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Coalition for Networked Information

**An Introduction
&
Program Plan 2012-2013**

CNI STEERING COMMITTEE, 2012-2013

Daniel Cohen, George Mason University, at large member, 2012-2013

Jeffrey Horrell, Dartmouth College, representing ARL, 2010-2013

Thomas C. Leonard, University of California, Berkeley, representing ARL, 2012-15

Charles B. Lowry, Association of Research Libraries, *ex officio* member through Dec. 2012

Clifford A. Lynch, Coalition for Networked Information, *ex officio* member

Kathryn Joan Monday, University of Richmond, representing EDUCAUSE, 2011-2014

Diana G. Oblinger, EDUCAUSE, *ex officio* member

Carrie E. Regenstein, Carnegie Mellon University, representing EDUCAUSE, 2010-2013

Elliott Shore, Bryn Mawr College, representing EDUCAUSE, 2012; Association of Research Libraries,
ex officio member beginning Jan. 2013

Tyler O. Walters, Virginia Polytechnic Institute and State University, representing ARL, 2011-2014

Donald J. Waters, The Andrew W. Mellon Foundation, at large member, 2012-2013

CALENDAR OF KEY MEETINGS

- 2012 Fall Membership Meeting, Washington, DC – December 10-11, 2012
- 8th International Digital Curation Conference: *Infrastructure, Intelligence, Innovation*, Amsterdam – January 14-16, 2013
- 2013 Spring Membership Meeting, San Antonio, TX – April 4-5, 2013
- 2013 Fall Membership Meeting, Washington, DC – December 9-10, 2013

CNI STAFF

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Coalition for Networked Information

An Introduction & Program Plan 2012-2013

Mission

The Coalition for Networked Information (CNI) is an organization to promote the transformative promise of networked information technology for the advancement of scholarly communication and the enrichment of intellectual productivity.

Background and Leadership

The Coalition for Networked Information (CNI), a joint initiative of the Association of Research Libraries (ARL) and EDUCAUSE, promotes the use of digital information technology to advance scholarship and education. In establishing the Coalition under the leadership of founding Executive Director Paul Evan Peters, these sponsor organizations recognized the need to broaden the community's thinking beyond issues of network connectivity and bandwidth to encompass digital content and advanced applications to create, share, disseminate, and analyze such content in the service of research and education. Reaping the benefits of the Internet for scholarship, research, and education demanded—and continues to demand—new partnerships, new institutional roles, and new technologies and infrastructure. CNI seeks to advance these collaborations, to explore these new roles, and to catalyze the development and deployment of the necessary technology base.

Since its founding in 1990, CNI has addressed a broad and diverse array of issues related to the development and use of digital information in research and education environments. As the premier organization fostering connections and collaboration between library and information technology communities, we represent the interests of a wide range of member organizations from higher education, publishing, networking and telecommunications, information technology, government agencies, foundations, museums, libraries, and library organizations.

CNI is supported entirely from dues paid by its over 200 member institutions. Membership in the Coalition is open to all organizations—both for-profit and not-for-profit—that share CNI's commitment to furthering the development of digital information in the networked environment. We view our members as partners in advancing the Coalition's mission. Fall and spring membership meetings are CNI's flagship events, bringing together hundreds of representatives for a comprehensive update on critical issues.

CNI's program is guided by a Steering Committee to which sponsor organizations ARL and EDUCAUSE each appoint three representatives drawn from their member leadership; the current roster of Steering Committee members appears on the inside front cover of the printed Program Plan. Three "at large" representatives on the Steering Committee contribute additional perspectives. The chief executives of ARL, EDUCAUSE, and CNI serve as *ex officio* members of the committee.

CNI Executive Director Clifford Lynch has led the organization since 1997. Joan Lippincott, CNI's Associate Executive Director, has served since fall 1990. For more information about the Coalition's history and contributions, see the CNI website, www.cni.org.

Program Themes

CNI's work is structured around three central themes that we believe are the essential foundations of the vision of advancing scholarship and intellectual productivity:

- **Developing and Managing Networked Information Content**

The Coalition has played a central role in ensuring that the network richly engages the needs of scholarship, teaching and learning. We bring together many diverse groups that create and manage content, and work with these communities to advance the deployment and stewardship of networked information resources. Changes in scholarly practices (particularly those shorthanded

by “e-science” or “e-research”) require a close and continuing examination of information creation, aggregation, exchange, reuse, and preservation throughout the research and education community and society broadly; these developments, and the evolving roles of higher education and cultural memory institutions in facilitating and supporting them are a central part of the CNI agenda. Working within these contexts and others, CNI furthers the development of economic, policy, social and legal frameworks to sustain the creation and management of digital information and to facilitate its access.

• **Transforming Organizations, Professions, and Individuals**

The pervasiveness of ubiquitously accessible digital information is transforming institutions, professions, and the practices of learning and scholarship. CNI focuses on the unprecedented need for collaboration among libraries, information technology and instructional technology groups, faculty, museums, archives, university presses, and other units in order to achieve success in this environment. In addition, we promote new alliances and partnerships with publishers, information technology and network service providers, scholarly societies, government, and other sectors. Organizations must understand their constituencies and adapt their services and facilities to current needs; they must develop and share new strategies, policies, and best practices. Professions need to develop new competencies and enter into new dialogues that cross traditional disciplinary boundaries. CNI seeks to facilitate these collaborations and dialogues and to help professions and institutions work together in program strategy formulation.

