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## Analysis of Research Support Services at international Best Practice Institutions

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## **Analysis of Research Support Services at international Best Practice Institutions**

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### **Videncenter for Videnskabelig Kommunikation**

På foranledning af universitetsbibliotekaren har Videncenter for Videnskabelig Kommunikation iværksat en best practice analyse af 11 internationale og 8 nationale universitetsbibliotekers forskerservices. Den vedhæftede rapport er baseret på undersøgelser af bibliotekernes hjemmesider samt analyse af en spørgeskema-besvarelse fra seks af bibliotekerne.

### **Rapportens indhold:**

- Executive summary
- Background
- Method
- Best Practice Institutions
- Analysis
- Discussion
- Acknowledgements
- Literature
- Appendices

### **Anbefaling:**

Der er i rapporten rettet anbefalinger til KUBIS og til universitetsbibliotekerne generelt. De generelle anbefalinger omfatter: at der formuleres en strategi for området forskerservice, at der formuleres klare mål for institutionen og for den enkelte service, at der dedikeres midler til at drive forskerservices for, at der dedikeres midler til at udvikle nye forskerservices for, at de eksisterende services koordineres, at der dannes et overblik over mål og services (internt og eksternt), at bibliotekerne skaffer sig viden om forskernes behov, at bibliotekerne deltager i netværk og andre aktiviteter (der har forskerservice som fokuspunkt), at biblioteket forsøger at positionere sig som en del af forskningsinfrastrukturen. Det anbefales i rapporten at KUBIS initierer en kvantitativ spørgeskemaundersøgelse, der har til formål at afdække forskernes behov og ønsker på området. Denne kunne være i stil med "Ph.d. studerende informationssøgningsadfærd". Herudover anbefales det, at der som et forsøg etableres et lokale på Det Natur- og Sundhedsvidenskabelige Fakultetsbibliotek, som forskerne kan booke til at have samtaler med Ph.d. studerende og/eller andre studerende i.

*Informationsspecialist, Asger Væring Larsen*



## Analysis of Research Support Services at international Best Practice Institutions

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*By CULIS Knowledge Center for Scholarly Communication*

### **Executive Summary**

The following analysis aims to provide an overview and status of the research support services available to university researchers - with a focus on the services provided by university libraries - as well as to propose a strategy for CULIS with respect to research support of researchers at the University of Copenhagen. The analysis starts by defining the term research support service. This definition is used to categorize the national services and is iterated before moving on to the international institutions. We have described the services at 11 international and 8 national university libraries and identified the services that define the best practice institutions. We have found that research support services are often developing more or less organically, and service contents are moving toward becoming more tool-oriented, i.e. with less focus on the traditional information objects, books, journals, manuscripts. E.g. in scholarly publishing the focus is moving from acquiring, cataloging and local dissemination to facilitating the production and publication of books and journals, to supporting the authors on legal issues and to disseminating globally. Competences related to metadata structuring are potentially of great value to the growing field of data-archiving by researchers. The recommendations to CULIS are to conduct a new quantitative survey of researchers' needs similar to the project "Ph.D. students' information seeking behavior" in order to paint a clearer picture of what the researchers of The University of Copenhagen needs. Assessment could be made of whether the focus on physical student environments should be matched for researchers. It is a general recommendation to formulate a strategy for the area of providing research support services, formulate clear goals for the institution as well as for the individual services, dedicate resources for running services, dedicate resources to developing services, coordinate existing services, provide overview of goals and services (internally and externally), participate in networking and user activities, position university libraries as part of the research infrastructure. When developing new services, it is our recommendation that special focus be put on primary research data and accompanying metadata – dataverses, environments for generating and sharing research content – VREs, dedicated support of individual researchers, research groups and dedicated information for researchers – researcher information hubs.

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## Background

This report presents an analysis of research support services in Denmark and internationally. The analysis was commissioned by Copenhagen University Library and Information Service (CULIS) with the purpose of identifying research support services at international best practice institutions. The aim of the study is to provide an overview and status of the services available to university researchers - with a focus on the services provided by university libraries - as well as to propose a strategy for CULIS with respect to research support of researchers at the University of Copenhagen. The study was performed by the CULIS Knowledge Center for Scholarly Communication.

The report is divided into several sections: Firstly, we describe the method in use, which includes a survey of services at Danish university libraries; that survey leads to an initial identification of relevant service categories and success criteria. These categories and criteria in turn lead to identification of a number of international universities. Secondly, we present an overview of the identified universities and their services. Thirdly, we analyze these universities in order to extract information about trends and best practices which are then discussed and presented along with recommendations in the Conclusions.

Into the Discussion is incorporated the outcome of a Nordic workshop on research support services hosted by CULIS in June 2010. The workshop included participants from the libraries of the universities in Stockholm, Oslo, Helsinki and Copenhagen.

The landscape of research and research libraries is changing. This landscape has been surveyed and described in the 2009 report: *"The Future of Research and The Research Library"* commissioned by DEFF. One conclusion of the report is that a tighter bond between university and library is developing with the library as a more direct and active partner in science (science here meaning research in all subject areas, not restricted to Science, Technology and Medicine (STM)). This development is clear and there is a need for enhanced focus on researchers and research support by the library. It is in this light the following analysis has been created.

## Method

When we initially began enquiring about services to researchers in our library network, it quickly became clear that whereas *Research Support Services* in itself is perhaps a rather novel term, many of the relevant services were of course not new at all. Libraries have always had services and support of individual researchers and research institutions at their very core: Both well described and ad hoc services are provided to researchers by librarians at everything from small institute libraries to large campus libraries. And more over, services span a vast number of types of information objects, systems and resources etc.

Our method is based on iteratively-focused surveys: Following a definition of core concepts and parameters, we perform first a geographically local survey, then iterate our parameters, perform a national survey, which leads to another reiteration of parameters (specifically, service categories). We then identify international institutions based on our definitions and parameters, with relevant success criteria in mind. The last section in this chapter discusses the biases and errors related to our method.

### Definitions

While the term *research* in general can be defined as the search for knowledge or any systematic investigation to establish facts, our use of the word here applies to the more specific concept of research carried out by scholars and academic staff at universities and higher education institutions: i.e. scientific research, which relies on the application of a scientific method.

Then, since the services for academic staff at research institutions span a vast ocean of possibilities, before we can begin an analysis or even start gathering information, we need to definite the core concept of relevant research support services. However, several possible definitions exist. Below we attempt a systematic analysis of definitions with the aim of establishing a working definition for the identification and analysis of services at institutions hosting academic staff performing scholarly research.

It is possible to define a service either in relation to the target group's "resources" or "roles". Here resource is understood primarily as the time available to perform research, while by role we mean the academic in her role as a researcher (as opposed to her role as e.g. a teacher or administrator).

#### *Definitions by resource (time)*

When considering "time" as of the essence, a research supporting service could be defined as one that allows an academic staff member to:

1. spend less time on things that are not research related (e.g. access to ICT tools related to teaching)
2. spend more time, more efficiently on research (e.g. a data hosting service)

In case of Definition 1, a relevant service is then a service that by default does not concern the research workflow. It could for instance be a teaching service. A service falling under Definition 2,

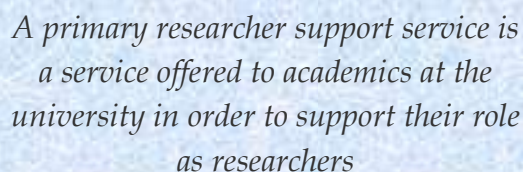
on the other hand, while it does not necessarily concern the research workflow, it may or may not do so. E.g. it is a service that contributes to more efficient research, or it may be seen as to remove time spent on other tasks, such as administration or teaching; i.e. it could also teaching service.

### *Definitions by role*

When focusing on the roles or functions of an academic staff member, services could be defined as:

3. services aimed at the academic's role as a researcher (e.g. booking of a room for PhD meetings)
4. services at the university library that a researcher *can* make use of (e.g. book an information specialist)

Definition 3 we refer to as a primary research service: i.e. it always concerns the research workflow in some manner, and could e.g. be a service regarding publishing or dealing with scientific data. Definition 4 covers the realm of secondary research services: i.e. services that do not *necessarily* concern the research workflow - although they might. These could e.g. be general services, such as "Ask a Librarian".



*A primary researcher support service is a service offered to academics at the university in order to support their role as researchers*

We choose to focus our study on the research role of university academics. Hence, our initial working definition of research support services sets the concept apart from other more general types of academic services, which we consider secondary in this report. We then furthermore define research support services by distinguishing between primary services (definition 3) and secondary services (definition 4):

*"A primary researcher support service is a service offered to academics at the university in order to support their role as researchers."*

As an illustration of the definition cf. Appendix A, where we list the research support services currently available at The University of Copenhagen, divided into primary and secondary services according to the above definition. The services included here are available to academic staff members at the university, provided by The Royal Library, by CULIS (the university library), and by various entities at the University of Copenhagen.

Already the local services listed in Appendix A start providing clues as to types of research support services. However, in order to answer the question of "what a research support service could be", we wish to formulate a set of categories based on an "average" over Danish university libraries.



Such an average will hopefully both alleviate local peculiarities and help put a Danish frame of relevance on the subsequent identification of international services.

### **Services at Danish university libraries**

In order to have a starting point for our search for services at international institutions, we first surveyed the Danish landscape to learn which services Danish university libraries present to their researchers (cf. Appendix B). The survey was conducted through email: We asked the eight university libraries 1) what kind of research support services they provide (according to our definition), 2) what their success criteria are, 3) how they evaluate and meet the criteria, and 4) how they develop the current and new services. In preparing the first question “which services”, we had searched the web pages of the individual university libraries, and provided the result of that search to the library in question. Only a few of our requests to the libraries did not lead to additional information or responses.

It turns out that the typical primary researcher support services at responding Danish libraries are the following:

- Visits to researchers by an information specialist
- Special book acquisition service for researchers
- Researcher as teacher (supervisor) services
- Hosting of electronic journals
- Research registration support or services
- Information about companies and businesses
- Data excerpts and processing
- Information on copyright
- Reference management services
- Software catalogues and support
- Statistical and economic analyses
- Methods and experiment design
- Web forms
- Researcher contacts at the library
- Researcher support web pages
- Subject web pages for researchers

Several universities have more than one of these types of services, and a few of them have all these types of services. Some of the services are distinctively library services, while others are hosted by various university departments or centers.

