Eight Information Policy Issues in Library Digital Transformation

Authors: Gu Liping, Gu Liping

Date: 2024-01-02T00:00:00+00:00

Abstract

The digital transformation of libraries encounters numerous policy frameworks and their implementation intricacies. This paper enumerates eight of the most critical information policy issues, including: open access policies, the role of libraries within open access initiatives, copyright concerns in library document delivery services, legal challenges in digitization processes, rights management in long-term preservation, copyright issues pertaining to orphan works, rights administration for scientific data, and relevant policies concerning informal publications. To safeguard the rights of readers, libraries and librarians must develop a comprehensive understanding of these policies and propose appropriate responsive measures.

Full Text

Preamble

Eight Information Policy Issues for Digital Transformation of Libraries

GU Liping12

1. National Science Library, Chinese Academy of Sciences, Beijing, 100190

2. Department of Information Resource Management, School of Economic and Management, University of Chinese Academy of Sciences, Beijing, 100190

Abstract The digital transformation of libraries encounters numerous policies and implementation details. This article identifies eight critical information policy issues: open access policy, the role of libraries in open access, copyright issues in library document delivery, legal issues in digitization, rights issues in long-term preservation, copyright issues in orphan works, rights management of scientific data, and policies related to informal publications. To protect readers'

rights, libraries and librarians should understand these policies and recommend corresponding measures.

[**Keywords**] Data-Driven Research Innovation; Science and Technology Information; Information Policy

---

1. Information Services and Policy Challenges in the Data-Driven Research Era

In the age of data-driven innovation, information policies from the documentary era have gradually evolved toward more dynamic and diversified directions. This transformation, while presenting many challenges, also offers countless opportunities for library and information science to better serve readers and society.

First, the accelerating pace and magnitude of changing reader demands create opportunities for library innovation and development. This change compels us to respond more agilely and adapt more quickly, which is precisely the vitality of our library and information profession.

Second, the continuous diversification of information service models, while demanding higher capabilities, also drives us to improve ourselves and explore new service models to meet diverse reader needs.

Furthermore, although traditional measures may seem inadequate in addressing rapidly growing reader demands and information service requirements, this very inadequacy motivates us to deepen reforms and explore new policies and measures.

Finally, changes in information policy, while creating uncertainty, also provide greater development space. This long-term, unstable, unannounced, and uncontrollable pattern of continuous intermittent transformation actually moves us toward a more dynamic and diversified direction, creating opportunities to generate more value in this process.

Therefore, while facing numerous challenges, we also have more opportunities. In the past, library business backbones were relatively separate and independent. However, with the growth of electronic resources and changes in service models, we have become more deeply involved in issues such as fair use of copyright, which actually expands our service scope. Information policy will affect the scope and scale of information service implementation, enabling library and information science to play a greater role in the digital, networked, and virtual reality research environment, and better serve the needs of users and society.

2.1 National-Level Open Access Policy

In the era of data-driven innovation, a new possibility has emerged: research results supported by public funding should be more conveniently and timely ac-

cessible to the public. In many countries, scientific research is primarily funded by public money, yet access to these results is not always convenient [1]. This undoubtedly hinders the dissemination of scientific culture and limits public innovation in new tools, products, and services.

Under the traditional journal subscription model, researchers often need to wait for the latest research results to go through a series of cumbersome processes. In today's digital and networked environment, this model actually constrains the speed of scientific exchange and affects the overall efficiency of the research system. Here, we see the tremendous potential of libraries.

Libraries can serve as intermediaries, assisting authors with copyright issues, signing collective agreements with publishers, and even automatically depositing their institution members' papers into institutional repositories [2].