• **Building Technology, Standards, and Infrastructure**

The networked information environment relies on the development and deployment of standards and infrastructure components in order to enable the creation, discovery, use, and management of digital information on the Internet. The ability to use collections of resources in a unified, consistent fashion is essential and requires a continuing focus on interoperability of services. At the same time, promising new technologies need to be explored, assessed and tested, and sometimes adapted to the needs of the CNI community. No one institution acting alone can build the needed infrastructure or explore the full range of new technologies as they become available; it requires a coordinated, community-wide effort that also reaches out to other communities, such as the world of e-research. CNI seeks to highlight links between technology and policies at all levels, to offer a context for collaborative experiments and test beds, and to serve as a focal point for sharing knowledge about new technologies.

The specific program initiatives that further CNI’s themes evolve from year to year. The initiatives and strategies planned for 2012-2013 are described in the Program Plan portion of this publication; most build upon and continue efforts already underway. Many of the initiatives seek to make strategic progress relevant to more than one theme.

It is important to recognize that the digital information environment is still changing rapidly. CNI is continually adapting its activities in response to new developments and opportunities. Indeed, CNI believes agility is essential in the current environment and invites a continuous dialogue with its members on the need for additional program initiatives. Because of this, the 2012-2013 Program Plan should be viewed as a snapshot of our thinking about priorities and opportunities as of late 2012 that will inevitably develop further during the coming year.

Policy and Consultative Activities

CNI acts as an important and respected voice on behalf of our community in a wide range of national and international policy venues. This is accomplished through our participation in the ongoing scholarly dialogue; through collaboration with key funding agencies, such as the National Science Foundation (NSF), the Institute of Museum and Library Services, the National Endowment for the Humanities, The Andrew W. Mellon Foundation, the Alfred P. Sloan Foundation, and the Joint Information Systems Committee (JISC); through work on advisory groups of organizations such as ITHAKA, OCLC, the American Library Association (ALA), and Microsoft Research; through service on numerous visiting and advisory committees for our member institutions; through contributions to standards efforts and standards organizations such as the National Information Standards Organization (NISO); and through participation in organizations such as the Internet Society.

Of particular note in this area are our recent contributions to the Library of Congress's National Digital Information Infrastructure and Preservation Program (NDIIP), to various studies and programs conducted by the U.S. National Research Council, particularly in conjunction with the Board on Research Data and Information (BRDI), to the Campus Bridging Task Force of the NSF Advisory Committee on Cyberinfrastructure, to the Blue Ribbon Task Force on Sustainable Digital Preservation and Access, to the NSF-funded study on software sustainability, and to the ALA Working Group on Libraries and Digital Content.

As a contributor and participant within a complex ecosystem of organizations that share common interests, CNI works with Internet2 on advanced networking applications and standards; with the Council on Library and Information Resources (CLIR) on scholarly communication, cyberinfrastructure, and preservation issues; with the New Media Consortium on the exploration and use of new media and new technologies in higher education; with the Learning Spaces Collaboratory on development of principles for technology-enabled spaces that enhance learning; and with ALA on policy and professional development activities. Our contributions extend to the programs of our sponsor organizations, ARL and EDUCAUSE, particularly to the EDUCAUSE Learning Initiative (ELI) and the Advanced Core Technologies Initiative (ACTI).

In addition to specific initiatives to address CNI's overarching program themes, the Coalition actively conducts an ongoing program of collaboration and advocacy to advance the development of digital information and its role in transforming organizations and scholarly activities. To this end, CNI works with scholarly societies, government agencies, publishers, and others.

On an international level, we collaborate with other organizations concerned with networked information, including the UK Office for Library Networking (UKOLN), the Digital Curation Centre (DCC), and the Joint Information Systems Committee (JISC) in the UK, the German Initiative for Networked Information (DINI), the German Research Foundation (DFG), Denmark's Electronic Research Library (DEFF), the SURF Foundation (the Dutch higher education and research partnership organization for network services and information and communications technology), and the Confederation of Open Access Repositories (COAR).

CNI works to provide our community with frameworks for understanding key networked information issues so that institutions can develop strategies to address these issues on the local, regional, or national level. We write white papers, reports, and articles, we present talks at conferences, and we make institutional visits that may involve meetings with campus leaders and presentations at public events and seminars.

CNI alerts its community to our organizational activities, significant new publications, and important developments in the field via the CNI website, the CNI-ANNOUNCE e-mail list, and the CNI News RSS. Information about CNI's activities is also available through Twitter (twitter.com/cni_org), which serves as a complement to other communication channels. Through the free podcast series CNI Conversations, we provide reports and commentary on current topics (www.cni.org/cni-conversations). We also make video of selected sessions from our membership meetings publicly available from CNI's YouTube and Vimeo channels (www.youtube.com/cnivideo, vimeo.com/channels/cni).

Meetings

The Coalition's semiannual membership meetings, scheduled for December 10-11, 2012, in Washington, DC, and April 4-5, 2013, in San Antonio, TX, highlight activities related to CNI's program themes, focus attention on significant new thinking and technology developments, and provide opportunities for members to showcase and discuss a wide range of emerging issues and developments in networked information. Some participants have developed knowledge communities within CNI and use the meetings as an opportunity to share ideas on a particular aspect of networked information and to incubate new initiatives. Each member organization is invited to send two delegates, typically a senior information technologist and a senior librarian. Meeting participants are introduced to new developments that may reshape institutional plans in a forum that encourages collaborations and dialogues with others who share common interests.

