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# Surveying Public Research 2 University Libraries' Programs Supporting Digital Scholarship: A Report

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## **Abstract**

Librarians at Ball State University designed and distributed a survey to libraries personnel at all public R2 research universities to assess the nature of university libraries' engagement with digital scholarship, digital humanities, or digital research. Project researchers received 36 usable responses to the survey from individuals at 26 institutions, for an individual response rate of 12% and an institutional response rate of 35%. This report communicates core data and findings as a result of the survey project. Included is data regarding services and expertise offered by the libraries, the nature of libraries' collaborations with researchers, technology infrastructure to support digital scholarship/digital research/digital humanities, and the nature of libraries' participation in scholarship and public presentation regarding digital scholarship/digital research/digital humanities.

## **Introduction**

Throughout the summer and fall of 2018, a team of librarians at Ball State University researched and developed a comprehensive survey designed to assess the nature of university libraries' engagement with digital scholarship, digital humanities, or digital research (abbreviated as DS/DH/DR) at public, R2 (Doctoral Universities - High Research Activity) institutions in the U.S. This project was developed as a response to an overall lack of published scholarship and available data regarding the development of digital scholarship, digital humanities, or digital research librarianship and library services at institutions similar to Ball State University. Much of the scholarship on these topics available at that time focused on the experiences of R1 (Doctoral Universities - Very High Research Activity) institutions or high-ranking private liberal arts colleges in developing services related to DS/DH/DR.

Digital Scholarship, digital humanities, and digital research were studied collectively as these terms are often used in similar and overlapping ways to describe similar methodologies of scholarly inquiry, scholarly communication, and information visualization.

Librarians at Ball State University who collaborated on the project were Michael Szajewski, Assistant Dean for Digital Scholarship and Special Collections; Perry Collins, former Copyright and Scholarly Communications Manager and current Scholarly Communications Librarian at University of Florida; Angela Gibson, Geographic Information Systems Specialist; Stephanie Grimes, former Digital Scholarship Strategist; Matthew Shaw, Dean of University Libraries; and Bradley Faust, Assistant Dean for Library Data and Discovery Solutions.

Ball State University Libraries has a noteworthy and successful history in developing digital scholarship services to advance research, teaching, and community engagement on its campus. Since 2003, the Libraries' GIS Research and Map Collection has offered access to data, software, and instruction to advance the creation of interactive digital maps using Geographic Information Systems (GIS) mapping tools. In 2005, the University Libraries also launched a large open access digital archive and cultural heritage repository branded as the Digital Media Repository and published using the CONTENTdm

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solution. The repository now hosts over 250,000 archival assets, learning objects, and media items with a primary emphasis on open access collections.

Ball State University Libraries also collaborated significantly on major, individual digital scholarship projects during the 2000s and 2010s, the most notable being the What Middletown Read project developed in collaboration with Ball State University's Center for Middletown Studies. The project digitized circulation records from the Muncie (Indiana) Public Library from November 5, 1891 through December 3, 1902 and provided access to these records through a custom-built database and search solution enhanced with census data from the time period. The database provides unique insight into literacy and literary culture in middle America at the turn of the century.<sup>1</sup>

In 2017, the University Libraries and the Office of the Provost at Ball State University collaboratively developed and launched the Digital Scholarship Lab (DSL). Principle personnel leading the activities of the DSL include faculty members from the Departments of History and Art and University Libraries personnel. The Lab focuses on advancing faculty-driven digital scholarship research with a goal of boosting and supporting meaningful grant-seeking activity. The Lab provides seed funding, direction, and support for digital scholarship projects developed by Ball State University faculty members and organizes instructional and educational programming aimed primarily at faculty and graduate students.

In the summer of 2018, Ball State University Libraries sought to explore opportunities to develop a broader program of digital scholarship services to advance teaching and learning, scholarship, and community engagement among undergraduate students, graduate students, staff, and tenure-track and non-tenure-track faculty on campus. This program would build upon the services of the GIS Specialist through the newly-hired Digital Scholarship Strategist, a position in Ball State University Libraries that was redescribed and filled in 2018. In developing the Approaches to Digital Scholarship in R2 University Libraries survey, Ball State University Libraries sought to learn from the experiences and perspectives of similar institutions to better understand how other R2 university libraries support DS/DH/DR on their campuses.