Some worry that excessive government intervention in copyright issues might disrupt the free market knowledge creation chain. However, an alternative view is gaining support: civil society needs critically intellectual activities of public communication to drive cultural maturity. People are beginning to argue that publicly funded research results should benefit everyone, not just a few social elites [2]. After all, these results belong to the public domain, not just the public space governed by copyright. The public sphere is a place for rational communication, while public space is where people actually interact. Open sharing of publicly funded research project outcomes not only helps society better apply these results but also deepens public understanding of the public welfare and necessity of these projects.

Nations are gradually promoting the open sharing of research results, with intermediary institutions like libraries playing more important roles, and the public becoming more aware of the value of research projects, thus forming a more open, efficient, and fair research ecosystem.

The tremendous potential of open sharing of publicly funded research results can not only shorten the exchange process of scientific achievements but also improve the efficiency of scientific communication and the return on research investment. Libraries, as core institutions promoting open deposit and sharing, have an unshirkable responsibility and opportunity.

Several internationally renowned institutions have already taken firm steps. The Max Planck Society, Harvard University, and the University of California have established dedicated offices to handle open access-related matters and promote academic exchange and cooperation [3]. These practices demonstrate that libraries can serve as bridges between researchers and publishers in promoting open deposit and sharing policies, fostering closer cooperation between both parties.

However, current industry communication on open access remains insufficient. Survey results show that institutional repository managers often deal more with publishers than with authors themselves. At the same time, there is a lack of

horizontal contact and cooperation among managers, which undoubtedly weakens the collective force for advancing open sharing policies [4]. Various factors contribute to this situation: time constraints, professional expertise, staffing issues, and the need to improve data sharing methods for copyright purposes. Therefore, establishing dedicated communication offices is particularly important, as they can provide a platform for all parties to promote mutual growth.

From the library perspective, open deposit and open publishing policies also have unique benefits. They can ensure better maintenance of the integrity of resource construction and information services. For example, the U.S. National Institutes of Health (NIH) requires that research results funded by them be deposited into PubMed Central within 12 months of publication [5]. This practice ensures that research results are widely disseminated and applied within a short period. The UK Research Councils (RCUK), meanwhile, do not support publishers who still do not allow open sharing after six months [6]. The EU's Seventh Framework Program launched an open access demonstration project, requiring funded project papers to be deposited in open repositories (with scientific papers open within six months and humanities/social sciences papers within 12 months) [7]. These initiatives demonstrate the necessary policies that research and educational institutions are adopting to promote open access.

The role of libraries in this process cannot be ignored; they can serve as promoters, coordinators, and implementers to ensure better implementation and execution of these policies.

2.2 The Role of Libraries in Open Access

Using Harvard University's open access agreement as an example, we can see how policy implementation details oriented toward data-driven innovation can actively and optimistically promote academic exchange and knowledge dissemination. This agreement was jointly signed by three important institutions within the university: the Faculty of Arts and Sciences, the Law School, and the Kennedy School of Government, demonstrating Harvard's determination and united strength in advancing open access policy [8][9].

The agreement focuses on four key aspects, showing Harvard's thoughtful consideration in balancing academic freedom and rights protection:

(1) Harvard University may use the final version of the author's paper, including all modifications from the peer review process, within the framework of the agreement. This ensures that Harvard can use the latest and most comprehensive academic achievements when promoting academic exchange. At the same time, the agreement clearly stipulates that the publisher's version will not be used without the publisher's permission, to ensure that the publisher's rights are not infringed.

(2) If Harvard University presents or publishes a paper without the publisher's permission, it will not alter the paper's content or derive advertising rev-

enue from it. This detail reflects Harvard's adherence to academic ethics and respect for publishers' interests.

(3) When Harvard makes papers available online, it will exercise two forms of reasonable influence. If the paper has already been published, Harvard will cite the version defined by the publisher; if the paper can be made available online, it will provide a link to the version provided by the publisher. This measure helps ensure the accurate dissemination of academic achievements and protects the publisher's rights.

(4) If Harvard authorizes others to exercise the open access policy license, they must also comply with all the above restrictions. This reflects Harvard's sense of responsibility and rigorous attitude in promoting open access policy.