CNI has a long history of being the first to offer discussion of major networked information developments, including the early Web browser Mosaic, the National Science Foundation's (NSF) Digital Libraries Program, the Google Books Scanning program, and NSF's DataNet awards. CNI regularly co-sponsors an event in partnership with JISC and UKOLN as part of our ongoing collaboration with these programs. CNI occasionally convenes invitational or public workshops to advance specific elements of its program plan. We also serve as co-sponsor for other meetings relevant to the CNI agenda, such as the 8th International Digital Curation Conference, "Infrastructure, Intelligence, Innovation: Driving the Data Science Agenda," to be held January 14-16, 2013, in Amsterdam. In addition, CNI co-sponsored the Theory & Practice of Digital Libraries Conference (TPDL), in Pafos, Cyprus, on September 23-27, 2012, and will serve in this capacity again for TPDL 2013, to be held in Valletta, Malta on September 22-26, 2013. CNI will also serve as a cooperating organization for several other conferences, including the Personal Digital Archiving Conference in College Park, MD, on February 21-22, 2013, the IS&T Archiving Conference on April 2-5, 2013, in Washington, DC, the Open Repositories 2013 meeting in Charlottetown, Prince Edward Island, Canada on July 8-12, 2013, and the Joint Conference on Digital Libraries (JCDL) to be held in Indianapolis, Indiana on July 22-26, 2013.

PROGRAM PLAN 2012-2013

Developing and Managing Networked Information Content

The Coalition has broad interests across all forms of digital content that can be used to support research and education. We provide a forum for information on leading projects in this arena, including a showcase at CNI membership meetings for innovative faculty projects from our member institutions. In addition, we track developments and promote strategies for the creation of digital collections, digital libraries, and federated services in support of digital content. Further, because digital content cannot be divorced from the processes of teaching, learning, and scholarship that both create and rely upon that content, CNI is deeply involved in issues related to changing practices of scholarship, the restructuring of scholarly publishing (including changes in processes like peer review), and the broader transformation of scholarly communication, and innovation in teaching and learning. Through our membership meetings, specialized conferences and workshops, collaborative initiatives with other organizations, and publications, we provide leadership on digital content policy and new directions in scholarly communication.

• Institutional and Disciplinary Implications of E-Research

For over a decade, the Coalition has led programs to chart, understand, and facilitate the transformation of scholarly practice through the use of digital content and advanced information technology in an area that has come to be shorthanded as e-research (or, in the sciences, as e-science). In the sciences and engineering, CNI has been heavily involved in helping the higher education and library communities understand and frame emerging issues in cyberinfrastructure and e-science, with a primary focus on data sharing and data curation issues. In the arts and humanities, CNI, working with a wide range of partners, has a long record of leadership in computing and the humanities, and of efforts to build collaborations with the museum and archives communities, as well as with libraries.

In the 2012-2013 program year, CNI will continue to engage e-research developments both in the sciences and the humanities, but more selectively than in past years. While there is new urgency in this area in light of the requirements for data management and data sharing plans as part of grant proposals that the US National Science Foundation (NSF), the US National Institutes of Health, and a number of other funders have now put in place, a wide range of organizations, including EDUCAUSE and the Association of Research Libraries, now have aspects of data stewardship issues on their agendas. It is our intention to support these efforts but not to duplicate them. There are specific challenging areas where CNI expects to continue to provide direct leadership, including efforts to understand criteria for retention, re-use practices, issues related to data involving human subjects, aspects of large-scale infrastructure, reproducibility of results, and the effectiveness of funder policies.

Faculty investigators need guidance from both their funders and their home institutions on how best to meet these requirements, and they will be demanding new services at both disciplinary and institutional levels; CNI member institutions are leading the development of a wide variety of such services. The NSF has launched major programs addressing data curation and continues to evolve and reshape these programs, and we have seen the launch of other potentially important efforts like the Digital Preservation Network (DPN) and the Research Data Alliance; we will be highlighting developments from these programs in our membership meetings.

The need to continue to understand evolving scholarly practice in the sciences, social sciences and humanities is vital in informing future planning by our members. We will continue to feature humanities projects such as those supported through the National Endowment for the Humanities

Office of Digital Humanities, the Institute of Museum and Library Services (IMLS), The Andrew W. Mellon Foundation, and the multi-sponsor, international Digging into Data initiative, emphasizing computationally intensive research enabled by a robust infrastructure, as well as innovation in the sciences, social sciences and other disciplines.

CNI is concerned with questions about availability of data related to scholarly work, and has been engaged in a number of discussions around open access, open science, and open data as they relate to this question, as well as discussions about disciplinary norms for data sharing. We will also continue to explore and document the ways in which data and computationally intensive scholarship are altering the nature of scholarly communication; the issues here include the legal and technical barriers to large-scale text and data mining; appropriate organizational, policy and technical strategies for linking articles and underlying data; and ways to construct scholarly works that are amenable to various combinations of human and machine use. Critical new developments here include the emergence of virtual research environments as arenas for the interoperation of data and tools from multiple sources, and the need to better understand the complex architectural questions about the relationships among repositories, operational storage systems, e-research workflows, high performance network connectivity and powerful computational resources. We are also tracking the development of a range of scholarly community spaces such as Hubzero instances, Mathoverflow and Stackoverflow, and the MLA Commons that will launch in 2013.