Secondary services at university libraries in Denmark include:

- Ask the library services
- Suggest a book services
- Remote access to electronic resources

- E-book on demand
- Digitization
- Xeroxing services
- Special services for non-university employees (e.g. hospital staff)
- Subject web pages
- Hardware / ITC.

Although not directly aimed at researchers as such, the supposition at most institutions is that those types of services are frequently used by researchers, as well as e.g. teachers, students and the general public.

### **Service categories**

From the above survey of services, we were able to identify the following ten typical categories of *primary* research services:

1. *Personal services*  
E.g. in office visits from a librarian or subject specialist.
2. *Research administration*  
E.g. regarding grants/funding, strategic advice, applications.
3. *Webpage information*  
Web pages with information for researchers. E.g. on dedicated services
4. *Courses*  
E.g. on research oriented tools.
5. *ITC (software and hardware)*  
E.g. for information management, support thereof
6. *Analyses and bibliometric services*  
E.g. bibliometric services, statistics.
7. *Acquisition services*  
E.g. book ordering, articles.
8. *Publication services*  
E.g. hosting of journals, research evaluation/registration, copyright.
9. *Research workflow services*  
E.g. methods, tools, data management/storage, virtual research environments.
10. *Research outreach*  
E.g. expert databases, publication repository.

Although one may of course choose to divide the primary research support services in other ways, we assume that the above categories are sufficiently broad to capture all relevant services, while at the same time being sufficiently non-overlapping. However, such a categorization can probably never be perfectly exhaustive and independent, and it is obvious that e.g. personal services (1), services on information (3) and/or courses (4) may overlap with several of the other services covered by the remainder of the categories. Therefore, we reiterate these categories in light of survey, in the discussion section towards the end of this report.

## Success criteria

While some institutions have clear success criteria for some of their services, others have not formulated any distinctive goals for their services at all. And while several of the Danish libraries do in fact carry out services of the above types aimed at the researchers at their universities, some of them do not disseminate, register or evaluate these services in any particular manner. However, typically flexibility is considered more important than setting up criteria and performing rigid evaluation. Furthermore, there seems to be a tendency to emphasize service items in current demand by the users.

Overall it is possible to construct the following model that clarifies which type of success criteria are relevant for which type of services (and how they may be measured). We divide the stakeholders into three roles: The researcher (individual, group or institution), the librarian (individual or institution), and the manager (library or university). These three roles are coupled by relations and processes, and can express "success" in terms of e.g. satisfaction, usage, presence, funding, resources, reports or recognition as follows:

- *The researcher*: Success is expressed as satisfaction in surveys, interviews, daily feedback, or evaluation.
- *Measures in the relation between researcher and the library*: Usage of service, either quantitative (number of enquiries by e.g. phone or mails, hits on web system, license usage), by demand (willingness to fund, flexibility), by participation (show up's), or by inclusion of library in tasks.
- *The librarian*: Success is perceived as presence and quality of services, and expressed in terms of sufficient resources, including time (for service, for knowledge sharing and development) and funding of the service (e.g. materials, access).
- *Measures in the relation between the library and the management*: Purchases, stock, area, number of "places", number of hardware, staff, hours available etc.
- *The manager*: Success is expressed as contributions to achieving the institutions goals, through e.g. increased administrator recognition, branding and funding.

Rarely can success criteria and measuring points of the above type be found directly on library web pages. Therefore it was necessary to ask directly for that kind of information at the selected university libraries. Hence, we asked what kind of success criteria applies to the institutions services (cf. Appendix D) and gave the following examples that assigns value to some of the key parameters in the above model:

- Saves time for the researchers
- Request and demand by users
- High usage
- Low cost
- Sufficient funding
- Branding of your institution
- Return on investment

Additionally, it is in the nature of information regarding successes that it may of course also highlight non-successes (failures). Hence, successes, success criteria and evaluation results may be considered "sensitive information" by many institutions. I.e. our findings are naturally biased when it comes to identifying "Best Practice" institutions using information about success.

However, success criteria can be used in a more indirect manner to assess Best Practice. We consider the combination of the following circumstances to be an indicator of success, and they have been used to identify the best practice institutions on our list:

- the sheer number of primary services
- a great variation of primary services
- presence of known resource heavy services
- presence of innovative and new services.

## **Limitations**

As with any research method, there are biases and limitations, and consequently uncertainties on the conclusions reached: Some philosophers of science even argue against the use of methods (e.g. Feyerabend, 1975). However, the analysis and conclusions presented in this report does not pretend to be scientific in any respect. In fact, it is almost a matter of principle that neither the CULIS libraries nor the Knowledge Center for Scholarly Communication performs research in the science sense of the word. Similarly, on the one hand we do not need to employ a scientific method for the present analysis. On the other hand, we find it good practice in any inquiry to use a documented method (cf. the above), and to discuss the limitations of the method that we have used.

The primary bias of our analysis derives from the sample of international institutions (cf. Appendix C), and subsequently the set of services that are indentified at these when using the iteratively found categories and criteria. The sample is composed of a set of ad hoc chosen institutions - based on experience, policy and a broad web survey.

The web survey is of course limited by the fact that it can only reveal services from institutions that advertize them on the Internet. This could be a serious limitation, since we at forehand know that several institutions provide services through their institutions intranets or at websites behind firewalls so that access to information requires logon or a computer with an IP in a specific range (e.g. the university libraries in Singapore and Utrecht). However, since we contacted selected institutions directly, we hope to have captured a large enough set of interesting services.

Another "error" that may manifest itself in our analysis is related to the perception of what constitutes a research service: i.e. the meaning of the word "research" and its interpretation is likely to vary across borders, institutions and cultures. Especially since it does not seem to be strongly conceptualized at the institutions we have indentified. Again, by providing a focusing definition this error may be reduced.

Finally, as mentioned above, information about success, success criteria and evaluation results may be considered sensitive information by some institutions, and hence contributes to uncertainties as to which practices that might be “best”.

## Best Practice institutions

The sample of international potentially Best Practice institutions is listed in Appendix C. These include IARU member universities, Nordic university libraries and other partner university libraries, as well as selected university libraries that have recently received visits from CULIS and The Royal Library. Additionally, the list is supplemented by institutions found through a broad web survey. The libraries were investigated through their websites and by an email survey to relevant employees. The questions of the survey are found in Appendix D.

The following chapter lists the libraries we have chosen to examine and have categorized as potential best practice institutions in accordance with our definitions and success criteria described earlier. The libraries may not be completely comparable to each other in all respects for example in size of university they are servicing, or the traditions according to which they are working. It is noteworthy that some of the services that stand out as unique can be found at the younger institutions.

Each library is described both in overall terms and in terms of which research support services they provide. They have been asked to describe their success criteria – what is a good service – and how they try to meet these criteria. The evaluation process, if and how they evaluate their services is described where possible and the process of developing new services is also described. Finally the extent to which libraries collaborate and with who is described.

### **National University of Singapore**

The National University of Singapore Libraries consists of a group of multi-disciplinary libraries which are a part of the National University of Singapore (NUS)<sup>1</sup>. The university was established in 1905 as a small medical college. Today it consists of 14 faculties and schools. It has approximately 8,000 employees and over 30,000 students. The institutional repository for the university is hosted by the library.

The NUS Libraries comprises seven libraries and their aim is to support both the scholarly pursuits and the practical research activities of NUS staff and students. They support teaching and research for various departments, faculties and their graduate divisions in addition to other administrative/research/service units. The collection encompasses subjects in architecture, building and real estate, the humanities and social sciences, business, law, medicine, dentistry, science, engineering and technology.

Singapore Libraries offers the researchers of the university a number of different services. In the personal services category they offer consultations with an information specialist, as do CULIS, but they also invite new research staff for tea and a tour of the library. On the tour the researchers are introduced to the library's facilities and services. On the library website there is a portal containing forms for purchasing books, ordering multi-media materials and interlibrary loans. Courses in

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<sup>1</sup> <http://www.nus.edu.sg/>

citation analysis, reference databases and reference management tools, like EndNote, are held at the library. The library also does bibliometrical analyses for the university themselves. Workshops are held in collaboration with publishing houses as for example the Emerald Author Workshop. At these workshops the researchers are instructed in how to get their work published in scholarly journals.

Their focus on new staff distinguishes Singapore Libraries from CULIS. Apart from the initial introduction, the library develops special online guides presenting the library and the services it provides – both general and especially for the researchers.

The library has defined many different criteria for a successful service:

- services must save time for the researchers
- positive feed-back: One goal is that 75 % of participants evaluate a course as “good” or better
- a high number of participants at courses
- lower the library expenses and/or
- strengthen or support the library brand as an institution with resources and competencies of a high quality.

The library is interested in being able to measure the “return of investment”, but have not developed a feasible way to do it.

In order to meet these criteria the library is investing in developing the competencies of their staff, including reference management and teaching (e.g. oral presentation).

All services are being evaluated either by statistics (e.g. number of participants, number of downloads etc.), feed-back, and by a special tool or method called PDCA (Plan, Do, Check, Act). The library services are being developed using collected user feed-back, surveys and suggestions from their staff, discussions with the university and the researchers, and by having special attention to the field. They collaborate this way on developing new services with the University of Singapore, but not with other libraries or universities.

### **University of Leicester Library**

The university was founded in 1921 and is a research university based in Leicester, England, with approximately 22.000 registered students. It is an elite university without being elitist, and was named University of the Year 2008-9 by Times Higher Education due to the university’s commitment to high quality, innovation and rigorous academic standards.

The university is organized into four colleges:

- Arts, Humanities and Law
- Medicine, Biological Sciences and Psychology
- Science and Engineering
- Social Science.

The Leicester Library consists of the large David Wilson Library (remodeled 2008) and holds several special collections. The library has 1500 user spaces of all types, 38 km shelving in total, and over 1 million volumes on the shelves.

