**Introduction**

In April 2013, the Kelvin Smith Library issued a *White Paper: Envisioning Freedman Center 2.0: Campus Partnerships to Advance Faculty and Student E-Research Through the Freedman Center for Digital Scholarship Center at Case Western Reserve University*. That paper defined the potential future state of digital scholarship at CWRU, including how service providers across campus might work together to provide effective support throughout the research lifecycle. (The research lifecycle is shown in Figure 1, and a fuller definition and explanation can be found in the Addendum to this document.)

The *White Paper* recognized that increasingly the methods and tools of digital scholarship are essential for research in and across all disciplines. The development of a coordinated program to support digital scholarship should be a high priority for CWRU to retain our institutional competitiveness in research, encourage multi- and interdisciplinary research, and deliver support through cooperatively designed and delivered services. If effectively deployed, this could be a key differentiator for CWRU faculty and student recruitment.

The description of the research lifecycle as outlined in the *White Paper* identified potential services for and providers of digital scholarship. The model outlined was informed by extensive research that was conducted by a three-person team following a process outlined by the Association of Research Libraries concerning e-research, and by site visits by KSL, ITS and faculty to other universities. The purpose of that paper was to stimulate campus discussion on how best to implement these services, and to gain possible interest by other service providers on campus.

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1 Digital scholarship (or e-research) is a growing field applicable across all disciplines that encompasses both traditional methods of research and new technologies (such as GIS data, visualization, and big data) to advance research and educational processes. The terms "e-research" and "digital scholarship" encompass tools, technologies and services that enhance and expand the methodologies that are endemic to traditional (or analog) scholarship. A further discussion about the nature of digital scholarship appears in the Addendum to this paper.
Following the issuance of the White Paper, KSL held discussions with faculty, academic leaders, and others to gather reactions to the ideas outlined in the paper, and to test possible strategies for implementation of the concepts described in the paper. From these discussions, it was clear that there was strong support for the conceptual design, but uncertainty as to how the best path to encourage the growth and support for digital scholarship at CWRU. This Call for Participation and Action sets forth a plan based upon what was gleaned through prior campus discussions. The intent is to move from a reactive phase into a process of conversations that enable us to identify and implement specific actions that will advance the development of digital scholarship at CWRU.

**Institutional Context for Moving Forward**

The new University strategic plan, Think Beyond the Possible: 2013-2018, envisions that CWRU will undertake a number of new strategic efforts that directly relate to digital scholarship. In particular, the plan articulates that the University will: advance interdisciplinary learning and research; fire the imagination through artistic endeavors; promote the expansion of research and education; expand existing and develop bold new interdisciplinary collaborations; advance student learning experiences through the innovative application of technology; grow the prominence and relevance of research opportunities for students; and, grow graduate student career opportunities. Specifically, the plan states that the University will encourage entrepreneurial thinking across campus, such as by “completing the redesign of the Freedman Center for Digital Scholarship as an incubation space for creative and collaborative endeavors available to faculty and students who wish to engage in advanced research employing digital scholarship methods and technology.”

Attainment of all of these goals requires new forms of interdisciplinary research. This, in turn, requires that the University offices that support research begin to develop and employ new cross-institutional service models. Increasing the coordination of digital scholarship services at CWRU is a unique opportunity at a key moment. As we foster the development of this new institutional culture of digital scholarship, we must also create a new infrastructure to support it. As the College and Schools design their strategic plans to align with these University’s goals, so too must academic support units begin to cooperate to deliver these bold new services. If we are successful in this process, this could well become a prototype for other future cross-institutional collaboration across the University.

A number of organizations on campus each developed significant digital scholarship building blocks, but no single organization has the resources to deliver the depth and breadth of necessary services entirely on its own. The present Call does not present a costly new program built from the ground up. This also is not a comprehensive program that is to be implemented all at once. Rather, we seek to create a new *alliance of willing partners to build upon the significant record of past successes* in support of digital scholarship. In alignment with the University’s strategic plan, this alliance will serve as an *incubator and hub of campus activity to support the University’s strategic directions in research, innovation and academic excellence.*