Connecting our work in e-research directly to our program focus on institutional content resources, CNI will continue to examine institutional policy and planning implications of campus cyberinfrastructure initiatives in both the sciences and humanities, and consider how these can complement national or international cyberinfrastructure investments and strategies at disciplinary and cross-disciplinary levels.

• **Digital Preservation**

Closely related to, and supporting the programmatic focus on stewardship of institutional content resources is the Coalition's continuing work on preservation of a wide variety of digital content. This is a central issue not only in the shift to network-based scholarly communication, but also in ensuring the continuity of the broad cultural and intellectual record in the digital age and the continued availability of evidence to support future scholarly inquiry. The issues here are not simply technical, but represent a fundamental social and public policy challenge with wide-reaching implications; we are particularly interested in trying to define and characterize the ever growing range of materials that should constitute parts of our cultural and intellectual record, including new areas such as social media in the broadest sense. CNI works closely with organizations such as ARL, the Council on Library and Information Resources (CLIR), The Andrew W. Mellon Foundation, the Library of Congress, the US National Science Foundation (NSF), ITHAKA, the UK Digital Curation Centre (DCC), and OCLC on the full range of technical, economic, and strategy issues surrounding digital preservation.

We will co-sponsor and co-chair the DCC's 8th International Digital Curation Conference, which will take place in Amsterdam on January 14-17, 2013, and we will also act as a cooperating organization for several other conferences involved in digital archiving. Digital preservation progress will continue to receive extensive coverage at CNI membership meetings.

The wide-scale adoption of networked information services and the shift to digital content raises a set of new questions about risk management and business continuity planning for libraries and higher education institutions. CNI continues to track these risk management issues, exploring developments and experiences with so-called "cloud" storage systems and their implications for robust storage and digital preservation, as well as some of the thinking emerging from the exascale computing and massive storage communities on the development of resilient systems, and the ways in which these ideas can be applied to very large scale digital preservation.

Another area in which CNI has maintained a strong interest is in the changing nature of personal information storage and personal archiving, and the social and scholarly implications of these developments. A specific case in point is the institutional response to the acquisition of large, personal digital archives from scholars and researchers, as well as the personal archives of prominent intellectual, artistic, literary, political and similar figures. CNI will be involved again in the 2013 Personal Digital Archiving Conference, which will be hosted at the University of Maryland, College Park on February 21-22, 2013. The digital records of organizations are also poorly explored; a particular area of CNI interest is the changing nature of the academic record caused by the deployment of learning management systems, institutional repositories (IRs), large-scale lecture and event capture, and long-lived, collaborative resources jointly developed by faculty and students, and most recently massively open online courses (MOOCs); this will have lasting policy implications for special collections and institutional archives.

• **Institutional Content Resources and Repositories**

A centerpiece of CNI's work on networked information is built around the broad theme of the stewardship of institutional content resources—materials created by members of the institutional community, or that document the work, processes or intellectual and cultural life of an institution. The practice of such stewardship, which includes management, preservation, and access, is a central role for higher education and cultural memory organizations in the digital age. Our work here has two major components. One is to advance and structure the wealth of new digital content. The program includes our continuing efforts to understand and highlight experiments in the creation of new types of scholarly works for the digital medium, such as successors to the scholarly print monograph or the development of electronic theses and dissertations; the disposition of materials collected through lecture capture systems; the implications of mass digitization of materials to support scholarship; and the availability of digital representations for existing collections of physical materials held in libraries, archives, museums, and audio/visual and public broadcasting groups. The second major effort focuses on approaches to managing the wealth of new content through the development of strategies such as the deployment of IRs. Here CNI is addressing the full range of issues from policy and strategic planning through system architecture and standards for the management of complex digital objects.

We will continue to explore ways in which institutional strategies and systems need to connect to national and disciplinary-level data management and curation activities (such as those developing through the e-research initiatives described above), and some of the inter-institutional issues that arise from large-scale research collaborations and virtual organizations.

A continuing priority is a focused ongoing re-examination and re-assessment of IR services. The concept of the IR is about 10 years old; CNI was deeply involved in the initial conceptualization of IR services and in the development of implementation strategies for them. Platform alternatives have multiplied and matured, and understandings about costs, as well as barriers to successful deployment, have become much clearer. Indeed, we are seeing significantly different deployment trajectories in different nations, particularly in the context of subject repositories and other disciplinary data management frameworks, and these are leading to new policy issues and requirements for various kinds of interoperability standards. It is an appropriate time to document these developments.

We are particularly interested in ways in which the impact of IRs might be measured, and the ways in which IRs interaction with virtual organizations, faculty movement from one institution to another, and with stewardship of scholarly work associated with faculty retirements.

Transforming Organizations, Professions, and Individuals

The pervasive nature of digital content and networks has led to transformations in the way the research and education community does its work. In this program area, we focus on the impact of changing technologies, new modes of communication and content creation, and the pervasiveness of digital content on organizations, including the changing nature of teaching and learning, the need for new services and skills in the professions, and the pressure on physical facilities to accommodate changing needs of user communities. CNI has a longstanding commitment to highlighting and advancing organizational initiatives that facilitate collaborations across institutional units and professional cultures, with particular emphasis on collaboration between librarians and information technologists. We have also tried to extend the core library-information technology collaboration to encompass instructional technologists, faculty, publishers, electronic records managers, archivists, research managers and others. Our work on organizational and institutional issues includes a focus on evaluation and assessment strategies, recognizing the continuing need to understand the effects and contributions of advanced information technology and digital content.

