of a user-centric perspective a little further, it might be wise to consider a special form of interaction with established points of contact. As we have outlined above, researchers often find support through colleagues or through online community platforms, some of which host discussion forums or mailing lists. A few such places that might be relevant for CLARIN/D-SPIN in the future are listed in Table 12.

- "Informationsportal Gesprächsforschung"
  http://www.gespraechsforschung.de/liste.htm
- „Kommunikation und Fachinformation für die Geschichtswissenschaften"
  http://hsozkult.geschichte.hu-berlin.de/
- The "Corpora List"
  http://mailman.uib.no/listinfo/corpora
- „Aboliste Computerphilologie"
  http://computerphilologie.tu-darmstadt.de/index.html - see also:
  https://lists.tu-darmstadt.de/mailman/listinfo/computerphilologie
- International portals such as
  http://www.h-net.org/
  http://www.digitalhumanities.org/
- Mailing Lists and discussion forums of societies and communities
  (GSCL, DGfS, etc.)
- Relevant thematic groups at social networks like Facebook, Xing or LinkedIn

Table 12: Established (virtual) points of contact for research communities (non-exhaustive)

While some of these portals are used merely for announcements, others are used for open discussions around computer-assisted or computational research methodologies and have adopted the culture of question-and-answer sites. CLARIN/D-SPIN help desk staff could proactively scan those discussions for support needs and propose collaborations right along those lines, and right to those who state their needs and questions there. In cases where a specific support section or Q-&-A-culture has not yet been established at such a portal, it might be worth assessing the possibilities and giving it a try. This proactive approach may have an advantage over setting up an isolated virtual help desk where no one would take notice: Users are contacted right at their established points of contact. In fact, such an approach seems one way to point the community to support instruments that are available at

various sites. On the other hand, it requires cultural sensitivity to manage this as a win-win situation and not to be perceived as some external conqueror aiming to take over the comfortable space of open discussions among a community that may then no longer feel as one. But with the appropriate sensitivity, it shall be possible. As a first step, it might be helpful to ask opinion leaders as well as representative groups of users of the respective portals, if they would agree to have or even invite technical support into one of their community portals or sections thereof.

6.2. Log file analysis for measuring the use of resources

The mission of a support team usually comprises certain strategic aspects with regard to its organization's operative strategy. Apart from tracking and bookkeeping of support requests, incidents, feature requests and any strategically relevant communication with users and remote consultants, certain strategically relevant activities might be placed within the responsibilities of the help desk team. One such area of activity might be to perform analysis of usage data, such as log files (cf. Büchler and Heyer 2009, Warwick et al 2008). One goal might be to estimate the demand or expected load on web-based services.

7. Support instruments for distributed web-based service infrastructures

As has been outlined above, support services in research infrastructures are not necessarily primarily intended for 'end users' of e-research services, but for local 'professional intermediaries' as well as for the members and staff of the research infrastructures themselves, who are working at geographically distributed institutions in local contexts.

7.1. Status monitoring of infrastructure tools

Concerning the support strategy for technical services as opposed to methodological consulting, it is particularly important to be able to effectively monitor the status of all available technical services at a glance, especially in an environment where many such services may be combined into processing pipelines.

Status monitoring may be integrated with semi-automated reporting of status and automatically notifying site administrators in case of problems. Furthermore, publicly available status monitors are an effective means to relieve the service desk in case of disasters or massive problems, since they transport a message of self-awareness. They can be interpreted as signs saying, "Yes, we know about the current trouble. We are working on it." A prominent example of this approach would be the "iMonitor – Internet Störungen" by heise online.[25] Such a status monitor may also be used to indicate ongoing maintenance work or situations when certain services are temporarily not available.

