Copyright Issues in Digitization Era

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1. INTRODUCTION

At present the libraries all over the world are in the midst of a sort of transition resulting from the digitization of information. The breath taking developments in information and communication technologies led to a quantum jump in the digital information resources. The libraries are forced to rethink the document delivery services in the changed, digital environment. Many institutions, most notably those related to cultural and archival information, are contemplating digitization of collections for various reasons. The digital resources help in teaching, e-learning, research, scholarship, and public accountability. The digitized resources open up new modes of use, enable wider potential audience, and provide a new means of viewing the rich cultural heritage. The benefits of digitization include (1):

(a) Immediate access to high demand and frequently used items;
(b) Faster and easier access to and enhanced ability to search the remotely held digital material;
(c) Ability to enlarge and enhance digital images;
(d) Preservation and accessibility of rare, fragile and out-of-print material;
(e) Integration of images, audio, video and text; and
(f) Reduction in the cost of document delivery.

Keeping these and many other advantages in view, many digitization projects have been undertaken. Though the digitization process is risky and involve large resources, many well-known universities, institutions and libraries made themselves involved in these projects. The Digital Shikshapatri, The International Dunhuang Project, The New York Public Library, British Library Online Newspaper Archive, Digitized European Periodicals, Australian Cooperative Digitization Project, and the Carnegie-Mellon University Universal Digital Library Project are a few to name. National Libraries like Library of Congress, British Library, Australian National Library and the Indian National Library are all involved in such projects.

Identifying the rights owners and obtaining copyright clearance for the publication to be digitized is one aspect. Managing the digital information (including digitized information) is another. This paper attempts to describe the copyright issues that are associated with the electronic/digital information.

Digital environment makes copyright protection a difficult task. Issues and concerns associated with digital information include ease of creation, transmission and distribution of digital information across the globe through networks; the instantaneous downloading, storing, and printing or forwarding to others without the knowledge of its rightful owner, etc. Unlike the case of printed publications, close monitoring and restriction of usage of digital works is difficult. Chepesiuk (2), Collins and Berge (3), Crawford (4), Denning (5), Jasperse (6), Lakshmana Moorthy and Karisiddappa (7-13), Lynch (14), Moorthy and Karisiddappa (15), Perryman (16), Sasse and Winkler (17), and von Ungern-Stenberg and Lindquist (18), addressed various problems faced by the libraries in the digital library environment. Copyright infringements are becoming quite common due to difficulties in their detection in digital library environment.

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2. RIGHTS PROTECTION IN DIGITAL ENVIRONMENT

The World Wide Web has become a major (primary) publishing medium. Copyright laws apply to Internet. The various information resources on the web are copyright protected so long as they fulfill the originality criterion. Copyright forbids storing of a work in electronic medium. Electronic transmission of copyrighted material by anyone other than the rights owner is infringement. The copyright laws hold the Internet Service Providers responsible for the infringements by their users, unless they prove that they are complying with security measures to protect rights. Under this provision, Napster, OLGA, Grokster, etc, popular peer-to-peer music-swapping services enabling Internet users to share/swap music files stored in their computer hard disks, were asked to comply with the law. Cases of cyber frauds including cyber stalking, cyber hacking, cyber defamation through e-mails, cyber harassment and cyber terrorism are being increasingly reported in the media. In the cyber world, frauds involving more than two countries are not uncommon (for example, Nigerian funds fraud) and these are posing a number of problems to the law enforcement authorities.

Internet is creating new and newer avenues for rights and consumer privacy violations. Increasing number of cyber frauds are taken to courts year by year. In practice it is rather difficult to impose copyright law on Internet users. In most of the copyright violations on Internet, the owner may be unaware of the infringement. Also, identifying the infringer may be difficult. Further, most of the copying over Internet does not qualify under exceptions of fair dealing/fair use. Some of the copyright laws do not clearly distinguish electronic information from print media thus making it difficult to apply fair dealing laws to the digital environment. Many electronic resources on Internet allow personal and fair use. Copyright statements are elusive to locate in some cases. One cannot forward by e-mail free electronic resources available on Internet to colleagues and friends through bulletin boards. However, one can provide information about the URL where the relevant information appears. This type of restriction is against the principle of fair use and severely restricts the availability of information to only those having Internet access.

