COPYRIGHT INDUSTRY AND RESPONSE TO DIGITAL AND ONLINE INFRINGEMENT; UK AND USA EXPERIENCE**

Abstract

Digital media exist in hard forms, such as CDs, CD-ROMs and DVDs, and the ease and accuracy of this technology has led to a great spate of piratical copying. This same danger for the record, film and publishing industries arise on the internet, where hard copy ceases to be the major means of transmission. This paper makes the assertion that the United Kingdom copyright industries are insisting that they are under considerable threat, and are looking to see what potential the new internet world, which appears as a right, have in store for them. It makes further assertion that the enhanced ability to copy and distribute information triggered by the internet has provoked responses; and - being that electronic management may give them control over their works with far greater precision than used to follow from traditional copyright, which infringement occurred only at points of manufacture, sale rental and specified public use. To implement the rules and laws of WIPO Copyright Treaty (WCT) and WIPO Performances and Phonograms Treaty (WPPT) regarding copyright infringement over internet, the United States in moving the nation's copyright law into the digital age, in October 1998, adopted a local Copyright Act named the Digital Millennium Copyright Act (DMCA). This work therefore seeks to consider the potential of the internet to restrict access for every use desired by a consumer, if users can only get to the material by a password, a decryption device or some other barrier, and if the material can be controlled after access as well. This relationship can be the subject of a range of contractual conditions, precisely modulated, and consumers will get much more exactly what they pay for. Such a result sounds the very model of economic efficiency.

Introduction

The Digital Millennium Copyright Act (DMCA) embraces a number of compromises between internet interests and copyright

holders and also paid attention to the future of copyright exceptions in an electronic system that might otherwise bypass them. Features of DMCA includes to: Declare the avoidance of anti-piracy measures as a crime; Outlaw the manufacture, sale, or distribution of code-cracking devices used to illegally copy software; Protect ISPs from copyright infringement liability for simply transmitting information; Limit the liabilities of non-profit institutions of higher education; and requires that the webcasters pay licensing fees to record companies. This enhanced ability to copy and distribute information over the internet has provoked attendant responses. In order to gain back control, right holders, in the United States, have made use of technological protection measures (TPM), for instance; Digital Rights Management (DRM) schemes, that are aimed at regulating the copying, distribution, and use of and access to digital works through code (law). The DMCA also adopted "Notice and Take Down" procedure, aimed at notifying Internet Service Providers (ISPs) to remove a site they host if it contains infringing or other unlawful (law). The DMCA also adopted "Notice and Take Down" procedure, aimed at notifying Internet Service Providers (ISPs) to remove a site they host if it contains infringing or other unlawful material, and the bulk of ISP interests, in the United States agreed to the legislative scheme before its enactment. The confidence of copyright industries around the globe, not just in United Kingdom, may only be restored where economic efficiency is guaranteed, albeit substantially.

1.0 Major Copyright Industries.

1.1 Publishing

Among professional writers of fiction, biography and the like, established authors tend to have literary agents, who have an insider's view of publishing. They improve the competitiveness

of the market, and can guard authors against the dangers inherent in any relationship as complex as the modern publishing agreement. Significantly, it is often the agent who presents the draft contract to the publisher for negotiation. This practice however, is more applicable and in use in Great Britain, and other English Language Publishing Associations. Example are The Society of Authors and the Writers Guild of Great Britain, which indeed have collaborated in producing "Minimum Term Agreements" (MTAs) which they seek to have accepted by publishers. However, they are yet to become trade standards, applicable by some individual firms.

The MTA's specify the rights which are the subject of a publishing agreement, the minimum royalties to be paid for each right within copyright, the type of right granted (exclusive license unless there is some specific justification for an assignment), and the various forms of exploitation covered. As to forms of exploitation, apart from book publication in home and overseas markets, in translation, e.t.c., MTA's themselves need revision as new forms of exploitation develops.

As to the duration of the grant, the different versions of the MTA have tackled the question of a reversionary power in various ways: a maximum licence term of twenty (20) years[1] or of a

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[1] By 1992 five publishers had been prepared to include a 20-year limitation in their MTA: The Author (1992) 91.

period to be fixed in the particular agreement; full or part term licences which in certain cases (such as cessation of production of the work) become capable of termination by the author; licences which after a specific period or in specified circumstances becomes capable of renegotiation.