We are monitoring a number of new developments in this area, including some of the implications of MOOCs, new models for e-textbook development and acquisition, and the growing importance of high-quality institutional databases of geo-referencing information.

• Today's Learners and Digital Environments

A cross-cutting theme informing our work on teaching and learning in recent years has been understanding the increasing population of students who have grown up with computer and information technologies. While these students are often described as very different from older generations in their use of technology, many of the characteristics of their uses of information and technology (such as actively exploring and developing their own learning environments, working in groups, and producing, not just consuming, digital resources) have also been incorporated into the lives of most adult professionals. We help institutions understand the need to reconfigure some of their services and their physical and virtual spaces to reflect the ways in which our students work with technology and information today.

As both students and faculty increasingly produce new digital information, sometimes incorporating parts of others' work, and often in complex social software contexts, they have a pressing need to understand a wide range of issues including intellectual property, privacy, preservation, format standards, and metadata creation. A variety of literacies—information, technology, and visual—are converging as students, faculty, and others produce innovative digital content.

• Implications of Mobile Technologies

The faculty, staff, and students in our institutions bring a variety of mobile devices to campus and also use mobile devices to access campus information and services when they are at home, commuting, at work, or abroad. They bring increasing expectations for seamlessly using a variety of devices to access all types of services and information. Surveys of the general public and of academics show the increasing variety of mobile device ownership and the mounting popularity of these devices for many activities, including accessing schedule information, receiving security alerts, reading e-books, accessing e-journals or preprint collections, and participating in social networking activities. Many libraries participate in e-book programs and some loan a variety of devices, including tablet computers, portable audio players, video cameras, netbooks, and laptops. A number of institutions are experimenting with the use of mobile devices in teaching and learning, and researchers use mobile devices for data collection and communication in the field. New applications involve sophisticated geo-tagged information and augmented reality, or the use of portable devices as distributed "sensors." Institutions are at varying stages of readiness in

determining policies, services, and strategies for mobile devices. We will encourage institutions to develop cohesive strategies as they enter the arena of provision of content and services for mobile devices, and we will highlight campus strategies that incorporate services from a wide variety of institutional units, including libraries.

- **Spaces and Services that Support Technology-Enhanced Research and Learning**

Campuses are building or renovating physical, technology-enabled spaces to support research and learning. CNI's focus continues to be on spaces that enhance new modes of teaching and learning, for example spaces configured to support collaborative student projects employing technology and a range of information resources. Our interest stresses aligning new services and new technologies within the spaces that have been built to enhance the teaching and learning mission of the institution. Spaces that promote the integration of content and technologies into student-produced work in a way that engages them in the academic enterprise (whether media labs, studios, information/learning commons, or specialized classrooms) are a particular focus. Our work also emphasizes how these spaces can provide mechanisms for a variety of professionals to collaborate to offer student-centered services. Librarians, instructional technologists, multi-media specialists, information technologists, and writing center staff are some of the partners who may work together to offer joint services in these types of spaces.

For several years, we have been highlighting digital scholarship centers as an emerging area of interest in both research and college libraries. These centers provide a suite of spaces, high-end technologies, and in-depth consultation for faculty, graduate students, and upper-level undergraduates working on capstone projects. In this program year, we will continue to explore digital scholarship centers in the humanities and other disciplinary areas. We will encourage a better understanding of the rationale and mission for a center, suggestions for good practice, and models of services.

The assessment of learning spaces has garnered increasing attention, and we will be working with our partners to explore principles and practices in this area. We are working with the EDUCAUSE Learning Initiative's Seeking Evidence of Impact program to examine the link between learning and use of technology-enabled informal learning spaces such as libraries, learning commons, and media labs. We partner with the Learning Spaces Collaboratory (LSC), which is exploring the intersection of research and practice in the planning of 21st century learning spaces. We co-lead the workshop *Library Space Assessment: Bringing the Focus to Teaching and Learning* at the Association of Research Libraries' Assessment Conference in fall, 2012.

- **Executive Roundtable**

CNI's Executive Roundtable series assembles executive teams (usually the chief librarian and chief information technology officer, but varying depending on the topic) from about 10 institutions for a focused discussion on a topic of interest on the morning of the first day of each membership meeting. Launched in 2003, the Executive Roundtables build on the theme of collaboration between librarians and information technologists that has been at CNI's foundation. Past topics have included institutional repositories, campus open access policies, learning management system strategies, identity management, learning spaces, funding innovation, the university's role in the dissemination of research and scholarship, lecture and performance capture, infrastructure to support research, risk management and disaster planning, and institutional strategies for multiple devices and platforms. For recent roundtables, we have placed summaries on the CNI website. The Fall 2012 Executive Roundtable will address developments in institutional publishing strategies, including libraries as publishers, the role of university presses, multi-institutional scholarly publishing strategies and related developments. The spring 2013 Roundtable is currently expected to focus on aspects of developments in scholarly identity management (see below).

Building Technology, Standards, and Infrastructure

CNI continues to be engaged in key areas of standards and infrastructure development. The Coalition is particularly concerned with facilitating the difficult and delicate transition of standards and technologies into operational infrastructure for the research, higher education and library communities. For example, federated identity management is becoming a key infrastructure component to support research using resources beyond a single campus. Another example, while there has been good work recently on linked data and on annotation, there are practical deployment questions about where data is actually hosted and where computation occurs that still need to be fully explored.