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<sup>1</sup> <https://lib.bsu.edu/wmr/>

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## Methodology

Librarians at Ball State University developed a detailed 51-question survey aimed to provide nuanced and meaningful data regarding DS/DH/DR resources, programs, personnel, and services at Public R2 University Libraries. Using a definition provided by librarians at the University of Washington, DS/DH/DR were defined as “any scholarly activity that makes extensive use of one or more of the new possibilities for teaching and research opened up by the unique affordances of digital media. These include, but are not limited to, new forms of collaboration, new forms of publication, and new methods for visualizing and analyzing data.”<sup>2</sup>

In October 2018, the survey was distributed to 307 library administrators, faculty, and staff affiliated with the 74 public institutions designated as “higher research activity” or “Research 2” under the Carnegie Classification of Institutions of Higher Education, based on the 2015 data available when the study began. Project researchers received 36 usable responses to the survey from individuals at 26 institutions, for an individual response rate of 12% and an institutional response rate of 35%.

The first section of the survey asked respondents to provide optional contact information, to identify the nature of their role in their institution’s library, to describe their position as tenure track or non-tenure track, and identify a rough percentage of the professional positions that are tenure track in their institution’s library system.

The second section of the survey asked participants to identify which of the following services, areas of expertise, or activities are offered at their institution’s library in support of digital scholarship/digital humanities/digital research:

General research consultation	Research data management planning	Publishing dynamic web-based digital research projects
Subject librarian research consultation	Geographic Information Systems (GIS) research	Electronic text analysis/encoding
Digital pedagogy and open education consultation	Copyright analysis	Metadata creation to support DS/DH/DR
DS/DH/DR programming events	Grant seeking/grant writing	Data acquisition/data scraping
DS/DH/DR literacy instruction sessions	Virtual reality/augmented reality visualization	Statistical data analysis
DS/DH/DR open workshops	Digital image/electronic file processing	Video/media production to support DS/DH/DR

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<sup>2</sup> <https://www.lib.washington.edu/digitalscholarship/about>

Makerspace/makers hub	Collection digitization to support digital scholarship	Research data visualization
DS/DH/DR project planning and/or project management	Publishing digital collections/galleries	Virtual reality/augmented reality visualization

Respondents could also identify other services their university libraries offered in support of DS/DH/DR that were not included on the list.

For a number of the services provided, respondents were asked to describe the level of engagement that best described library employees' collaboration at their institutions to support individual research projects. A choice of four levels was given: 1) Provides guidance, instruction, direction to researcher in a single consultation. 2) Provides on-going guidance, instruction, direction to researcher over multiple consultations. 3) Works collaboratively with researcher to plan, organize, and complete project-related work. 4) Is solely responsible to plan, organize, and complete project-related work.

For each service or area of expertise, respondents were asked to estimate the percentage of total collaborations with researchers on HS/DH/DR projects that were supported at the each of the four levels of engagement.

The third section of the survey asked respondents to identify which technology platforms/services/opportunities their library formally offers to researchers/scholars to advance DS/DH/DR at their institutions:

Open access institutional repository platform	Data processing server space
Open access journal hosting and publishing platform	Temporary hosting of web-based digital scholarship projects
Open access monograph hosting and publishing platform	Temporary hosting of web-based digital collections/digital galleries
Access to open source software	Permanent hosting of web-based digital scholarship projects
Access to commercial software	Permanent hosting of web-based digital collections/digital galleries
Data repository platform	Web archiving
Permanent research data storage	Open textbook hosting
Temporary research data storage	

Respondents could also identify other technology platforms/services/opportunities their university libraries offered in support of DS/DH/DR that were not included on the list.

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The fourth section of the survey prompted respondents list any major research centers at their institutions that are external to the library that conduct, produce, or develop DS/DH/DR and to describe the nature and frequency of collaboration with these units.