For publishers in general, the Publishers Association has its own voluntary Code of Practice and this acknowledges some of the claims of the MTAs.[2] Thus it calls for the clear statement of all obligations assumed by each side, with proper explanation of the terms to an author who is not professionally advised. It recommends that the publisher be granted only a licence unless there are special reasons for an assignment. There are certain reversionary arrangements and a statement that an author should have "proper opportunity to share in the success of a work" (though nothing more specific is said about the measure of this sharing). The manuscript should be handled promptly in accordance with a set timetable and the author should be informed about all important design, promotion, marketing and sub-licensing decisions. Cancellation by the publisher should occur only for sufficient reason. The author should receive regular and clear accounting. The publishers should be aware of the author's moral rights.[3]

1.2 Music

1.2.1 Composition and Initial Publication, Recording and Performances.

Writing of music is not a field in which collective negotiation has proceeded far. Composers now have an Association of

[2] Owen, Clark's Publishing Agreements, 8 edn (2010) App 1.

[3] Other provisions cover: liability to third parties, option clauses, remaindering, changes of publisher and imprint, assistance to literary estate, and co-operation in general.

Composers' Organisations, comprising representatives of the Association of Professional Composers, the Composers Guild of Great Britain and the British Academy of Songwriters, Composers and Authors. To some extent, this umbrella organization negotiates with the Music Publishers' Association, the Publishers Alliance for Cinema and Television (PACT), the BBC and the PRS on rights and appropriate fee levels, but this falls short of general agreements on minimum terms. It was the absence of either composers' agents or collective protection among entrants into pop composition, coinciding with the sudden cult of the composer-performer, which 20 years ago led the court to their resilient use of the doctrine of restraint of trade and undue influence.[4] In *A Schroeder Music v. Macaulay*,[5] there, the House of Lords found an agreement between a young unknown pop composer and a leading music publisher to be unenforceable as being in unreasonable restraint of trade. The broader label, "unconscionable", was also used of the agreement, but there has since been some restraint against adopting this highly amorphous concept as the essential test of what is inoperative.[6]

The consequence of this intervention has been to enhance the position of the composer. While it is still the practice for copyright to be assigned to the publisher, the transfer of rights is no longer always for the entire copyright term. There may well be clauses allowing for reversion of title in works which the

[4] Peel, *Treitel on the Law of Contract* (13th edn 2011) para. 11-062 et seq; for more details, Bagehot & Kanaar, Music Business Agreements (3rd edn 2009) para 1-007; Nelson, Law of Entertainment and Broadcasting (1995) Ch.5.

[5] [1974] 1 WLR 1308; [1974] 3 All ER 616.

[6] Peel and Treitel, Law of Contract (13th edn 2011) paras. 10-042 and 10-044; Golf and Jones, Law of Unjust Enrichment (8th edn 2011) paras 11-58 *et seq.*

publisher chooses not to promote; for termination of the agreement (including the assignment) after a limited term; for revision of royalties either in accordance with a scheme prescribed from the outset or through an obligation to renegotiate. In the past publishers have taken express power to make adaptations, arrangements and alterations to popular compositions, and to change the title. Such clauses will now constitute waivers of the composer's moral right of integrity in the circumstances to which they apply. One effect of the statutory statement of this moral right, however, may be to induce a scrupulous interpretation of any contract term which operates as a waiver.

1.3 Screenwriting: Film, Television and Video.

Production of Audio-visual material in Britain takes place on many levels, from feature films, through television production, to video games, documentaries and promotional materials. Much of it is produced on an "in-house" basis, in which case, most of the writing and other copyright contributions will be made by employees. The copyright will therefore belong to the employer from the outset unless some other contractual arrangement applies.

Production on commission is also important, particularly for television, since every licenced public service channel[7] is under statutory duties to commission 25 percent of their broadcasts from independent producers. The effect of this upon the creators of material is that a production starts from a commission contract between the licenced public service broadcaster and the outside

[7] Such as BBC1, BBC2, ITV1, Channel 4 and Channel 5

producer.[8] It will be for the producer then to hire the writers and performers. The commissioner, as the main financier of the production, often has the right to approve the producer's selection.

The proprietary basis of the commission is that, once the film is complete and is transferred in return for final payment, all copyright is assigned to the commissioning broadcaster. This necessitates: (i) that the producer has already secured all copyright in contributions, either through the rule on employee's copyright or by assignment; and (ii) that all obligations (for example, to pay royalties) which arise under the contributors' contracts are assumed by the broadcaster upon transfer of the film. Since the producer remains contractually liable on the obligations, he must take an appropriate indemnity from the commissioner.

1.4 Visual Arts.

In the production of graphic and ceramic works, collective organization has not yet progressed to the point of general agreements between artists and commissioners or employers. Characteristics of the field is the large number of separate associations in which artists collaborate. These distinguish between the creators of high art and the practitioners of workaday crafts (from the National Artists' Association and the Chattered Society of Designers to the Picture Research Association); and equally between general and highly specific spheres of work.[9]

[8] Communication Act 2003, ss. 277, 285.

[9] From the Association of Illustrators and the Association of Photographers to the Institute of Medical Illustrators and the Association for Historical and Fine Art Photography.