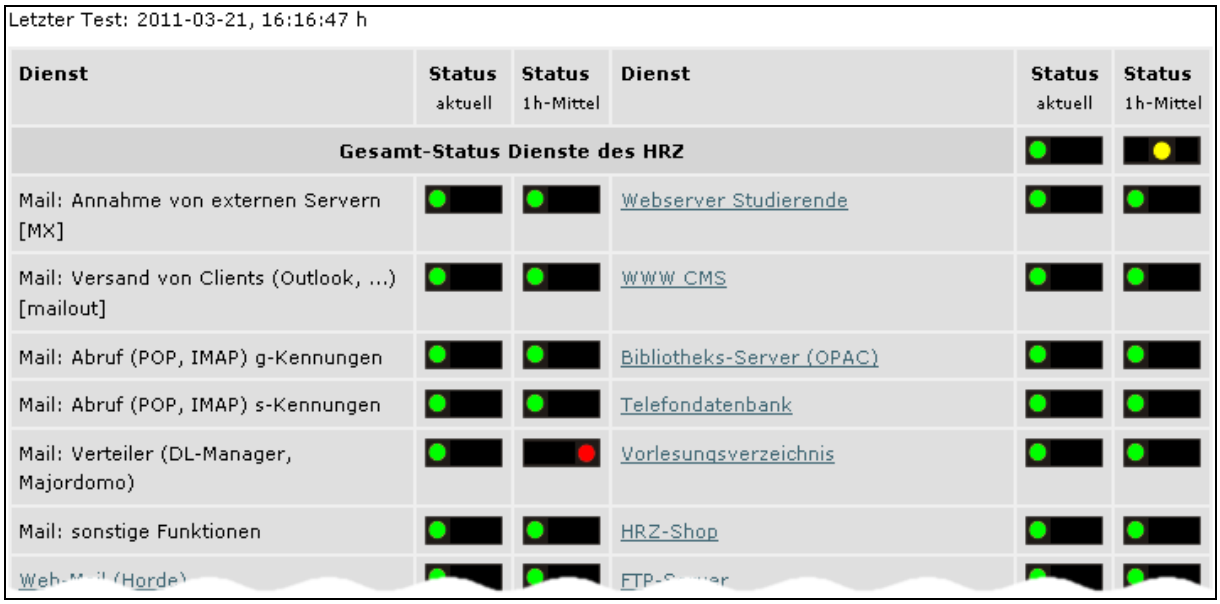
For inspiration, we will present some examples of how such monitoring may be realized:

1. "Traffic Lights": Public status monitoring of services with hierarchical grouping
2. "Flintstone": Status monitoring for service chains - prototype within WebLicht
3. "mirmon": Monitoring distributed, synchronized data and software archives ("mirrors")

Example 1: Figure 4 provides a screenshot of a website showing a public status monitor at the University of Giessen's local computing and IT service center (Hochschulrechenzentrum). Individual status indicators per service are available for two time points: current ("aktuell")

[25] iMonitor – Internet Störungen: http://www.heise.de/netze/netzwerk-tools/imonitor-internet-stoerungen/

and last hour ("1h-Mittel"). This allows inferring certain constellations, such as "normal operation, no problems", "new problem just occurred", "enduring problems", "problem has just been solved"[26].



Letzter Test: 2011-03-21, 16:16:47 h

Dienst	Status aktuell	Status 1h-Mittel	Dienst	Status aktuell	Status 1h-Mittel
Gesamt-Status Dienste des HRZ					
Mail: Annahme von externen Servern [MX]			Webserver Studierende		
Mail: Versand von Clients (Outlook, ...) [mailout]			WWW CMS		
Mail: Abruf (POP, IMAP) g-Kennungen			Bibliotheks-Server (OPAC)		
Mail: Abruf (POP, IMAP) s-Kennungen			Telefondatenbank		
Mail: Verteiler (DL-Manager, Majordomo)			Vorlesungsverzeichnis		
Mail: sonstige Funktionen			HRZ-Shop		
Web-Mail (Horde)			FTP-Server		

Figure 4: Public monitoring of service status ("traffic lights") at the computing and IT services center of the University of Giessen (Hochschulrechenzentrum, HRZ)[27].