The fifth section of the survey asked respondents to describe in percentages the frequency with which DS/DH/DR services were conducted to serve or collaborate with undergraduate students, graduate students, faculty/instructional staff/research staff, and other community members. Survey respondents were also asked to identify, for collaborative digital scholarship activities with faculty/instructional staff/research staff, what percentage of overall efforts by library employees primarily supported research and scholarship, teaching and learning, service and community and engagement, and other concentrations.

The sixth and final section of the survey asked respondents to respond to questions regarding a number of topics related to institutional support and the nature of libraries' collaborations with other campus colleagues. Respondents were asked to comment on:

- Outreach and partnership-building strategies that were most fruitful.
- The degree to which library employees received authorship for digital scholarship projects or participated in scholarly or public presentations regarding digital scholarship projects.
- Institutional support for participation in professional development opportunities related to DS/DH/DR.
- Programming events and spaces offered by libraries in support of DS/DH/DR.
- Additional comments regarding respondent's library's engagement with digital scholarship.

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## Findings and Data

Project researchers received 36 usable responses to the survey from individuals at 26 institutions for an individual response rate of 12% and an institutional response rate of 35%. The 36 respondents completed different components of the survey, but all contributed significant data towards the research project.

Of the 36 usable responses, survey respondents reported having the following job types:

Assistant or associate dean/unit head/program director: 11

Librarian/technologist/professional: 20

Library Dean/Library Director: 3

Non-library tenure-track faculty: 1

Other: 1

Of the 36 respondents, 19 reported working in tenure-track positions, and 16 reported working in non-tenure track positions.

Regarding the services, areas of expertise, or activities that institutions' libraries offer in support of DS/DH/DR through a dedicated center or lab or through other library units, responses were as follows.

<u>Service/Expertise/Activity Name</u>	<u># of Respondents</u>	<u>% of Respondents</u>
General research consultation	31	86.11%
Subject librarian research consultation	30	83.33%
Collection digitization to support digital scholarship	26	72.22%
Publishing digital collections/galleries	26	72.22%
Research data management planning	23	63.89%
Copyright analysis	23	63.89%
Digital pedagogy and open education consultation	20	55.56%
DS/DH/DR open workshops	19	52.78%
Metadata creation to support DS/DH/DR	18	50.00%
DS/DH/DR programming events	17	47.22%
Geographic Information Systems (GIS) research	16	44.44%
Makerspace/makers hub	14	38.89%
Digital image/electronic file processing	14	38.89%
DS/DH/DR literacy instruction sessions	13	36.11%

Research data visualization	13	36.11%
DS/DH/DR project planning and/or project management	12	33.33%
Virtual reality/augmented reality visualization	11	30.56%
Grant seeking/grant writing	10	27.78%
Electronic file management	9	25.00%
Video/media production to support DS/DH/DR	9	25.00%
Publishing dynamic web-based digital research projects	8	22.22%
Electronic text analysis/encoding	6	16.67%
Statistical data analysis	5	13.89%
Data acquisition/data scraping	3	8.33%
Other ongoing digital project consultation	1	2.78%
Other digital journal, monograph, and conference proceedings publishing	1	2.78%
Metadata consultation	1	2.78%
Classroom teaching for metadata entry and TEI encoding	1	2.78%

Of this list of services, expertise, and activities, project researchers identified 12 specialized DS/DH/DR services—services that are most typically associated with DS/DH/DR throughout the profession. Those 12 are:

- Research data management planning
- GIS research
- Makerspace/makers hub
- Research data visualization
- DS/DH/DR project planning and/or project management
- Virtual reality/augmented reality visualization
- Electronic file management
- Video/media production to support DS/DH/DR
- Publishing dynamic web-based digital research projects
- Electronic text analysis/encoding
- Statistical data analysis
- Data acquisition/data scraping

Survey responses were evaluated to identify how many of these specific services were offered by the 26 responding institutions as indicated by an affirmative answer to the correspondent survey question from at least 1 respondent employed at that institution. Researchers then evaluated how many of the



26 institutions offered varying quantities of these 12 specialized DS/DH/DR research services and compiled the data as presented below.

