

SPEC Kit 350

Supporting Digital Scholarship

May 2016

Rikk Mulligan, Association of Research Libraries



SPEC Series Editor: Lee Anne George

Association of Research Libraries

21 Dupont Circle, NW
Suite 800
Washington, DC 20036-1118
T 202.296.2296
F 202.872.0884

ARL.org
pubs@arl.org

ISBN 1-59407-959-5 / 978-1-59407-959-7 print
ISBN 1-59407-960-9 / 978-1-59407-960-3 online

Copyright © 2016

This compilation is copyrighted by the Association of Research Libraries. ARL grants blanket permission to reproduce and distribute copies of this work for nonprofit, educational, or library purposes, provided that copies are distributed at or below cost and that ARL, the course, and copyright notice are included on each copy. This permission is in addition to rights of reproduction granted under Sections 107, 108, and other provisions of the US Copyright Act.

Table of Contents

Survey Results

Executive Summary	2
Survey Questions and Responses	12
Responding Institutions	106

Representative Documents

Service Descriptions

University of Alabama About the ADHC	109
Brown University Library Center for Digital Scholarship	110
Case Western Reserve University Libraries Digital Services @KSL	111
University of Cincinnati Libraries Health Sciences Library Digital Scholarship	112
Columbia University Libraries Digital Humanities Center	113
University of Florida Libraries Digital Humanities Working Group DH @ UF	114
University of Georgia Willson Center DigiLab About	115
University of Iowa Libraries Digital Scholarship & Publishing Studio About	116
University of Kansas Institute for Digital Research in the Humanities	117
Université Laval Information géographique et statistique (Centre GéoStat) Services SIG ...	118
University of Massachusetts Amherst Libraries Digital Scholarship & Consultation Services	120

McGill University Library	
Research Commons About	121
Michigan State University Libraries	
Digital Scholarship Collaborative	122
University of Nebraska-Lincoln	
Center for Digital Research in the Humanities.....	123
North Carolina State University Libraries	
Research Support.....	124
Northwestern University	
DH@NU A Guide to Digital Humanities	125
University of Notre Dame Hesburgh Libraries	
Center for Digital Scholarship	128
University of Ottawa Library	
Digital Humanities.....	129
Pennsylvania State University Libraries	
Publishing and Curation Services.....	130
Data Learning Center	131
University of Pittsburgh Libraries	
Digital Scholarship Commons.....	132
Digital Scholarship Services	133
Rice University Library	
Digital Scholarship Services	134
University of South Carolina	
Center for Digital Humanities.....	136
Syracuse University Libraries	
Research Data Services.....	137
University of Tennessee Libraries	
Scholars' Collaborative.....	138
Vanderbilt University Library	
Scholarly Communications.....	139
University of Virginia Library	
Scholars' Lab.....	140
Washington State University Libraries	
Center for Digital Scholarship and Curation About	141
Washington University in St. Louis Libraries	
About the Washington University Digital Gateway	142
Washington University Digital Gateway Services	143
Washington University Digital Gateway Support.....	144
Project Planning	
Columbia University Libraries	
Center for Digital Research and Scholarship Project Process.....	146

University of Ottawa Library	
Library Questionnaire to help Researcher with DH Project	148
Rice University Library	
Digital Projects for Fondren Library Documentation	150
University of South Carolina	
Center for Digital Humanities About	152
University of Toronto	
Digital Collection/Project Request Form.....	153
Washington University in St. Louis Libraries	
Washington University Digital Gateway Planning	160
York University Libraries	
Digital Project Inquiries.....	162

Project Examples

University of Alabama Libraries	
ADHC Projects.....	164
University of Florida Libraries	
Digital Humanities Working Group DH Projects.....	165
University of Georgia	
Willson Center DigiLab Projects.....	166
University of Iowa Libraries	
Digital Scholarship & Publishing Studio Projects.....	167
University of Toronto Libraries	
Digital Scholarship Projects.....	168
Digital Scholarship Unit Collections.....	169
Washington State University Libraries	
Center for Digital Scholarship and Curation Projects.....	170

