# Handbook of Research on Managing Intellectual Property in Digital Libraries

Adeyinka Tella
*University of Ilorin, Nigeria*

Tom Kwanya
*The Technical University of Kenya, Kenya*

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# Chapter 8
# Copyright Issues in a Digital Library Environment

**Kennedy Arebamen Eiriemiokhale**
*Kwara State University, Nigeria*

## ABSTRACT

*This chapter examines copyright issues in a digital library environment. The author observes that the advent of digital technology has greatly accelerated the dissemination and distribution of information which greatly accelerated the dissemination and distribution of information with great speed and accuracy never seen before. The challenges in creating digital libraries include copyright management, development of appropriate technologies, issues related to storage, architectural and technical challenges, collection development challenges and the challenges of user engagement. The chapter recommends ways of managing orphan works and the roles of digital libraries in open access to knowledge. The author concludes that current developments point to the dominant role of information and communication technology in libraries for improved access to information.*

## INTRODUCTION

Information technology enables the reproduction, saving, and distribution of culture, arts, and sciences as well as the recording of the collective memory of humanity. Not only does information technology make almost all kinds of human creativity available in the internet worked public sphere, but also it enables the creation of new forms of art, creative expression, and distribution of knowledge. More often than not, the rapid pace in the evolution of information technology causes friction with law in as much as regulators' foresightedness could not have ruled to cope with new social trends, socio-political and economic phenomena in the market. Thus, the evolution of information technology is frequently seen as a factor that sets at stake the legal rights of creators and right-holders, as a cause for stricter intellectual property law and legal protection for the initial and subsequent right holders. The instantaneous reaction towards making the law stricter regarding the availability, use and distribution of creative works via the internet networked public sphere in most cases, a hazard to the evolution of digital libraries and repositories.

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## LITERATURE REVIEW

### Concept of Digital Library

According to Shiri (2003), the Digital Library Federation defines digital library as organizations that provide the resources, including the specialized staff, to select, structure, offer intellectual access to, interpret, distribute, preserve the integrity of, and ensure the persistence over time of collections of digital works so that they are readily available for use by a defined community or set of communities. Digital libraries are now emerging as a crucial component of global information infrastructure, adopting the latest information and communication technology. Digital libraries are networked collections of digital texts, documents, images, sounds, data, software, and many more that are the core of today's internet and tomorrow's universally accessible digital repositories of all human knowledge (Handa and Bhatt, 2015).

The advent of digital technology has greatly accelerated the dissemination and distribution of information with great speed and accuracy never seen before. It is much easier to disseminate library, artistic and scientific work to a very large community of internet users and users of electronic media. The libraries as a service have allowed their users to read a document, to browse through the whole collection, to search through the library catalogue, to supply Xerox copy for specific individual research and education purpose, to procure photocopies of articles from other libraries or clearing centres, to widely distribute the reproduced copies of documents requiring public awareness and to provide inter library loan service. If digitization is considered as reproduction, it is clear that in digitization, the initial work is merely changed into the digital form and the process of changing is accomplished by a machine, without any creativity. At the same time, if it is considered as a translation from one language to another, the digitization is also a change from natural language of humans into binary language of machine. In digitization however, there is no creativity involved and it could be considered as an activity similar to reprography. The copy right protects creative works. Simple transformation into the digital form of an original document cannot be considered as creative (Handa and Bhatt, 2015).

The digital library extends the breadth and scale of scholarly and cultural evidence and supports innovative research and lifelong learning. To do this, it mediates between diverse and distributed information resources on the one hand and a changing range of user communities on the other hand. In this capacity, it establishes "a digital library services environment" –that is, a networked online information space in which users can discover, locate, acquire access to and, increasingly, use information. Although access path will vary depending on the resource in question, the digital library service environment makes no distinction among information format. Books, journals, paper-based archives, videos, film and sound recordings are as visible in the digital library service environment as are online catalogues, finding aids, abstracting and indexing services, e-journals and e-print services, digitized collections, geographic information systems, internet resources, and other electronic holdings (Greenstein, 2000).

Lynch (1994) stated that digital libraries provide users with coherent success to a very large, organized repository of information and knowledge. According to Travedi (2010), the purposes of a digital library includes:

1. To expedite the systematic development of procedures to collect, store, and organize information in digital form.
2. To promote efficient delivery of information economically to all users.

3. To encourage co-operative efforts in research resource, computing, and communication networks.
4. To strengthen communication and collaboration between and among educational institutions.
5. To take leadership role in the generation and dissemination of knowledge.

Harter (1995) describes essential properties of a digital library ranging from quite traditional to extremely broad views. A digital library contains digital representations of the objects found in it. Most understandings of "digital library" probably also assume that it will be accessible via the Internet, though not necessarily to everyone. But the idea of digitization is perhaps the *only* characteristic of a digital library on which there is universal agreement.

*Table 1. Potential properties of a digital library*

| S/No. | Narrow View (Based on Traditional Library) | Broader View (a Middle Position Between the Extremes) | Broadest View (Loosely Based on Current Internet) |
|---|---|---|---|
| 1 | objects are located in a physical place | objects are located in a logical place (may be distributed) | objects are not located in a physical or logical place |
| 2 | objects are information resources | most of the objects are information resources | objects can be anything at all |
| 3 | objects are selected on the basis of quality | some of the objects are selected on the basis of quality | no quality control; no entry barriers |
| 4 | objects are organized | | no organization |
| 5 | objects are subjected to authority control | some aspects of authority control are present | no authority control |
| 6 | surrogates of objects are created | surrogates are created for some objects | no surrogates of objects are created |
| 7 | surrogates are "finely searchable" | surrogates and objects are finely searchable | only objects are searchable |
| 8 | authorship is an important concept | concept of author is weakened | no concept of author |
| 9 | objects are fixed (do not change) | objects change in a standardized way | objects are fluid (can change and mutate at any time) |
| 10 | objects are permanent (do not disappear) | disappearance of objects is controlled | objects are transient (can disappear at any time) |
| 11 | access to objects is limited to specific classes of users | access to some objects is limited to specific classes of users | access to everything by everyone |
| 12 | | | the only services are those performed by computer software (AI) |
| 13 | services such as reference assistance are offered | | |
| 14 | human specialists (called librarians, etc.) can be found | some classes of objects have associated user groups | there are no librarians |
| 15 | there exist well-defined user groups | use of library requires payment for some services and/or user groups | there are no defined user groups (or, alternatively, infinitely many of them) |
| 16 | use of library is free for specified user groups | | use of library requires payment |

## Issues and Challenges in Creating Digital Libraries

The advent of digital libraries at the turn of the twenty-first century has been mired with several aspects including the development of appropriate technologies, issues related to storage, rights management and so on. Digital libraries, along with associated technologies and related issues, are still somewhat in infancy with very few fully established digital libraries the world over.