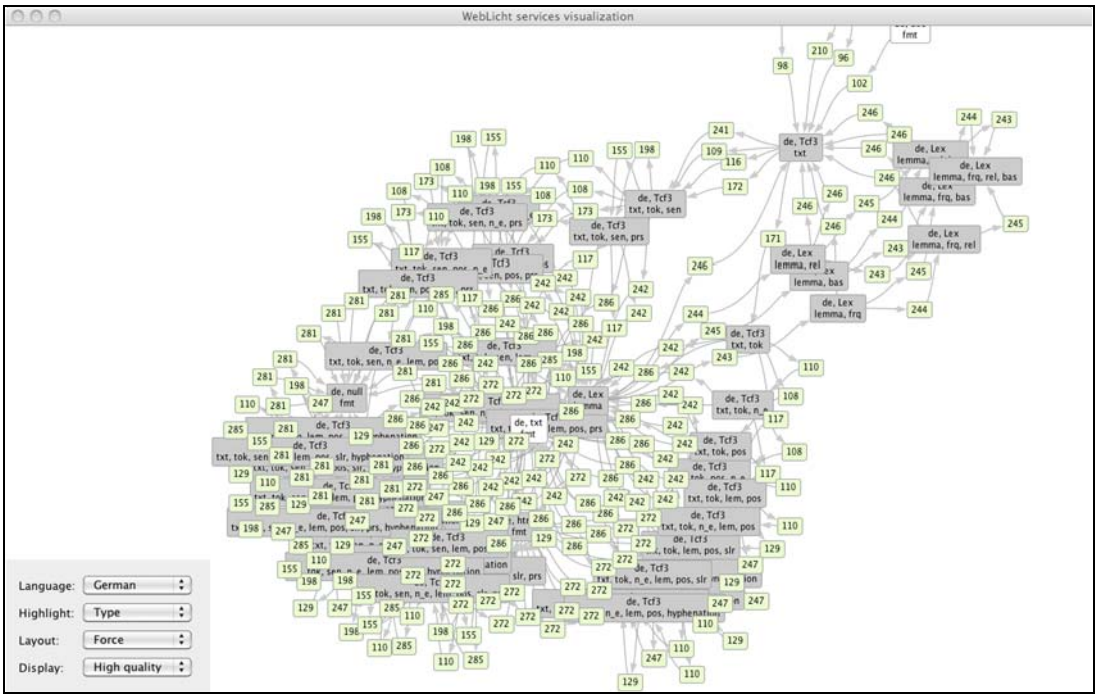


Figure 5: Screenshot of a service monitoring tool prototype in WebLicht.

[26] Cf. http://www.uni-giessen.de/cms/fbz/svc/hrz/status/status_descr
[27] http://www.uni-giessen.de/cms/fbz/svc/hrz/status/server-status

In addition, individual services may be aggregated into groups, and a summary status can be provided for the group, again at the two time points “current” and “last hour”. In Figure 4, such a group is entitled “Gesamt-Status Dienste des HRZ” (overall status).

Example 2: Figure 5 shows a screenshot of a service monitoring tool for WebLicht. At the time of writing, this tool is in development or prototype status and only used for internal status monitoring. Individual web services from various sites are shown as nodes. Colour indicates the status of the respective service.

Example 3: The status monitoring software *mirmon*[28] is used by a well-known group of distributed archive networks in order to spot problems related to data and software mirroring at a glance. These archive networks are: the Comprehensive Tex Archive Network (CTAN), the Comprehensive Perl Archive Network (CPAN), and the Comprehensive R-Archive Network (CRAN) – serving the communities of Tex-, Perl-, and R-users. All three networks and several other software providers including the Apache Software Foundation are using such or similar monitoring software. Beside the bird’s eye view in the form of an “age histogram” as shown in Figure 6, mirmon also provides a table report with one entry for each participating mirror site, indicating several statistics and status information regarding that site’s current status and recent synchronization history.