Organization Charts

Brown University Library	
Library Functions April 2015.....	174
University of Calgary	
Libraries and Cultural Resources Organization Chart – 2016	175
University of Connecticut Libraries	
Organizational Charts UConn Libraries	176
University of Kansas Libraries	
User-focused Organizational Structure.....	177
University of Kentucky	
Office of the Dean	178
University of Miami Libraries	
Organization Chart (December 2015).....	179

University of Nebraska-Lincoln Libraries	
Digital Initiatives & Special Collections January 2016.....	180
University of Notre Dame Hesburgh Libraries	
CDS Personnel	181
University of Tennessee Libraries	
Associate Dean for Research & Scholarly Communication org chart	182

Job Descriptions

University of Cincinnati Libraries	
Digital Humanities Strategist.....	184
University of Georgia Libraries	
Digital Humanities Coordinator	187
University of Illinois at Urbana-Champaign Library	
Digital Scholarship Liaison and Instruction Librarian and	
Assistant Professor.....	189
English and Digital Humanities Librarian.....	190
Johns Hopkins University Libraries	
Digital Scholarship Specialist	191
University of Nebraska-Lincoln Libraries	
Digital Development Manager	193
Metadata Encoding Specialist	194
University of Rochester Libraries	
Digital Humanities Sr. Technical Assistant	195
University of Tennessee Libraries	
Data Curation Librarian.....	197
York University Libraries	
GIS and Map Librarian.....	199

Selected Resources

Articles, Blogs, Reports, etc.	202
Serials on Digital Humanities.....	204
Organizations.....	204

Survey Results

Executive Summary

Introduction

In November 2011, SPEC Kit 326 organized its analysis of digital humanities (DH) support in ARL member libraries by defining DH as “an emerging field which employs computer-based technologies with the aim of exploring new areas of inquiry in the humanities. Practitioners in the digital humanities draw not only upon traditional writing and research skills associated with the humanities, but also upon technical skills and infrastructure.”¹ This definition covers the pre-DH era of humanities computing that begins with Father Roberto Busa’s *Index Thomisticus* (started in 1946), moves through the first compendia and lexicons started in 1960s, the mid-1980s proliferation of DOS-based text-analysis programs such as WordCruncher, Text Analysis Computing Tools (TACT), and MicroOCP (the Micro Oxford Concordance Program), encompasses the start of the Text Encoding Initiative in 1987,² and applies to the steady growth of e-text centers to at least 20 by 1994. These are examples of predominantly text and language-analysis research, but by 2011 work with geospatial data, multimedia narratives, and data visualizations had added to the variety of DH projects and increasingly crossed disciplinary boundaries into the social sciences and life sciences. For many ARL institutions, supporting DH has become supporting digital scholarship (DS), yet this expansion of methods, approaches, tools, and disciplines has created its own tensions and uncertainties. Some of those who develop and use digital tools and methods resist applying too strict a definition to digital scholarship because they fear it will limit experimentation or adoption by faculty who may get bogged down in what “is” or “is not” within the bounds. This battle over definition can also be a battle for recognition and is one of the initial challenges for promoting and supporting DS in many of our institutions.

Understanding how ARL libraries support digital scholarship first involves developing a shared language for discussing DS and its constituent parts. Abby Smith Rumsey, former director of the Scholarly Communication Institute at the University of Virginia, describes DS as the “use of digital evidence and method, digital authoring, digital publishing, digital curation and preservation, and digital use and reuse of scholarship.”³ This is a very broad umbrella that covers familiar tasks such as digitizing analog media and reformatting a variety of media, creating metadata, creating digital collections and exhibits, and text-encoding and analysis, and encompassing not only geospatial information (GIS) and digital mapping, 3-D modeling, and digital publishing support, but also database support, software development, and interface design. This work helps produce new forms of hybrid and multimodal scholarship that can combine print and web-based text, video, audio, still images, annotation, and new modes of multithreaded, nonlinear discourse that can exist only online. The STEM fields have assimilated digital tools and methods into their research, so it is within the humanities and social sciences that big data, multimedia, interactivity, and data visualization are rapidly changing how research is envisioned and conducted, how data are

presented and shared, and how scholarship is integrated into teaching and the ongoing scholarly discourse in what historian Ed Ayers calls generative scholarship.⁴