The originality and intellectual work in databases include the content selection, internal coordination between the structural elements, the arrangement of all elements of a database, and the contents itself. Although the contents of the constituent items are not original, because a reasonable amount of judgment in the selection of items has been used in creating it, the database is considered as compilation for the purposes of copyright. The rights owner can forbid or control the extraction or re-use of material taken from a database. Besides international agreements and copyright laws, the databases are also protected under contracts and licensing agreements between the owner of the database and the subscriber as well as protection through technological means such as hardware and software locks or dongles and electronic copyright management systems. Many database producers and vendors allow users download a portion of the database on to a ‘temporary file’ for research purposes under fair use principle. However, there are no clear-cut guidelines as to how much data can be downloaded at a time. In the case of printed documents, depending upon the size of the original, up to 5-10 percent of the original document or a chapter can be photocopied under fair use. The same fair use principle cannot be applied in the case of databases, as even 5 percent material would be voluminous when cumulative and large databases are used.

2.1 Security of Digital Information over Networks

Networks—Internet, local/wide area networks, intranets and extranets—play a vital role in distributing digital content. Millions of people are hooked these networks. However, it is important to note that the content distributed over the networks is copyrighted or is

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licensed through contracts. People tend to think that non-commercial distribution does not amount to rights violation and so is fair use. This leaves the network administrators in a tight spot over the liability of such infringements. Content liability for the access of the seditious and violent material accessed by users is an important issue, especially in the face of rising terrorism.

A digital document can potentially replace all printed copies in a networked environment and can be accessed by multiple users simultaneously. Remote access and downloading can virtually make one single document enough for all the libraries and users of the network. Many electronic journal publishers use password to protect rights and provide secure access to digital information over networks. Another way is to provide IP-address-based access to the digital content. Many technologies have been developed for preventing infringements and for delivering digital information to users in a network environment. Many projects have been undertaken for electronic copyright management or digital rights management. Security of information in a network environment involves three aspects, viz. authentication, that is, knowledge of the identity of sender to the receiver (and vice versa); confidentiality, that is, the message sent has not been intercepted by a third person; and integrity that the message is not tampered during transmission.

Extensive research has been carried out for security of multimedia content over the networks (19-21). The growth of networked multimedia calls for image copyright protection. This is achieved using signal processing, data compression, encryption and system level security protection. Another way is the incorporation of an invisible watermark (or a digital signature). However, it is easily identified by a computer programme, which decodes the key used to affix the watermark in a particular location on a page or part of the document and retrieves it. These invisible watermarks are of two types: those that are destroyed when subjected to manipulations and those that cannot be destroyed. The Multimedia Protection Protocol is another way of ensuring rights protection for all types of digital data (22).

3. DIGITAL RIGHTS PROTECTION TEHNOLOGIES

Digital Rights Management (DRM) technologies (also known as Electronic Rights Management Systems) ensure copyright through identifying and protecting the content, controlling access to and use of the work, protecting the integrity of the work, and ensuring payment for the access. These use one or more technologies to ensure access to bona fide users only. DRM technologies prevent illegal users in accessing the content. Access is protected through user ID and password, licensing agreements and cryptographic scrambling. The content use is controlled through disabling printing and downloading options, copying only a portion of the work, copying specified number of times through copy generation management systems, and disabling second generation copying from the first copy (from the original). The integrity of the work is ensured through scanned images, digital watermarking, encryption, digital signature, etc.

Another way to protect digital content is through Technical Protection Measures (TPM). These technologies allow publishing companies in securing and protecting content such as music, text and video from unauthorized use. They disallow copying and possible other uses of digital files, either by electronic marking and tagging or by encryption thereby making them unreadable. These technologies control access to content. If an author wishes to collect fee for use of his or her work, then DRM technology can be used. The TPM and DRM technologies are increasingly employed to sell and distribute content over the Internet.

Many technologies have been developed for the protection of copyrighted material from the infringements. These include cryptography, digital watermarking, digital signatures

and electronic tagging. Also, Secure Digital Music Initiative for digital music and Content Scrambler System for DVDs have been developed to discourage infringements and to protect them from illegal copying. Some of these are discussed briefly here.