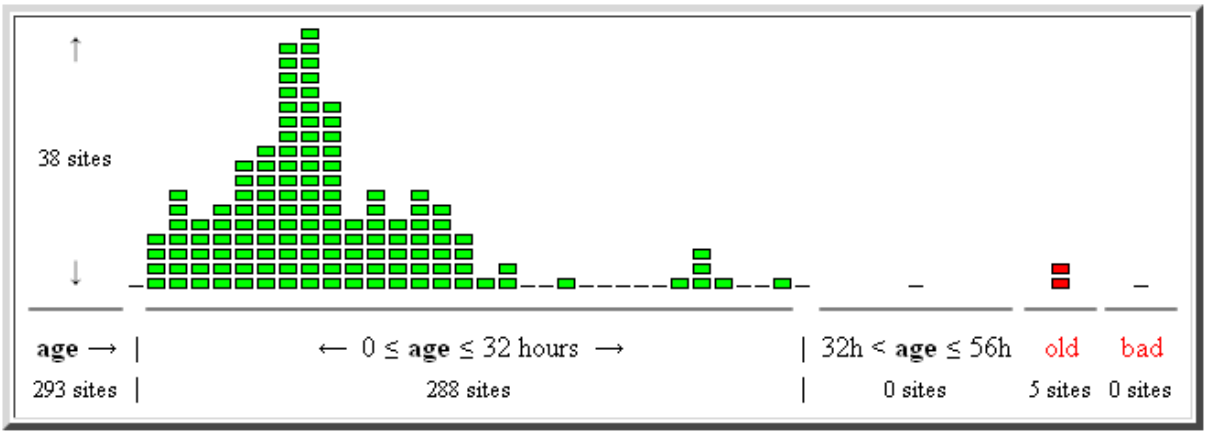


Figure 6: mirmon: Age histogram of automated synchronization activities within a distributed network of software mirrors. (Sources: http://www.apache.org/mirrors/ , http://people.cs.uu.nl/henkp/mirmon/)

[28] http://people.cs.uu.nl/henkp/mirmon/

Status monitoring is an indispensible support instrument in any complex infrastructure in order to quickly spot problems within the infrastructure's network of services. It is an essential instrument to any support team or help desk. However, it only allows monitoring the infrastructure as such, while there might be the need to diagnose problems on the user side.

7.2. Client-side diagnostics

When users turn to an infrastructure help desk, their problem's root cause might be found within the infrastructure domain or within the client's domain. In order to efficiently diagnose errors and provide solutions we briefly suggest two initial instruments. Further relevant instruments might be identified in subsequent discussions.

First, we propose setting up a diagnostics web page that shall check all user-side requirements for working with CLARIN/D-SPIN's web applications. When providing web-based e-learning materials in the context of D-SPIN-related LRT training courses (Ahlborn and Binder 2010), we have found that about 10 % of the students have technical difficulties when using these online materials. We have set up a preliminary diagnostics site in order to identify potential causes of such problems[29] in the context of e-learning. This page is a very simple prototype of what could be done to help users quickly determine if their browser settings fulfill the requirements for working with CLARIN/D-SPIN web applications. Figure 7 shows a screenshot of that prototype.

There are various offers for diagnostic pages to be found on the web, most of them are related to specific web technologies. Others are intended to provide security advice, and their potentially dramatic messages may distract from the purpose of diagnosing errors or lacks of functionality, i.e. by warning against activating certain features that are usually widely accepted or simply required for modern web applications to work. Hence, inspired by such offers as the "Browsercheck" by heise Security[30], "What Browser?"[31] by Google, "Verify Java Version"[32] by Oracle, or "Find Flash Player version" by Adobe[33], we suggest providing a similar simple web page to detect potential sources of problems on the client side. Such a page shall provide the results in a pragmatic and sober tone so that users shall feel confident in that their problems have been identified and solutions are close at hand.

[29] Diagnostics (Prototype): http://www.uni-giessen.de/~g91254/diagnose-test/
[30] Browser check – heise Security (in German): http://www.heise.de/security/dienste/browsercheck/
Browser check – The H Security (in English): http://www.h-online.com/security/services/browsercheck/
[31] What Browser?: http://www.whatbrowser.org
[32] Verify Java Version: http://www.java.com/en/download/installed.jsp
[33] Find Flash Player version: http://kb2.adobe.com/cps/155/tn_15507.html
see also: Adobe – Flash Player: http://www.adobe.com/software/flash/about/