Galloway (2009) reported on the creating of a digital library infrastructure at the University of Pittsburgh. The university library began creating digital content in 1998. By 2006, the library has scanned almost everything in-house with advanced equipment. Their challenges included: selecting content, creating descriptive information, tracking physical items, determining specifications, handling requirements, maintaining quality control, and addressing workflow issues.

Ibinaiye (2012) carried out a research on the challenges and prospects of digitization in Kashim Ibrahim library, Ahmadu Bello University, Zaria. Questionnaire, oral interview and observation were used in collecting data. The result revealed that the major challenges faced by the library in the process of digitization are: limited number of staff who are working in digitization section, lack of understanding between administrators and librarians, lack of modern computers, lack of materials for rebinding hard copies of materials after scanning and digitization, technical problems such and system breakdown and socket error.

In constructing a digital library service environment, the library becomes responsible for configuring access to a world of information of which it owns or manages only a part. Accordingly, the digital library is known less for the extent and nature of the collections it owns than for the networked information space it defines through a range of online services. In the commercial world, aggregators compete on the basis of the value-added services that they layer on top of overlapping electronic collections. Similarly, digital libraries establish their distinctive identities, serve their user communities, emphasize their own collections, and promote their unique institutional objectives by the way in which they disclose, provide access to, and support the use of their increasingly virtual collections. Vijayakumar and Vijayakumar (2002) identified the following challenges to creating digital libraries:

1. **Architectural and Technical Challenges:** In developing a digital library service environment, the library seeks to enable meaningful navigation through and exploitation of distributed and heterogeneous information resources that are stored and managed in different formats and in different locations. Interested in gaining access to relevant information quickly and efficiently, regardless of format and location, users are not (nor should they be) contented with network environment that requires queries to be launched repeatedly at different collections and indices. At present, new information resources are generally added to digital library service environment through ad hoc efforts to develop appropriate resource discovery, authentication, resources delivery, user support, or other services. To respond effectively to these challenges, libraries must seek a degree of consistency in the information content they are integrating into their digital library service environments, and in the extent to which the systems architectures that govern development, maintenance, and support of those environments can be generalized and extended.
2. **Collection Development Challenges:** In a networked space, libraries continue to extend the breadth and scale of the scholarly and cultural evidence they make accessible to their users. Paper-based and electronic materials such as electronic journals and reference databases remain important. Libraries have focused much attention on digitizing selected special collections, and interesting collections

have resulted. They tend, however, to be narrow in scope, shallow in depth, passive in appearance, and unsustainable financially and technically. The data that are produced in the conduct of business, government, research, and teaching have potentially vast educational and scholarly value. We need to think creatively about collection development strategies appropriate to the evolving digital library service environment.

3. **Challenges of User Engagement:** In a digital library, how information is made, assembled into collections, and presented online affects whether, to what extent, and how it can be used. Here academic and research communities are the producers of digital content, including research data, dissertations, e-prints, and computer-assisted teaching materials. That content has enormous educational value, but only if it is assembled into professionally managed collections, maintained over the longer term, and made accessible to other end users. Scholarly communities are aware of the tools they require to manipulate information to effect within their own disciplines and are mobilizing, sometimes on a large scale, to supply those tools where they are unavailable from the commercial sector. In short, it is not sufficient for the digital library to maintain exquisite collections. At least in an online environment, the maintenance of such collections is itself an act of publication—one that will have far-reaching ramifications for the nature of future research, learning, and cultural engagement.
4. **Other Challenges:** Digital preservation is also on the list of needed services, but fuller articulation awaits digital libraries coming to terms with organizational, legal, and financial implications of their new and evolving roles. The current digital library agenda has largely been set by the computer science community, and clearly bears the imprint of this community's interests and vision. But there are other constituencies whose voices need to be heard. Librarians have an opportunity, as yet unrealized, to debate our purposes with a broader spectrum of the population whose lives will be affected by the work we do. Stronger participation from the traditional library community seems essential at this time, where libraries, digital or otherwise, carry a strong symbolic charge. On the face of it, they are just one element in the larger circuit through which information travels from production to ultimate consumption. It is not necessary that digital libraries be managed within the context of conventional libraries. Services may originate from distributed sources and be integrated through the library in various ways. A variety of distributed repositories may offer digital collections, including the content and metadata, to various libraries, and may themselves offer complementary or competitive library services. Digital libraries are compilations of materials published electronically and those converted to digital form.

The difficulties of end-user searching in Digital Libraries can be listed as follows.

1. **Selecting Source:** End-users have difficulty in choosing from the many Internet searches engines and in keeping up with the features they offer.
2. **Formulating Queries:** People have difficulty in expressing their information needs in the syntax appropriate to the search system they are using.
3. **Formulating Queries:** They use only a few words in their search strategies, often even misspelling these.
4. **Formulating Queries:** They are reluctant to explore the more sophisticated features many search systems offer, such as phrase and name searching.

5. **Examining Results:** They accept that a significant number of the hits they do get will be irrelevant, because their strategies are matched against the whole of the Internet and the ambiguities in their search strategies produce noisy search results.
6. **Reflecting/Stopping:** They accept the fact that they will either be overwhelmed with hits or get nil results if they phrase their search incorrectly or search the wrong search system.

Library of Congress (1995) revealed that the staff of the National Digital Library Program at the Library of Congress have identified ten challenges that must be met if large and effective digital libraries are to be created during the 21st century. In some cases, there may be no technology solution to the challenge, but through sharing of ideas, new thinking may emerge to help institutions such as the Library of Congress formulate policy on these important issues. The challenges may be grouped under the following broad categories building the resource, interoperability, intellectual property, providing effective access, and sustaining the resource. The Library hopes that creative and innovative minds can devise solutions to these challenges.