Many of these bodies are now able to offer their members support in negotiating individual contracts, at least by suggesting model forms or by offering advice on particular terms.[10] Thus, they stress not only on the dangers of assigning or granting exclusive licences in general terms (particularly in relation to the future), but also find occasion to advise on difficult issues of privacy, permission to use a subject (particularly a person) and copyright arising from secondary activities affecting artistic works, such as retouching, collaging, incorporation into advertisements, and so on. With the coming of digital libraries of visual art works, the scope for re-use, often after some form of re-working, is hugely enhanced.

Architectural works, which often takes the form of a professional commission, is likely to follow one of the Standard Forms of Agreement of the Royal Institute of British Architects, though these may always be varied expressly. The 2010 version of the Form for Appointment of an Architect[11] states that copyright in all documents and drawings prepared by the architect remains his or her property. However, the client is licenced to reproduce the design by building on the site or part of the site to which the design relates, provided that the architect has completed the scheme design or provided detailed design and production information and has been paid as agreed. Until a scheme design is complete, the client has no right to proceed without consent; but if the architect's services are limited to making and

[10] Witness, for instance, *British Photographers' Liaison Committee, The ABC of Photographic Copyright (1994)*, which warns against surrendering all economic and moral rights without careful consideration. Cf. *Hutchinson v. Hook* [1996] FSR 549.

[11] Condition of Appointment para 1.7.1

negotiating a planned application, consent may not unreasonably be withheld.[12]

1.5 Digital Licensing.

Regardless of the type of work involved, whether music, books, film or visual arts, the ability digitally to exploit such content in a variety of ways and across different platforms has led to considerable complexities in licensing. Obtaining the multitude of rights clearances that are needed from a range of right-holders and collecting societies has led to demands by users for measures to simplify licensing procedures lest new and innovative online services are thwarted. [13] The Hargreaves Review noted the strategic importance of "efficient markets for copyright licensing…to the UK's growth prospects" [14] and thus recommended a utopian Digital Copyright Exchange that would comprise a network of interoperable database to provide a common platform for licensing transactions. A feasibility study of this solution has recommended that an industry led, not for profit "Copyright Hub" should be created.[15] This would link to the existing network of private and public sector database, rights registries and exchanges, and serve as facilitator for digital licensing and orphan works searches. Its emergence and success depend on the collaboration and cooperation of a wide range of stakeholders and continued momentum going forward, otherwise

[12] *Ibid* para 2.3. The Form for Appointment of an Architect to Design and Build (para. 2.3.2) provides that, even if no scheme design has been completed, consent to use is not to be unreasonably withheld.
[13] Hargreaves Review (2011) Ch.4.
[14] Hargreaves Review (2011) para.4.13.
[15] UK IPO, Copyright works: *streamlining copyright licensing for the digital age: an independent report by Richard Hooper CBE and Dr Ros Lynch (July 2012).*

it risks remaining a wistful idea, much like the multimedia rights clearance centers suggested in the 1990s.[16]

2.0 Internet as a Right

At present, internet is one of the most regular substances with what the largest part of the world is familiar. According to the Internet Usage Statistics,[17] with world population estimated at 7,796,615,710[18] people as at first quarter of 2020, Internet Users' Distribution as at December 31, 2019 stands at 4,574,150,134[19] people out of the entire population. On internet usage growth rate between year 2000 to 2020, Africa tops the growth chat with 11,559% growth, followed by Asia with 1,913%, Europe 592% while North America came fourth with 222% growth within the period under review.[20]

However, following the present circumstance and reality, the question is, do we consider the internet as a right or whether disconnection from the internet violates any provision of any law and/or article of the Universal Declaration of Human Rights. Well, some people argue that the opportunity to access to the

[16] European Commission, Multimedia rights clearance systems: Pilot projects supported by the INFO 2000 programme (1999)

[17] <http://www.internetworldstats.com/stats.htm> Accessed on 16 April 2020.

[18] Out of this figure, Africa got 1,340,598,447 representing 17.2%; Asia got 4,294,516,659 representing 55.1%; Europe got 834,995,197 representing 10.7%; North America got 368,869,647 representing 4.7%, among other regions.

[19] Out of which Africa has 526,374,930 representing 11.5%; Asia got 2,300,469,859 representing 50.3%; Europe got 727,814,272 representing 15.9%; North America got 348,908,868 representing 7.6%, among other world regions.

[20] <http://www.internetworldstats.com/stats.htm> Accessed on 16 April 2020.

internet is a right. They opine that the internet can be used to provide essential information about storm warning and crop prices for farmers, or medical services, or legal land records for the farmers in developing countries.[21] Cory Doctorow, in his 'Homeless People and the Internet' expressed as follows, *"You do not need a television, you do not need a radio, and you do not even need a newspaper, but you need the internet".*[22] Thus, the internet is providing valuable information as well as making a platform to express the opinion. Therefore, in that regard, the right to access the internet covers the principles of human rights as freedom of expression and freedom of information. Article 19 of the UDHR-1948 provides that the right to freedom of opinion and expression includes:

i. The right to express, or disseminate information and ideas;
ii. The right to seek information and ideas;
iii. The right to receive information and ideas; and
iv. The right to impart information and ideas through any media and regardless of frontiers.