Harvard University's open access agreement is a model for policy implementation details oriented toward data-driven innovation. It fully balances the relationship between academic freedom and rights protection, helps promote academic exchange and knowledge dissemination, and provides a reference for other institutions in formulating and implementing open access policies.

2.3 Copyright Issues in Library Document Delivery

In the implementation details of electronic document delivery services, scholars often discuss the four factors of fair use balanced under Section 107 of U.S. Copyright Law: purpose of use, nature of the work, scope of use, and economic impact. These four factors embody a spirit of balance—protecting the rights of resource providers while ensuring the reasonable use rights of preservers.

Although the principle of fair use may encounter challenges in practice, such as potential abuse, this does not mean we should abandon the principle. In fact, libraries play a very important role in this regard. To ensure proper implementation of fair use principles, some libraries in the United States have adopted the following measures [10]:

(1) Limiting the time resources can be used based on the purpose of use (such as course duration) to ensure resources are fully utilized within appropriate timeframes and scopes.

(2) Ensuring that resources are targeted to serve those who genuinely need them by identifying eligible individuals (such as students, professors, and assistants).

(3) Providing information about the scope of fair use, allowing users to clearly understand under what circumstances they can use these resources to avoid abuse.

(4) Limiting the quantity users can access or download online to prevent overuse by any single user and thereby affecting others' normal use.

Presenting sufficient information to help users understand their rights and responsibilities not only enhances users' legal awareness but also ensures more standardized and self-disciplined resource use.

Of course, we must also confront the challenges brought by digital copyright. In the digital age, consumers accustomed to file sharing may dispute and challenge the current copyright system, even forming anti-copyright movements. This also reminds us that in information literacy education, in addition to traditional knowledge transmission, we need to incorporate content about digital copyright to ensure citizens in the information society can possess creativity, consumption awareness, and full understanding of their rights and responsibilities [11].

This is a complex and multifaceted issue. Libraries need to actively seek methods and paths to promote innovation while ensuring a balance of rights and interests among all parties. Libraries, government agencies, educational institutions, and every citizen should work together to contribute to building a more open, balanced, and orderly digital environment.

2.4 Legal Issues in Digitization

In the implementation details of information services such as management, preservation, copying, and dissemination of digital documents, scholars often discuss Section 108 of U.S. Copyright Law, which permits the transfer of materials from original formats (such as VHS tapes) to new formats before physical materials begin to deteriorate. This provision provides a reference for preserving precious cultural heritage in the digital age.

With technological advancements, large-scale digitization initiatives like Google's Google Books project have also sparked a series of controversies. Google is not a non-profit organization or educational institution but a commercial advertising company. This raises a legal question: can its "assistance" to libraries in large-scale digitization of paper collections be defended under Section 108 of U.S. Copyright Law, or can similar provisions be applied in overseas contexts? This controversial point has attracted continuous attention.

In theory, the core role of libraries is to protect collections that may deteriorate and ensure their complete and long-term preservation through digitization. The original intention of digitization is preservation, not simple copying. Therefore, libraries should, both morally and legally, focus on this mission to ensure the safety of original materials. This includes not directly providing online circulation of originals after digitization but instead adopting technical protection measures to prevent misuse of originals. At the same time, for digitized copies, libraries can adopt strategies such as reducing pixel quality, limiting access pages and time, and restricting quantities per access to ensure that collections are not overused while being widely disseminated [12].

Overall, despite facing many challenges, many librarians remain committed to their original mission, upholding library responsibilities and duties, and reason-

ably utilizing legal provisions and technical means. We have full confidence that in the data-driven innovation era, we can both protect precious cultural heritage and satisfy the public's demand for knowledge and culture.