This survey sought to gather data on how the librarians, faculty, and professional staff in research libraries support a great variety of multimodal research as collaborative scholarship, as collaborators, services, and in partnership with other units within and beyond the library. The earlier SPEC Kit found support for DH to be primarily ad hoc in nature, many institutions were waiting to determine researcher interest, faculty demand, and the need to integrate DH in teaching and learning before committing more resources. Today more ARL institutions have dedicated units if not also DS or DH centers or hubs in their libraries; many concentrate DS-oriented tasks in specific groups while also partnering with other campus units to increase their range and capacity. Even those libraries that do not have formal centers are creating virtual teams within the library, and often with faculty drawn from a variety of departments and disciplines, to advise and participate in this work. Some institutions also host postdocs who spearhead these efforts, including digital curation fellows supported by the Council on Library and Information Resources (CLIR) or the Andrew W. Mellon Foundation. As the research, tools, and methods to produce digital scholarship rapidly evolve and transform, research libraries strive to meet and anticipate the demand for support and collaboration.

The purpose of this survey was to explore how library roles are evolving in this research landscape and how the emergence of these newly identified roles influence the work of library staff. It asked about the types of support libraries offer researchers, how the individuals involved in digital scholarship activities are positioned within the library organization, their range of responsibilities, collaboration with partners inside and outside the library, how support for digital scholarship activities is funded, and how it is assessed, among other questions. The survey was distributed to the 124 ARL member libraries in January 2016 and 73 (59%) responded by the February 1 deadline.

Where can a researcher find digital scholarship support?

The survey identified 19 categories of digital scholarship activities and asked whether faculty, students, or other researchers affiliated with a project can find support for each activity in the library, elsewhere across campus, or beyond the institution. (See question 1 in the following Survey Questions & Responses section for details.) Support for all nineteen of these activities can be found within the libraries to one degree or another, although many that involve technical administration roles—including database administration, software platform support, and technical upkeep—remain more available beyond the library. Since a great deal of digital humanities activities began in the 1990s as text-mining and analysis, and projects to digitize special collections of medieval, early modern, and other cultural heritage materials, it is not surprising to see that digitization and imaging support have grown from several grant-funded projects to become one of the more prevalent forms of support available in libraries (71 responses or 97%), followed closely by digital preservation (95%), metadata creation and digital collections (94%), and digital exhibits (92%). More interesting is the strong rise in providing GIS and digital mapping, and data curation and management support (89%), as well as accommodations for digital publishing (85%) and project planning (84%) within the libraries. Yet even software development, once the province of computer science departments or staff, has become a task based within almost half of the survey respondents' libraries (48%).

Support for the full range of DS activities is also available elsewhere in these institutions, sometimes in cooperation or collaboration with the libraries, although in particular instances it is limited to faculty and students within a specific department, program, or college. Support for database development, visualization, and technical upkeep for digital research occurs almost as often outside the library as inside, typically from a campus-wide information technology or research computing unit or support department. 3-D modeling and printing, and statistical analysis are slightly more often available

elsewhere in the institution, primarily central IT or engineering or statistics departments. Twenty-nine respondents identified a variety of support that is also requested from vendors and virtual teams beyond the institution, in particular to develop DS software, digitally publish, make digital collections, and provide project planning. When asked to specify where support is available outside the library, respondents listed a number of academic departments and campus-wide multidisciplinary institutes; some pointed to large digital humanities centers as partners on grants and projects, such as Michigan State University's MATRIX or the Roy Rosenzweig Center for History and New Media at George Mason University; still others noted multi-institutional collaborations, including the Boston Digital Humanities Consortium, the National Center for Supercomputing Applications, and Calcul Quebec, a consortium of universities in Quebec for high performance computing. Some respondents also listed cloud-based vendors, independent developers and contractors, and fee-based services tied to specific repositories and platforms.

All but one of the respondents reported that digital scholarship support is available to all affiliated researchers (faculty, students, and other project members) (Q2). Some also provide support to researchers from beyond their campus (23%) or to the general public (15%). Respondents' comments point out that in some instances schools and departments only provide aid for students and researchers within those schools, but most respondents strive to support all affiliated researchers and meet this goal. However, resources remain scarce for many libraries and even those with digital scholarship centers sometimes have staff vacancies, limiting the volume of requests that can be accepted from the general public, independent scholars, and unaffiliated faculty. Some respondents pointed out that their digital scholarship program or center is still in its early stages. Others describe support as distributed across campus, but with little coordination or central location for researchers to collaborate in a coherent and consistent fashion. In these instances support can be more ad hoc in nature, and even when well coordinated faces challenges in scaling to reach more of the campus. Whereas most of the libraries do not operate under a cost-recovery model and provide their support for free, in some instances support for a greater variety of DS components is available across campus at a charge. It is also notable that the ethos of some library operations seems to be shifting toward partnership and collaboration rather than being seen as a service bureau.