1. **Building the Resource:**
    a. **Challenge One:** Develop improved technology for digitizing analog materials. In order to build a comprehensive resource, historical materials now in analog form (e.g., books, journals, laboratory records, sound recordings, manuscripts, photographs) must be converted. Today, the technology for digital conversion is, at best, emergent and often forces a library to choose between risking damage to precious originals or producing the highest quality reproductions. There are few established standards or best practices and a shortage of tools for the objective measurement of reproduction quality. There is a need for more automated support for capturing in explicit data structures the navigational and organizational clues implicit in printed works through page numbers, tables of contents, and indices.
    b. **Challenge Two:** Design search and retrieval tools that compensate for abbreviated or incomplete cataloging or descriptive information. Providing access to library collections is labor-intensive. In order to apply scarce resources to the digitization of significant quantities of content, it is often necessary to reduce the level of detail offered in accompanying catalogs or indexes. Can automated tools permit the incorporation of factual knowledge into descriptive information, indexing, or search and retrieval systems? Could such bodies of factual knowledge be shared or assembled cooperatively and distributed?
    c. **Challenge Three:** Design tools that facilitate the enhancement of cataloging or descriptive information by incorporating the contributions of users. Can the digital library take advantage of distributed expertise? Among millions of users, there will be those who can enhance the description or cataloging of an item, thus improving the next researcher's chance of finding it. Collaborative tools could allow far-flung professional colleagues, e.g., faculty or graduate students in the nation's universities, to provide excellent enhancements to materials they employ for their own advanced research. Less expert users (schoolchildren familiar with buildings in photographs, or individuals who recognize a family member in a group picture) can also add value to the resource. What filters, methods for attributing enhancements without violating privacy, or other protections against misuse could support this enhancement of the resource?

2. **Interoperability:**
   a. **Challenge Four:** Establish protocols and standards to facilitate the assembly of distributed digital libraries. How can a distributed resource like the National Digital Library be assembled to create a virtual unity? What types of protocols and what degree of standardization on types of digital objects will achieve a balance between feasibility of widespread implementation and coherence of access? Should unified searching use an approach like that found in the Z39.50 standard (distributed search) or the approach used by World Wide Web search engines (distributed indexing)? How can distributed digital libraries best safeguard the rights associated with content (including rights of privacy and conditions imposed by donors as well as copyright) while still providing the broadest possible access?
3. **Intellectual Property:**
   a. **Challenge Five:** Address legal concerns associated with access, copying, and dissemination of physical and digital materials. A key element for digital libraries is appropriate recognition and protection of legal rights such as copyright, publicity, privacy, matters of obscenity, defamation intellectual property protection as well as less legalistic but serious concerns associated with the ethics of sharing or providing access to folk or ethnographic materials. The vision for digital libraries includes fluid, easy access to a wide variety of materials. This is often in conflict with the duties of libraries and archives entrusted with care and management of materials that may be subject to privacy rights or other needs for security. Efforts to formulate digital libraries will be delayed or frustrated in the absence of a common, responsible framework of rights, permissions, and restrictions that acknowledges the mutual needs of rights-holders and users of materials in digital libraries. The challenge here is, in part, to develop mechanisms, perhaps social expectations independently or in combination with technical means, regarding acceptable levels of access (for example where privacy rights are at issue) and use (such as the extent or permissible copying and dissemination). Could responsible practices include acceptable use policies, codes of practice, and standard contracts that begin to establish norms of behavior by people creating and using digital library resources? How can authors, creators, researchers, publishers (who may require some control over how the information is made available or used) and digital libraries develop reasonably administrable means to maintain appropriate stewardship without focusing only on work in the public domain (or items not otherwise subject to legal protection)? Materials currently available on the Internet from the American Memory collections range from items for which the Library is unaware of any copyright or other legal concerns to items where permission was sought from copyright or other rights' holders for inclusion in the Library's website. American Memory materials also encompass a wide range of media such as printed text, photographs, prints, sound recordings, and film. Applicants are encouraged to explore the more technical challenges in the context of the legal concerns and should carefully consider the "access statements" as well as the Copyright and Restriction Statements on the American Memory homepage and on most collection homepages. Note that the Library cannot provide legal advice to applicants regarding the contents of the collections beyond these statements.
4. **Effective Access:**
   a. **Challenge Six:** Integrate access to both digital and physical materials. A user looking for an item in a library catalog should be able to identify it without regard to whether it is available in its original physical form or as a digital or microfilm reproduction. Intellectual descrip-

tions of originals and reproductions should be presented in a fully integrated way. During the current experimental period, however, many digitization efforts are disconnected from traditional library services. Even when appropriate catalog records exist, digital content may fail to connect to potential users because individual items in digital collections cannot be retrieved directly or are not identified appropriately to support links from traditional catalogs or bibliographic indexes.

b. **Challenge Seven:** Develop approaches that can present heterogenous resources in a coherent way. A digital library that provides diverse content will be characterized by heterogeneity in original format, in digital format and resolution, and in the level of detail and format of descriptive information that is available to support access. This heterogeneity may be seen in the historical collections on-line at the Library of Congress, which typify the larger class of materials that are likely to form part of any digital library, however defined. The National Digital Library Program offering includes books, articles, pamphlets, personal papers, legislative documents, prints, architectural drawings, photographs, maps, sheet music, sound recordings, and movies. Some text materials have been re-keyed and marked up in Standard Generalized Markup Language (SGML), some have been captured as bit-mapped images, and some are available in both forms. Pictorial images have been captured at various spatial and tonal resolutions. Some collections have detailed catalogs or indexes, while others are described in brief and superficial ways. The Library of Congress is building a generic repository that can store objects in any format, and represent relationships between objects, such as a sequence of page-images forming a book, which might also have been transcribed and marked up in SGML. In the face of great diversity of content and description, special problems attend to the development of a coherent approach to indexing and presenting retrieval results. It is important that any approach allow all the information available to be used to aid retrieval rather than force the user who wants to search across the entire resource to rely on some lowest common denominator of descriptive information.

c. **Challenge Eight:** Make the National Digital Library useful to different communities of users and for different purposes. How many different ways can users explore and discover content? What capabilities will permit users to customize the interface and specify preferences that affect retrieval results? Will teachers benefit from tools that support group projects or collaboration with colleagues? By whom might these tools be developed? How can differences in vocabulary be resolved? For example, how might an interface translate the search terms selected by today's users into the language of older historical documents? How might the vocabulary of, say, teachers looking for material to illustrate broad topics in a prescribed curriculum be mapped to the vocabulary of the catalogers who describe individual items?

d. **Challenge Nine:** Provide more efficient and more flexible tools for transforming digital content to suit the needs of end-users. Today, each content item in most digital libraries is represented in multiple forms or versions. The multiple forms exist to serve varieties of users, function as archival masters, and reduce download time and transmission loads on networks. A content provider may produce large and small versions of images; compressed and uncompressed versions of images, texts, audio, and video; texts formatted for browser software and also formatted for preservation or publication; and materials both in proprietary formats and in public or "open" formats. This burden of plural production and maintenance results from the fact that today many digital objects are hard to transform on the fly. What technologies

can be developed to make digital objects malleable, migrate-able, and transformable? Similar capabilities are also needed to ensure the preserving of digital content for posterity.