2.5 Rights Issues in Long-Term Preservation

Long-term preservation of digital resources is a national strategic issue directly related to library work. Through legally effective long-term preservation agreements, the rights and interests of both resource providers and preservation parties can be clearly defined:

(1) **Resource Preservation Party**: Archival rights, data processing rights, service rights, cooperative preservation rights (public service rights, alternative exercise rights when service terminates, data backup transfer, inheritance preservation rights).

(2) **Resource Providing Party**: Data attribution rights, data integrity restrictions, data transfer restrictions, data service restrictions.

Such agreements not only specify implementation processes and management measures but also establish dispute resolution mechanisms. This helps clearly define the rights of both contracting parties, including various rights of resource preservation parties and resource providing parties [13].

Taking the "National Digital Information Infrastructure and Preservation Program (NDIIPP)" as an example, its scope is extensive, including [14]:

(1) Stewardship networks;
(2) National digital resource system: bilateral coverage, complete coverage, public assets, public services, public certification and management, etc.;
(3) Technical infrastructure: distributed systems, open standards, redundancy and inheritance, etc.;
(4) Public policy: balancing the right of access to knowledge and copyright, resource construction management policies, trusted mechanisms, economic support mechanisms.

These detailed provisions provide comprehensive and practical solutions for various mechanisms and rights issues in long-term preservation. Additionally, the definition of "archives" in the *Principles* issued by the International Council on Archives [14] refers to the archival holdings of an institution, rather than the institution itself. ("In both the Principles and the Technical Guidelines, the word 'archives' refers to the archival holdings of an institution, rather than the institution itself.") This ambiguous definition could easily expand the definition of archives to all institutional collections, thereby bringing discussions and management of rights issues in long-term preservation and the role of archives into the same framework.

The *Technical Guidelines* of the International Council on Archives (ICA) [15] list ten items covering:

(1) Develop an access policy;
(2) Agree on access restrictions at the time of transfer;
(3) Control physical access to restricted records;
(4) Give staff access to restricted records for archival work;
(5) Describe restricted records;
(6) Respond to requests for access to restricted records;
(7) Make access decisions;
(8) Implement access restrictions;
(9) Review access restrictions;
(10) Release previously restricted material.

As a supporting policy measure, it serves not only as an important consultative document for legislation but also as a key document supporting archival work. More importantly, it provides an external standard for measuring whether existing information access behaviors are compliant, reasonable, and legal.

Although rights issues in long-term preservation of digital resources are complex, libraries have the capacity to manage them effectively through comprehensive agreements, programs, and policies. This not only helps protect the rights and interests of all parties but also provides a solid foundation for the long-term preservation and innovative utilization of digital resources.

2.6 Copyright Issues in Orphan Works

Orphan works, as precious fragments of our cultural heritage, should be properly archived and effectively utilized in modern society. Indeed, two major challenges exist in practice: first, how to accurately identify whether a work is an orphan work; and second, how to determine the principles for handling these works.

The text, images, or music of such works cannot be reliably traced to a clear copyright owner, preventing librarians from operating under traditional copyright licensing models. This places libraries in a dilemma when handling orphan works: if they process them, there may be legal risks due to the inability to verify copyright owners; if they do not process them, they may violate relevant provisions of copyright law.

Under current legal systems, copyright issues arising from orphan works involve multiple aspects, including copyright law, contract law, copyright exceptions, fair use principles, and fair use claims. These issues all revolve around one core objective: ensuring maximum protection of creators' and copyright owners' rights and interests.

The UK's Joint Information Systems Committee (JISC) began investigating methods for handling orphan works as early as 2011 and 2012, proposing operational guidelines. They presented five possible solutions: licensing for archival purposes, government licensing, copyright exceptions, risk management, and other hybrid approaches [16]. Their research focused on three core questions: how libraries can obtain copyright for orphan works, various aspects of libraries'

digital collections (such as proportion, scale, type, funding, etc.), and practical operational issues that may be encountered when handling orphan works.