Library Staff Who Support Digital Scholarship

Not every research library has a digital scholarship or digital humanities center, but more and more library staff within ARL institutions are becoming involved in providing DS services and support. Many librarians and professional staff are being recognized as not only active contributors, but also key collaborators on DS research projects. The survey asked for details on participation by a broad range of staff, from librarians and archivists, to other professional and support staff, to interns, graduate student assistants, and undergraduate workers (Q4).

All of the survey respondents reported that librarians support all DS activities, most frequently by making digital collections, creating metadata, and offering data curation and management support (90–95%), creating exhibits and project planning (85%), GIS and digital mapping (81%), digitization (79%), digital publishing (76%), and even project management (72%). In fact, the category least often reported—developing DS software—is still supported by librarians at 38% of the responding libraries.

Sixty-one respondents (85%) reported that archivists, other professionals, and support staff also provide substantial support to several DS activities. Unsurprisingly, archivists most frequently tend to contribute to digital collections and exhibits, digitization, digital preservation, and metadata creation (61–50%). Other professionals contribute along similar lines, but with a few marked differences such as technical upkeep (67%), interface design and usability (66%), database development (61%), and developing DS software (57%); this tends to strengthen the argument that information technology

professionals within libraries are a growing trend. Some respondents pointed out that IT might be better set aside as its own category given that contributions extend far beyond network, desktop, applications, and operating system support and should also consider the work of technologists who specialize in media creation, a variety of visualizations, instructional design, and programming, to name just a few examples. While the other professional category typically includes IT, HR, and financial roles, several respondents also chose this category for scholarly communications, publishing, and other activities. While the work of support staff echoes that of the other professional staff, it is at much lower rates. They most frequently contribute to digitizing and imaging analog materials (87%), making digital collections (59%), and creating metadata (57%).

At a significant number of the responding libraries graduate student assistants, interns, and undergraduate workers contribute to DS activities, particularly efforts in digitization and imaging, making digital collections, metadata creation, and digital exhibits. GSAs also provide GIS and digital mapping support. Some of the libraries have postdoctoral fellows (CLIR or Andrew W. Mellon Foundation) on their staff; some have or share with academic departments faculty who support DS and are not always listed as librarians.

The descriptions of “Other DS activity” that library staff support reveal that the work extends throughout the research life-cycle into teaching and the dissemination of research. Multimedia, video, and audio production are part of digitization efforts and also a modality to communicate research and data visualizations. Staff also help build specialized tools within and for the library that are used by some researchers and their students, while other staff contribute materially to digital pedagogy, some going far beyond just offering workshops and seminars on specific DS tools and methods.

Number of staff

Sixty-six respondents answered the question on how many staff support each of the 19 DS activities (Q5). At least half reported staff support in each of the categories, with a large majority for expected categories such as digitization and digital preservation (both 97%), digital collections and metadata creation (both 94%), and GIS/data mapping (92%). The number of library staff contributing in part or whole to digital scholarship support varies widely by activity and institution, from as few as a quarter of a person (.25 FTE) to as many as 30 contributors. At least one staff member, and up to groups of 9–12, support most activities, with an average of two to five individuals.

Broadly stated, when higher technical expertise is required to perform a task, lower numbers of staff are allocated: GIS/data mapping, software development, and interface and database development, and even statistical analysis are supported by at least .25 FTE, but only an average of two to three staff. Some activities are surprising outliers: one library reported 30 staff for visualization, another reported 30 for metadata creation, two others have 25 staff who support digitization or 3-D modeling, and yet another has 20 people involved in making digital collections and technical upkeep.