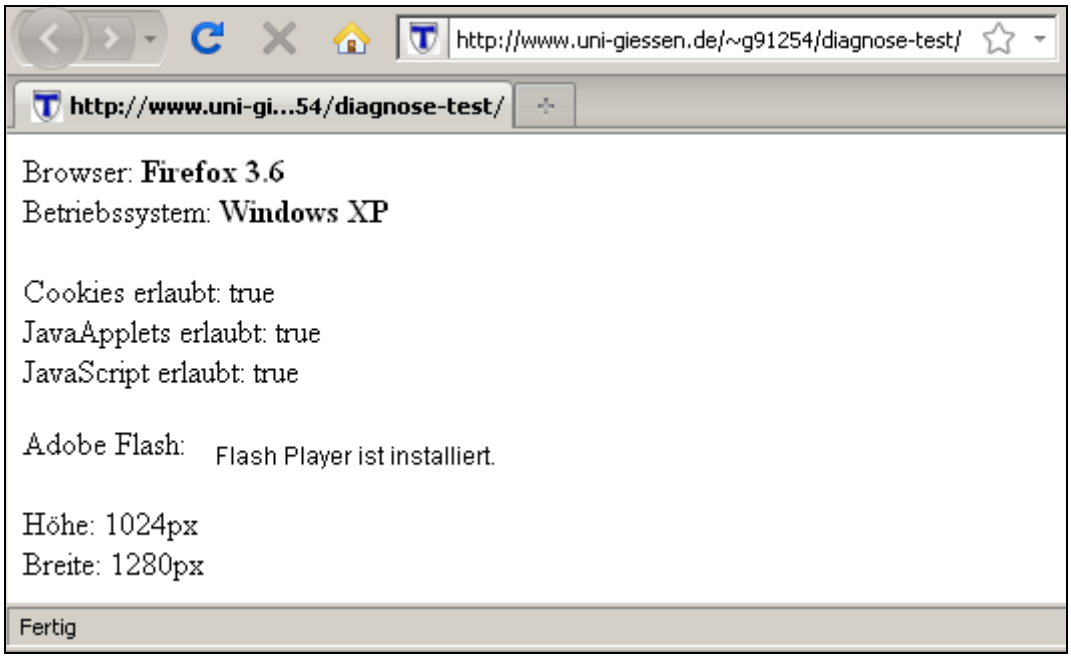


Figure 7: Diagnostic web page (prototype) for checking client-side requirements for working with web applications.

A full-fledged diagnostics page may, for instance, cover the parameters of (1) operating system, (2) user agent / browser, (3) ECMAScript / JavaScript enabled, (4) Java applets enabled / which java version installed, (5) Screen resolution / window size, (6) Adobe Flash installed / which version – depending on which of these parameters are relevant for working with specific CLARIN/D-SPIN web applications. The page might also be equipped with a button that attaches the results to an email that the user can then send directly to the help desk or support team.

7.3. Co-browsing and live chat / voice chat consultation hours

Another instrument in end user support is co-browsing or remote desktop support, where the user authorizes a support agent to view the user's computer screen in order to assist in error diagnosis and problem solving. This can be offered in combination with live chat or voice chat hours, where end users may interact with (human) support agents. It is important to establish a team of support agents that is trained in methods of general computer support and at the same time specialized in LRT-related issues, for two reasons. First, many end user problems may be too trivial to occupy LRT experts with. Second, problems related to using LRT for e-research shall not be solved by developers but rather by a support team or via a dedicated point of contact, in order to protect developers, who may be working on different issues, from unnecessary distraction and workload.

8. Summary and overall recommendations

In this document we have developed a help desk concept for the CLARIN/D-SPIN research infrastructure, assuming that CLARIN/D-SPIN is an aggregation of specialized centers that act as data and software providers for specialized e-research requirements. We have identified stakeholders and their roles within e-research processes and discussed their respective support needs. Furthermore, we have developed recommendations concerning certain strategic questions on how to design and offer which support instruments. Concerning a specific selection of support instruments we have provided pointers to sources of inspiration, such as IT service management and collaborative software development.

To sum up, we see four core areas of engagement when implementing a support strategy in a research infrastructure: (1) Strategic Activities, (2) Consultancy Services, (3) User Support Services, and (4) Technical Instruments. We believe that future help desk teams or initiatives need to address these four dimensions, as depicted in Figure 8.