In addition to the specific program initiatives described here, CNI participates in and tracks a wide range of developments in areas as diverse as identifiers, digital books, metadata standards, distributed and federated network services, harvesting technologies, recommender systems, and personalization technologies. As we look at an evolving landscape that includes commercial Web search engines, traditional library automation tools such as online catalogs, stand-alone abstracting and indexing databases, systems deployed by scholarly publishers, museums, and other content providers, and learning management systems, the Coalition is concerned with architectural and standards frameworks that can facilitate integration and interoperation. This perspective has motivated much of our work over the last few years on cyberinfrastructure, IRs, the various components of the Open Archives Initiative (including the protocol for metadata harvesting, the object reuse and exchange protocol, and, most recently, the Open Annotation work), and learning management systems.

Currently, we see a number of trends that we believe will drive a renewed focus on standards and infrastructure, including the proliferation of mobile devices (smart phones, tablets, e-book readers), the move towards data resources as part of the infrastructure (changes in identity, bibliographic control, etc.), and the move towards cross-institutional systems (Web-scale discovery and resource sharing, cloud computing, and distributed storage). Many of them couple technical issues with policy challenges in novel ways. We have been exploring the issues in these areas through articles and presentations, executive roundtables and other programming at our membership meetings, and participation in a range of committees and advisory boards.

We also continue to track and inform our members about developments in technologies that promise to change the way we can capture or document objects and events digitally (for example, through developments in computational digital photography and image capture), and the way we can share or reproduce them (for example, through 3-D printing technologies).

• Institutional Infrastructure to Support Research

There is a renewed focus on campus infrastructure to support research programs. Developments include: policy, technical, and economic influences that are leading to a partial re-centralization of computing functions; radically new high performance network and distributed computing technologies; a rethinking of storage functionality and economics; requirements for long-term data management, curation and preservation; and growing faculty demands for informatics support services. An additional dimension of these needs involves information and technology intensive collaborations among groups at multiple campuses (sometimes characterized as collaboratories or virtual organizations) and virtual research environments that enable such collaborations. Complementing the organizationally oriented work on e-research already described, CNI is also concerned with the institutional and cross-institutional development of technical infrastructure, with a particular focus on large-scale storage and data management (discussed in more detail earlier), and on collaboration tools and environments. Of particular concern is the persistently difficult integration of investment in national level research infrastructure and campus-level investments and

approaches; we participated in the recent NSF Task Force on Campus Bridging, and are advising a new NSF-funded effort on sustainability of infrastructural software, as well as working closely with efforts such as the EDUCAUSE Advanced Core Technology Initiative (ACTI) working groups on campus cyberinfrastructure and on data, and relevant work within the Common Solutions Group.

Authentication and authorization are now established as essential infrastructure components for network-based services and have become a particularly critical need as institutions increasingly rely on site license agreements with information providers, implement online and distance education initiatives, and form consortia for resource sharing or educational initiatives. They are an essential underpinning for data sharing and data reuse. The Coalition has been supporting partners such as Internet2, EDUCAUSE, and InCommon in pursuing a program to define technology approaches, standards, best practices, and policy and business issues for such inter-organizational authentication and authorization infrastructures.

CNI takes a broad view of security, integrity, and access management issues as they relate to the management of licensed resources and the stewardship and preservation of digital content. New technological capabilities—notably the ability for users to amass and maintain massive personal digital libraries which include large amounts of copyrighted material drawn from licensed databases—continue to raise complex questions with both technological and policy dimensions. CNI believes that we must continue to explore new behaviors and practices such as the building of workgroup or personal collections, or large-scale, text and data mining that integrates published literature and public datasets with unreleased materials.

- **The Coming Convergence Of Identity Management, Biography, Bibliography and Social Discovery**

We will continue exploration of the potential future convergence, or at least linkage, between identities as established by campus-based identity management systems on one hand, and personal names as used in the context of scholarly communication, citation, and bibliographic control name authority on the other. Historically, these worlds have been almost completely separate and highly insular, but the emergence of sophisticated author rights retention strategies, institutional and disciplinary repositories, advanced bibliometrics and webmetrics, faculty activity tracking and research management systems, and directories and social discovery systems in academic settings, are clearly bringing them into closer alignment. Connections to public history, genealogy, and prosopography or large-scale biography are also fast emerging, essentially recognizing potential continuity between forward-looking infrastructure and historical documentation; we are also seeing bridges being established between resources of a primarily academic nature and tools used by the broad public (including Wikipedia). A very important development that CNI is helping to advance is the work towards a National Archival Authorities Infrastructure.

Numerous systems and initiatives that are relevant to parts of this program, such as ORCID, ISNI, VIAF, VIVO, and new developments within Web of Science Microsoft Academic Search, Google Scholar and other platforms are making this a very dynamic area.

RECENT PUBLICATIONS BY CNI STAFF

Selected Recent Publications by CNI Staff

Lynch, Clifford A. "The Public Library in 2020," in *The Library in 2020*, ed. by Joseph W. Janes. Lanham, MD: Rowman & Littlefield (2013).

Lynch, Clifford A. "Lee Dirks: An Appreciation." *Against the Grain* (November 2012, online).

Lynch, Clifford A. "Closing Thoughts." *Aligning National Approaches to Digital Preservation*, Nancy Y. McGovern (volume ed.), Katherine Skinner (series ed.). Atlanta, GA: Educopia Institute Publications (2012): 309-320.

Lynch, Clifford A. and Lee Dirks. "New Initiatives in Open Research." *Proceedings of the Charleston Library Conference* (2011).