**The Digital Scholarship Alliance to Support the Research Lifecycle**

Digital scholarship thrives in a culture of collaboration. To optimize the level of services available to faculty and students, the digital scholarship partners must be able to provide coordinated support throughout the entire research lifecycle. Existing staffing and partnerships provide a strong foundation that builds upon the work already being done by the Freedman Center for Digital Scholarship, the Baker-Nord Center for Digital Humanities, Information Technology Services (ITS), UCITE, the Office of Research and Technology Management, the Graduate School, think[box], and others.
It is imperative for CWRU to place a high priority on the development of digital scholarship services because increasingly it is the way in which much research is and will be conducted in most or all disciplines. Academic and technical support will be essential to our continued institutional success in research. Other leading institutions are already well invested in this area. CWRU will need to ensure our services are effective and state-of-the-art if we are to remain competitive.

The alliance described herein is to be developed through a process of “community-building through conversations.” This is a fiscally responsible solution. Willing alliance partners will coordinate their efforts and identify the resources (financial, staff, technology, etc.) that they might contribute to the collaborative effort. This will ensure a minimum of redundancy of institutional efforts. Collectively, the alliance of service providers can engage in conversations with faculty researchers to cross-fertilize ideas and learn about and create new services. For example, the Freedman Center for Digital Scholarship has offered to serve as a physical campus hub that not only provides access to technology, but also meeting, education and consultation space in support of digital scholarship – regardless of whether the consultation services are provided by KSL itself, or other alliance partners such as ITS, the Baker-Nord Center, a school, or another partner. To advance this effort, KSL is inviting the alliance service partners to participate in the redesign the center and recommend priorities for allocation of additional resources that have become available through a recent gift of the Freedman family. KSL encourages other alliance partners to consider how they might contribute to this collaborative effort through staffing or other resources.

THE CALL FOR PARTICIPATION AND ACTION

Two groups, the faculty and student researchers and the digital service providers, must begin to engage in regular conversations, both within and across their communities. For a time, these conversations may have somewhat different objectives and proceed on separate but parallel and interactive paths. For example, the community of researchers may engage in a range of meetings and events to learn from each other or share their experiences. To predict and be prepared to deliver services that meet faculty and student researcher needs, the service provider community must engage in coordinated conversations to better understand how their services can mesh. The conversations across the two communities will continuously converge. These relationships are illustrated in Figure 2 and described in more detail below.

Figure 2: Interactive Conversations Among and Between Researchers and Service Providers
• **Researcher Community Conversations.** The researcher community encompasses all interested faculty and student researchers. Recognizing the differing nature of the research in which they engage, it may be desirable to subdivide the communities into three sub-communities: (1) faculty, (2) graduate students, and (3) undergraduate students.

The conversations within the researcher community aim to increase faculty and student engagement, and to provide information among researchers about digital scholarship through the sharing of their experiences. These discussions should lead to the discovery of possibilities as to how their research may be improved by employing methods and tools that may (or could) be available to them. The conversations may take place through a series of formal or informal lectures or gatherings, as well as other forums. To ensure a sustained level of activity, the scheduling and support of such events and activities initially may need to be sponsored or facilitated by the service providers. If planned and executed successfully, these ongoing campus conversations should begin to cultivate organically a culture of digital scholarship across the University.

• **Service Provider Community Conversations.** Service providers have different roles than researchers, and so the nature and format of their conversations must be structured differently. To deliver effective services, providers must understand and predict faculty and student needs so that the proper expertise, tools and infrastructure are in place when researchers need them. One means of information gathering should be regular attendance by providers at the researcher events and activities described above. By doing so, providers can gain great insights on the services they need to craft and provide. Additional information gathering, such as best practices from other institutions, must also be conducted regularly.

Digital scholarship support will be complex. Neither the expertise nor the resources necessary to support digital scholarship can or should reside within a single University operation. Building upon the University’s alliance model, and consistent with the CWRU institutional culture, a collaborative approach must evolve organically so key organizations can identify how they can best to coordinate services among themselves. Ultimately, while the services to be delivered may emanate from multiple providers across campus, the objective should be for the service delivery to be seamless from the perspective of faculty and student researchers.

• **Cross-Community Conversations.** The conversations among and between these two communities should not occur in isolation. For example, in addition to attending researcher events and activities, service providers should be conducting ongoing interviews and focus groups. Researchers should be invited to participate in information gathering activities of the service providers (such as site visits to leading national digital scholarship programs). Through continuous and interactive cross-community conversations, service providers will better understand the needs of researchers, and the researchers will learn about the available services.