3.0 Readiness of United States of America in dealing with infringement.

United States of America (U.S) industry and government have used various technical, legislative, and trade policy approaches to combat infringement of its works, as it became more prevalent in domestic and overseas markets. Through trade policy, the U.S

[21] KY Peter, 'Bridging the Digital Divide: Equality in the Information Age' [2002.] (1) 20 *Cardozo Arts & Ent. L.J.*, <https://scholarship.law.tamu.edu/facscholar/477> Accessed on 26 February 2020.

[22] C Doctorow, 'Intellectual Property: Digital Rights, Digital Wrongs' (The Guardian 2009).

has attempted to export its own high legal, technical and enforcement standards for addressing Intellectual Property Right (IPR) piracy to overseas markets; however, the U.S model is challenged to keep pace with the rapid emergence of digital technology and Internet piracy.[23] Besides domestic legislation, coming up next, some notable technical measures available to thwart copyright infringement through digital technology and the internet includes among others, SCMS (Serial Copy Management System); Electronic Records; Encryption; Digital signature; Watermarking; Access control‖ methods; Rights control‖ methods, and URL Filtering. We shall look at Technical Protection Measures.

3.1 Use of Technical Innovation.

One broad category of solutions to IPR particularly copyright problems is based on the use of technical innovation.[24] In order to protect IP from competitors and pirates, businesses have frequently incorporated physical or technological barriers into their products. The purpose of such barriers is to ensure that others cannot claim the products as their own. Further, such technological barriers prevent others from engaging in circumvention to gain unauthorized access to works or the exercise of rights owned by the copyright holder (including the right to reproduce). In theory, when such technical protection

[23] U.S Industry representatives, interviews by USITC staff, June-August 2002.

[24] This presents information on more recent forms of technical protection measures. It is intended to serve as background for the effectiveness of technical means in comparison to other methods for controlling piracy internationally, but is not foolproof. Many alternative sources are available for a more complete analysis including, National Academy of Sciences, 'The Digital Dilemma, Intellectual Property in the Information Age' (Washington DC: National Academy Press 2000).

measures (TPMs) are effective, they can allow rights holders to distribute their material over international borders without fear of piracy. Still, technical protection measures are not foolproof. The modern era has seen an abundance of attempts to protect copyrighted products via technical means. As technology has improved, the various means used by industries to prevent the illegal copying of information by necessity have become more complex. Interestingly, their effectiveness has decreased over time, as approaches to circumvent the mechanisms have matured even faster.[25]

3.2 Making Unauthorized Copies Unusable

Many of the earliest efforts to address digital piracy were made by the information technology industry. An effective way for software manufacturers to ensure that only those authorized to use their products would do so was to make any unauthorized copies unusable. When software was distributed primarily on floppy disks, manufacturers would often encode errors on or deliberately destroy certain unused parts of the disk, which only the authentic installation program would know to avoid.[26] This "destructive" approach has been used for years in many industries, and can even ruin an illegal user's equipment. Recently, technology that produces loud bursts when listening to a pirated CD was unveiled. Reports indicate that the generated sound waves can damage sensitive circuitry.[27]

[25] "A 'Speed Bump' v. Music Copying,' Business Week, 9 January 2002 <https://www.businessweek.com> Accessed 20 April 2020.
[26] Microsoft Corp. 'Microsoft to Debut New Anti-Piracy Features in Windows 2000 and Office 2000' <http://www.microsoft.com> Accessed 3 January, 2020.
[27] 'Anti-Piracy System Could Damage Loudspeakers' CD Media World <http://www.cdmediaworld.com> Accessed 28 February 2002.

3.3 Activation Technology

An early method used by the software industry that endures today is the use of "activation technology". The concept behind activation technology is that only legitimate license owners should be able to install a piece of software (or listen to a song, or have access to content, etc.). One primitive approach was the use of manual look-ups, where a question would be posed about the hard-copy manual that came with the software, such as asking for a word printed on a given line and page.[28] Since the manual could not be copied as cheaply and easily as the software itself, this proved effective for a time until the pervasiveness of the Internet on which the manual could be easily transmitted made cheating easy and consumers began to backlash against the method's cumbersome nature. Similarly, some companies required the validation of unique codes in order to use a piece of software. Only by valid registration could a user obtain an acceptable code, often located on the outside of the box.[29] Activation technology has evolved over time and is still used with some effectiveness despite numerous efforts to circumvent it. According to one Microsoft Corporation official, activation technology is effective in reducing piracy overseas, *"where copyright laws are less well understood and enforced."*[30] A related technology is the dongle, an electronic device externally plugged into a computer's input port. The software will look for