3.1 Cryptography

Cryptography is the oldest mechanism employed to ensure security and privacy of information over networks. Cryptography has been in use for protection of intellectual property rights. It is a common practice to scramble the cable and satellite television signals to prevent unauthorized viewing. This involves scrambling (or encryption) of the information to render it unreadable or not understandable language, which only the legitimate user can unscramble (or decrypt). This is a common technique to protect confidential information from eavesdropping, preventing computer viruses and illegal copying of software etc. However cryptography protects the work during transmission or distribution only. After the work is decrypted, it does not provide any protection. Another method is employment of encryption protocols wherein the document server encodes, encrypts, compresses and sends to a registered user, where the software supplied by the network service provider decrypts and displays on the user's terminal.

3.2 Digital Watermark Technology

Digital watermarking technology complements cryptography in that it embeds imperceptible signals in a document or message and the content can vary accordingly. A digital watermark is a digital signal or pattern inserted into a digital document. It is similar to the electronic on-screen logo used by TV channels. A unique identifier is used to identify the work. The message might contain information regarding ownership, sender, recipient, etc. or information about copyright permission. The system consists of a watermark generator and embedder and a watermark detector decoder. This technique enables protection of ownership rights of digital information. Unlike encryption which warrants file transformation making it not understandable unless encrypted, digital watermarking leaves the original document intact and viewable. These watermarks persist during viewing, printing or re-transmitting, thereby establishing ownership. When an illegal copy bears watermark, the source of the piracy can be established. The legal user can remove these watermarks with a predetermined algorithm.

Apart from authentication, detection of unauthorized source of legal copies, the visible watermark also helps in discouraging illegal copying. The visible watermark uses a barcode on the first page of each article. Two types of watermarks are added to discourage unauthorized copying: one hidden in the image file of each page of the electronic article, and the other, a visible watermark encoding one Kbyte information in a two-dimensional barcode placed on the first page of each article. The illegal copies will not have the barcode, which means that copyright infringement has taken place. Apart from visible watermarks, invisible watermarks are also employed. Two types of invisible watermarks are in use viz. those that are destroyed when subjected to manipulations and those that cannot be destroyed. Some invisible watermarks of multimedia images can detect even the minutest changes in the image. When an illegal copy bears watermark, the source of the piracy can be established.

The watermarking technology is extensively used in protecting multimedia works. Digital watermarking technology ensures only lawful image and audio files are used, thus protecting against copyright infringement and so is helpful for the Webmasters. When combined with new tracking services offered by some companies that provide the watermarking technology, copyright owners can find all illegal copies of their works on Internet and take legal action. Argent, Cognicity, Copysight, EIKONAmark, Giovanni,

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JK_PGS, Musicode, Digimarc, PixelTag, StirMark, SureSign, SysCoP, unZign, etc are some of the watermarking tools available in the market place for the purpose (23).

3.3 Digital Signature Technology

Digital signature includes identity of the sender and/or receiver, date, time, any unique code etc. This information can be added to digital products. This digitally marks and binds a software product for transferring to a specified customer. Digitally signed fingerprints guarantee document authenticity and prevent illegal copying.

3.4 Electronic Marking

The electronic marking and identification technique is employed to distribute electronic information over networks at the same time discouraging illegal copying. In this technique, the system automatically generates a unique and indiscernible mark that is tagged to each of the document copies. The system also registers the recipient of an illegally copied document. It is difficult for an illegal user to find the unique marking pattern in the user's document. This technique is used to protect copyright as well as in electronic publishing where documents are printed, copied or faxed.

4. COPYRIGHT LEGISLATIONS IN DEVELOPED COUNTRIES

WIPO has taken initiative to cope up with digital technologies in the creation, adoption, transmission and distribution of digital media. The member countries discussed three draft treaties of WIPO. Article 10 of the WIPO Copyright Treaty, 1996 states that countries may device new exceptions and limitations that are appropriate in the digital network environment. Article 11 prohibits acts of circumvention of copyright. Many developing countries have enacted tough regulations to protect the digital media from infringements and to overcome the challenges posed by the digital technologies. In a welcome move, the Reproduction Rights Organizations of UK, namely, the Copyright Licensing Agency and the Newspaper Licensing Agency have started issuing digital copyright licenses for copying electronic information (24).