**VISION AND OUTCOMES**

As the efforts described in this *Call* begin to take hold over the next five years, CWRU researchers will increase the adoption of digital scholarship methods and opportunities, and service providers will better collaborate to enrich their service offerings. Other desired outcomes include:

• **Researchers** may enjoy greater research productivity by being able to generate deeper research results. This should enable research produced at CWRU to be more widely disseminated and cited, and improve faculty opportunities for tenure, promotion, and competitiveness for research funding.
Graduate and undergraduate students will be more competitive in the marketplace having conducted their research in an environment that is nationally and internationally recognized as a cutting-edge premier research institution.

- **Service providers** from organizations across campus will work seamlessly as one virtual organization. Researchers will find it easy to access and employ the available services. The CWRU digital scholarship service provider community will be known on campus and nationally as a leader in the development of best practices, and for the ability to deliver services that are consistently timely, accurate, and accessible and highly responsive to researcher needs.

- **Working Together.** The development of these communities of interest, combined with improved coordination of services, will not only invigorate the academic environment, but also be delivered in a fiscally responsible way that minimizes the redundancy of effort among the providers. Over the next five years, this digital collaborative should enable CWRU to:
  1. build a culture and strong digital scholarship community of faculty and student researchers;
  2. identify the unique role that each service provider should play in the delivery of seamless services to the CWRU community;
  3. improve communications, information sharing, and awareness among the providers about available and potential services;
  4. enable the potential launching of a limited number of coordinated joint demonstration or pilot projects to grow CWRU digital scholarship through a process of experimentation;
  5. identify additional services, infrastructure, and expertise to advance digital scholarship; and,
  6. create a prototype for a collaborative process at CWRU that demonstrates the power of conversation to build deep and productive partnerships on an inter-organizational basis.

**Next Steps: Moving the Conversations Forward**

**Researchers.** For researchers, the conversations may take the form of lectures, educational sessions, or informal meetings of digital scholars. The researchers will be able to discuss their research and the methods they are employing, and they can set out their requirements for future research. Such sessions should build upon activities already in place, such as the colloquia on digital scholarship organized for the past two years by KSL and co-sponsored by the College of Arts and Sciences and Information Technology Services, or the series of lectures that the Baker-Nord Center for the Humanities conducts regularly.

Over time more informal conversations will become part of the institutional culture, but initially their formation is unlikely to be spontaneous. As an early activity, the service providers should be prepared to organize and facilitate such sessions through the development of a coordinated series of lectures and educational sessions with digital scholars, as well as convening of some of the informal conversational sessions.

**Service Providers.** To ensure that service providers engage in productive conversations, the group should begin by convening a series of meetings to identify areas of potential common interest and cooperation, and identify the best ways to move their cooperative efforts forward.

Initially, the invitations to participate in these organizational meetings should be issued to decision-makers and key staff of any operations within the University that self-identify as having a potential role in digital scholarship. Initially, representatives from at least the following operations be invited to participate:
• Baker-Nord Center for the Humanities
• College of Arts and Sciences
• Information Technology Services
• Kelvin Smith Library
• Office of the VP for Research Administration
• School of Engineering
• School of Graduate Studies
• think[box]
• UCITE
• Weatherhead School of Management

The purpose of the first set of meetings should be for participants to gain an understanding of the past, present and planned service roles for each operation, and to articulate the anticipated needs of the digital research community. Below is a sample list of some other potential discussions that the service provider community may undertake. The conversations should soon result both in agendas for action and the assignment of coordination responsibility among group members to ensure the continued growth of their efforts and actions. The list below is not intended for implementation all at one time, but rather the latter items are seen as activities that the conversations within the community may cause to evolve.