5. **Sustaining the Resource:**
   a. **Challenge Ten:** Develop economic models for the support of the National Digital Library. The creation and maintenance of digital libraries is very expensive. Costs are incurred for production, for ongoing provision of access, and for preservation of the digital information. The cost to develop and operate a distributed architecture for long-term archiving, migration, and backup of digital materials will be high. Since the resource is distributed among providers, the net cost tends to be disguised. Libraries would benefit from better estimates of costs and trends in cost for production and maintenance of a corpus of digital information.

How can the continuing costs of assembling content and providing access to the American public best be met? Is technology available that could offer better measurement of benefits and savings? To whom do the greatest benefits and savings accrue? Are there value-added services the payment for which will subsidize broad public access?

## Digital Library and Copyright

Copyright is a person's exclusive right to authorize certain acts (such as reproduction, publication, public performance, adaptation, etc) in relation to his or her original work of authorship (IFLA, 2004). The creator of work typically owns the copyright, at least initially. However, copyright is often sold or assigned in whole or in part, to a commercial publisher, a film maker, a recording studio or to someone else who will exploit the work commercially. Consequently, copyright often benefits commercial interest more than individual authors.

Nwogu (2015) argued that the modern concept of copyright law postulates that the primary purpose of copyright is to promote the public welfare by the advancement of knowledge, with the specific intent to encourage the production and distribution of new works for the public, it provide incentives for creators by granting them exclusive rights to reproduce and distribute their works. Copyright protection is not intended to inhibit the free flow of information and ideas. As observed by the United States District Court in Gero v Seven-Up Company, the goal of copyright protection is to encourage dissemination of ideas by protecting the embodiment or expression of an idea in a creative work and reserving the right in it to the creator of the work. Olueze (1998) observed that copyright, apart from being a proprietary right, is a means of employment and economic sustenance of the owner.

According to Rafiqi and Bhat (2013), the decentralized nature of internet makes it possible for any user to disseminate work endlessly in the cyberspace through an end number of outlets, thereby giving rise to global piracy. Copyright has been called the single most vexing barrier to digital library development (Chepesuik, 1997). The current paper-based concept of copyright breaks down in the digital environment because the control of copies is lost. Digital objects are less fixed, easily copied, and remotely accessible by multiple users simultaneously. The problem for libraries is that, unlike private businesses or publishers that own their information, libraries are, for the most part, simply caretakers of information-they don't own the copyright of the material they hold. It is unlikely that libraries will ever be able to freely digitize and provide access to the copyrighted materials in their collections. Instead, they will have to develop mechanisms for managing copyright, mechanism that allow them to provide information without violating copyright, called right management. Copyright has a great influence on

the majority of library activities. They shape the type of services offered by libraries to their users and conditions on which a library can offer access to materials protected by copyright. As a result, copyright affect the way libraries can function and conduct activities such as storing, protecting and making their collection available.

Bomanwar (1998) considered intellectual property right in the context of new information society, and noted the thrust area of economic activity shifted to knowledge based industries and intellectual goods, and described the impact of piracy of intellectual property. He noted that developed countries demand protection against piracy while developing countries feel that such protection will prevent entry of new comers and felt that in the free flow of information, intellectual property right was a hurdle to it. Similarly, Panda (1997) examined copyright law in the electronic age and argued that proliferation of electronic information was creating interest in the minds of authors, publishers, user and intermediates regarding the copyright law. He discussed the role of IFLA in the protection of copyright in the global scenario and concluded that there is an urgent need to reconsider the existing copyright law to make it suitable in electronic age.

Digital technology enables the transmission and use of all of these protected materials in digital form over interactive networks. The process of 'digitisation' allows the conversion of such materials into binary form (0s & 1s), which can be transmitted across the internet, and then re-distributed, copied, and stored in perfect digital form. While the transmission of text, sound, images, and computer programmes over the internet is already commonplace, this is also becoming true for transmission of audiovisual works such as feature films, e-books as the technical constraints of narrow bandwidth begin to disappear. A material protected by copyright and related rights, spanning the range of information and entertainment products, constitutes much of the valuable subject matter of e-commerce. Given the capabilities and characteristics of digital network technologies, e-commerce has had a tremendous impact on the system of copyright and related rights, and the scope of copyright and related rights in turn is affecting how e-commerce evolves. It is essential that legal rules are set and applied appropriately, to ensure that digital technology does not undermine the basic tenets of copyright and related rights. The digital environment is facilitating copyright licensing by different means, including by helping to rapidly locate and identify licensors and licensees, providing virtual platforms for exchange and automating contracts, payments, and the delivery of goods and services. In this regard, digital technology is making great impact on the territorial and temporal framework for copyright licensing. Moreover, a number of new licensing practices are emerging in the new technological environment. The proliferation of new licensing practices appears to reflect the development of collaborative creativity and a new, more dynamic position of the user in the network environment. Each user is now, thanks to readily available digital technologies and media hardware and software, a potential consumer, producer, creator, and distributor of creative work. While licensing is finely tuned for the analog world, the digital environment has changed the way in which copyright content is marketed, distributed, delivered and consumed, and this has had significant consequences for the upstream and downstream processes of rights clearance1.

Hombal and Prasad (2012) argued that long before the arrival of digital or even electronic media, copyright holders, content producers, or other financially or artistically interested parties had business and legal objections to copying technologies. The advent of personal computers as household appliances has made it convenient for users to convert media (which may or may not be copyrighted) originally in a physical/analog form or a broadcast form into a universal, digital form (ripping). This, combined with the internet and popular file sharing tools, has made unauthorised distribution of copies of copyrighted digital media (digital piracy) much easier. Concerns in digital libraries have turned from how to digitise

materials, store and make to how to manage the rights along with the materials. The advent of digital media and analog/digital conversion technologies, especially those that are usable on mass-market general-purpose personal computers, has vastly increased the concerns of copyright-dependent individuals and organisations, because these individuals and organisations are partly or wholly dependent on the revenue generated from such works.

## Copyright Infringement Types

1. **Direct Infringement:** Wholesale distribution of copyrighted works.
2. **Reproduction and Contributory Infringement:** Users knowingly encouraging infringing activity.
3. **Vicarious Infringement:** A violation which occurs when operator has the ability to supervise users, but chooses not to supervise and control for financial benefits.