The US Digital Millennium Copyright Act (DMCA), 2000 included major changes to encourage advanced technologies to protect content of digital media at the same time ensuring fair use by consumers. Circumvention of technological means employed for effectively control access of copyrighted works, devices or equipment are made illegal. However circumvention prohibition is exempted for libraries browsing works to determine to purchase them, law enforcing agencies, reverse engineering for achieving interoperability with other products, encryption research, privacy protection and security testing. DCMA also makes it illegal certain acts like knowingly providing or distributing or removing or altering of copyright management information, etc.

The European Union Directive on the aspects of Copyright and Related Rights in the Information Society was approved in May 2001. The Directive prohibits making copyrighted works available over Internet unless authorized by the copyright holder. It also specifies that member states shall protect against circumvention of and using devices to circumvent technology measures that ensure rights, except in the case of librarian, educational establishments, teaching and scientific research organizations, disabled individuals and public security. There are ambiguities and inconsistencies in the right of reproduction, on communication to the public and on exceptions to copyright. The primary purpose of the EU Directive on copyright is to harmonize the law through out the Member States.

The DMCA and the EU Directive encouraged many efforts by private R&D institutions. Some of them engaged in intellectual property rights protection include Copy Protection Technology Working Group (consumer electronics, IT products and DVDs); DVD Copy Control Association (licensor of the Contents Scramble System technology to protect copyrighted contents of DVDs), 5C (for Intel, Hitachi, Matsuhita, Sony and Toshiba companies which developed Digital Transmission Copy Protection System for Video content), the Secure Digital Music Initiative (for music), etc (25).

4.1 Indian Scenario

In the light of recent developments like granting patents for neem and turmeric products as well as a clone of Basmati rice (Taxmati), there is an urgent need to safeguard the interests of our society. Protection of intellectual property rights was one of the foremost and important areas towards discharging the commitments under the TRIPS agreement. In this context the government enacted a few acts like Geographical Indication of Goods (Registration and Protection) Act, 1999; Information Technology Act, 2000; Communication Convergence Act, 2002; and Patents Act 2005.

Although, the Indian law extends protection to computer software and computer-generated artistic or literary works and compilations including computer databases, it has no provisions for electronic and online books, journals and electronic information. Further, the law needs exhaustive changes in the light of fast changing technological developments, especially in the information technology. There is a necessity for the law to take care of the role of networks, electronic information, Internet and their impact on the society. The law provided for severe penalties for copyright violations. If an infringement is established in a civil or criminal court of law, the defaulter is liable for punishment with imprisonment up to three years or a fine of an amount up to Rs 2 lakh or both. The law also makes provisions for claiming actual and statutory damages by the copyright holders. However, still a number of problems persist in enforcing the law.

5. CONCERNS OF LIBRARIANS IN DIGITAL ENVIRONMENT

A number of issues and concerns are associated with the usage of digital information. These include issue of single articles versus full issues of e-journals, user-friendliness, incompatible hardware and software, formatting, graphics, scholarly recognition, and obsolescence (see for example, Lakshmana Moorthy and Karisiddappa, 7-13). While it is important to protect the copyright of the publishers, it is equally important to protect the interest of libraries (customers). Some of the unfair practices resorted by publishers are briefly discussed in the following paragraphs.

5.1 Perpetual Dependency

In the case of printed publications, library procures (*hence owns*) and issues them to its users as many number of times as required. In some cases, the publication is lent to other libraries on inter-library loan. But in the case of digital resources, the same will become infringement. For example, a CD-ROM publication cannot be lent out on inter-library loan as the software makes it impossible to install on other computers. Further time-lock in CD-ROM installation software renders it unusable after certain period. While in the case of printed publications, the library can use it perpetually as long as they are relevant and useful, it is not so with digital resources. Many a time, to meet user requirements, librarians change the system date to retrieve information from the 'expired' CD-ROMs. Is it not unfair of publishers to force librarians to resort to unfair means to retrieve information from legally-procured products? This leads the library to depend perpetually on publishers of digital information. If

the product is not subscribed for whatever reasons, the information cannot be retrieved and is lost forever. Is it not unfair? Publishers term this use under license and not one-time buying.