<table>
<thead>
<tr>
<th>Service Providers: Summary of Potential Actions Over Time</th>
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<tbody>
<tr>
<td>1. Conduct and facilitate conversations among researchers to identify research needs and modes of service delivery.</td>
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<tr>
<td>2. Inventory and map current and potential coordinated or shared services across the university, including strengths and potential gaps in services, technology, or facilities.</td>
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<tr>
<td>3. Develop cooperative processes for management of digital scholarship projects.</td>
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<td>4. Identify potential pilot projects for collaborative support.</td>
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<td>5. Expand shared funding for the digital scholarship service provider alliance.</td>
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<td>6. Communicate plans regularly with researchers.</td>
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1. **Facilitate and conduct campus conversations.** Facilitation and scheduling of informational and informal community-building sessions among the research communities will be essential not only to increase researcher awareness of digital scholarship opportunities, but also to inform the service providers as to the current and potential needs of researchers at all levels.

2. **Identify campus research needs and service delivery modes.** Services supporting digital scholarship exist today at CWRU, such as the Freedman Fellows program at Kelvin Smith Library, the ITS Research Computing department, and the Baker-Nord Center for the Humanities. To develop cooperative and seamless services, the providers should first inventory current areas of complementary and overlapping activities, expertise, or resources. This can lead to creation of a service roadmap that would maximize the areas strengths of each operation, and the articulation of a collective desired future state.

Particular attention should be paid to the role that each provider may wish to play in a comprehensive service delivery model, including the methods and technologies that can be made available to researchers through digital scholarship alliance. A sample of a possible inventory tool appears in Figure 3 below. As the cooperative activity grows, columns may be added to identify all of the digital scholarship partners, and rows added to articulate more specific roles of each of the providers.
**Figure 3: Sample Map of Digital Scholarship Services and the Service Providers**

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<thead>
<tr>
<th>Research Lifecycle</th>
<th>Services</th>
<th>Providers</th>
</tr>
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<tbody>
<tr>
<td>Consulting</td>
<td>General</td>
<td></td>
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<tr>
<td></td>
<td>Personal Team-based</td>
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<tr>
<td>Education</td>
<td>Self-Guided Classroom</td>
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<td></td>
<td>Learning Comm.</td>
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<tr>
<td>Production</td>
<td>Databases</td>
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<td></td>
<td>Websites</td>
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<td></td>
<td>Multi-Media</td>
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<tr>
<td></td>
<td>3D Printing</td>
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<tr>
<td></td>
<td>Digitization</td>
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<tr>
<td>Dissemination</td>
<td>Digital Case Publishing</td>
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<td></td>
<td>Open Access</td>
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<td>Big Data</td>
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<td></td>
<td>I.P. / Copyright</td>
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Inherent in any inventory or map is the recognition that different types of researchers (e.g., faculty, graduate students) or disciplines may at times require different types of services. The service provider alliance should consider development of a customized **research assistance plan** to ensure delivery of the right type of assistance at the right moment in the research lifecycle, e.g.,

- **self-service options**, such as for the use of certain facilities or technologies;
- **group training**, through a combination of online education (e.g., Lynda.com) and in-class sessions (e.g., expanded and enriched CaseLearns offerings) on advanced topics (e.g., video production, 3D printing, or application of geospatial data);
- **individual customized (concierge) services** to address services pertinent to an individual’s research (e.g., use or development of tools or technologies to address a unique research need); and,
- **general guidance**, including employment of a project manager who can integrate and guide the researcher throughout the digital scholarship lifecycle (regardless of which University operation is responsible for actual service delivery), or to bring together ad hoc teams to meet researcher needs.

3. **Develop cooperative processes for management of digital scholarship projects.** To predict and collectively manage the potential workload and workflow, a process to manage digital research projects may be desirable, including the identification of joint operating principles or memoranda of agreement not only among the service providers, but also between the alliance of service providers and the researchers whom they serve.

4. **Identify potential joint pilot programs.** Working collaboratively, service providers might identify programs or services they could jointly develop and deliver, or projects from the researcher community that are worthy of joint service delivery and support. Through joint experimentation on such projects, a model of service delivery may emerge. This will give service providers with the opportunity to work together to deliver a new level and type of service to the University research community.
5. **Coordinate and expand digital research support and project funding.** As the alliance service provider model begins to grow, expanded support may result through the following means:

   a. **Improved effectiveness.** One example of a possible means to improve service effectiveness is the development and delivery of a coordinated application process for small University grants to support digital research projects. At present, there are number of separate funds to support digital scholarship that currently are administered separately by different offices, such as the Baker Nord Fellows, Freedman Fellows, ITS Fellows, and College and School faculty grants. Rather than requiring faculty to discover and separately apply for funding from each source, consideration should be given to implementation of a coordinated University program, perhaps with a “common application” and a joint faculty review board to determine awards. The board might also be given some flexibility to combine funds from multiple sources for projects of exceptional merit that may require higher levels of funding. The faculty review board could weigh the scholarly value of the proposed projects, while the service providers could assess project feasibility and requirements, such as staffing, technology, or other resources. In support of this joint application process, providers also could supply educational programs for the researcher community to increase the likelihood of their projects being funded.