The library has a policy and collection profile for each subject area, but a joint vision: The University Library is an integral part of the educational process, contributing to excellent levels of teaching and student experience - e.g. by developing students' information skills, engaging with the University's learning and teaching strategy and E-learning strategy.

The library actively encourages scholars to place their research in the open archive: Leicester Research Archive (LRA), an institutional repository containing research outputs from the University of Leicester. The library help the scholars e.g. by checking copyright issues and by actually storing research.

The library also encourages the scholars to self-archive in the LRA in order to ensure long term preservation and in order to make research accessible for other scholars.

Furthermore, the library offers assistance in relation to research assessment, e.g. bibliometric service and information about Journal Impact Factors. The library also partakes in the Research Expert Search Facility for the University of Leicester, a service to identify staff with particular research expertise.

Many of the "researcher-oriented" services have been in place for a long time. I.e. the library collections at University of Leicester include over 14,000 journals and 80 specialist databases. Recommendations for purchase are actively sought from academic staff, i.e. for the Special Collections, Manuscripts, rare books, and personal archives. Particular strengths include English local history and the study of modern literature. By our definition these services are secondary research services.

General services include training in use of specific information resources and services such as bibliographic management software (Endnote and Refworks), Web of Knowledge, 1 to 1 information consultancy sessions by appointment (for advice on availability and use of information resources for a specific need).

More specifically the library offers training for research students in use of Web 2.0 technologies for research purposes: blogs, RSS feeds, etc. Training research students in use of Web 2.0 technologies is a collaborative initiative between the Library and a learning technologies innovation unit in the University. The funding comes from specific UK higher education funding council support for new researchers. It is being developed in collaboration with a University learning technology innovation unit.

Bibliometrical analyses to support research management (a new initiative, and a bibliometrician joined the library staff in January 2010) is a relatively recent development. The initiative for this came from library management – in response to the University's growing need for such a service



as part of managing and targeting its research effort more actively. The role of the bibliometrician is being developed in collaboration with our University Research Support Office.

The institutional repository for research outputs – primarily research papers and theses is hosted by the library. The original impetus to establish an Institutional repository came from Library management. The repository is being developed in collaboration with the Research Support Office – although initially it was regarded as more of a ‘library’ rather than a University level issue.

Criteria for successful services include good customer satisfaction ratings, high use made of information resources and good attendance levels at training workshops/sessions.

Evaluation is done by feedback – both informal and formal. Formal sources of feedback include library user surveys, Library Users’ Forum, university and College (faculty) committee meetings. Feedback also includes usage data (for information resources, repository, for example) and user evaluation of training workshops/sessions, as well as numbers attending training workshops/sessions.

The extent of explicit collaboration with researchers and other organizations or departments varies but has not been specified further.

### **University of Utrecht Library**

Utrecht University Library is a part of Utrecht University. The university was founded in 1636, and the city library of Utrecht became a university library at the same time. Today the library supports seven faculties in the fields of: Humanities; Law, Economics and Governance; Geosciences; Social and Behavioral Sciences; Science; Medicine and Veterinary Medicine. The university has about 7,500 employees and 30,000 students<sup>2</sup>.

The University Library is organized into four main divisions. Public Services are responsible for making the collections available to the public. Technical Library Services division is responsible for an effective and efficient execution of technical library processes. The Igitur Unit supports Utrecht scientists in electronic publishing. Innovation and Development formulates the policy on innovation and is accountable for initiating, testing and managing extensive and complex innovation projects.

The rather limited number of services includes personal visits by information specialists, information on copyright issues on their website and hosting of electronic journals and the institutional repository.

The service which is attracting our attention at University of Utrecht Library is the Virtual Knowledge Centers (VKC’s) that are spaces on the library website for researchers in certain subjects where they can store primary research data and other information concerning a specific

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<sup>2</sup> <http://www.uu.nl/EN/Pages/default.aspx>

research project<sup>3</sup>. They are based on Harvard Dataverse<sup>4</sup>, which is a piece of software developed at the Institute for Quantitative Social Science at Harvard. The objective is to use it for archiving, long-term preservation, cataloging, searching, discussion, statistical calculations and dissemination of data. It is aimed at writers, trainers, journals, research foundations, research centers and others. It is described as a so-called data provenance tool. It works as a web service, so it is not necessary to install software locally. You just have to register as a user on a website, create your own dataverse and you are started (King 2007).

The criteria for successful services at University of Utrecht Library include: high usage, it should save time for the researchers and it make the library a “partner in science”. They attempt to meet these criteria by keeping close personal contact with the researchers, thereby collecting information about needs and demands. This also enables them to inform the researchers about the possibilities and restrictions of the library services.

They evaluate their services by recording user statistics, doing surveys and interviews among users. New services develop by different ways. Ideas derive from management, staff and from the users at the university. Development of new services is done in collaboration with the research community and the IT department of the university.

### **Bournemouth University Library**

The University’s origin dates to the early part of the 20th century with the foundation of the former Bournemouth Municipal College. Its modern history began in the early 1970s with the creation of the Bournemouth College of Technology. Construction of the new buildings on what was the largest farm in Talbot Village, and is now BU’s Talbot Campus, was completed by 1976. The college was later renamed the Dorset Institute of Higher Education. Finally, under the Higher & Further Education Act 1992, it became Bournemouth University.

Bournemouth University has developed a strong reputation for offering a wide range of high quality undergraduate and postgraduate education programs geared to the professions, informed by research and consultancy. The number of students at BU has risen to over 17,000 and the University is amongst the leaders in the UK for graduate employment.

The Sir Michael Cobham Library general services include Educational Development, Learning Support, Additional Learning Needs, Library and Language Centre. It brings together in a coherent way, for both students and staff, services which were previously spread across the campus. 194,000 books; 750 print journal titles; 9000 multi-media items; 50,000 e-books and 65,000 e-journals & report series. 1010 study spaces comprising 587seats. Bournemouth House Library accommodates 54,000 books, 275 journal titles, access to 50,000 e-books and 65,000 e-journals and report series. The total number of study places is 178.

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<sup>3</sup> <http://www.uu.nl/EN/library/VKC/Pages/default.aspx>

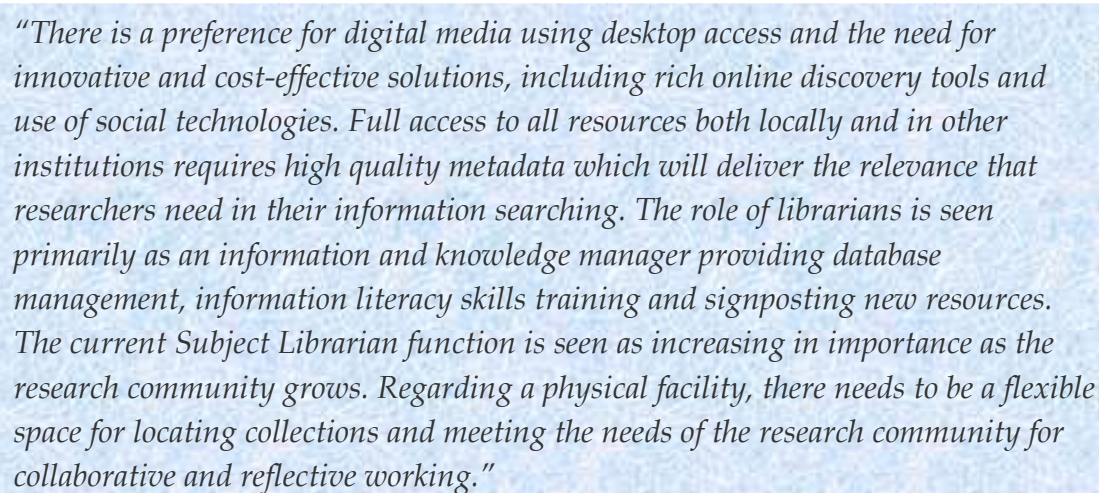
<sup>4</sup> <http://dvn.iq.harvard.edu/dvn/> and <http://thedata.org/guides>

Research support services include personal services, such as 1-on-1 subject advice appointments with Subject Librarian, in the library or in the offices of the academics, as well as a virtual chat service.

Another service falls under the heading of Research administration service: As part of the university's internal research bid review process, the library offers 1-on-1 support of individuals with research bids, and submits library-led research bids.

The library offers some digital information for researchers in the form of dedicated researcher web pages containing guides on many different topics such as a link page with links to different researcher or project finding resources: advanced searching, patents and standards, citation searching, Statistical Data Services, and Critical Evaluation of Resources. They also provide special guides for research students, e.g. information skills, and Endnote.

The report from a study called "The library information needs of the Bournemouth University research community" concludes that:



*"There is a preference for digital media using desktop access and the need for innovative and cost-effective solutions, including rich online discovery tools and use of social technologies. Full access to all resources both locally and in other institutions requires high quality metadata which will deliver the relevance that researchers need in their information searching. The role of librarians is seen primarily as an information and knowledge manager providing database management, information literacy skills training and signposting new resources. The current Subject Librarian function is seen as increasing in importance as the research community grows. Regarding a physical facility, there needs to be a flexible space for locating collections and meeting the needs of the research community for collaborative and reflective working."*

In the VLE (Virtual Learning Environment) there is a dedicated Library tab & 'Staff & Researcher' section offering an "Academic skills community", Research Support Blog and they offer training sessions on research-oriented tools, bibliometrics (Subject Librarian advice on Impact factors, citations, National research assessment exercise), institutional repository, referencing, research assessment exercises etc.

The university has a webpage on Research Support where a host of services are presented<sup>5</sup>. They offer advice on research design, data collection, data analysis and report writing, Evaluation of education projects, Analytical literature reviews, Literature searches, Conference searches, Writing

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<sup>5</sup> [http://www.bournemouth.ac.uk/cap/research/research\\_support.html](http://www.bournemouth.ac.uk/cap/research/research_support.html)

up project results for internal publications and for submission to RAE-acceptable peer refereed journals, Writing bids for research funding, in collaboration with Schools, Partner Institutions and other relevant departments, Research project advice, Data management/storage advice, and submitting to institutional repository is part of BU Publications Policy and Organization of seminars and other activities (e.g. SIGs) promoting pedagogic research. The library offers its own support through the web, linking to the university repository, the library resources, the researcher database, Endnote support and other information e.g. for supervisors<sup>6</sup>.