5.2 Copyright vs Societal Right

The intellectual content of the work marketed by publishers is the result of many players. The institutions to which the authors belong spend provide infrastructural facilities for carrying out the research. Referees and their institutions contribute time, resources and efforts in evaluating the research papers. The government extends grants, financial assistance, and budgetary support to these institutions. The library provides the authors necessary information for carrying out research. Much of these resources are from the tax payer's money. But in the end, it is only the publisher, who is reaping the benefits. What is the benefit to the authors except the marginal satisfaction of publication of a work? What are the benefits to the institutions which sometimes pay hefty page charges for the speedy publication of the research work, and libraries that provide infrastructure and information? What is the benefit to the society at large that is responsible for the financial resources? Is it not the duty of profit making publishers to reward them?

Once the work is accepted for publication, the authors sign away/transfer their copyright to publishers without thinking. The publishers go on to make huge profits (26,27). In an analysis of scholarly journal publishers' copyright agreements, Project RoMEO (28) found that 30% of agreements don't give authors any right to do anything with their own works; 50% of agreements don't give authors the right to self-archive – the sure-fire way of gaining priority over your ideas and increasing the impact of your work; and 80% of agreements don't allow authors to assert their moral right to be identified as the author of the work. Project RoMEO suggests choosing journals that offer non-exclusive licenses, choosing journals with user-friendly licenses and amending existing licenses and granting to the publisher the exclusive and non-transferable right of first commercial publication, distribution and sale of work and keeping copyright with the author as alternatives to copyright assignment.

5.3 Pricing

Although, the publishers make substantial investments, all publication aspects like manuscript processing, peer review, editing, layout and design are common for both print and electronic versions except printing and distribution. Printing, binding, warehousing and mailing the printed copies to the subscribers is labour-intensive. Also the electronic versions are bye-products in the process. So, when electronic versions only are subscribed, it should have been cheaper than the printed publications. The costs of paper, printing, binding, packaging and forwarding charges that roughly add up to 30 percent (24-36 per cent as per a study by Woolfrey, 29) are saved in the case of electronic publications. This means that the electronic versions should be cheaper by 30 percent over print versions. Even after considering overhead charges for providing access, their cost should be 20 per cent less. But contrary to this expectation, publishers generally charge electronic versions almost equal to the subscription rates of the printed journals.

Further, as Internet is providing a way to cheaply distribute their products, it is expected that the publishers pass the resulting cost savings to subscribers, thereby bringing back some of those who resorted to cancellation due to price escalations and budgetary constraints. E-journal subscriptions delivered through intermediaries involve additional access and archival charges, over and above the full subscription prices. While some publishers provide free access to full text online versions of the print journals some

publishers charge about 10 percent extra over and above the print version prices, whereas a few charge more than 200 percent or more. In some cases, subscribing only online journals also costs more than 200 percent of the print version. The publishers who charge higher for online versions also price CD-ROM versions high defending on the plea that electronic versions contain far more information than the print version (*sic*). It is difficult to find any rationale behind such pricing structures as many publishers view the digital environment as an opportunity to enhance their revenues.

5.4 You Bought It – But Publishers Control It!!!

Standards and specifications, issued by various government and professional bodies, are important primary sources of information for research work. Many of these consist of thousands of standards, and so these are brought out on CD/DVD format and are highly costly. However, publishers do not treat them as periodicals although periodical updates are issued. On an average about 1000 standards are revised every year. Thus, to revise all the standards it would take 10 years. It would have been highly helpful if these organizations periodically issued the revised standards separately like individual issues of periodicals. This would enable accessing all the standards whenever necessary and would be cheaper. Unfortunately this is not so. Each year, the revised standards (about 10%) are issued along with un-revised standards (90%) with cumulative index. As soon as the next update is received, the earlier one becomes obsolete. The library receives installation software every year it is renewed. This is leading to the procurement of *un-revised standards* with revised standards every year, *although they are available with the library*. If, due to resource crunch, any product is not subscribed, all the old issues become inaccessible as they are issued with time locks. Although the library is the legal 'owner', the access is controlled by the publisher, forcing the library to renew it year after year. To compound the issue further, if the subscription is broken and renewed after two or three years (due to resource crunch, of course), the library has to pay a higher cost than the normal renewal cost. Is it fair?