   b. **Student funding.** Worthy of joint exploration might be the creation of a program to provide undergraduate and graduate students with research grants to support work that requires digital scholarship. Such support could be not only support the direct expenses of students, but also to identify existing staff or technology resources that would be of general benefit for students who are engaged in Capstone projects, dissertations, theses, or other research that entails digital scholarship.

   c. **Expansion of External Funding.** Working with University Development and outside vendors, the service providers working together should be able to create a coordinated approach to increase the access to additional outside funding in support of specific projects and for digital scholarship services in general on campus.

6. **Develop and jointly implement a communications plan** so researchers have better information about the opportunities to support their work. Through coordinated marketing efforts, the availability of resources and starting points for this type of service can be clearly communicated to campus. This can be done using traditional marketing routes, social media, through presentation to campus committees, or use of public displays, such as KSL’s Public WOW and the ITS visualization walls.
Addendum
Defining Digital Scholarship and the Research Lifecycle

Defining Digital Scholarship

Digital scholarship (or e-research) is a growing field that encompasses both traditional methods of research and new technologies (such as GIS data, visualization, and big data) to advance research and educational processes. These emerging new methods of digital scholarship are applicable to all disciplines, and increasingly they involve interdisciplinary and global collaborations.

Just as the term e-business became just everyday business, digital scholarship will eventually become synonymous with much of scholarly research in the future. Today, the terms “e-research” and “digital scholarship” help to identify tools, technologies and services that enhance and expand the methodologies that are endemic to traditional (or analog) scholarship. The challenge will be to engage scholars so we can understand the research process from the perspective of the researcher, and to integrate digital scholarship in ways in which it may add value as seamlessly as possible.

The expertise and resources necessary to support such a wide-ranging endeavor cannot and should not reside in only one place within the university. The Call for Participation sets for a process of conversations that may lead to an alliance to support digital scholarship at CWRU by enabling the organic convergence of efforts, expertise, platforms, management, etc.

The Digital Scholarship Research Lifecycle

The alliance of cooperating partner organizations will enable faculty and students to move through the research lifecycle with the campus transitioning from a fragmented support model to a fully collaborative approach, the campus partners should work together to integrate services in support of three key roles that are inextricably linked within this process.

1. **Concept and Research: Education and Customized Consultation.** At the beginning of the research process, the partners will provide general education for members of the academic community on a wide range of issues (such as data management and intellectual property). As a faculty or student research project progresses, the alliance partners would work collaboratively with faculty and students to provide customized consultation to develop appropriate digital scholarship methodologies, techniques, and media resources that can be delivered live or virtually, whether on campus or internationally. This expertise currently resides in multiple organizations on campus, and some additional expertise must be secured collaboratively to enable deeper and richer levels of research.

2. **Creation: Scholarly Production.** Throughout the process, the partners must work with faculty and students to clarify research topics, resources, techniques and tools, and recommend potential digital scholarship solutions. For example, one partner might provide specialized support, such as for geospatial and statistical data analysis or digitization and text encoding, while another campus partner could the expertise and technology infrastructure to enable this scholarly production through data visualization.

3. **Dissemination: Publication, Curation & Archiving.** Specialized services and tools are essential for data and database management. There is a large role and responsibility that begins with the storage and retrieval of Big Data on a breadth and scale that we have not witnessed heretofore. For example, the Library can bring particular expertise to bear through the next generation of the Digital Case digital
repository, as well as work with campus partners to coordinate efforts to curate data that will ensure permanent accessibility to data generated by CWRU researchers and do so in ways that adhere to the standards required by NIH, NSF and other grant agency mandates.

This research process, and the potential services that the Library and campus partners can provide, is illustrated below in the illustration below.