<b># of specialized digital scholarship services offered by the institution</b>	<b># of surveyed institutions offering this quantity of specialized services</b>
12	0
11	0
10	1
9	1
8	0
7	3
6	5
5	2
4	3
3	3
2	2
1	3
0	3

Subsequent questions asked respondents to describe, for each of a selected list of services they identified that their libraries provide, “At what level of engagement do library employees at your institution support individual research projects through each of these activities or services? If level of engagement varies from project to project, please use the boxes below to estimate the percentage of collaborations that are supported at the following levels of engagement.” The 4 levels listed were:

- Is solely responsible to plan, organize, and complete project-related work. (Level 1)
- Works collaboratively with researcher to plan, organize, and complete project-related work. (Level 2)
- Provides on-going guidance, instruction, direction to researcher over multiple consultations. (Level 3)
- Provides guidance, instruction, direction to researcher in a single consultation. (Level 4)

The following table presents the average (arithmetic mean) of all responses provided by respondents regarding the percentages of individual research projects supported at the given service levels.

<b>Service</b>	<b>Level 4</b>	<b>Level 3</b>	<b>Level 2</b>	<b>Level 1</b>
Digital research project planning and/or project management	32.75%	35.25%	18.25%	13.75%
Research data management planning	55.17%	26.44%	16.72%	1.67%
Geographic Information Systems (GIS) research support	45.80%	29.40%	18.80%	6.00%
Copyright analysis	54.06%	24.59%	12.24%	9.12%
Grant seeking/grant writing	50.71%	15.71%	17.86%	15.71%
Electronic file management	68.33%	21.67%	10.00%	0.00%
Digital image/electronic file processing	23.00%	20.00%	18.50%	38.50%
Collection digitization to support DS/DH/DR	27.69%	19.88%	19.31%	33.13%
Publishing digital collections/galleries	18.61%	22.50%	17.50%	41.39%
Publishing dynamic web-based digital research projects	30.80%	20.60%	24.60%	24.00%
Electronic text analysis/encoding	44.00%	27.00%	4.00%	25.00%
Metadata creation to support DS/DH/DR	27.50%	13.93%	8.21%	50.36%
Data acquisition/data scraping	60.00%	17.50%	17.50%	5.00%
Statistical data analysis	28.00%	52.67%	19.33%	0.00%
Video/media production to support DS/DH/DR	44.17%	23.33%	15.00%	17.50%
Research data visualization	45.80%	32.60%	16.60%	5.00%
Virtual reality/augmented reality visualization	43.57%	41.43%	10.00%	5.00%

The Digital Scholarship Survey asked a set of questions regarding the use of technology platforms and tools to support DS/DH/DR at respondents' institutions. Researchers received 24 total responses from 20 unique institutions to the question "Which of the following technology platforms/services/opportunities does your library formally offer to researchers/scholars to advance DS/DH/DR at your institution?". The data is totaled below.

<b>Platform</b>	<b>Respondents</b>	<b>Institutions</b>
Open access institutional repository platform	21	18
Open access journal hosting and publishing platform	16	14
Access to open source software	12	12
Data repository platform	12	12
Open textbook hosting	12	11

Open access monograph hosting and publishing platform	10	10
Permanent hosting of web-based digital collections/digital galleries	10	10
Access to commercial software	9	8
Permanent research data storage	7	6
Permanent hosting of web-based digital scholarship projects	7	6
Temporary research data storage	6	4
Temporary hosting of web-based digital scholarship projects	6	5
Temporary hosting of web-based digital collections/digital galleries	6	5
Web archiving	3	3
Data visualization environment (Other)	1	1
Data processing server space	0	0

Researchers asked three free-text questions of survey respondents prompting them to list specific technology platforms that they employed at their libraries to support DS/DH/DR. That data was analyzed for specific references to specific platforms/products/solutions. In total, 21 respondents from 17 institutions answered at least one of these questions. The following data combined answers to all three of these questions, identifying the number of respondents who referenced using these platforms and the number of total institutions represented in those answers.