## Digital Rights Management

The Digital Rights Management (DRM) is a term for access control technologies that are used by hardware manufacturers, publishers, copyright holders, and individuals to limit the use of digital content and devices. The term is used to describe any technology that inhibits uses of digital content that is not desired or intended by the content provider. The term does not generally refer to other forms of copy protection, which can be circumvented without modifying the file or device, such as serial numbers or keyfiles. It can also refer to restrictions associated with specific instances of digital works or devices. Webopedia defines DRM as 'Short for digital rights management, a system for protecting the copyrights of data circulated via the internet or other digital media by enabling secure distribution and/or disabling illegal distribution of the data. Typically, a DRM system protects intellectual property by either encrypting the data so that it can only be accessed by authorised users or marking the content with a digital watermark or similar method so that the content cannot be freely distributed. Publishers and vendors across the world put their foot together to bring out necessary counter measures to protect themselves from piracy and infringement. They argue that because of piracy, infringement, copyright owners cannot make a return on their investments in content creation; they will stop investing in new content (or the continued exploitation of old content, for that matter). Taken to the extreme, rampant infringement will result in the collapse of the music, movie and publishing industries, say copyright owners. Thus as a counter measure they have been compelled to adopt new protection measures such as DRM. The DRM technologies are aimed at increasing the kinds and/or scope of control that rights-holders can assert over their intellectual property assets. The DRM technologies have enabled publishers to enforce access policies that not only disallow copyright infringements, but also prevent lawful fair use of copyrighted works, or even implement use constraints on non-copyrighted works that they distribute; examples include the placement of DRM on certain public-domain or open-licensed e-books, or DRM included in consumer electronic devices that time-shift (and apply DRM to) both copyrighted and non-copyrighted works. DRM as of now is most commonly used by the entertainment industry (e.g., film and recording) and a few publishers.

## DRM Techniques

The DRM techniques include: (a) Restrictive Licensing Agreements The access to digital materials, copyright and public domain are controlled. Some restrictive licenses are imposed on consumers as a

condition of entering a website or when downloading software. (b) Encryption This technology is designed to control access and reproduction of online information. This includes encryption, scrambling of expressive material, and embedding of a tag, preparing backup copies for personal use.

## DRM Issues

Libraries and archives play a crucial role, and some have a legal mandate to preserve and make available our cultural and scientific heritage for future generations. The DRM jeopardises this role as they have the potential to lock away covered material forever. The issue of long term preservation carries a real urgency as media must be adapted regularly to new data formats, operating systems and data carriers. In addition, data (e.g. music, software, electronic journals) stored in proprietary DRM formats is at much greater risk of being lost once the playback media is no longer available. Under DRM, there is a great risk that the public record of the future may be distorted. The DRM technologies attempt to control use of digital media by preventing access, copying or conversion to other formats beyond users.

## Orphan Works and Risk Management Strategies

The scale and impact of the issues posed by orphan works is immense, reaching prominence in recent times because unbalanced copyright protection is frustrating the public expectation that cultural institutions should use digital technologies to make orphan works widely available.

An orphan work is a material that is protected by copyright, but the copyright holder is unknown or unlocated after reasonable enquiries, hence the work is thought of as "orphaned". The copyright holder could be the long dead creator of the work, the creator's heirs, a since defunct company and so on. Orphan works may be published or unpublished, and cover both works and other subject matter, including letters, photographs, diaries, books, audio histories and home movies. They are commonly understood to be part of collection that contain older, unpublished or one-of items. Although, there is a growing body of "modern" orphans that are published, but are nonmainstream, noncommercial or are distributed online, outside the realm of traditional publishing. Such works can become orphaned over the passage of just 10 years (Dawes, 2010).

Warren (2009) defined an orphan work as any work where the copyright holder is unknown or unable to be located. It is generally understood to be older works, but can also be anonymous works on the internet, poorly credited works, abandoned materials, and works where the copyright owner is unaware they own copyright. There a number of factors that are compelling libraries to grapple with orphan works and how to manage the risk inherent in their use. Library services are being delivered in different ways to the past with a drive for more digital content to be available online. There is also an increase in user expectation of online delivery of library collections and services. In addition, libraries and other organizations in the cultural sector are generally risk averse. Finally, libraries have traditionally championed compliance with copyright legislation and are uncomfortable with the notion of activities which may in any way infringe copyright.

Warren (2009) acknowledged that libraries are risk averse. They want to be doing the right thing and to be seen to be doing the right thing with regard to the preservation and access to their collection. Libraries may consider that the risk in making an orphan work available online is very small but still be reluctant to use the work even though there may be significant benefit in providing online access to the information. A risk management approach to the uses of orphan works balances the possible negative

consequences of a copyright holder of a work coming forward following an infringing use of the work, with the likelihood of that event occurring. It should also include an assessment of the loss to the organization and the public in not making the work available. There are two significant possible negative consequences of infringement in the use of an orphan work. There are litigation and loss of reputation to the library which has made infringing copy. It could also be that a copyright owner requests that the work be removed from display. However, if a work is determined to be an orphan work, the likelihood of a copyright owner coming forward is rare and the likelihood of the consequences being significant is also rare. There could be positive consequences.

By their very nature, it may be assumed that orphan works are necessarily of either no commercial value or are not commercial viable. If there is no copyright holder exercising a material interest in a work, then it follows that there is either no financial benefit in doing so or no copyright holder exists, because if a copyright remains valuable then the holder has a strong incentive to make him or her known. This is based on two positions: firstly, Dawes (2010) stated that it is an established principle that the economic value of copyright material declines as it ages-so older works, older orphan works in particular, have negligible commercial value. The value of a copyright as determined by consumer demand and the work's relevance to society fall with time. Secondly, most orphan works are not created to be commercially or professionally exploited, or the copyright holder is not even aware of the subsistence of copyright in the material. They tend to be created for family or personal purposes.

Unlike commercial value, the public value of orphan works in terms of cultural, academic and social significance tends to appreciate over time, leading to the conclusion that the predominant value of orphan works is public but not commercial. Locking up orphan works with copyright restrictions is contrary to the high objectives of copyright law, which is to encourage both the creation and subsequent use of knowledge. This requires striking a balance between providing reasonable incentives for creativity on the one hand, and the wider public interest in ensuring that the resulting creations are available for the advancement of learning, innovation, research and knowledge on the other.