5.5 Repeated Usage

A printed publication could be used or lent out again and again without any extra payments. Digital resources, by analogy, should allow better usage over print material, i.e., simultaneous usage by many people, there by leading to savings. But it is exactly the opposite—sometimes paying more than two times for the digital resources over the print material in stand-alone, single or multi-user price tags. Is it justified?

6. OPEN ACCESS INITIATIVES

The irony of the technology is that machines, meant to liberate us are instead stifling innovation. The digital rights management technologies instead of controlling through accountability, are trying at incapacitation. Sony's computers use proprietary software to encrypt digital music writing the number of times a song can be downloaded. The software makes it difficult to duplicate any CD including the one created by the owner (30). Statements in the user license agreement of Microsoft's Windows Media Player disable other programs.

Such problems coupled with the strict intellectual property rights laws, licensing regimes and monopolistic attitude of software companies led the Free Software Foundation launch Open Source Software Initiative to promote free and open software. The movement encouraged software enthusiasts all over the world to freely download software with source and object codes, alter and develop new applications, use them freely, and redistribute the applications with source code freely.

On the same lines as Open Source Software Movement, open archives initiatives also gained momentum. Many scholars felt that the exorbitant cost of the professional journals deters researchers obtaining latest developments in their fields thereby hindering further research. Also, no institution can afford to subscribe or access all the journals in a given field. The efforts of thousands of scientists from about 180 countries led to the formation of Public Library of Science (PLOS) in October 2000. The breathtaking growth of web technology and the evolution of the Internet as a major publishing medium led to the Open Archives Initiative (OAI) in 2001. The former strives to bring scientific literature into open access format, while the OAI aims to bring all research publications into the open access fold. The publicly-funded research is being made available by BioMedCentral through its 100 open access journals. The Open Access Movement further helped in creating SciDevNet and HINARI of word Health Organization that allows free (or for small fee) access to over 2000 journals in the field of health (31).

7. CONCLUSION

The copyright laws are supposed to advance knowledge through rewards to the creators; in reality these deter potential users by curtailing free flow of information thereby defeating the Universal Declaration of Human Rights of providing free access to information irrespective of region, religion, cast or race. *The irony is that librarians have to buy back copyright materials as highly priced periodicals that their R&D, scientific or academic community has given away to the publishers free of charge!!!* Safeguarding intellectual property is necessary to reward the creators of artistic work and encourage for further pursuits. Intellectual property right laws are supposed to facilitate free flow of and access to information. However, the various provisions in the digital copyright acts impose severe restrictions on free and fair research studies there by stifling R&D, academic as well as S&T research and scholarly communications. Breaking the protection technologies is vital for developing more effective and better technologies. As circumvention technologies are made illegal, researchers cannot attempt reverse engineering. Research on firewalls, computer security and encryption will take a back seat as researchers face legal wrangles. These also hinder efforts to create interoperable software. The digital rights management technologies may increase revenue to the rights owners; but they severely restrict researchers' freedom and give rise to publishers' monopoly. The knowledge society that is being created is for the developing countries that control technology and information.

The regulatory steps like cryptographic techniques, authentication of users and limits to their access; protection at network, system, application and user workstation levels; metering access time; password regulations, etc while protecting the rights also work against fair use. The copyright laws were conceived to enhance, and not to prevent, the information access and usage. The mechanisms developed for rights protection may restrict the access and use of digital information only to the privileged few who can afford to pay thus defeating the main purpose of copyright law. Further, in digital environment it is difficult to draw a boundary line between what is permissible, to what extent, and what is infringement. Small-scale violations which do not conflict with owners' rights may have to be accepted as a part of fair use for some more time.

While there is a necessity to protect intellectual property from infringements, protecting the rights of consumers is also important. In any environment, user's rights are to be protected along with the rights of owners. As the technological advancements outpace the legislative measures for the protection of intellectual rights, the copyright laws are being made stringent to suit the digital environment. However, groups like Association of American Universities are demanding copyright exemption of digital versions of scholarly journals;

maps, newsletter archives and some databases. Their argument is that these materials are valuable mostly for their facts and so are not copyrightable. Librarians from Library of Congress, National Archives and Records Administration and the National Library of Congress also are supporting a looser interpretation of copyright in digital domain (32). As such efforts would serve public good, similar initiatives should come from the professional community in developing countries also.