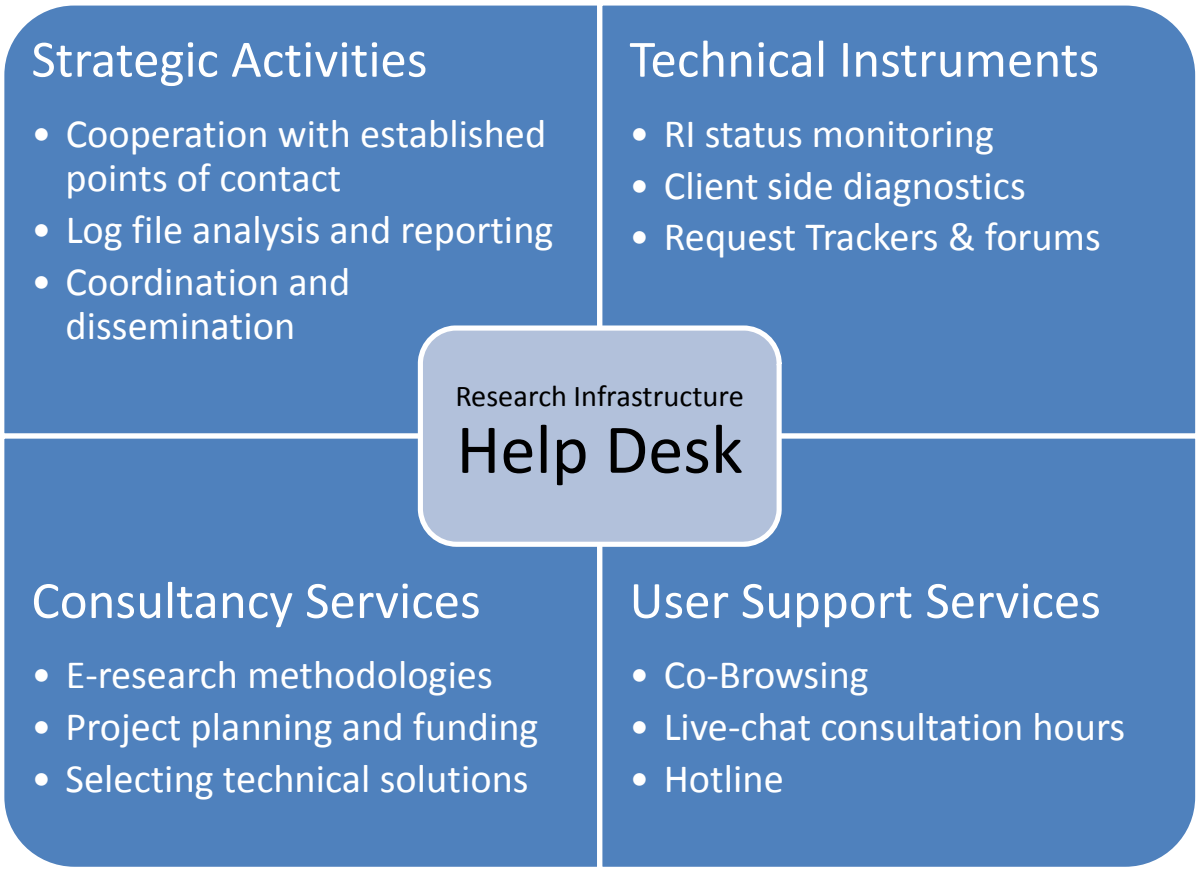


Figure 8: The Research Infrastructure Help Desk – 4 recommended areas of engagement

Most of the suggested activities and instruments shall be implemented on a per-resource or per-site basis and with a clearly defined scope, i.e. at a regional level such as at each center that belongs to CLARIN/D-SPIN. At a central level, we see mainly coordination activities, such as putting these strategic issues on the agenda, calling for suggestions for and settling agreement on standard support procedures, stimulating further engagement, triggering workshops on this topic, and having quality management activities conducted, including, for instance, audits or user surveys. The majority of actions shall be assigned to the capable local teams at CLARIN/D-SPIN's member institutions in order to provide support services to their various user communities.

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