[28] Dan Vekhter and Jim Peng, 'Software Piracy', Stanford University class project, spring 2000, <http://cse.stanford.edu> Accessed 23 April 2020.
[29] 'Microsoft to Debut New Anti-Piracy Features in Windows 2000 and Office 2000' Microsoft Corp. <http://www.microsoft.com> Accessed 3 May 2020.
[30] Will Poole, Corporate Vice President, Microsoft Corporation, written testimony for the House Judiciary Committee, Subcommittee on Courts, the Internet and Intellectual Property, 5 June 2002, <http://www.microsoft.com> Accessed 2 February 2020.

the dongle before launching, and if not present the software will not run. Similar to the "tough-to-copy" concept that drove manual usage, dongles are difficult to reproduce and nearly impossible to distribute efficiently. While rare today, they were a useful (but often controversial, as the market rebelled against their awkwardness) way to control the mass reproduction and distribution of copyrighted material, especially overseas.[31]

3.4 Encryption

Encryption is a common method used to protect digital content. An encryption algorithm is run on the content before it is distributed, and only devices that understand the algorithm can reverse it; thus, only certain devices can access the content in its original form. While encryption is largely effective, hackers can circumvent the technology once the algorithm is discovered. The Content Scrambling System (CSS), used in the digital versatile disc (DVD)[32] industry, has been one encryption application to achieve modest success.[33] Every movie distributed on DVD by each of the major studios uses CSS technology; therefore every DVD player must have a license to decrypt the CSS language.[34] Even the largely successful CSS code has been cracked, leaving the DVD industry vulnerable to pirates despite a wide-reaching ban on attempting to break the code.[35] Encryption technology can

[31] U.S Industry representatives, interviews by USITC staff, June-August 2002.
[32] Also referred to as digital video discs.
[33] CSS does not prevent copying; it only stops one from fast forwarding certain parts and only in certain regions. <http://nickyguides.digital-digest.com> Accessed 11 February 2020.
[34] Information Technology Industry Council (ITI), 'Copyright Protection & Technology Mandates' <http://www.itic.org> Accessed 11 February 2020.
[35] Evan Hansen, 'Ban on DVD-cracking code upheld' CNET News.com, 28 November 2001, <http://www.news.com> Accessed 11 February 2020.

be hardware-based, software-based, or a hybrid such as the CSS technology, depending on where and how the protection mechanism is embedded.[36]

3.5 Digital watermarks and fingerprints

To improve upon the basic encryption strategy, several methods have evolved that fall under the classification of "watermarks" and "digital fingerprints" (steganography). Watermarks have been considered extensively by record labels in order to protect their content.[37] However, some argue that "watermarking" is better suited to tracking content than it is to protecting against reproduction. This technology is based on a set of rules embedded in the content itself that define the conditions under which one can legally access the data. For example, a digital music file can be manipulated to have a secret pattern of noise, undetectable to the ear, but recorded such that different versions of the file distributed along different channels can be uniquely identified.[38] Unlike encryption, which scrambles a file unless someone has a 'key' to unlock the process, watermarking does not intrinsically prevent use of a file. Instead it requires a player, a DVD machine or MP3 player, for example, to have instructions built in that can read watermarks and accept only correctly marked files."[39] While watermarks are created by the originator of the content, digital fingerprints are customarily left by the purchaser of the

[36] Poole, written testimony for the House Judiciary Committee, Subcommittee on Courts, the Internet and Intellectual Property, 5 June 2002.
[37] Joel Alarilla, 'Using Digital Watermarks to Prevent Music Piracy' Philippine Daily Inquirer <http://www.piacipr.com> Accessed 13 February 2020.
[38] Alan Zeichick, 'Digital Watermarks Explained' Red Herring, December 1999 <http://www.redherring.com> Accessed 11 March 2020.
[39] 'Electronics Giants Promote Video Security' CNET.com, 26 April 2001 <http://news.com> Accessed 18 February 2020.

copyrighted work (for example, by the first media player to access the file).[40] Devices can then recognize and authenticate the digital prints, and either grant or deny access as appropriate.[41] However, while in theory the control information cannot be altered or removed without damaging the content, often completely acceptable compression techniques can modify the data in a seemingly harmless way, and various side-stepping methods have evolved, including algorithms that randomize every bit of data.[42] This enables a user to circumvent the protections.