## Legal Rationales

The central premise of an orphan work analysis is that the item is copyrightable, is currently within copyright, and the use would be in violation of copyright without permission granted by the author, or his or her heirs or assigns. Prior to beginning an orphan works analysis, one must first determine whether the orphan works process is an appropriate legal rationale for the proposed use of the selected materials.

## Search Strategies

A search involves answering three questions: Who created the work? Who owns the work now? And where is that owner located now? Sometimes the answer to the first question is readily apparent and the archivist can move on to the second question. As discussed in Section B below, the creator of the work may not have been the owner of the work at the time of creation. Moreover, the owner at creation may no longer be the owner.

1. Identifying the Creator of the Work because the lack of identifying information on a work pertaining to its author is not by itself sufficient to render the work an orphan, the first inquiry is to identify

the author. The items below represent related, and sometimes overlapping, steps more than a linear sequence or branching flow chart.

a. Even if the document itself is not "signed" (marked with either a name that is handwritten or printed by mechanical means, typed, or otherwise indicative of the author's identity), at a minimum other internal clues should be examined, including any initials, logos, addresses, or the like. For a work of potentially broad artistic significance, consider whether there are highly idiosyncratic and distinctive stylistic elements to suggest an author.

b. If the document itself is not marked, then the next step is to examine adjacent materials for contextual clues. At a minimum, for example, examine all other documents in the same file folder in which the potential orphan work is located to see if the content of other documents contains clues. This might apply, for example, in a case in which there is an unsigned photograph in a file of correspondence with a particular person and the photograph was originally an enclosure in one of the letters. It might also apply where a single sheet of an unsigned letter is related to other letters to or from a person with the same handwriting or stationery. Note: In most instances, this examination for contextual clues may be limited to the folder in which the work was found.

c. Although it would not be reasonable to have to examine all of the other documents in the collection in which the work is located, reasonable further contextual steps might include, at a minimum, a thorough examination of the finding aid for the collection to determine if similar works have been filed elsewhere in the collection, and then examination of any folders that appear appropriate. A related reasonable minimal step would be to examine the donor or accession files for evidence of names of correspondents of the collection creator.

d. If the previous three steps do not allow identification of any name for the author of the work, then it may be considered an anonymous work for which neither authorship nor rights holder can be established, and thus reasonably treat d as an orphan work unless other conditions apply, such as internal evidence that it was a work of employment.

e. Another minimum reasonable step in determining the identity of the author of a prospective orphan work should be to confer, if possible, with the archivist or manuscript curator responsible for the collection and to inquire about the existence of any relevant donor/acquisition documentation.

f. When a name can be located, an expanded search would include conferring with a reference librarian or genealogist to establish the author's specific identity.

g. If the previous six steps provide a reasonable indication of the author's name, the next reasonable step is to determine if the name is distinctive enough to establish identity.

2. **Identifying the Rights Holder:**

a. The default starting position for any orphan works investigation must be the creator of the work because the working assumption is that the creator is the copyright owner. There are, however, at least three situations, in which the initial author may not be the copyright owner: Is the creator still alive? Copyrights do not end with death; for most unpublished items, they extend for another 70 years after death. If the copyrights had not previously been transferred to a third party (see the next section), then they would pass to heirs under the terms of the will or, in the absence of a will, according to the intestate laws of the state in which the creator died. If there is more than one heir, it is likely that they will jointly own the copyright in the creator's work. For example, if an author has four children and the remainder of her estate

(including her copyrights) is left equally for them to share, then each child owns a one-fourth interest in the copyright. If they should pass away, then their estates would divide each quarter share among the surviving heirs. By the time 70 years have passed and the copyright enters the public domain, there could be literally dozens of copyright owners. Fortunately in an orphan works investigation, the search must identify and locate only one of the joint owners of an inherited copyright. That joint owner can authorize any use of the copyrighted material, although that individual is obligated to account to the other joint owners for any profits they may receive from the use. In the case of deceased creators, therefore, the search must attempt to identify and locate copyright heirs rather than copyright creators. Tools to consult in this case include standard genealogical reference tools, such as obituaries and such online reference tools as Family Search (http://www.familysearch.com/), Ancestry.com (http://www.ancestry.com/), and Google (http://www.google.com/) for information on the death of the author and possible heirs.

b. Did the creator transfer copyright? Any rights owner (both creators and copyright heirs) can transfer their copyrights to a third party. For example, academic authors frequently assign copyright in their articles, and sometimes in their books, to publishers. Literary figures sometimes transfer their copyrights to executors or to institutions that they wish to support. Mark Twain's copyrights are owned by the Mark Twain Foundation, for example, and Marjorie Rawlings, author of The Yearling gave her copyrights to the University of Florida. Photographers may assign the copyright in their photographs to a publication in which it appears or they may retain copyright and merely license limited use of the photographs. Unfortunately there is no requirement that copyright transfers be registered with the Copyright Office (although they can be). The only requirement is that such copyright transfers must be in writing. Thus it is very difficult to know with certainty whether the copyrights in any particular document have been transferred. Best practice would dictate that potential users of copyrighted works follow the contextual clues described in the preceding section. In the absence of any readily accessible evidence that copyright may have been transferred to a third party, assume that the copyright still belongs to the creator and search for that creator (or heirs). If there is evidence that the item may have been published or copyright otherwise transferred to a third party (for example, editorial and/or layout marks on a document or photograph), search for the publisher as well, for it may have acquired the copyright. Was the work produced as "work made for hire"? "Work made for hire" is the major exception to the generic rule that the creator is the initial owner of the copyright. In a work made for hire situation, the employer of the creator—not the creator himself or herself—is considered to be the "author" for copyright purposes and the employer is therefore the copyright owner. Copyright in a business letter composed by an employee of a firm does not reside with that employee, but rather with the firm. Any time spent in an orphan works search in trying to locate that employee or, if deceased, his or her heirs would be wasted because he/she or they would not own the copyright. Unfortunately it is often very difficult to determine whether any individual document or photograph was prepared as work made for hire. A letter written on corporate letterhead is often work made for hire, but many employers allow their employees to use corporate stationery for non-official business. Academics in particular often sign contracts with their employing institutions that specify that the academic, and not the institution, owns copyright in non-administrative writings. To determine with certainty whether an individual document was a work made for hire, it would

be necessary to have access to the employment contracts under which the work was created. What does this mean for best practice for orphan works investigations? Again, context matters. If a work appears to have been composed as part of an employment contract, attempting to locate the employer first would seem to be the most efficient use of one's time. Similarly if an employment contract in the personal archives of a photographer indicated that some of the photographs in the collection were taken as an employee, then one can assume that copies in the archives were for personal use only; the copyright belongs to the employer. In some cases, however, it may be necessary to consult both creator and employer.