Some tasks are provided by an entire staff category, such as library liaisons, subject librarians, or special collections curators who are providing or being trained to provide an increasing volume of DS support, but not as their primary specialization. Other tasks are supported by specific groups—digitization teams, digital library teams, and dedicated digital center staff or digital project members. Respondents’ comments explain that these staff numbers are sometimes estimates that include either individuals (librarians, technical staff, library IT staff, or graduate students in some cases) or aggregate the contributions of several people. In addition, some libraries are training a broad range of staff to better support digital service requests in the future. Seven respondents reported staff who support other DS activities, including multimedia creation, conference/event planning and management, digital pedagogy and training, integrating archives and special collections, supporting the data life cycle, and copyright advice.

Staff organization

On a task-by-task basis, respondents report that the work of supporting digital scholarship is distributed across the library (69 of 70 respondents). At the same time, a significant number of activities are concentrated in a single department or unit (60 respondents). A smaller number of tasks fall to library DS teams (30) or DS/H centers and hubs (20). Of the tasks most heavily distributed across the library, making digital collections (58), metadata creation (54), digital exhibits (49), and surprisingly, project planning (48) rise to the top. The top contributions from single library departments/units are GIS and digital mapping (35), digitizing analog material (31), digital preservation (29), and digital publishing (24). DS team activities seem to cluster around project planning (14), making digital collections (13), data curation and management (13), computational text analysis (12), and digital publishing (12). DS centers/hubs/labs concentrate around computational text analysis (13), GIS and digital mapping (12), encoding content (12), and project management (11). Other notable support provided by specific units and hubs include copyright and intellectual property support for digital publishing, multimedia content creation, institutional repositories, and digital training and pedagogy (Q6).

This data suggests a trend toward complementing the work of dedicated DS/H centers with distributed support from special units. This work may or may not be coordinated by the center or hub, but capacity is expanded by including digital collections and special collections units that digitize analog materials; repository and scholarly publishing staff who work with metadata and related tasks; science libraries and research data services units that provide 3-D modeling; and map libraries, government document collections, and some science libraries and technology services that provide GIS and digital mapping. (See Q7 for more details.)

Faculty began approaching libraries to collaborate and bring scholarship to the Internet in the early 1990s. Efforts to create digital monographs or to digitize texts, images, audio, and video was widespread by the mid-1990s. Much of this work was started on a project-by-project basis, yet it required ever-increasing levels of technical expertise and technological support, leading to the creation of DH centers in some humanities departments and more coordinated, centralized activities in many libraries. More than half of the responding libraries have created or reorganized units and departments to provide specialized DS services and support (Q8). More of these have been established since 2010 (32) than all of those created in the preceding twenty years. Eight other respondents plan to create one within the next few years.

Several DS/H centers evolved over time and are jointly run by libraries and departments; others coalesced in the library by pulling together several smaller teams and projects by the early 2000s. The University of Nebraska–Lincoln started its E-Text Center in 1996, later to become the core of its Center for Digital Research in the Humanities in 2005; The University of Virginia’s Scholars’ Lab was formed in 2006 by combining three extant units including the E-Text Center (established in 1992) and GeoStat Center; Brown University’s Scholarly Technology Group (1994) was moved into the library and became the Center for Digital Scholarship in 2009 (Q9).

Staff Profiles

One of the more complex areas this survey attempts to assess is who inside ARL member libraries are performing digital scholarship tasks and supporting DS-related projects. As the range of tasks and activities has grown, so has the number of staff involved in supporting DS across a number of levels, from interns and graduates assistants, to professional staff, faculty, and even directors, university librarians, and assistant deans. The survey asked respondents to identify up to four library staff whose work is most closely tied to digital scholarship support and provide details about their responsibilities. Sixty-nine respondents provided profile data describing 231 positions. Forty-two institutions provided complete

profiles for four positions; 14 submitted three profiles each; eight defined two positions; and five added a single profile. Only four institutions could not or chose not to provide a staff profile.