<b>Specific Platforms Mentioned</b>	<b>Platform Category</b>	<b>Mentions (Respondents)</b>	<b>Institutions Represented</b>
BePress/Digital Commons (+Selected Works)	Repository/Library Publishing	12	11
Omeka	Repository/Library Publishing	12	11
ArcGIS/ESRI	Data Visualization	5	5
DSpace	Repository/Library Publishing	5	4
Islandora	Repository/Library Publishing	3	3
Amazon Web Services	Computing/Storage	3	3
DataVerse	Data Publishing	3	2
CONTENTdm	Repository/Library Publishing	3	3
Drupal	Web Publishing	3	3
WordPress	Web Publishing	3	3

Fedora	Repository/Library Publishing	2	2
Rosetta	Repository/Library Publishing/Digital Preservation	2	1
Tableau	Data Visualization	2	2
Open Journal Systems	Repository/Library Publishing	2	2
Archive-IT	Web Archiving	2	2
SpringShare/LibGuides	Web Publishing	2	2
Voyant	Data Analysis	2	2
Scalar	Web Publishing	2	2
R	Data Analysis	1	1
NVIVO	Data Analysis	1	1
Perma.cc	Web Archiving	1	1
cPanel	Web Publishing	1	1
TimelineJS	Data Visualization	1	1
StorymapJS	Data Visualization	1	1
Onodo	Data Visualization	1	1
Google Suite	Multipurpose	1	1
Commons in a Box	Multipurpose	1	1
IIIF	Standard	1	1
Preservica	Digital Preservation	1	1
ArchivesSpace	Collection Management System	1	1
Oxygen	Data Analysis	1	1
Luna	Digital Asset Management	1	1
Open Campus CMS	Multipurpose	1	1
HathiTrust	Repository/Library Publishing	1	1
SAGE	eBook Platform	1	1
Neatline	Data Visualization	1	1
DMPTool	Data Management Planning	1	1
Duraspace	Multipurpose	1	1

Survey respondents were asked to list any major research centers at their universities that are external to the library that conduct, produce, or develop DS/DH/DR work. 12 respondents listed at least 1 partnering unit. These partnering units were classified as follows.

<b>Category</b>	<b>Total Responses Across All Respondents</b>
STEM Research Center/Producer	11
Social Science Research Center/Producer	6
Humanities Research Center/Producer	5
Research/Teaching Support Unit	4
Research Administration Unit	3
Digital Research/Scholarship Center	3
Area Studies Research	2

Survey respondents were asked “How would you classify the percentages of those in the university community with whom the library collaborates or for whom the library provides services regarding digital scholarship/digital humanities/digital research (DS/DH/DR)?” Respondents were given four types of collaborators for this question: 1) undergraduate students, 2) graduate students, 3) faculty/instructional staff/research staff, 4) other community members.

21 respondents provided an answer to this question. The chart below includes all responses to this question as well as the average (arithmetic mean) of all responses. Respondent name/institution has been omitted.

<b>Respondent</b>	<b>Undergraduate Students</b>	<b>Graduate Students</b>	<b>Faculty/Instructional Staff/Research Staff</b>	<b>Other Community Members</b>
Omitted	5%	5%	70%	20%
Omitted	10%	40%	40%	10%
Omitted	25%	25%	50%	0%
Omitted	5%	5%	80%	10%
Omitted	25%	25%	45%	5%
Omitted	0%	20%	80%	0%
Omitted	15%	30%	50%	5%
Omitted	50%	25%	15%	10%
Omitted	40%	20%	30%	10%
Omitted	0%	0%	70%	30%
Omitted	10%	40%	50%	0%
Omitted	0%	10%	90%	0%
Omitted	50%	25%	25%	0%
Omitted	25%	25%	40%	10%
Omitted	30%	20%	50%	0%
Omitted	5%	15%	70%	10%
Omitted	25%	25%	25%	25%
Omitted	0%	34%	66%	0%

Omitted	33%	33%	34%	0%
Omitted	0%	0%	100%	0%
Omitted	60%	20%	20%	0%
	<b>Mean Response</b>	<b>Mean Response</b>	<b>Mean Response</b>	<b>Mean Response</b>
	19.67%	21.05%	52.38%	6.90%

Researchers further examined institutions’ collaborations with Faculty/Instructional Staff/Research Staff by asking the following: “For collaborative digital scholarship activities with faculty/instructional staff/research staff, what percentage of overall efforts by library employees primarily supported” 1) research and scholarship, 2) teaching and learning, 3) service and community engagement, 4) other concentration.