Lynch, Clifford A. "Imagining a University Press System to Support Scholarship in the Digital Age." *Journal of Electronic Publishing* (November 2010).

Lippincott, Joan K. and Clifford A. Lynch. "ETDs and Graduate Education: Programs and Prospects." *Research Library Issues* 270 (June 2010): 6-15.

Lippincott, Joan K. "A Mobile Future for Academic Libraries." *Reference Services Review* 38, no. 2 (2010): 205-213.

Lippincott, Joan K. "Information Commons: Meeting Millennials' Needs." *Journal of Library Administration* 50, no. 1 (January 2010): 27-37.

Lynch, Clifford A. "Jim Gray's Fourth Paradigm and the Construction of the Scientific Record." In *The Fourth Paradigm: Data-Intensive Scientific Discovery*, ed. by Tony Hey, Stewart Tinsley, and Kirstin Tolle, 177-183. Redmond, WA: Microsoft Research (2009).

Lynch, Clifford A. "Special Collections at the Cusp of the Digital Age: A Credo." *Research Library Issues* 267 (December 2009): 4-10.

Lippincott, Joan K. "Learning Spaces: Involving Faculty to Improve Pedagogy." *EDUCAUSE Review* 44, no. 2 (March/April 2009) 16-25.

Executive Roundtable Summaries

Multiple Devices and Platforms: Institutional Strategies. Report of the Executive Roundtable, Spring 2012 CNI Membership Meeting (April 2012).

Risk Management & Disaster Planning. Report of the Executive Roundtable, Fall 2011 CNI Membership Meeting (December 2011).

Serving as Committee Members, CNI Staff Contributed to these Selected Recent Reports:

EDUCAUSE Advanced Core Technologies Initiative (ACTI). *What's Next for Campus Cyberinfrastructure? ACTI responds to the NSF ACCI Reports*. July 2012.

National Science Foundation. *Final Report of the NSF Advisory Committee for Cyberinfrastructure Task Force on Campus Bridging*. March 2011.

OCLC Record Use Policy Council. *WorldCat Rights and Responsibilities for the OCLC Cooperative* approved by the OCLC Board of Trustees on June 14, 2010, effective August 1, 2010.

Laurence F. Johnson, Alan Levine, Rachel S. Smith, and Sonja Stone. 2010 *Horizon Report*. Austin, TX: The New Media Consortium, 2010.

Blue Ribbon Task Force on Sustainable Digital Preservation. *Sustainable Economics for a Digital Planet: Ensuring Long Term Access to Digital Information*, February 2010.

Most publications, as well as selected presentations and interviews, are available online via <http://www.cni.org/publications>.

MEMBERSHIP LIST

(As of November 2012)

Alfred P. Sloan Foundation	Duke University
American Library Association	EBSCO Publishing
American University*	Elsevier Science Publishers B. V.*
Andrew W. Mellon Foundation	Emory University
Arizona State Library, Archives and Public Records	Ex Libris (USA), Inc.
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ARTstor	Florida State University
Association of College and Research Libraries*	Florida Virtual Campus (FLVC)
Auburn University	Gale Cengage Learning
Baylor University	George Mason University
bepress Digital Commons	George Washington University*
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Bodleian Libraries	Georgia Institute of Technology*
Boise State University	Georgia State University Library
Boston College	Harvard University*
Brandeis University	Illinois Institute of Technology
Bridgepoint Education	IMS Global Learning Consortium
Brigham Young University	Indiana University*
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Bryn Mawr College	Internet Society
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Carnegie Mellon University*	J. Paul Getty Trust
Case Western Reserve University*	John Wiley & Sons, Inc.
Center for Research Libraries	Johns Hopkins University*
Clemson University	Joint Information Systems Committee
Colby College	Kansas State University
Colorado State University*	Kent State University*
Columbia University*	Lafayette College
Connecticut College	Libraries, Claremont University Consortium
Copyright Clearance Center	Library and Information Technology Association
Cornell University*	Library of Congress*
Council on Library and Information Resources	Los Alamos National Laboratory Research Library
Dartmouth College	Loyola University Chicago
Denmark's Electronic Research Library (DEFF)	Marquette University
Deutsche Forschungsgemeinschaft (DFG)	Massachusetts Institute of Technology*
Dickinson College	

Mayo Clinic	Southern Methodist University*
McGill University	Stanford University*
McMaster University	State & University Library (Aarhus, Denmark)
Metropolitan New York Library Council (METRO)	State University of New York at Albany
Michigan State University*	State University of New York, System Administration*
Microsoft Corporation	State University System of Florida*
Mississippi State University	Stony Brook University
NCAR (National Center for Atmospheric Research)	SURF
National Archives and Records Administration	Syracuse University*
National Institute of Environmental Health Sciences	Temple University
National Library of Medicine	Texas A&M University
New Media Consortium	Texas Christian University
New York Public Library - Research Libraries*	Texas Tech University
New York State Library*	Thomson Scientific
New York University	Tufts University
North Carolina State University	Tulane University
Northeastern University	United States Government Printing Office
Northwestern University*	Universiteit Van Amsterdam
NYSERNet	University at Buffalo, State University of New York*
Occidental College	University College Dublin
OCLC, Inc.*	University of Alabama
Ohio State University*	University of Arizona*
Ohio University	University of Arkansas
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Princeton Theological Seminary	University of California, Office of the President*
Princeton University*	University of California, Riverside
Project MUSE/Johns Hopkins University Press	University of California, San Diego*
Purdue University	University of California, San Francisco*
Queen's University	University of California, Santa Barbara*
Rhodes College	University of California, Santa Cruz
Rice University*	University of Central Florida
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Wichita State University Libraries
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FRONT (left to right):