3.6 Anti-copying Technology

In spite of the above mentioned limitations, some music labels have incorporated strict anti-copying technology into new releases from popular artists.[43] These technologies employ signatures (a technique similar to fingerprinting) that prevent the music from being read by a computer, thus eliminating the risk of "ripping"[44] and illegal distribution.[45] While similar technologies have been around for some time, their use has not been widespread due to the reluctance of music labels to alienate their

[40] Brian Chen and GW Wornell, 'Digital Watermarking Research' Digital Signal Processing Group, Massachusetts Institute of Technology <http://web.mit.edu> Accessed 17 February 2020.
[41] ITI, 'Copyright Protection & Technology Mandates' < www.itic.org> Accessed 11 March 2020.
[42] Alan Zeichick, 'Digital Watermarks Explained' *op. cit.* (n 166) 1.
[43] Sony Trials Anti-piracy CD, BBC News <http://www.news.bbc.co.uk> Accessed 11 March 2020; and 'Eminem CD May Get Protection' Reuters, < http://www.news.zdnet.co.uk> Accessed 14 March 2020.
[44] Ripping is defined as recording a song from a CD to a computer, often to modify its format and/or to record the song onto a blank CD. 'What is 'Ripping?' Sony Corporation, <http://sony.storagesupport.com> Accessed 5 March 2020.
[45] 'How It Works' key2Audio, <http://www.key2audio.com> Accessed 4 March 2020.

consumers, who would lose flexibility in where the discs can be played.[46] For example, signature technologies can prevent some portable devices, PCs, and car stereos from playing the discs, limiting playback to standard CD players.

Digital watermarks and fingerprints can also be used to monitor the use of content, rather than prevent its usage outright. With monitoring applications, companies can track the actions of users to see where their content is going on the Internet. Rather than try to prevent the content from being stolen, the company tracks the entity that has illegally distributed copyrighted material, and can then send a "takedown notice" to the owner of the computer server that is hosting the data.[47] While this is challenging for the Internet as a whole, it can be effective in closed systems like corporate intranets. A variation of a digital watermark is a "digital envelope," or "wrap," which is embedded into the media while it is still blank. This can be used to control the number of copies made from that disc once data is stored upon it.[48]
Another approach to Internet IPR protection is to send tools out to search the Internet for what may be illegal versions of digital movies and songs.[49] In other circumstances, fake versions of popular songs and movies will be posted online to frustrate those looking for content online, often through peer-to-peer (P2P) sites.[50]

[46] 'Eminem CD May Get Protection'.
[47] Brad King, 'Pirates Beware: We're Watching' Wired News <http://www.wired.com> Accessed 11 Feb. 2020.
[48] Dan Daley, 'Over the Horizon' TapeDisc Business, May 2002, 35-40.
[49] Ranger' v. the Movie Pirates.
[50] David Segal, 'A New Tactic in the Download War' <www.washingtonpost.com> Accessed 20 March 2020.

3.7 Streaming

Finally, many online content providing sites will use a technique known as "streaming" to provide access to content while not actually allowing the user to create a complete copy of the digital file. Streaming sends the data over the Internet in tiny "packets," such that only a small portion of the entire file is transmitted and held in computer memory at a time.[51] However, to the user enjoying the content the experience is seamless (provided the Internet connection has sufficient bandwidth to carry the large amounts of data required). Many companies providing online content use the streaming model. In fact, even some sites accused of and subsequently shut down for copyright infringement streamed content to their customers.[52] The implication here is that even "pirates" understand that once a complete digital file is available online there is no limit to the number of copies that can be made and distributed, thus ruining potential business for their own site.

4.0 United States of America (Domestic Legislation).

Technical measures have not always been foolproof or sufficient in and of themselves in managing and protecting IPR and, as such, rights holders have often sought legislative means to protect their rights. This include the evolution of legal protections for software and the adoption of the DMCA.

Software, which serves as a basis not only for business operating systems and applications but also as a fundamental component of modern media and information technology products, including

[51] 'Streaming Media' what is.com <http://whatis.techtarget.com> Accessed 18 Feb. 2020.

[52] Stephanie Olsen, 'MPA shuts down video site Film88.com' <http://www.news.com> Accessed 11 Feb. 2020.

the Internet, entertainment CDs and DVDs, video games, and other interactive hardware and software, has not always been formally protected by IPR laws. In the U.S, a formal protection framework for software, including copyright protection, took shape over the past several decades. As new markets for computers and software began to grow rapidly in the 1970s, increasing pressure was placed on the U.S. Congress to update the Copyright Act of 1909, which had been the key legislation protecting original literary and artistic works. In fact, the Copyright Office had started registering computer programs as early as 1964 but there was a need for further clarifications and specifications of protections. The need to modernize the law for new technologies, including software protection, explicitly led to the adoption of the 1976 Copyright Act.[53] In the 1976 Act, Congress authorized the National Commission on New Technological Uses of Copyrighted Works (CONTU) to determine the feasibility of and any need for revisions pertaining to traditional U.S. copyright protection for software and other computer-generated works.