There is a necessity for enacting Digital Consumer Protection Act to safeguard the interests of the customers of digital products against the software keys, time-locks, unduly high pricing, etc as well as extending legal protection. Provisions should be made for time-shift (recording digital work to use at convenience), space-shift (to enable using the digital content in different places as long as the use is personal and non-commercial), making back-up copies of legally procured digital content and use it on the platform of user's choice, and right to use technology to achieve the rights mentioned earlier. Even in the digital environment, the librarians should have the same kind of fair dealing arrangement printed books. They should be able to read or browse electronic information without having to pay for it; preserve in digital format, copyright material held in their collections; and fulfill inter-library document requests electronically (33). New systems are to be developed for document supply in the electronic environment where both the copyright owners as well as users should get benefit. Rights-owner-user cooperation, combined with some genuinely innovative thinking by legislators is needed if copyright is to survive the digital environment.

Librarians should unite for getting fair dealing privileges of copying rights and meeting the inter-library loan requests of digital publications to preserve the sanctity of the library and to prevent absolute monopoly of the copyright owner over the distribution of and access to copyrighted information. The loss of these provisions would greatly harm scholarship, research, teaching and education. To make libraries free from perpetual dependency, the software keys, and time locks must be removed from the CD/DVD-ROM products. The library should be able to access the information from the legally procured resources, without software or time locks. A standard pricing, say 10-15 percent, should be charged extra when a library subscribes to both the print and online journals. When the libraries subscribe e-journals only, the prices should be 80-85 percent of the print versions. In the case of termination of subscription to an online only journal, the total data of the subscribed period should be given on CD/DVD-ROM without any locks or keys as backup to the library.

Lastly, responding positively towards open archives initiatives, all authors of government-funded research work should self-archive the output and offer free open access to them. This would not only maximize the visibility and impact of the research output, but also facilitate creation of huge knowledge base for the institution and the country. Librarians should advise authors to choose journals that offer non-exclusive licenses or with user-friendly licenses; or amend existing licenses and granting to the publisher the exclusive and non-transferable right of first commercial publication, distribution and sale of work and keeping copyright with the author as alternatives to copyright assignment (28). This would surely help not only in securing the intellectual property of an institution but also in containing the monopoly of commercial publishers on intellectual works.

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Digital copyright issues have long been the subject of passionate debate in Congress, the courts, the press, and the marketplace. The vigor of this debate reflects the economic, social, and political importance of copyright policy as well as the complexity of the underlying legal, economic, and technical questions.Â c) The Task Force will support and provide input to the Copyright Office as it moves forward with its work on updating the library exception in Section 108 and examining the issues of orphan works and mass digitization. 2) Assessing and improving enforcement tools to combat online infringement and promote the growth of legitimate services while preserving the essential functioning of the Internet. The rights of authors include the economic rights in the work and the moral right of author.Â Greens/EFA position paper Creation and Copyright in the Digital Era. Â§16. If debates over digital technologies brought to light the precarious condition of artists, collecting and redistribution systems are problematic and unfair in most countries to a majority of the artists and creators regardless of the existence of the information and communications technologies (ICTs). Digitization is the process of converting information into a digital (i.e. computer-readable) format. The result is the representation of an object, image, sound, document or signal (usually an analog signal) by generating a series of numbers that describe a discrete set of points or samples. The result is called digital representation or, more specifically, a digital image, for the object, and digital form, for the signal. In modern practice, the digitized data is in the form of binary numbers, which Information on some of the copyright issues when creating digital content on the web - licences, tracing copyright holders. Focus is on UK law, but relevant inâ€¦Â 1. Rights Issues in Digitisation Alastair Dunning Arts and Humanities Data Service, Kingâ€™s College London i am not a lawyer do not take any legal responsibility small print i am not a lawyer do not take any legal responsibility small print i am not a lawyer do not take any legal responsprint small print am not a lawyer do not take any.