On the website there is a guide for researchers doing post graduate research at the Bournemouth University about Searching for Information, Subject Advice services, Citing References, Style Guides, and Finding Tools. For this sub-group of researchers there is also Software Support from the Librarians & IT Services.<sup>7</sup>

More general services include a University-wide staff development program. Support for reference management software like EndNote and EndNote Web, and ProCite is available on their website, along with information on how to download and install the software. Access to bibliographic databases, e.g. Web of Science and SCOPUS are available to researchers and students alike so it is not considered a primary research support service.

The university publishes a blog called “Research Support” with news and discussions on subjects relevant to this group of staff.<sup>8</sup>

Services on publication related matters include: Copyright advice, scanning, institutional repository (BURO).

BU’s success criteria include: services must meet institutional objectives, professional service objectives, there must be requests and demand by users, high usage, they must save time for the researchers, be of low cost, receive sufficient funding, must give institutional recognition and not the least national awards (e.g. Outstanding Library Team 2009, and THE Leadership and Management Awards).

How do they meet the criteria? By working smart – evaluations give them pointers as to which practices/services are important, which are no longer required. Furthermore, by defining clear institutional, professional service and individual objectives, and by marketing their services to the relevant people. By information literacy training, negotiation with suppliers, and negotiation with schools for budget allocation.

Evaluation is done by focus groups for staff, researchers & students and by user statistics.

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<sup>6</sup> [http://www.bournemouth.ac.uk/library/researchers/researchers\\_main.html](http://www.bournemouth.ac.uk/library/researchers/researchers_main.html)

<sup>7</sup> [http://www.bournemouth.ac.uk/library/researchers/documents/research\\_lit.pdf](http://www.bournemouth.ac.uk/library/researchers/documents/research_lit.pdf)

<sup>8</sup> <http://bulib4research.blogspot.com/>

Developments of new services are based on evolving needs of researchers so a close communication with that group is essential.

Collaboration is done through research projects with other HEIs, e.g. JISC “Measuring Scholarly Communication Project” and “Professional writing”. Collaboration with suppliers is also resulting in new services like “Research tools & databases – MyiLibrary”, EBSCO (Discovery Tool).

## **University of Oxford**

Bodleian Libraries is the integrated library service of the University of Oxford. Established in 2000, it comprises nearly 40 libraries. There are major research libraries as well as libraries attached to faculties, departments and other institutions of the University. The combined collections of Bodleian Libraries number more than 11 million printed items, in addition to vast quantities of materials in many other formats.

It is the University’s main research library and is the second largest in the UK after the British Library. It has 120 miles of occupied shelving, 29 reading rooms and 2,490 places for readers. Every College has its own library, often consisting of a modern, working library and older collections.

Research support services at Oxford are offered in the form of personal instruction by information specialists, who also participate in the faculty meetings and they are co-located into research projects at the university. There are services that specialize in funding application, but this is primarily a university based service. Services on the web are being developed locally at the different departments and are thus not coordinated. These locally bred services encompass e.g. a “Research Skills Tool Kit” and support on reference management software. The Research Skills Tool Kit is developed to “provide an opportunity to learn about a broad range of resources in one concentrated, time-efficient session, focus on the skills and tools that help streamline academic work, provide a hands-on opportunity to try out some tools, offer key skills needed to progress in future careers, and to give guidance on the range of further training available”<sup>9</sup>.

Tuition is primarily given in reference management and research oriented tools, both as courses and as drop-in workshops. Also, the library is hosting an institutional repository for the publications of the university – Oxford Eprints.

The library is focusing very much on special collections and sees these as one of the library’s most valuable services to researchers. This could be due to the different interpretations of the term research. In our definition special collections could be viewed as a research support service, but as a secondary one. The special collections are not exclusively for scholars and scientists, but are for people who do research and that can mean anything from amateur genealogists to university professors. The special collections are primarily focused on the main research areas of the University of Oxford.

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<sup>9</sup> [http://www.oucs.ox.ac.uk/publicity/oucs-news-hilary-2010.xml.ID=body.1\\_div.8#skillstoolkit](http://www.oucs.ox.ac.uk/publicity/oucs-news-hilary-2010.xml.ID=body.1_div.8#skillstoolkit)

The primary success criterion is that there is a demand for their services. The library picks this information up by surveys and focus group interviews. They have chosen to “market” their library by its available special collections and the expertise of their staff rather than more directly on the services it provides.

In order to achieve its criteria the library staff listens to its patrons, but have also become more aware of informing about their services. These are typically evaluated by questionnaires and other statistics. In spite of regular evaluations, a low score rarely leads to consistent consequences for that particular service. It has a tendency to persist because of tradition and this could be seen as a tendency at many other institutions.

New services are being developed as a result of ideas coming from management, from staff and from patrons. Very often its growth seems “organic” and grows as a result of single persons with a vision or an idea. There is a good co-operation with the university, but no formal co-operation exists with other institutions.

**The research support services of the following libraries have been established by a web-survey. The services that might be offered by these libraries but are “hidden” behind their firewall will not be mentioned.**

### **Stanford University**

Stanford University is home to over 20 libraries, with more than 8 million physical volumes, 34,000 online journals and newspapers, and 800 electronic article databases. Today, there are twenty libraries on campus: five coordinate libraries (Law, Business, Medicine, the Stanford Linear Accelerator Center, and the Hoover Institution) report to their dean or director, while the remainders are organized centrally as the Stanford University Libraries & Academic Information Resources, or SULAIR, reporting to the University Librarian. SULAIR also encompasses other campus functions, including: Academic Computing, Residential Computing, HighWire Press, Stanford University Press, Stanford Professional Publishing Courses, and Stanford University Archives<sup>10</sup>.

The library offers their Academic Computing and Technology Support, which includes Social Science Data and Software (SSDS) is a group within the Stanford University Libraries & Academic Information Resources (SULAIR) that provides services and support to Stanford faculty, staff and students in the acquisition of social science data and the selection and use of quantitative (statistical) and qualitative analysis software. SSDS staff provides these services by consulting, workshops and help documentation.

### **University of California Berkeley**

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<sup>10</sup> [http://library.stanford.edu/about\\_sulair/news\\_and\\_events/brief\\_history.html](http://library.stanford.edu/about_sulair/news_and_events/brief_history.html)

There are three broad categories of libraries on the UC Berkeley campus:

- Units comprising what is referred to as “The Library”
- Units referred to as “Affiliated Libraries”
- Departmental libraries and reading rooms.

The Library consists of Doe Library, Moffitt Library, and the Bancroft Library which houses rare books and western Americana, and 24 subject specialty libraries serving various academic disciplines in the humanities, sciences, and social sciences. The holdings of the University Library system include over 10 million book volumes, 89,750 current serial publications, 415,900 pamphlets, 5 million microform items, 402,650 maps, 109,000 government documents, 61,900 sound recordings, and 29,159 video/DVD titles.

Berkeley has focus on scholarly communication via its Berkeley Research Impact Initiative (BRII) The goal of this new pilot, sponsored by the Vice Chancellor for Research and the University Librarian, is to advance the impact of UC Berkeley research by subsidizing Berkeley faculty members, post-docs, and graduate students who want to make their journal articles free to all readers immediately upon publication (BRII website). This is supplemented by information on publication, author rights and Open Access in general.

### **Charles Darwin University**

Charles Darwin University (CDU) is founded on 50 years of delivering tertiary education in the Northern Territory (NT), Australia. CDU is the NT’s largest tertiary institution, with campuses in the Darwin suburb of Casuarina, Palmerston, Alice Springs, Katherine and Nhulunbuy, and training centers in Jabiru, Tennant Creek and Yulara.

CDU was formed in 2003 through a merger between the Northern Territory University, Alice Springs-based Centralian College, NT Rural College in Katherine, and the Menzies School of Health Research. Today, CDU offers a fresh approach to education, training, research and knowledge application. The University aspires to be internationally recognized as a centre for excellence in Indigenous and cross-cultural knowledge, tropical knowledge and desert knowledge.<sup>11</sup>

The library and information services provided by Library and Information Access are integral to teaching, learning and research activities of the university. eSpace is Charles Darwin University’s open access repository of publications and research, and eReserve a service that allows online access to high demand course reading materials, special collections etc.

This university library organizes workshops especially for the researchers on: advanced information skills, finding theses, setting up alerts, specialist workshops for research students and staff, and tracking research. They also offer MyResearch, a tool which is providing the

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<sup>11</sup> <http://www.cdu.edu.au/library/about/about.html>

postgraduate research students with an overview of the research process with all its steps, effective information searching, and advice from fellow students and supervisors.

“[...] continue to promote Library services, especially the research consultancy service and online tutorials, to the research community”

They evaluated the research support services in 2008 with a large survey. The conclusion was that there was a demand for more ‘e-Journals’ and ‘workshops and training’ – half the respondents did not know about the library’s research consultation service. The report recommended that they “[...] continue to promote Library services, especially the research consultancy service and online tutorials, to the research community”.

### **University of Oregon**

The UO Libraries is comprised of the Knight Library and six branch libraries<sup>12</sup>, and offer a wide range of collections and resources to support campus instruction, research, and service, as well as to respond to the needs of scholars by providing access to recorded information and information services. The Knight Library is the largest library on campus, housing the Library's collections of materials in the humanities, social sciences, music, and business, as well as the library's special collections, government documents, microforms, and maps.

The library offers research and publishing support to faculty at the university. This comprises Open Access initiatives at the UO, including funding support for UO authors publishing in Open Access journals, research assistance (subject librarian works with departmental faculty to understand and support the research and information needs of the academic unit, support instruction, and provide referrals to the Libraries' services), notifications via email alerts when new journal articles and books are published in their areas of interest, author rights, copyright information, bibliometric information (impact factors etc.), special scanning services for publication and research, assistance with digital publishing and research tools (e.g. managing research data<sup>13</sup>), provision of anti-plagiarism software, and information about OA publishing and self-archiving.