A report issued by CONTU in 1979 recommended the modification of existing copyright laws to identify computer software as explicitly copyrightable material. These modifications were undertaken in the 1980 Computer Software Copyright Act[54] codifying the recommendations of CONTU. The Act explicitly identified computer software as copyrightable subject matter, thereby clearly giving authors of software the same express protection as authors of other literary and artistic works, and added a very limited backup copying exception for certain software programs. The 1980 Act did not establish an

[53] Pub. L. 94-553, §117, 90 Stat. 2565 (1976).

[54] Pub. L. 95-517, §117, 94 Stat. 3028 (1980), codified at 17 U.S. C. §117 (1988).

entirely new set of regulatory bodies to protect software; instead, its approach reaffirmed the role of the courts in determining the boundaries of copyright protection for software and computer-generated works.

After the 1980 law was passed, a number of legal determinations were able to adequately address IPR issues of concern to software and related media producers.[55] However, by the mid-1990s, the rapid rise of the Internet and digital media products presented new challenges to copyright protection. These developments pushed the limits of the previous legislation to protect IPR, as the Internet, optical disc, and other digital technologies enabled original software and other media products on CDs and DVDs to be easily replicated, transmitted, and distributed throughout the world via the Internet.[56]

The U.S and over 100 other countries responded to the rapid changes by signing two new treaties at the WIPO, the WIPO Copyright Treaty (WCT) and the WIPO Performances and Phonograms Treaty (WPPT), which clarified that copyright is applicable in the digital environment.[57] The United States implemented the WIPO treaties by adopting the Digital Millennium Copyright Act of 1998 (DMCA),[58] which provided new standards for the protection of copyrights in the digital

[55] Arthur R. Miller, 'Copyright Protection for Computer Programs, Databases, and Computer-Generated Works: Is Anything New Since CONTU?' [March 19931] (106) (5) *Harvard Law Review*; Jack E Brown, 'Softwars' [1 November 1993] *National Law Journal*.

[56] U.S Industry representatives, in-person and telephone interviews by USITC staff, May-August 2002.

[57] These two treaties are known as the WIPO "Internet" treaties.

[58] Pub. L. No. 105-304, 112 Stat. 2860 (1998).

environment.[59] Among other things, the DMCA makes it illegal to circumvent anti-piracy measures built into works, including most commercial software, music and other programs on CDs and content on DVDs.[60] It outlaws the act of circumvention of controls used to prevent unauthorized access to works, and the act as well as the production, sale, or distribution of code-breaking devices used to illegally copy or make other copyright use of protected works.[61] For violators, the DMCA provides for civil, administrative and criminal remedies.

While not required by the WIPO treaties, the DMCA also included provisions limiting the remedies available against Internet service providers that unknowingly transmit copyright infringing information over their networks.[62] However, service providers are expected to remove material from users' web sites that they know, are made aware, or should know to constitute copyright infringement.[63] The DMCA also limits the liability of non-profit institutions of higher education for copyright

[59] C Gibson, *WIPO Internet Copyright Treaties Coming into Force* (London: Steptoe & Johnson 2002) 1-4.
[60] Library of Congress, 'Rulemaking on Exemptions from the Prohibition on Circumvention of Technological Measures that Control Access to Copyrighted Works' 30 April 2002.
[61] However, DMCA allows circumvention of copyright protection devices to conduct encryption research, assess product interoperability, and test computer security systems. It provides exemptions from anticircumvention provisions for nonprofit libraries, archives, and educational institutions under certain circumstances.
[62] UCLA Online Institute for Cyberspace Law and Policy, 'The Digital Millennium Copyright Act' <http://www.gseis.ucla.edu> Accessed 3 February 2020.
[63] U.S Copyright Office, The DMCA of 1998: U.S Copyright Office Summary, December 1998, 1-18.

infringement by faculty members or graduate students serving as online service providers and under certain other circumstances.

Finally, the legislation requires that "webcasters" pay licensing fees to record companies, and that the Register of Copyrights, after consultation with relevant parties, recommend to Congress means for encouraging distance education through digital technologies while "maintaining an appropriate balance between the rights of copyright owners and the requirements of users." The result of the Register's recommendations was passage in 2002 of the Technology Education and Copyright Harmonization (TEACH) Act, Pub. L. 107-273. The legislation also states explicitly that "nothing in this legislation shall affect rights, remedies, limitations, or defenses to copyright infringement, including fair use...."[64] There have been some criticisms of the DMCA by consumer and libertarian groups, which state that its anti-circumvention provisions have not been fairly applied. Instead, critics assert that the DMCA has been used to dampen a wide range of legitimate activities--such as scientific research and the public's fair use rights--rather than to stop copyright piracy.[65] In my opinion, the U.S is perhaps the most radical jurisdiction engaged in the fight against copyright infringement. In addition to vigorous campaigns by various bodies,[66] as discussed above, we have witnessed introduction of various shades of Acts aimed to adequately address copyright protection issues in the Digital Age, itemized below includes these legislations;