21 respondents provided an answer to this question. The chart below includes all responses to this question as well as the average (arithmetic mean) of all responses. Respondent name/institution has been omitted.

<b>Respondent</b>	<b>Research and scholarship</b>	<b>Teaching and Learning</b>	<b>Service and Community Engagement</b>	<b>Other Concentrations</b>
Omitted	50%	30%	20%	0%
Omitted	80%	20%	0%	0%
Omitted	50%	50%	0%	0%
Omitted	30%	10%	60%	0%
Omitted	45%	35%	10%	10%
Omitted	60%	40%	0%	0%
Omitted	25%	25%	25%	25%
Omitted	30%	40%	30%	0%
Omitted	90%	0%	10%	0%
Omitted	30%	30%	30%	10%
Omitted	90%	10%	0%	0%
Omitted	50%	25%	25%	0%
Omitted	100%	0%	0%	0%
Omitted	45%	45%	10%	0%
Omitted	30%	60%	10%	0%
Omitted	45%	15%	25%	15%
Omitted	25%	25%	25%	25%

Omitted	75%	0%	25%	0%
Omitted	50%	50%	0%	0%
Omitted	100%	0%	0%	0%
Omitted	55%	45%	0%	0%
	<b>Mean Response</b>	<b>Mean Response</b>	<b>Mean Response</b>	<b>Mean Response</b>
	55.00%	26.43%	14.52%	4.05%

Respondents were asked to estimate the number of times in the last 12 months that a library employee at their institution has been:

- Credited with authorship on a published web-based digital scholarship project.
- Credited with authorship on a peer-reviewed academic publication pertaining to a DS/DH/DR.
- Credited with authorship on a non peer-reviewed academic publication, white paper, or other scholarly work pertaining to a DS/DH/DR.
- Presented a program at a scholarly or professional conference pertaining to a DS/DH/DR project.
- Presented a program at a non-scholarly public event pertaining to a DS/DH/DR project.

21 respondents provided an answer to this question. The chart below includes all responses to this question as well as the average (arithmetic mean) of all responses. Respondent name/institution has been omitted.

<b>Respondent</b>	<b>Authorship on a published web-based digital scholarship project</b>	<b>Authorship on a peer-reviewed academic publication...</b>	<b>Authorship on a non peer-reviewed academic publication, white paper, or other scholarly work...</b>	<b>Presented a program at a scholarly or professional conference...</b>	<b>Presented a program at a non-scholarly public event...</b>
Omitted	5	2	2	10	3
Omitted	0	0	0	0	0
Omitted	1	1	0	3	1
Omitted	4	1	1	1	1
Omitted	2	2	2	8	2
Omitted	0	1	3	3	1
Omitted	0	0	0	0	3
Omitted	0	1	3	1	3
Omitted	0	0	0	0	10
Omitted	2	0	1	10	3

Omitted	5	0	3	0	5
Omitted	0	0	0	2	1
Omitted	2	1	1	0	0
Omitted	0	1	0	0	0
Omitted	10	0	0	10	0
Omitted	1	0	0	1	0
Omitted	5	2	5	5	5
Omitted	0	0	0	4	5
Omitted	0	0	0	4	15
Omitted	0	0	0	4	0
Omitted	2	2	2	10	0
	<b>Mean Response</b>	<b>Mean Response</b>	<b>Mean Response</b>	<b>Mean Response</b>	<b>Mean Response</b>
	1.86	.67	1.10	3.62	2.76