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<sup>12</sup> <http://libweb.uoregon.edu/general/about/libcol.html>

<sup>13</sup> <http://libweb.uoregon.edu/faculty/datamanagement.html>



## Harvard University

Harvard University is a private modern research university located in Cambridge, Massachusetts. Established 1636, it is the oldest institution of higher learning in the US. The university currently comprises ten separate academic units and the Radcliffe Institute for Advanced Study, which fosters transformative works in the arts, humanities, sciences, and social sciences. Harvard has at a total 20,000 students, and is consistently ranked at or near the top as a leading academic institution in the world. The Harvard University Library System is the largest academic library in the world, and includes more than 16 million volumes.

The University Library operates six strategic, university-wide programs:

- The Harvard Depository
- The Harvard University archives
- The Office for Information Systems
- The Open Collections Program
- The Weissmann Preservation Center
- The Office for Scholarly Communication.

With the Office for Scholarly Communication (OSC), the University takes more ownership of its scholarly communications, by capturing and sharing the knowledge created by the faculty and broader research community at Harvard. The policy is opt-out, rather than opt-in, to maximize participation and move faculty towards better publishing choices and more rights retention. OSC works along both publisher-facing and faculty-facing lines toward the goal of expanding access to the University's scholarship. One focus is on engaging the publishing community in practical ways to evolve copyright sharing and business practices, to secure the rights of Harvard faculty to make their research publications openly accessible.

Harvard's DASH repository (Digital Access to Scholarship at Harvard) is the core of the OSC's mission, and was released as a public beta site 2009. DASH not only serves as a university-wide repository for Harvard-authored scholarship, it also intends to serve as a digital home for a wide and growing array of other scholarly content produced at the University. DASH will eventually have collection spaces for each of the ten schools at Harvard, and non-faculty researchers and students (with faculty sponsorship) are already afforded deposit privileges as well. The repository will eventually contain numerous books and book chapters, working papers, technical reports, dissertations, data sets, etc.

The Harvard Open-Access Publishing Equity (HOPE) provides funds for the reimbursement of reasonable article processing fees for articles authored or co-authored by Harvard researchers published in eligible open-access journals for which no alternative funding is available.

Harvard also hosts Harvard Dataverse (cf. also Utrecht University), which is a piece of software developed at Institute for Quantitative Social Science at the university.

Gary King of Harvard University has on his web page his own dataverse, where visitors can see the underlying data for his projects or studies that he has chosen to share. You can see metadata on them, download them, quote them in your own publications and comment on the data sets to the benefit of others. There are several levels of sharing, so datasets can be fully or partially shared with your colleagues or others. Since data sharing is an area that is growing in focus from both research foundations and journals, tools that make this job easier are very interesting. This tool is simple to use, both for contributors and users, and it complies with OAI standard and Dublin Core metadata standard.

240 dataverses, representing 36,487 studies has been created so far. They contain collectively 643,304 files. Among those actively using the system are: Harvard University, the University of California (Berkeley and San Diego), Princeton University, University of Zurich, MIT and University of Chicago.

They have developed a number of guides that tell how to use the system – both for the uploading and downloading user: In order to use the system you have to comply with a set of conditions: that there are no sensitive personal information, that you have the right to publish data, that viruses and other malicious software is not included, etc.

One of many interesting projects on the list is this: Natural Disasters and the Risk of Violent Civil Conflict from the University of North Texas. Here you can see the extensive underlying data for this study. You select the dataset you want to download and created as a zip file just to open or save.

There is also an open archive, where you can put your data, without creating your own dataverse: Murray Research Archive. The collection includes 125 terabytes of data in the form of written data and audio files in 10 different research areas. The system seems easy and intuitive to use and as a relatively safe place to store and share research data.

Merce Crosas at Harvard University has prepared a presentation of the system that explains the background and how it works<sup>14</sup>.

### **University of California Los Angeles, UCLA**

The UCLA Library is a campus-wide network of libraries serving programs of study and research in many fields. In addition to its extensive and varied print collections, the Library provides access to a growing collection of electronic resources and collaborates with UCLA faculty and staff on a variety of digital projects. There are 729 publications in this collection, published between 1970 and 2010.

The library has in total a collection over eight million books and 70,000 serials. The UCLA Library System is spread over 12 libraries, 12 other archives, reading rooms, research centers and the

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<sup>14</sup> [http://isites.harvard.edu/fs/docs/icb.topic457783.files/DVN\\_talk.pdf](http://isites.harvard.edu/fs/docs/icb.topic457783.files/DVN_talk.pdf)

Southern Regional Library Facility, which serves as a remote storage facility for southern UC campuses. It is among the top 15 largest library systems in the United States<sup>15</sup>.

Our survey of the UCLA library website showed that the library offers information about “developments in scholarly communications<sup>16</sup>, including those affecting authors’ rights, the use of copyrighted materials in research and instruction, and open-access initiatives. Since 2004 the Library has had an active scholarly communication steering committee, whose goal is to help scholars make their work more visible and usable and which conducts programs focused on the unique needs of researchers, scholars, instructors, and students. In addition, the committee assists faculty with copyright questions and use of UC’s eScholarship.”

The eScholarship is a technical platform that enables the researchers to publish their work in journals, books, working papers, conference proceedings and seminar/paper series. This is a service that resembles the OJS project of The Royal Library of Copenhagen.

Apart from this they also publish their own blogs, where a number of libraries under the UCLA community can post news etc. The blog: “Managing your intellectual property” holds special interest for the researchers<sup>17</sup>.

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<sup>15</sup> [http://en.wikipedia.org/wiki/Ucla\\_library](http://en.wikipedia.org/wiki/Ucla_library)

<sup>16</sup> <http://www.library.ucla.edu/service/12774.cfm>

<sup>17</sup> <http://blogs.library.ucla.edu/ipmanagement/>

## Analysis

In this section we analyze best practices, based on the 11 institutions presented above. Firstly, we identify services that are common among the 11 international and 8 national institutions. These types of services we consider State of the Art or “standard services”. Secondly, we identify services that stand out from the average, i.e. services that are uncommon among the sampled institutions. Thirdly, we discuss the matching of several criteria to the outstanding services, and finally point towards some best practices with respect to research support services.

We group both State of the Art and Best Practices according to the ten categories of primary research services that we derived earlier.

### State of the Art

From the answers to the questions (cf. Appendix D) it is clear that there are some State of the Art services that most large research university libraries provide:

1. *Personal services*
  - Researcher visiting information specialist
3. *Webpage information*
  - Special researcher information on web pages
4. *Courses*
  - Courses and outreach regarding reference management tools
5. *ITC (software and hardware)*
  - Reference management software information and support
6. *Analyses and bibliometric services*
  - Research registration and bibliometry
7. *Acquisition services*
  - Book and article ordering, but generally not as a primary service
8. *Publication services*
  - Copyright information, Open Access information
10. *Research outreach*
  - Institutional repository

Thus, in general the following services are present to everyone performing research at a State of the Art institution: Researcher visiting information specialists, special researcher information on web pages, research registration and simple bibliometry, institutional repositories with full texts, and support for reference management tools. Core services also include subject web pages and acquisition services for researchers, however typically only book and article delivery systems, e.g. through ILL, but not services acquiring research data or books for the researchers private use.

Several university libraries host publishing platforms e.g. based on Open Journals System, but it is still far from being a common service. Similarly, many libraries post copyright and Open Access information on web pages, but do not give personal advice on specific author related problems.

Typically, most State of the Art university libraries see their services for researchers as emanating from their traditional collections, i.e. stocks of books and journals – print or online – accessed and disseminated through their OPACs and web pages. I.e. the main asset is considered to be collections, buildings and ITC, rather than e.g. information management competencies, organization and people.

## **Services that stand out**

We identified uncommon services in all categories, except Category 6: “Analyses and bibliometric services”, where we did not find any services excelling beyond standard in our survey. Hence, we consider the outstanding institutions according to these categories to be:

### *1. Personal services [cf. also personal services in several other categories]*

- Singapore: Consultations with an information specialist includes tea invitations to new research staff and a tour of the library.

Personal services is a category that naturally overlaps with other service categories, e.g. personal support and supervision regarding reference manager tools, ITC in general, publishing etc. In the case of this category we especially note the expanded personal service that the National University of Singapore provides to newly employed researchers: In addition to the State of the Art invitation to meet an information specialist, researchers are also welcomed by the library in a more holistic and social sense – as a member of their new family.

### *2. Research administration*

- Bournemouth: 1-on-1 support of individuals, and submits library-led research bids.

While it is in general uncommon that libraries are directly involved in researcher’s administrative tasks, such as applying for funding, performing reviews of research proposals etc. this is a rather common situation for other university departments. In this respect, the Bournemouth University Library stands out, since it as a part of the university’s internal research bid review process, offers 1-on-1 support of individuals, and submits library-led research bids.

### *3. Webpage information*

- Bournemouth: Dedicated library researcher web pages containing guides on many different topics such as a link page with links to different researcher or project finding resources: advanced searching, patents and standards, citation searching, Statistical Data Services, and Critical Evaluation of Resources. Includes special guides for research students
- Bournemouth: University webpage on Research Support where a host of services are presented, plus advice on research design, data collection, data analysis and report writing, writing up project results for internal publications and for submission to RAE-acceptable peer refereed journals, writing bids for research funding, in collaboration with Schools, Partner Institutions and other relevant departments, Research project

advice, Data management/storage advice, and submitting to institutional repository is part of BU Publications Policy

Most university libraries post web page information relevant to researchers, and many have created web pages that are aimed directly at researchers. In fact, it is common to collect research services resources on a special web page or set of web pages. In this category Bournemouth University excel though the sheer number of services and the spread in topics that are presented to researchers through web pages at both the university and library websites.

#### 4. *Courses [and teaching]*

- Singapore: Workshops in collaboration with publishing houses as for example the Emerald Author Workshop
- Leicester: Training for research students in use of Web 2.0 technologies for research purposes
- Darwin: Workshops for researchers on advanced information skills, finding theses, setting up alerts, specialist workshops for research students and staff, and tracking research
- Oxford: The Research Skills Tool Kit

Like Personal Services, Courses is a category that relates to other service categories, e.g. ITC, especially reference management tools. However, four university libraries are presenting researchers with teaching offers that support them beyond the standard. One such example is University of Leicester Library, which have focused strongly on training for research students in the use of Web 2.0 technologies for research purposes.