3. **Locating Copyright Holders:** Once you have established the identity of the creator or rights holder, a variety of approaches can be followed for locating that person or his/her copyright heirs and executors. What constitutes a reasonable effort in locating contact information for a rights holder (hereafter author or artist) depends on a number of factors:
   a. If the author is a professional rather than an amateur, the likelihood that a professional author can be located is greater, and hence a greater amount of effort may be warranted.
   b. If the work enjoys wide distribution (i.e., it is published), a greater amount of effort may be merited than if the work has a limited distribution (unpublished).
   c. The interplay of the above two factors against the expense of tracking down contact information for a rights holder may be an important consideration in determining what constitutes a reasonable effort. The following suggestions are listed in descending order of ease of effort weighed against likelihood of success.
      i. For professional authors and artists, an excellent starting point is the WATCH File. WATCH, for "Writers, Artists, and Their Copyright Holders," is a database maintained jointly by the Harry Ransom Center of The University of Texas at Austin and the University of Reading Library. The database tracks information about the copyright owners of works by usually prominent individuals, with an emphasis on American, British, French, and other European authors and artists. One can find in the database the contact information for either the current holder of the copyright or the authorized representative charged with administering the copyright. Although developed primarily to track copyright in unpublished works, it can also be used to identify a copyright contact for those instances in which the author has retained copyright in a published work. The WATCH file is found at http://www.watch-file.com or http://tyler.hrc.utexas.edu/index.cfm .

What if the author or artist you are searching for is not listed in the WATCH file? Suggestions for how to proceed have been modified from some of those given on theWATCH site and are presented below.

1. Try to determine if there is an archival collection of the creator's papers by, for example, conducting an Internet search using the following search terms: "[Name of Creator] Papers" or "[Name of Creator] Collection" or "[Name of Creator] Archive." (Note: Several archives can hold papers by the same individual.) If the work is in an archival collection, the archives staff may know the identity and contact information for the copyright holder. Archives staff may be able to locate such information in accession records or donor or purchase files. Similarly, if the material is family-owned, the family members may know the identity and contact information for the copyright holder.

2. If the archives staff do not know the identity and contact information for the copyright holder or if the work is not in an archives, then the most efficient and cost-effective step is to conduct an Internet search with the goal of locating heirs or a literary executor. In conducting the search, use as much precise information about the creator as possible. Search for all possible variant forms of the name, and qualify the search with specific facts about the individual in order to narrow the search. Use such search strings as "[Name of Creator] Obituary" because U.S. obituaries often list the names and places of residence of surviving family members. You may then use phone books, city directories, or other address sources to try to make contact. If you can identify when and where a person died, check the probate records for the author (although this may involve some expense). These records may indicate who inherited copyrights.
3. Look at works about the author. The notes may contain acknowledgements or other information about copyright ownership. Check with societies devoted to the author's work. The International James Joyce Foundation, for example, maintains an FAQ devoted to copyright issues surrounding James Joyce's work. Similarly the Ernest Hemingway Society publishes permission information for works by Hemingway. Seehttp://www.hemingwaysociety.org/#permissions.asp. Check online for copies of works by the author to see if any carry a credit line indicating copyright status. Be careful, however, for even the most reputable institutions can make mistakes when it comes to assessing copyright.
4. Use reference sources to locate information about where an author or her family (who may have information on her copyrights) lived. Literary tools such as author directories and Contemporary Authors are especially valuable for writers. Other general biographical tools, such as Marquis Who's Who and the Biography and Genealogy Master Index, are good sources of general information.
5. Check with professional membership associations. The Author's Registry will search its author records for one or two names for free. Even if an author is not found in the Author's Registry.
6. If these steps do not yield any information or further clues, write to the known or presumed copyright holder's last known address. The post office or current resident may know a forwarding address. Requesting delivery confirmation or return receipt will be useful in documenting your search efforts. Other potential sources of contact information for a copyright holder are the accounting or permissions office of the author's most recent publisher or the copyright holder's last-known employer. If the identity of the author's literary agent can be determined (from an Internet search or acknowledgements in published works), ask the literary agent for information about the copyright holder. Some publications, such as the New York Review of Books, the New York Times Book Review, and the Times Literary Supplement, will publish your query about the identity and contact information for a copyright holder.
7. For less prominent authors or artists, genealogical resources (including local obituaries) may prove helpful in tracking partners or heirs. Because genealogical resources are so varied and numerous, you may wish to begin by consulting a reference archivist or librarian for assistance in devising a reasonable research strategy.
8. The decision to search fee-based databases or, at an extreme, hire a private investigator in an effort to locate a copyright holder is largely a risk management issue that will be influenced by such factors as the age and nature of the work itself; the nature of the use you wish to make of a work (wide distribution for profit or limited distribution on a not-for-profit basis); and the likelihood of success relative to the expense.

## The Roles of Digital Libraries in Open Access To Knowledge

Current developments point to the dominant role of Information and Communication Technology (ICT) in libraries for improved access to information. According to Anyokoha (2005), information and communication technology has been sweeping through many profession and library and information services has also left the bandwagon effect and are been enriched by the enormous dividends in this revolution. Academic librarians play important roles in the provision of the required learning, study and research materials and in translating the technology. Access to information by all is now posing a lot of challenges for stakeholders' information sector since its evolution in the 19th century.

Ugwuanyi et al (2013) defined open access means free accessibility of all published knowledge in the world. This includes any kind of print or scholarly publication that is published and can be accessed through the internet free of charge. The Budapest (2002) Open Access Initiative (BOAI) described open access to knowledge as to mean free availability of scholarly literature and knowledge on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full tests of those articles, crawl them for indexing, passing them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The Budapest Open Access Initiative went further to state that the only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give others control over the integrity of their work and the right to be properly acknowledged and cited. In the same manner, Suber (2010), and Wikipedia (2010) agreed with Budapest Open Access Initiative, by declaring that open access remove price barrier, legal and permission barriers-copyright restrictions. BOAI equally agrees that because journal articles need to be disseminated as widely as possible, the new journals will no longer invoke copyright to restrict access to restrict access to and use of the materials they publish.