Although orphan works present certain legal and operational challenges in copyright issues, their handling and utilization have become standardized and efficient, enabling expansion from actual library operations to broader fields such as cultural heritage protection and digital humanities.

2.7 Rights Management of Scientific Data

Experimental data in science and engineering research, like original historical materials for humanities scholars and field survey records for social scientists, are extremely precious resources that have a decisive impact on enhancing disciplinary competitiveness and promoting scientific research and technological development. We are pleased to see that the importance of scientific data has been widely recognized.

"Mastering scientific data can bring substantial profits." For example, Knovel's e-book platform converts experimental data and tables from conference proceedings and academic works into datasets, which readers can directly use for calculations through application interfaces, and thereby charges libraries usage fees [17].

On the other hand, how libraries handle works protected by copyright is an important current issue. International conventions have made clear provisions for exceptions and limitations to copyright protection for libraries, providing strong support for library services such as interlibrary loan, distance education, services for people with disabilities, and long-term preservation. In this way, these library rights will not be restricted or canceled by procurement contracts, technological protection measures, or copyright collective management mechanisms [18].

In the scientific data management of research libraries and scientific institutions, the promotion of open access policies is actively underway. This includes not only the preservation, management, and access of scientific data but also provides data integration platforms and application interfaces that meet academic exchange needs. Such an open science environment can provide researchers with the virtual experimental environments needed for scientific research and technological development.

Therefore, this presents a picture full of hope and opportunity. Libraries promoting the management and open access of scientific data will open up broader spaces for readers' scientific research and technological development.

2.8 Policies on Informal Publications

Libraries need dynamic and ephemeral historical snapshots (to enable complete restoration for future access) to select and collect data from the internet and

place it into a new context for archiving, management, and access. However, materials published online are usually targeted at specific users within a certain time frame, while the users served by libraries after collection will change over time. These issues create a need for information policies related to informal publications in libraries.

To address these issues, the following recommendations are made regarding library collection, use, and publication policies [19]:

(1) Deposit useful information about the creator or the nature and scope of fair use to ensure data integrity and traceability;
(2) Institutions should formulate or adopt a clear policy, such as usage norms, to ensure the reasonableness and standardization of data collection, use, and publication;
(3) Provide channels for personal opinions to collect user feedback and improve service quality;
(4) Provide personalized access models to meet the needs of different users;
(5) When creating websites and integrating other content from the internet, provide fair use for academic purposes to ensure the smooth progress of research work;
(6) When collecting materials, attach appropriate information harvesting patterns and dates to ensure data timeliness and authority;
(7) To the extent reasonably possible, identify the legal operators of websites to ensure data security and legitimacy;
(8) Libraries should provide a simple online tool for copyright owners to register and protect the rights of original creators.

The formulation and implementation of these policies will help libraries better meet the challenges of the internet age and provide users with more convenient, efficient, and personalized services. At the same time, they are conducive to protecting intellectual property rights and promoting academic exchange and knowledge innovation. In this process, libraries' role is not only as collectors and disseminators of information but also as innovators of knowledge and creators of value.

3. Stepping Out of the Comfort Zone to Create Better Services for Readers

Facing changes in the research environment, information needs, and information services, as well as numerous challenges in information policy, decision support work for science and technology information policy becomes particularly important. This work requires both in-depth understanding of detailed operations and clear observation of overall development. For library and information institutions, both traditional work experience and participation in emerging work are essential. At the same time, to better serve users and readers, sensitivity to and attention to major socio-economic issues are also needed.

Decision support work for science and technology information policy requires

understanding of detailed operations while observing overall development. It demands practical experience in traditional library and information work, such as acquisition, cataloging (bibliographic, system, proofreading), circulation (service, consultation, delivery), interlibrary loan (transmission, borrowing), and promotion (exhibition, education, publishing). It also requires participation and experience in emerging library and information work, such as resource construction, intelligence strategy, subject consultation, system technology, cultural dissemination, and publishing distribution. Additionally, it requires understanding of major socio-economic issues, particularly key directions related to library and information development, including copyright, open access, academic information publishing and communication, institutional information assurance and knowledge management, information literacy cultivation, and long-term preservation of digital scientific literature.