#### 5. *ITC (software and hardware)*

- Bournemouth: Software Support from the Librarians & IT Services.

ITC can be many things, reference tools, research tools for gathering, treating, analyzing, visualizing or archiving research information – being it literature, physical or electronic research data – tools that can either be software, programs, recipes or hardware. It is uncommon that libraries deal with anything else beside reference management software. And some tools are not even supported by other university departments. Bournemouth University Library is an example of an institution that offers software support from the librarians.

#### 7. *Acquisition services*

- Stanford: Social Science Data and Software group (SSDS).

Acquisition services for researchers are at the heart of many university libraries. Those services, however typically only deal for literature delivery systems, but at Stanford University, the Stanford University Libraries & Academic Information Resources (SULAIR) also supports faculty, staff and students in the acquisition of social science data and the selection and use of quantitative (statistical) and qualitative analysis software, through Social Science Data and Software group (SSDS).

## 8. *Publication services*

- Oregon: Publishing support to faculty includes funding support for authors publishing in Open Access journals, research assistance, special scanning services for publication and research, assistance with digital publishing and research tools (e.g. managing research data), provision of anti-plagiarism software
- Harvard: HOPE provides funds for the reimbursement of reasonable article processing fees for articles authored or co-authored by Harvard researchers published in eligible OA journals for which no alternative funding is available
- UCLA: eScholarship is a technical platform that enables the researchers to publish their work in journals, books, working papers, conference proceedings and seminar/paper series.
- Utrecht: The Igitur Unit
- Berkeley: Berkeley Research Impact Initiative to advance the impact of research by subsidizing faculty members, post-docs, and graduate students who want to make their journal articles free to all readers immediately upon publication.

As mentioned, several university libraries host publishing platforms and provide this as a service – but not only to their own researchers – and often with a charge. However, it is still not a State of the Art library service. Standing out in this respect is Igitur at University of Utrecht Library. One could also mention HighWire Press at Stanford, but we find that this is set up less as a service and more like an actual (university) publisher. Regarding publishing support, author's rights and responsibilities, it is common that libraries supply some information on copyright and plagiarism, as well as on Open Access, both Green and Gold. Green Open Access is often supported through institutional repositories, but seldom do institutions also contribute to Golden Open Access publishing. Examples are University of Oregon, Harvard University and University of California, Berkeley.

## 9. *Research workflow services*

- Utrecht: Virtual Knowledge Centers and Utrech Dataverse.
- Oxford: Information specialists participate in the faculty meetings and they are co-located into research projects at the university
- Darwin: MyResearch tool for postgraduate research students giving an overview of the research process with all its steps, effective information searching, and advice from fellow students and supervisors
- Harvard: Harvard Dataverse (cf. also Utrecht).

Research support services that evolve around the actual research workflow are rare. Typically services that are relevant to the workflow pertain only to the very initial or literature searching and document phases or research, or to research output phases, e.g. publishing. However, many if not most types of research deal with data or information of other types besides literature. That information could e.g. be research data objects (primary or partly reduced), or information created or exchanged in social contexts. Prime examples of research workflow services are University of Utrecht Libraries Virtual Knowledge Centers and Utrech Dataverse, which is based on Harvard University's Dataverse developed at the Institute for Quantitative Social Science.

Examples of networking and participation in the social aspects of the research workflow can be found at University of Oxford and Charles Darwin University.

#### *10. Research outreach*

- Leicester: Help to scholars when self-archiving e.g. by checking copyright issues and by actually storing research
- Harvard: DASH not only serves as a university-wide repository for scholarship, it also intends to serve as a digital home for a wide and growing array of other scholarly content produced at the University. DASH will eventually have collection spaces for each of the ten schools, and for non-faculty researchers.

Research outreach through institutional repositories and expert databases are common. However, most university libraries focus on metadata of (published) local research publications and corresponding full texts. Here, Harvard University's DASH is an example of a repository that is meant to hold other types of scholarly content. University of Leicester Library is an example of a library that provides personal assistance to research outreach, by e.g. checking rights when archiving research material.

#### **Best Practices**

This report does not wish to rank institutions. Nor can we decide whether the uncommon services presented in the previous section are, or will be great successes. Internationally several ranking systems exist, and our information on success of particular services is too poor to conclude anything in that respect. In this section we shall then simply point toward some best practices with respect to research support services.

When it comes to the issue of evaluation what we can say, is that the most remarkable best practice institutions are:

- National University of Singapore with their method of Plan, Do, Check, Act (PDCA)
- University of Leicester Library evaluated by the THE Award University of the Year 2008-9
- Bournemouth University Library evaluated by the THE Leadership and Management for "Outstanding Library Team" 2009.

However, with respect to spending what we believe must be a considerable amount of resources on developing new services, it is clear that the following institutions can be considered best practices:

- Harvard University with services such as HOPE, DASH and Harvard Dataverse
- University of Utrecht Library with services such as Igitur, Virtual Knowledge Centers and Dataverse.

Other noticeable services at best practice institutions are:



- University of California Los Angeles, especially eScholarship
- Charles Darwin University, especially MyResearch
- University of Oxford, especially The Research Skills Tool Kit
- Stanford University, especially the services of SSDS.

The services mentioned here all seems worthy of additional attention, and should be studied by university libraries that which to develop best practice research support for their patrons.

### **Success Criteria and how to meet them**

The most common success criteria are:

- that the service must save time for the researcher
- that the service helps brand the library and
- that it has a high usage

The way to meet the criteria could be to raise the competence level for the employees at the library as in the case of Singapore. Also mentioned is to create clear objectives that the services must meet and this naturally involves evaluating the services and making use of the results. These measures are mentioned at most institutions.

### **Evaluation**

Evaluating the services is carried out at all best practice institutions to varying extent. Ways to do this is by surveys, interviews, and usage statistics. To which extent the evaluations have consequences for the services is not clear, but it is a feeling that some services are not influenced a lot as a result of a poor score in the evaluation, but is continued because of tradition or because the service runs at a low cost.

### **Developing new services**

At all best practice institutions new services are being developed, but there is great variation in the methods with which it happens. There is generally two ways for a new service to develop: through ideas from the management and from patrons and/or staff. You could call it top-down and bottom-up development. Bottom-up is the most wide-spread method where ideas are being introduced through feed-back from users and library staff (Singapore, Utrecht, Oxford, and Bournemouth). In this case the service might be introduced at a local faculty library and there is a risk of it not spreading to other libraries that also could benefit from it. It is also common though for ideas to come from library management. It is probably through management interaction with

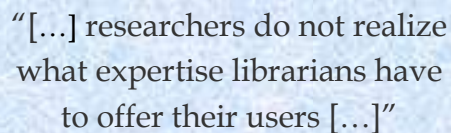
other libraries that ideas can spread across institutions and borders. For ideas and demands from researchers to contribute to new services being developed, communication with the research environment is crucial and this is mentioned by most investigated institutions as an important tool.

## **Collaboration**

Do the libraries collaborate with other libraries, universities or organizations in the development of research support services? Yes and no. Out of five libraries that answered this question, four mentioned collaboration with their “own” university, one included other universities and one (Bournemouth) mentioned other institutions of higher education, JISC, and suppliers. One other library can be said to collaborate with suppliers, namely Singapore, as they have workshops with publishers about how to publish scholarly material. The conclusion is that the libraries are good at catching ideas from their patrons, staff and management, to develop new services or to improve existing ones, but there is only little exchange of ideas between libraries.

## Discussion

From our study of the 11 international and 8 national institutions the trend seems clear: Research support services are developing more or less organically, and service contents are moving toward becoming more tool-oriented, i.e. with less focus on the traditional information objects; books, journals, manuscripts. Take for example the field of scholarly publishing: The libraries focus is moving from acquiring, cataloging and local dissemination – in their OPAC and on web pages – of books and journals, to instead facilitating the production and publication of books and journals, to supporting the authors on legal issues and to disseminating globally. Another example is primary research data, which is at the core of science: Here libraries have not played any particular role in the past – except as a concept used by researchers for their home made archival systems. However, the data deluge has made it clear to libraries that e.g. their competences related to metadata structuring is potentially of great value to this growing field as well.



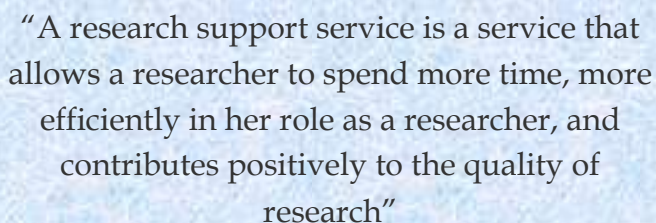
“[...] researchers do not realize what expertise librarians have to offer their users [...]”

This point has been highlighted in the recent OCLC report: “A Slice of Research Life” (Kroll & Forsman 2010), where it is stated that the researchers are struggling “... unsuccessfully with storage and management of a burgeoning volume of documents and data sets...” The report looks at a number of areas that are issues for researchers when it comes to conducting research. Concerning data it concludes further: “No one has control over nor plans for managing the storage, maintenance, and retrieval of documents and data sets over time”. It also concludes that: “the researchers do not realize what expertise librarians have to offer their users, are uninformed about services offered, and have little idea what the library might do in the future”.

Many university libraries do generally have relevant services available to the researchers, and the selection is expanding. But apparently there is an unmet need when e.g. primary data are concerned. It changes the requirements of the skills of the librarians and while these are used in different ways, they are still based on core librarian competencies of acquiring, cataloging, archiving, disseminating etc. – but of a much wider host of information objects. Hence, new tools and supplementary knowledge is required to utilize the libraries competences in this new information world. But it is also clear that as libraries develop new services they need to market

their services better. It is likely that a similar situation exists in the cases of teacher and student support services.