Gibbons (2004) reasoned that since the range of digital content can be vast, which includes text, audio, video, images, learning objects and datasets, born of digital or of a physical medium that has been digitized, such as scanned images, digital librarians could be defined as bridges between digital resources and users. This implies that him/her must be skilled in the use of information and communication technology. Igun (2010) declared that the ICT/digital librarian must be able to:

1. Select, acquire, preserve, organize and manage digital collection;
2. Design the technical architecture of digital library;
3. Plan, implement, and support digital services such as information navigation, consultation and transmit services;
4. Establish friendly user interface over network;
5. Set up relative standards and policies for the digital library;
6. Design, maintain and transmit added value information products;
7. Protect digital intellectual property in network environment; and
8. Ensure information security

Sreenivasulu (2000) noted that the digital librarian is a guardian of the information superhighway and acts as a symbolic human-machine guru. Breaks (2005) reported that digital librarians will among other things believe in themselves, learn from each other to develop, find out what they can offer and never take their existence for granted. But Suber (2004) and Bailey (2007) agreed that the role of a digital librarian in open access to knowledge is more than having ICT skills. Their works suggested that the role of a

digital librarian in open access to knowledge can be accomplished through two complementary strategies. One is "self archiving" and the other is "open access journal". The digital librarian shall manipulate one of the many open source software to establish open access to knowledge. Suber (2005) advocated that a copyright owner of the article, whether it is the author or the publisher, must permit open access to it, even though current copyright laws cannot be changed. Thus, the digital librarian should understand this policy and maneuver the barriers. Some of the open access policies that allows open access and is of advantage to digital librarian includes: the creative commons law, open access right, fair dealing, public domain, etc (Covey, 2005).

## Libraries Driving Access to Knowledge in the 21st Century

Tise (2009) argues that knowledge is foundational to all spheres of life and critical for the growth of society. It is produced when information is absorbed, processed, and internalized by individuals. Libraries, as critical providers of information, have an important role to play in the creation of new knowledge, arguing further that knowledge is functional at many levels: it can alleviate poverty and deprivation; it serves as a springboard for innovation and changes; and, it is a catalyst for national development and personal achievements. As knowledge institutions, libraries provide spaces for information-sharing and learning for all ages, genders, ethnicities, and socioeconomic groups regardless of their needs. Libraries provide the means through which new knowledge is developed and made available to all.

Some of the key enablers for access to knowledge through/by libraries and librarians are (Tise, 2009):

- Libraries and librarians must become more user-oriented by bringing libraries and their resources to the user; empower users through information literacy, social networking, enabling access to information and facilitating the full participation of all citizens in societal activities;
- Become active in advocacy by actively promoting libraries through effective communications with stakeholders on library and society matters, facilitating and supporting open access to all, becoming innovative information agent;
- Create partnerships and foster opportunities for convergence with commercial / private enterprises, cultural institution, societal stakeholders such as health workers, teachers;
- Library as a space and place should foster information for all; community knowledge space; gate-openers to information, safe and trusted public space, content in formats that appeal to young and other discrete library user groups.

The fact that libraries are the home of knowledge is no longer debatable. Although ICT has revolutionized the provision of information and knowledge to the general public, the library will continue to maintain its prime position as the hub of academic and general public information facilities. As Klaus (2008) asserts, libraries will continue to exist as centers of information, communication, cultural exchange, and cultural heritage. Libraries have changed most patterns of traditional services and information processing and handling as well as information dissemination to suit the changes in the global village. Anaeme (2008) states that ICTs and their application in library and information services have continued to change the scope and patterns of library services. This development has forced libraries to provide new formats. Many libraries especially in developed countries now provide a computerized catalogue of materials, automated patron registration and checkout services, Internet access round the clock, websites, e-mail notification service that allows a user to place holds on materials and subscriptions to online databases.

The Internet represents the most important medium for the 21st century library transactions. Many libraries, according to Klaus (2008), are digitizing their important holdings as fast as possible to make them accessible, as far as possible under the legal and technological conditions. Akintunde (2004) asserts that libraries have taken on a new paradigm of service. There has been a shift from being documentalist or archivist to being a gateway to knowledge. The librarian guides clients on how to navigate effectively. Corroborating this, Anyakoha (2005) says that the information available on the Web is vast and continues to proliferate. Many individual users are still not able to use the Web efficiently.

According to Dike (2007), with or without ICT, it is the responsibility of librarians to help users formulate their enquiries and develop searches. Librarians have knowledge of the vast array of information sources, how they can be located and accessed, the strong and weak points of each, and the methods for evaluating them.

## CONCLUSION

The advent of digital technology has greatly accelerated the dissemination and distribution of information with great speed and accuracy ever seen before. It is much easier to disseminate library artistic and scientific work to a very large community of internet users and users of electronic media. The nature and use of copyright materials in the digital environment differs from that of the print environment. Copyright materials in digital format can be accessed almost instantaneously from anywhere at any time. Advances in technology makes it possible for the digital content to be quickly and easily copied on a large scale without the copyright owner's knowledge, without the use of intermediaries, transmitted, and used by multiple users. The new exploitation opportunities in the digital environment have come with new challenges to provide protection to the copyright holders against unauthorized use of their contents in digital environment. Digital content created for different purposes and used by different modes is not covered by copyright laws in equal and exhaustive terms. In the digital environment, it is commonly seen that copyright owners may times directly transact with consumers via contracts, licenses, etc. The distinct objective of a library using a collection of orphan works for a non commercial purpose is the public good from providing broad access to their immense cultural value. This is a clear and well-founded justification for risking potential damage to the interests of unknown or unlocatable copyright holders with sound legal and political principles.

## RECOMMENDATIONS

Based on the review of this study, the following recommendations are made:

1. Libraries should digitize their important holdings as fast as possible to make them accessible, as far as possible under the legal and technological conditions.
2. Libraries should develop mechanisms for managing copyright, mechanism that allow them to provide information without violating copyright, called right management.
3. Parent institutions of libraries should support their libraries with the necessary technologies required for digitization. This is because the technologies are expensive.

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## ADDITIONAL READING

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Gibbons, S. (2004). Defining an institutional repository. *Library Technology Reports*, *40*(4), 6–10.

Nwogu, M. I. O. (2015). Copyright law and the menace of piracy in Nigeria. *Journal of Law*. *Policy and Globalization*, *34*(1), 113–129.

## KEY TERMS AND DEFINITIONS

**Copyright:** The exclusive legal rights granted by a government to an author, editor or publisher to publish or distribute copies of literary works within certain limitations.

**Digital Library:** A library in which a significant proportion of the resources are available in machine readable format and accessible by means of computers.

**Digital Right Management:** A term for access control technologies that are used by hardware manufacturers, publishers, copyright holders, and individuals to limit the use of digital content and devices.

**Orphan Works:** Works whose copyright holders are unknown or unable to be located.