When addressing these challenges, we must recognize that weakness and giving up are not solutions. In the past, predecessors overcame various harsh challenges to establish today's library and information theory and practice. Therefore, we have no reason to render ourselves powerless, and even less reason to do nothing.

In the future, we need to work harder, not only to catch up with our predecessors but also, based on a deep understanding of actual work requirements and combining the talents and abilities of all interested parties, to jointly perform work that cares about user rights and meets user needs. Such efforts will help us find better service methods in the new research environment and information needs, and promote the continuous development of library and information science.

References:

[1] 张晓林、刘细文、李麟. 科技信息开放获取趋势与进展.[OL] [2010 − 10 − 27] http://ir.las.ac.cn/handle/12502/3237
[2] Barron, A. Kant, Copyright and Communicative Freedom[J]. Law and Philosophy, 2012, 31(1):1-48.
[3] 如同 [1].
[4] Hanlon, A., Ramirez, M.. Asking Permission: A Survey of Copyright Workflows for Institutional Repositories[J]. Portal-Libraries and the academy, 2011, 11(2):683-702.
[5] Federal Research Public Access Act of 2009.[OL] [2011-09-22] http://thomas.loc.gov/cgi-bin/query/z?c111:S.1373
[6] RCUK consultation on access to research outputs .[OL] [2010-11-04] http://www.rcuk.ac.uk/research/outputs/access/2005.htm
[7] Pēteris Zilgalvis. Perspectives from an EU institution and a funding body.[OL] [2010-08-16] http://www.berlin7.org/IMG/ppt/ZILGALVIS.ppt
[8] Harvard University Library. Office for Scholarly Communication.[OL] [2011-09-22] http://osc.hul.harvard.edu
[9] Harvard University Library. Open Access Policy .[OL] [2011-09-22] http://osc.hul.harvard.edu/OpenAccess/policytexts.php.

[10] ARL. Code of best practices.[OL] [2011-10-27] http://www.arl.org/bm~doc/code-of-best-practices-fair-use.pdf
[11] Lobato, R.. Constructing the pirate audience: on popular copyright critique, free culture and cyber-libertarianism [J]. Media International Australia, 2011, 139:113-123.
[12] United States Copyright Office. Legal Issues in Mass Digitization:A Preliminary Analysis and Discussion Document.[OL] [2011-11-04] http://www.copyright.gov/docs/massdigitization/USCOMassDigitization_{October2011}.pdf
[13] 张晓林、郑建程、李欣. 数字资源长期保存协议框架 [J]. 现代图书情报技术, 2008, 11:1-6.
[14] Library of Congress. Preserving Our Digital Heritage: The National Digital Information Infrastructure and Preservation Program 2010 Report.[OL] [2011-10-27] http://www.digitalpreservation.gov/news/2011/20110308_{{{news}}*{{ndiipp}}}*{report}.html
[15] the International Council on Archives (ICA) . Principles of Access to Archives draft.[OL] [2012-04-07]www.library.illinois.edu/ica-suv/AccesPrinciplesPp1top12.pdf
[16] JISC. Orphan Works Survey.[OL] [2012-03-08] http://1686881.polldaddy.com/s/orphan-works-survey?p=1
[17] Knovel. Knovel Solutions.[OL] [2011-09-22] http://solutions.knovelblogs.com/2010/03/23/bridge-infrastructure-and-transportation-engineering-rebu ilding-the-lake-champlain-bridge/
[18] 张晓林. 超越图书馆: 国际图联 77 届大会参会报告 2011.[OL] [2012-04-07]. [http://ir.las.ac.cn/handle/12502/3875]
[19] 同 [10].

Note: Figure translations are in progress. See original paper for figures.