By reviewing the position titles, some trends quickly become apparent (Q11). Those who provided a single profile seem to highlight a staff member who is responsible for coordinating or supporting a number of projects, sometimes with specific experience in archives or metadata. Those describing two positions tended to provide one in an upper-level administrative position, with the other in a more specific functional role. Standing out in the groups of three profiles are GIS and maps, digital analysts, and a variety of directors, as well as some developers, visualization specialists, and scholarly communications support. The 42 respondents who submitted four profiles provide a more robust and varied spectrum of roles and tasks—these range from senior administrators, faculty, subject matter specialists, and coordinators to unique positions including those working with eScience, maker spaces, visualization, and repository managers and workers. This breadth of position and function suggests some well-established cultures of support and engagement among a large number of respondents. The number of senior positions also indicates that DS support has become a core part of the research process and is no longer a niche service, suggesting that where such support remains ad hoc it is likely to become part of a more coherent service or support program in the near future.

The way these positions have been added or expanded and redefined from existing positions makes it clear that DS has become part of the strategic vision of library services and collaboration (Q12). Almost half of the positions described (106 or 46%) are new positions, repurposed from others, or newly defined, some only relatively recently. Many had already existed and use a number of DS-related skills and tools (87 or 38%), but have evolved with an eye toward provisioning DS. Only a minority of these profiles were described as being redefined with the addition of DS support to an established posting (38 or 16%). Respondents' comments explain that this has been most often due to a shift in emphasis to better incorporate DS or as part of a program to better integrate electronic resources and DS work into the core mission of the library—examples include repurposing catalog and reference librarians, adding responsibilities to liaison librarians, and enhancing digital preservation work.

That this strategic focus on DS is recent is substantiated by the time these staff have been in the libraries (67% for 5 years or fewer) (Q13) and the length of time they have supported DS activities (74% for 5 years or fewer) (Q14). Most of these positions have therefore been defined within the past five years or those filling them have only been recognized as specifically supporting DS in the past few years. Finally, 94% of these are permanent, full-time positions (217) and only 4% are limited term (10) and typically grant supported, factors that indicate DS support is now integrated into library staff hierarchies, roles, and a growing portion of library mission planning.

The department, unit, center, hub, or lab listed as the base for the positions in these profiles (Q16) indicates that those respondents with the most staff tasked to support DS also tend to host a DS center or hub, yet this work also falls to distributed support provided by specialized work done in more narrowly focused units, including scholarly communication, digitization services, metadata services, institutional repositories, and digital preservation departments. Many of those doing this work are also housed in specialized units, including map, science, engineering, and social science libraries; archives and special collections; multimedia or media libraries; and data services and support; and even makerspaces. Many of the primary responsibilities identified in the next question link to such units.

The survey asked respondents to identify the DS tasks that the profiled individuals provide and specify up to three of those that are their primary task (Q17). The results confirm that many of them continue to work on traditionally library-based projects, including making digital collections, data curation and management, digital preservation, and metadata creation. However, a surprisingly large number provide project planning (30%) and project management (29%), with a majority doing project

planning (79%) or project management (67%) as one of their three primary roles, yet another indicator that these libraries have moved toward understanding digital research and scholarship from a holistic perspective, and are considering its growth and development in their work plans and hiring.

The number of positions that have responsibility for each task reveals that these tasks are highly distributed—even the more technical and IT or administrative tasks are also provided by a substantial number of people in the libraries. That so many also support digital publishing (47% and 20% as primary task), visualization (37% and 10%), and interface design and/or usability (38% and 9%), shows that these elements of digital research output as part of online projects is being contributed by libraries where it had once been left to outside contractors. However, very few of these staff (10% or fewer) are reported to be primarily responsible for 3-D modeling and printing, database development, statistical analysis, technical upkeep, or software development, and those who do this work are likely concentrated in digital scholarship centers and hubs. Again, a significant fraction of these individuals contribute to work outside the 19 primary DS categories, many run outreach events and workshops, teach, or contribute to scholarly communications work, including advice on intellectual property, copyright, and author rights, as well as data consultations.

In terms of supervisory level and institutional hierarchy, a great number of these staff have a significant administrative role or are placed in mid-career ranks (Q19). Ninety-five of the 224 positions (42%) report to a dean/university librarian, or assistant or associate dean/university librarian. Another 42% report to a department or unit head, manager, or director. Unsurprisingly given the number of associate librarians and directors in the list of titles, 95 of these positions supervise staff that include students (27%), support staff (26%), professional staff (21%), librarians (17%), and a few graduate assistants (7%) or other post-doctoral positions (2%). The greater experience and education required for many of these positions is apparent in the breakdown of degrees held: 47 (20%) have PhDs, with the majority in the humanities, especially English, literature, and history; social sciences; or information and library sciences. Several have earned their degrees in geography, with a few that stand out in pathobiology and molecular medicine, computer science, and mass communication for example, but also a few in the hard sciences. Those with MA or MS scatter more widely across the disciplines, with similar groupings in the humanities and library and information sciences, but also a notable group of fine arts and design degrees (MFA, visual design, studio art), interdisciplinary work (area and cultural studies, ethnomusicology), and more diverse sciences or medical degrees (biology, psychology). All staff have a BA or BS with the vast majority in humanities and social sciences (Q21).