In light of the above analysis of Best Practice and State of the Art services, it seems fitting to finally reiterate our definition of research support services as follows:



“A research support service is a service that allows a researcher to spend more time, more efficiently in her role as a researcher, and contributes positively to the quality of research”

I.e. we have augmented our working definition by a value statement: That research support services should not only accommodate the individual researcher, but also lead to even better research. Thus we have taken into account a socio-economic viewpoint of the research institution, as well as the personal goal of the researcher. Likewise, the relevant service categories can be reiterated, by merging the ten categories into the following five:

- A. *Research administration services*
- B. *Information for researchers*
- C. *Support of software and hardware tools for research*
- D. *Research publication and outreach services*
- E. *Research workflow services (including acquisition of data)*

We believe that these are the relevant categories to consider, when university libraries wish to develop new research support services: They contain the essence of the Definition and cover the range of current Best Practices.

The library developing new services will find itself in the situation that a service is provided to the researchers by the university already. In this case close cooperation and coordination with the university is essential. The organizational structure between The Royal Library and The University of Copenhagen is complex. It includes faculty libraries, half of which is run by the library, half by the university. Moreover a number of smaller university run institute libraries exist and these have a close contact with the researchers (and students) perhaps the closest. Close cooperation with these libraries in developing and maintaining services directed towards the researchers is a clear advantage.

## Recommendations

But what, then, makes a relevant successful service that falls within these aforementioned categories? On the one hand, for librarians a knowledge based service makes you feel professional and sure of purpose. However, it is generally recognized that it is also important for the libraries to be innovative, creative and simply brave. From the point of view of the researcher, on the other hand, a good service is a service that you assign value to; i.e. it is something that you would rather not do without, because it is important for achieving your research goals. Additionally, if a service is easy to access and handle intuitively – e.g. does not involve a steep learning curve before use – it may also be considered “smart”, but smartness is probably secondary to value when push comes to shove: After all, a smart but useless service is of less value than a troublesome, but necessary one.

Considering the State of the Art and Best Practice services identified in the analysis, we can go a little further and highlight some specific services that in our view should be the developing basis of university libraries. These are the services suggested by the participants at the **Nordic workshop on research support services**:

- A. Research administration services
  - A convenient location to conduct supervisor/student meetings with access to whiteboard, projector etc. Bookable by both researchers and PhD or MSc students.
- B. Information for researchers
  - Teach/give tuition on information literacy
  - Information Searches for a fee
- C. Support of software and hardware tools for research
  - A Toolbox site, an internet site with access to specialized programs for drawing, statistics, etc. Could be restricted to on-site or downloadable versions depending on licensing.
- D. Research publication and outreach services
  - Publication services - advice and support regarding ways of publication, parallel publication, Open Access, publishing licenses, OJS and practical matters
  - Bibliometry - information and analyses to institutions and researchers (not just to the top)
  - Pre-peer review service – researchers at the university have the possibility of sending in manuscripts to the library to be peer reviewed. The library serves as administrator sending out the manuscript for review by researchers at the university. This service will benefit from collaboration with other libraries providing the same service. The researcher would pay a nominal fee for the peer review, which could partly go towards a golden OA fund or towards a cause
- E. Research workflow services (including acquisition of data)
  - At some institutions researchers are – for various reasons – not able to easily acquire or buy books for themselves, at a reasonable price; in those cases that is an obvious task for libraries. The library can offer researchers to buy books via the library acquisition system, thereby cutting the administration-price of the book, which in some institutions can be extremely high

- The library should provide access to relevant scholarly information, if not able to provide by institution, then by cheap inter-library-loans
- A convenient place/environment/location for researchers to meet other researchers, not necessarily in their own field (e.g. a science café), with cross-faculty lectures, a place reserved for researchers/teachers only (no students).
- Dedicated researcher lounges, where employees of the University of Copenhagen (i.e. no students allowed) can sit in peace, reading, working, discussing etc. Preferably kept low key with armchairs, desks and tables and no need to book the room in advance. Preferably one lounge at each library branch so as to place these in convenient walking distance from the researcher's office.
- Library Meeting Point. An option for researchers to meet the library in a less formal manner, perhaps once a month to share information. One could have a different theme each time. The purpose of which would be increased communication between library and researchers
- Virtual Research Environments and Dataverses

Are there any limits to the research services that libraries should provide? This question was posed at the **Nordic workshop** and the conclusions made were:

- The services should not include actually doing the research (i.e. the librarians name may be found in the acknowledgements section of a paper, but not among the authors). The rationale being that the library's primary role is gathering, systemizing, archiving, and distributing information, so the research role of the library should be limited to at most a collaborative role.
- The library must maintain clear lines between the different services: University, management, IT-unit and library. The library provided service should not be in direct competition with e.g. the university services).
- The library should be aware of its brand, which should include that of a provider of reliable information. It should therefore provide reliable information and perhaps not be a publisher.
- The library should facilitate Open Access publishing, since this is filling a gap of dissemination. This could be done through providing a technical platform for this purpose. It is in good conjecture with the purpose of a university library: to provide access to scholarly information and help it patrons find it.

How are we to gain knowledge of researcher demands? Suggestions from the workshop included:

- Be a researcher (i.e. employ people with research experience) or at least being able to think like one.
- Ask a researcher (i.e. conduct surveys, focus groups, direct contact).
- By continually evaluating.

### *Recommendations for university libraries in general:*

Overall organizational recommendations regarding research support services:

- Formulate a strategy for the area
- Formulate clear goals for the institution as well as individual services
- Dedicate resources for running services;
- Dedicate resources to developing services
- Coordinate existing services
- Provide overview of goals and services (internally and externally)
- Provide knowledge of the needs of the researchers
- Participate in networking and user activities
- Position university libraries as research infrastructure.

A consequence of formulating clear goals for the institution and the individual services is that evaluations take place and that the services is subjected to scrutiny if these evaluations yield a poor result.

Specific focus areas when developing new services:

- Primary research data and accompanying metadata - dataverses
- Environments for generating and sharing research content – VREs
- Dedicated support of individual researchers and research groups
- Dedicated information for researchers – researcher information hubs.

These are areas that in our estimation holds potential for establishing new services and that seems to be in demand.

### *Recommendations for CULIS:*

CULIS could be seen as one the best practice institutions on our list, as we provide many of the services reported on here. But areas in need of development could be pointed out as well. Firstly a new quantitative survey of researchers' needs similar to the project "Ph.D. students' information seeking behavior" could be carried out to paint a clearer picture of what the researchers of The University of Copenhagen needs. Ask the researchers themselves. That analysis could be based on a sample of 3-4 similar international universities (similar sizes, student / researcher populations, and topics / faculties). The survey should differentiate between different subject areas, traditions and research patterns (incl. publication patterns, bibliometric measures etc.). It should also differentiate between different researcher roles (PhD, postdocs, YVRs/fellows, research assistants, associate and full professors, emerita). The aim could be to answer the questions: "What are the overall demands, interests, needs and trends? What are the success criteria for a support service from the researchers' perspective?" Assessment could be made of the focus on e.g. if physical student environments should be matched for researchers. Some attention has been directed towards making physical space available for the students; A space for reading and working and

especially working together. This has been mentioned many times by the students as a specific need for them. Maybe there is a need among the researchers to be able to book a room at the library for a meeting with a PhD-student, or with 3-5 students (Suggestion A in the above list). A room with more space than a cramped office and on “neutral ground” could be attractive for both researcher and student to meet in. An experiment of this nature could be made at the Faculty Library of Natural and Health Sciences, as it is our experience that meetings of this kind takes place here, but in the general working area which would become too noisy for this kind of activity and not private enough. An increase in researcher visits to the library would also generate an increased awareness of the other services that the library provides. It is our feeling that this kind of possibility would be used by the researchers and it would in turn generate increased focus on the library as an institution that can assist in their work on other issues, than to provide access to literature. Put short: It could facilitate an increase in the component of high value when it comes to developing new services or improving existing ones, namely communication with the researchers.



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## Appendices

### Appendix A: Research support services for researchers at the University of Copenhagen

#### *Copenhagen University Library and Information Service (CULIS)*

- Receive a visit from an information-specialist
  - Target group: Newly employed researchers or PhD students at The University of Copenhagen (VIPs (in Danish) employed for more than three months).
  - Content: An individual consultation at the researcher's office. The aim is to optimize IT-facilities in order for the researcher to be able to utilize the resources offered by the faculty libraries.
  - Involved: CULIS – Natural and Health Sciences, CULIS – Social Sciences, and CULIS – Humanities.
- CULIS Bibliometrical Service
  - Target group: Researchers, groups of researchers, administrative staff within the field of research at The University of Copenhagen.
  - Content: Responds to bibliometrical requirements, references, and bibliometrical analyses.
  - Involved: Knowledge Centre for Scholarly Communication and all departments of CULIS.
- Service for ordering books, especially for researchers (not yet started, CULIS annual plan 2010:3.0-2)
  - Target group: Individual researchers employed at The University of Copenhagen.
  - Content: The ordering and accessing of books qua the CULIS supply system.
  - Involved: CULIS – Department for Accession.
- Research – and Tutorial service (web)
  - Target group: Researchers and teaching staff at The University of Copenhagen, Faculty of Social Science.
  - Content: Collecting relevant services for a homepage.
  - Involved: CULIS – Social Science.
- Tidsskrift.dk (Open Journal System)
  - Target group: Researchers at and publishers connected to The University of Copenhagen.
  - Content: Platform for publishing.
  - Involved: Royal Library (CULIS/Royal Library, National Library, Digital Infrastructure and Service, CULIS - Knowledge Center for Scholarly Communication.
- Registration of Research and CURIS
  - Target group: Researchers at The University of Copenhagen.
  - Content: Registration of research at the department libraries and support.
  - Involved: CULIS – The University of Copenhagen.