Christine de Pizan, Le Livre de Trois Vertus, ca. 1475

General Collection, Beinecke Rare Book and Manuscript Library, Yale University; Image ID Number 1002792
Manuscript on parchment (trimmed). The manuscript includes four miniatures which are among the finest by the Master of Amiens 200, active in Hesdin and Mons and possibly in Amiens in the third quarter of the fifteenth century. Belonged to Baron Edmond de Rothschild (1845-1934; MS 12).
Courtesy: Beinecke Rare Book and Manuscript Library, Yale University

Lewis Library, Princeton University

Designed by Frank Gehry, the multi-story, 87,000-square-foot science library combines many of the University's science collections and technology spaces, and also includes study, research and classroom space.
Courtesy: Brian Wilson (photographer), Office of Communications, Princeton University

Visualisation of Galaxies from the European Southern Observatory (ESO) GOODS Spectroscopic Campaign

The Great Observatories Origins Deep Survey (GOODS) project unites the world's most advanced observatories, including ESO's Very Large Telescope (VLT), to make extremely deep observations of the distant Universe, across the electromagnetic spectrum. GOODS gives us a unique view of the formation and evolution of galaxies across cosmic time, by observing two deep fields in the sky. Astronomers used spectrographs on the VLT to capture the spectra of galaxies in the southern GOODS field, spreading out the colours of their light like a rainbow. This let them measure the redshift of their light, and hence how distant they are.

Courtesy: ESO/L. Calçada/ESO-GOODS team
<http://www.eso.org/public/images/ann1062a/>

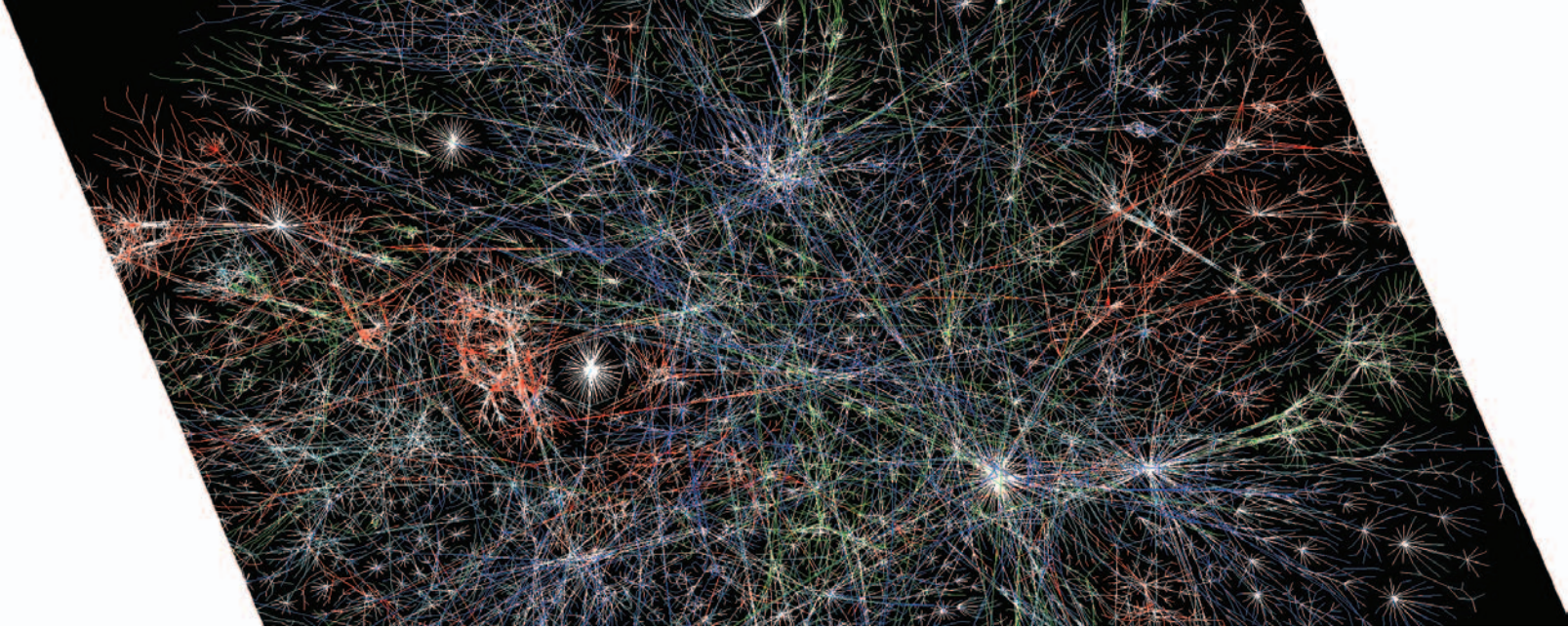
BACK:

The Opte Project

This project was created to make maps of the Internet, visual representations of a space that is very much one-dimensional, a metaphysical universe. The data represented and collected by the Opte Project serves a multitude of purposes: modeling the Internet, analyzing wasted IP space, IP space distribution, detecting the result of natural disasters, weather, war, and esthetics/art.

Courtesy: Barrett Lyon, The Opte Project
<http://opte.org/>

*Descriptions are from image sources unless otherwise noted.



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