Skill Gaps

Responses to a question on significant DS skill gaps indicate that libraries offer the strongest support in the areas of digitization, digital collections and exhibits, and metadata creation with only a slight gap (5 to 15%) between demand and capacity (Q22). The greatest gaps remain in visualization (65%), computational text analysis and support (64%), statistical analysis support (60%), and in developing software (54%). There are also significant demands for other services that are only met between half and one-third of the time, from project planning, digital preservation, database development, content encoding, and 3-D modeling and printing, to digital publishing, interface design, and project management. Visualization (35%), data curation and management (35%), and computational text analysis and support (28%) were identified as the three areas most critical to improve to meet demand and emerging trends in research. Some libraries are not seeking to increase capacities—for example in 3-D printing—because it is available elsewhere on campus. A review of respondents' comments reveals that several libraries are concerned with both capacity and sustainability, growing services strategically, and refining assessment techniques to keep abreast of emerging trends, for example how demand rises and falls over the course of a semester or year. Others point out that related roles such as scholarly communications, legal and ethical

awareness of issues related to digital scholarship, and open educational resources must also be built into growing their support.

Partnerships

Where support for the digital humanities was offered in a largely ad hoc fashion five years ago, these tasks are now more systematic, if not yet entirely coordinated from within the library. The survey data suggest a few overarching patterns, many of which are borne out by the comments provided by respondents (Q23). Scholars in the humanities come to the libraries for DS support at all of the responding institutions, although the frequency varies: either “often” (58%) or “sometimes” (42%), although these are arbitrary distinctions. Comments suggest that humanists also require long-term collaboration across the life-cycle of a project, sometimes come for the special collections or digital collections more than other resources, and will make use of digital humanities centers when available.

Researchers from the social sciences come for support less often: while 36% of respondents answered “often,” the majority (61%) said “sometimes.” The two who answered “never” explained that their services are quite new. The type of support and collaboration is also more specific—typically GIS and digital mapping, data visualization, sometimes statistics, and more rarely research data planning. STEM researchers come to these libraries least often—only 15% of respondents answered “often” and another 78% said “sometimes.” Two of the four who responded “never” were the same new services as above. Several sets of comments explain that much of the support needed from libraries is phase specific and of limited term, and that a number of these DS roles are available and close at hand in the laboratory. Still, STEM do come to the library for help with data management, and sometimes grants and funding requests.

When it comes to the library partnering with other campus units and some entities beyond the institution (Q24), most of the respondents draw resources from beyond the library “often.” Specific partners that lead the field involve the institutional repository (50%), IT department/unit (50%), and archives (43%). Given the interest in aligning the work of the library, IR, and press, as well as DS/H center or hub in some places, it is surprising that the press ranked the lowest (8%) as a frequent partner. All but a few respondents partner with external groups “sometimes,” although this most often tends to be other libraries more than any other group (64%), followed by archives (49%), IT (41%), and the more generic “agencies and/or companies unaffiliated with your institution” (45%). Those who responded with “never” selected the university press as the least common partner (30 or 64%), with the archives only listed as such once.

Source of Funds

SPEC Kit 326 reported that the majority of active digital humanities projects through 2011 were funded from a combination of library operating budgets and grants; some received funding from academic departments, library IT, or special funds. In 2011, most DH researchers did not have funding when they sought library support, although some were writing or planned to write grant proposals. This 2016 survey revisited funding with greater granularity, yet found the majority of support libraries provide for digital scholarship continues to be drawn from their general budget (100%) or grants to the library (73%). However, researchers have their own grant-based funds almost half the time (48%), with (one-time) gifts often providing substantial support (42%). Endowments and general funds from the parent institution or dedicated digital scholarship budgets also help to support this work at almost a quarter of the libraries. Some respondents noted that specific tasks, such as scanning or digitizing materials, may be fee-based or part of a cost-recovery model (Q25).