## ***The University of Copenhagen***

- **The Faculty of Humanities – Service for Researchers**
  - Target group: Researchers at the Faculty of Humanities as well as cooperating researchers, employed at other institutions.
  - Content: The service provides counseling of researchers in regard to applications for extern funding, including diction and style as well as establishing budgets. Furthermore, counseling is offered in regard to creating networks and associations in the trans-institutional as well as in the European level. Finally, the service also offers guides in CURIS and in publishing.
  - Involved: The Faculty of Humanities.
- **Research and Innovation**
  - Target group: Researchers at The University of Copenhagen.
  - Content: Supporting the increasing cooperation with the business community, public partners and the university, by concentrating expertise in the widest sense about this field of cooperation, including patenting, agreements on co-operations, as well as extern funding, especially within EU.
  - Involved: The department for Research and Innovation at The University of Copenhagen.
- **The Faculty of Law - Service for Researchers**
  - Target group: Researchers at the Faculty of Law.
  - Content: Options for means of funding.
  - Involved: Researchers at the Faculty of Law.
- **The Faculty of Life Sciences , Research and Innovation**
  - Target group: Researchers at Life Sciences
  - Content: The service provides administrative procedures concerning strategies and framework for research, including extern funding and the Faculty's co-operation with other universities and research institutions.
  - Involved: The Office of Research and Innovation (FIK, LIFE).
- **The Faculty of Science, Research and Innovation**
  - Target group: Researchers at the Faculty of Science.
  - Content: The service offers assistance to researchers in regard to purchase extern funding.
  - Involved: The Faculty of Science.
- **The Faculty of Theology, Service for Researchers**
  - Target group: Researchers at the Faculty of Theology.
  - Content: In regard to extern funding, the service provides administrative assistance, the establishing of budgets as well as accounting - and reporting assistance.
  - Involved: The Faculty of Theology, Economic Department.
- **Applied Experimental Medicine (AEM), Service for Researchers**
  - Target group: Researchers and technicians employed in the field of animals used for experiments.
  - Content: Involves various aspects of purchasing as well as physical care of animals used for experiments, including veterinary assistance and expertise. Furthermore,

the service provides assistance in relation to administrative processes, and it provides tutorials for researchers and technicians, thereby positioning them for an employment in the field of animals used for medical experiments.

- Involved: The Faculty of Life Sciences, the Department of Experimental Medicine.
- **Tech Trans Unit**
  - Target group: Researchers at The University of Copenhagen.
  - Content: Information about the patent system, and assistance in patenting a result of research. Assistance of identifying results of research with commercial potential, protection and fund management of the University's IPR
  - Involved: The Office of Tech Trans
- **The EU Office**
  - Target group: Researchers at The University of Copenhagen.
  - Content: Participation in developing project-ideas and screening these in relation to the work programs within the EU framework programs. Furthermore, lobbying in order to implement or change a call directed towards the project idea in question.
  - Involved: The EU-Office.

## Secondary research support services

- **Book an information specialist**
  - Target group: Researchers, teaching staff and students, primarily students by CULIS /Royal Library. Content: Individual assistance in information retrieval as well as a general introduction to the library.
  - Involved: CULIS / Royal Library, CULIS – Life Sciences, CULIS – Pharmaceutical Science.
- **Ask the Library**
  - Target group: All users.
  - Involved: CULIS / Royal Library.
- **Suggest a title for acquisition**
  - Target group: All users.
  - Involved: CULIS / Royal Library.
- **Remote Access**
  - Target group: All users.
  - Involved: CULIS / Royal Library.
- **E-books on Demand (EOD)**
  - Target group: All users.
  - Involved: CULIS / Royal Library.
- **Digitalization**
  - Target group: All users.
  - Involved: Royal Library.
- **Photo Service**
  - Target group: All users.
  - Involved: Royal Library.
- **For employees at hospitals**
  - Target group: Employees at hospitals.

- Involved: CULIS – Natural and Health Sciences.
- **Courses**
  - Target group: All users, primarily students at The University of Copenhagen.
  - Involved: CULIS.
- **The Greenhouse: Catalyst**
  - Target group: Students, private enterprises and entrepreneurs.
  - Content: Greenhouse for innovation and entrepreneurship within the humanities.
  - Involved: The Faculty of Humanities.
- **The Greenhouse: Catapult**
  - Target group: Students.
  - Content: Activities and courses. A creative environment for business ideas, networks and entrepreneurship to evolve.
  - Involved: The Faculty of Natural Science, The Faculty of Life Sciences, The Faculty of Health Sciences, and the Faculty of Pharmaceutical Sciences.

## **Appendix B: Research support services at Danish university libraries**

### Categories

#### **Individual guidance**

A service, where a researcher receives a visit from an info-specialist or a librarian (KUB, AUB, SDU, ASB, SB).

The State and University Library has an arrangement called the “advanced” library, where an info-specialist, twice a week, pays a visit at Skejby Hospital in order to help researchers and nurses in their information retrieval.

#### **Webpage especially designed for research support services**

Research support – and tutorial services (KUB, AUB, CBS (ResearchHub, login required) SDU, ASB)

#### **Courses**

Courses for using the various resources offered by the library, including reference-software, (SDU, SB, CBS)

Courses in criticism of the sources, publishing, advanced information retrieval, and project applications, (AUB)

#### **Software (installation of software and printed instruction)**

Handling of references, including access to relevant programs (RUB, AUB, SB)

#### **Analysis and data**

Bibliometrical Service (KUB, ASB)

Business information (ASB)

#### **Accession**

The ordering and accessing of books (KUB, CBS)

#### **Publications**

Hosting of journals with Open Access (KUB, CBS, SDU)

Research registration (KUB, AUB, RUB, CBS, DTIC, SB)

Copyright and Creative Commons (ASB)

Support and guidance to Open Access and institutional repositories (AUB)

#### **Research-workflow**

Methods of investigation and methods of design (ASB)

Web – questionnaires (ASB)

#### **Teaching aids**

Applied literature during term qua Blackboard (a program for researchers)(SDU)

## Dissemination

Expert-database (register of experts) (CBS)

Repository for the publications of the university (CBS, DTIC)

Repository for the working papers of the university (CBS)

Booking of rooms for seminars in the Master programme (AUB)

## Success criteria

A very clear criterion for success is defined for the unit Research Support Services at AUB: All institutions of the university should be contacted, by means of a flyer, in order to present the services offered by the library.

In regard to the specific services, AUB has defined the criterion for the Graduate School that it should be established including the faculties of social sciences, engineering/nature/health sciences, and humanities.

KUB	:	KUBIS Københavns Universitets Bibliotek og Information Service	=	CULIS Copenhagen University Library Information Service
AUB	:	Aalborg Universitetsbibliotek	=	Aalborg University Library
SB	:	Statsbiblioteket	=	The State and University Library
RUB	:	Roskilde Universitetsbibliotek	=	Roskilde University Library
CBS	:	Copenhagen Business School	=	Copenhagen Business School
SDU	:	Syddansk Universitetsbibliotek	=	University Library of Southern Denmark
ASB	:	Handelshøjskolen, Århus Universitet	=	Århus School of Business
DTIC	:	Danmarks Tekniske Informationscenter	=	Technical Information Center of Denmark

Besides, no formalised success criteria have been defined, but via the library's network, there is responsiveness to the environment of research. Thus, the close contact between researchers and library is essential when it comes to evaluate the service, including the need for it.

A formal evaluation of courses takes place by means of surveyXact (an electronic questionnaire). Likewise the number of participants of each course is registered as part of the current evaluation of the courses offered.



Furthermore, AUB acknowledges the importance of advertising the research support services of the library via the internet. It is an efficient way of making the library and its services visible. Many libraries carry out the mentioned services for the researchers, however they fail to impart or register these tasks as something specific.

AUB mentions flexibility, prioritising supply and demand, in the offer of courses as another important issue - a flexibility which is the result of evaluation and of using network as an information source.

At present, it seems of overall importance to have a specific website, which contains all relevant research support services offered. Previously, there was an uncertainty connected to the term research support service, sometimes it was defined as a success criterion or merely a creative element. By presenting a site, which includes all the relevant services, a dual target is reached: the researchers get an easy access to the services simultaneously as the library manifests itself as being valuable for them. Consequently, the researchers will recognise the library being synonymous with support of a very high quality.

## Appendix C: List of international institutions

### IARU universities:

- Australian National University
- Swiss Federal Institute of Technology Zurich (ETH)
- National University of Singapore
- Peking University
- University of California, Berkeley
- University of Cambridge
- University of Copenhagen
- University of Oxford
- The University of Tokyo
- Yale University

### Nordic university libraries:

- Stockholms Universitetsbibliotek (SUB)
- Universitetsbiblioteket i Oslo (UiO)
- Helsinki University Library (HUL)

### Other partner university libraries:

- Lund Universitetsbibliotek (LUB)
- Göteborg Universitetsbibliotek (GUB)
- Harvard University Library (H)
- University of Vienna

### Selected university libraries that have recently received visits from CULIS:

- Humboldt University
- Seattle University
- University of Ghent
- Katholieke Universiteit Leuven
- Stanford University
- San José State University

### Others (from broad web survey):

- Bournemouth University Library
- University of Leicester Library
- Charles Darwin University Library
- University of Oregon Library

## Appendix D: Questions for international institutions

1. Could you please describe which research support services your university/university library offers its researchers? Examples could be:

- Personal services E.g. in office visits from a librarian or subject specialist
- Research administration E.g. regarding grants/funding, strategic advice, applications
- Web pages with information for researchers E.g. on dedicated services
- Courses E.g. on research oriented tools
- Software E.g. for reference management, software support...
- Analyses and data E.g. bibliometric services, statistics...
- Acquisition E.g. book ordering, articles...
- Publication E.g. hosting of journals, research evaluation/registration, copyright...
- Research workflow E.g. methods, tools, data management/storage, virtual research environments
- Research outreach E.g. expert databases, publication repository...
- Other Please describe.

2. What kind of success criteria do you apply to those services? Or phrased in another way: What are the requirements to be met, in order for the university/university library to perceive a service as a success? Examples:

- Saves time for the researchers
- Request and demand by users
- High usage
- Low cost
- Sufficient funding
- Branding of your institution
- Return on investment E.g. increased funding, cost covered by fees...
- Other Please describe.

3. How do you try to meet these criteria?

4. Do you evaluate the services (if so, then how – and when)?

5. How did you develop the research support services that you have now? (did the idea e.g. originate in management, users, staff, groups)

6. Do you collaborate with researchers – or others e.g. libraries – on developing new services (if so, how)?