Digital Scholarship Activity Assessment

Almost half of the survey respondents (49%) have evaluated or assessed their digital scholarship support activities, with more than a third (37%) planning to do so (Q26). Current efforts include documenting the number of projects supported, which activities were involved, how many faculty members, students, and departments engaged, and specific outreach and teaching activities completed. Beyond these measures, plans to assess DS support will include qualitative researcher interviews, faculty surveys, focus groups, quantitative tracking of consultations (number and time engaged), and user satisfaction surveys (Q27). Some institutions are looking to collaborate on assessment and evaluation practices with other ARL institutions, while others look to use data gathered to project the demand for support and its peaks and troughs over the course of the academic year. More than half of respondents (65%) have used their assessments to alter the services they offer, change their organizational structure, or shift staff responsibilities (Q29). Requests from faculty and students have become part of strategic planning, including identifying skill and role gaps (GIS and data support), the need to better coordinate requests and support (digital scholarship coordinator roles), or to alter and add new training opportunities for library staff, faculty, and students.

The Future Role of Library Support for Digital Scholarship

Although some respondents have reservations about the reliance on soft funding to begin projects (and in some instances DS centers and other units), and several reported specific concerns regarding scalability, the overall view of the future for library support of digital scholarship is strong and even enthusiastic in many cases. The majority of respondents (64) offered some view of this future; most only briefly sketched out an idea or two along the lines of greater collaboration with researchers and students, as part of offering a greater range of tools and services, or as the renewed center of research and scholarly dissemination. Several specifics are echoed in numerous comments, with the essential message being that the library operate as the center of research and dissemination, becoming the first point of contact in the research cycle and a source of full life-cycle and long-term collaboration. Some expect to develop this work and relationship more slowly, after greater periods of assessment and analysis, while gearing up to meet the increasing requests and demand for GIS and digital mapping, research data management, and becoming a more stable base for the stewardship and preservation of digital projects and research products. Others see a more immediate need to expand and support digital library development, make special collections more accessible beyond the campus and to the public and other interested parties. Still others see increasing the technological sophistication of the library and its staff to help define and create more suitable systems of storage and discovery, to better incorporate digital tools and methods not just earlier in the research process, but as partners with faculty to integrate them into the training process for graduate students and teaching of undergraduates. Visions include becoming the hub for future research that uses digital tools, not just “digital scholarship,” and to be an active part of regional consortia, virtual institutes, and entities such as the Committee on Institutional Cooperation (CIC) and Digital Public Library of America (DPLA). Also sharing research with the public as a foundational stakeholder by better supporting public history, public scholarship, and becoming a conduit for life-long learning and active citizen scholarship. The role of the library in many of these futures is to be the space—physical and virtual—to become the lab of not only the humanities, but all scholarship and research that stretches across the campus to involve multiple units and disciplines. This future is not one where the library supports digital scholarship, but where the digital is but one set of tools, methods, and expertise that the library affords the extended campus community to research and share scholarship.

Endnotes

- 1 Tim Bryson, Miriam Posner, Alain St. Pierre, and Stewart Varner, "Executive Summary," in *Digital Humanities*, SPEC Kit 326 (Washington, DC: Association of Research Libraries, November 2011), 11.
- 2 Susan Hockey, "The History of Humanities Computing," in *A Companion to Digital Humanities*, ed. Susan Schriebman, Ray Siemens, and John Unsworth (Oxford, UK: Blackwell Publishing, 2004).
- 3 Abby Smith Rumsey, *Scholarly Communication Institute 9: New-Model Scholarly Communication: Road Map for Change* (Charlottesville, Virginia: Scholarly Communication Institute and University of Virginia Library, 2011), 2, <http://www.uvasci.org/institutes-2003-2011/SCI-9-Road-Map-for-Change.pdf>.
- 4 Edward L. Ayers, "Does Digital Scholarship Have a Future?" *EDUCAUSE Review* 48, no. 4 (July/August 2013): 34, <http://er.educause.edu/articles/2013/8/does-digital-scholarship-have-a-future>.