[64] UCLA, Online Institute for Cyberspace Law and Policy *op.cit.* (n 190) 1-2.
[65] Electronic Frontier Foundation (EFF), Unintended Consequences: Three Years Under the DCMA, v. 1.0; 'The Digital Economy: Why the AntiCircumvention Regulations Need to be Revised' [1999] (519) (14) *Berkeley Technology L.J.* 537-57
[66] Like the Record Industry Association of America (RIAA).

a. The Enactment of the Semiconductor Chip Protection Act of 1984: which was enacted as a response to the introduction of computers and computer programming. To regulate the activities of Computer and program makers and ensure conformity with the law of intellectual property.
b. The Enactment of the Record Rental Amendment of 1984[67], was enacted to prohibit unauthorised commercial rental of sound recordings.
c. The Computer Software Rental Amendments Act of 1990: was enacted to prohibit unauthorised rental and duplication of computer software.
d. The Digital Audio Home Recording Act of 1992 was also enacted to determine the legality of home-taping protected works. This Act imposed royalties/tax on the sale of digital audio recording devices and other blank media. The revenue derived therefrom was paid to copyright owners. The objectives of the Act (as contained in its preamble) were stated in RIAA v Diamond Multimedia Systems Limited[68]. They include:

> (a) to permit non-commercial audio home recording, (b) to give legal protection to the makers and distributors of Digital Audio Tape (DAT) players – provided they incorporated a system to prevent serial copying, and (c) to compensate copyright owners through a levy[69].

e. The Digital Performance Right in Sound Recordings Act of 1995 sought to provide income for owners of sound recordings for digital streaming of their works.

[67] Pub. L. No. 98-450, 98 Stat. 1727 (codified at 17 U.S.C. § 109 (1984).
[68] 180 F.3d (9th Cir. 1999).
[69] *Ibid* 1072.

f. The No Electronic Theft (NET) Act of 1996 expanded criminal enforcement for piracy over digital networks.
g. The Digital Theft Deterrence and Copyright Damages Improvement Act of 1999 was enacted to significantly increase statutory damages for the infringement of copyright.
h. The Digital Millennium Copyrights Act (DMCA) 1988[70] was enacted to adopt Article 11 of the WIPO Treaty 1996. Section 1201(a)(1) of the DMCA specifically prohibits activities which are aimed at circumventing technological protection measures. Section 1201(a)(2) prohibits a person from *"manufacturing, importing, offering to the public, providing or otherwise trafficking in any technology, product, service, device, component…"* that circumvents copyright protection. Although some exception is provided for non-profit libraries, research, security testing of a computer, law enforcement agency uses and other legitimate circumstances. The provisions of the DMCA has been further reinforced with the enactment of the Computer Misuse Act[71] which punishes fraudulent manipulation of protected works. Also, the court reiterated the need to prevent circumvention of Digital Rights Management and other protective technologies in *R v Gold and Schifreen*[72].
i. The DMCA has been considered in *Sony Corporation of America v. Universal City Studios*[73] where the court held that the DMCA applied to new technologies. In *Oracle America INC v. Google Inc*.[74] the court accepted its applicability to

[70] 17 USC 1998.
[71] 1990 (c) 18
[72] 1988 AC 1063
[73] 464 U.S 417 (1984).
[74] (2014) US Court of Appeal Federal Circuit

computer programs In *Universal v. Reimerdes*[75], the court held that device manufacturers should incorporate anti-circumvention technologies in their devices. In *U.S. v. Sklyarov* [76] , a company was sued when its employee (programmer) invented an application (the Advanced e-book Processor) that translates restricted e-book works to free and unrestricted pdf format. This allowed for copying, editing and manipulation of copyrighted e-books. The court noted that such application should be operated within the ambits of fair use as doing otherwise would amount to an infringement of the author's right. In *Felten v RIAA*, the court noted that discoveries of security flaws in a copyrighted work should not be unnecessarily disseminated to the public as doing so may amount to an infringement of the Author's rights.

j. The TEACH Act 2002: which allowed for the use of copyrighted works by accredited non-profit educational institutions.
k. The Family Entertainment and Copyright Act 2005: which imposes criminal penalties for the distribution of pre-released works.

The Stop Online Piracy Act and the Protect Intellectual Property Act: Contains detailed provisions against online piracy and dissemination of protected works. Although it has been argued that the restrictions would weigh in favour of the producers at the

[75] 82 F. Supp. 2d 211; 2000 U.S Dist. LEXIS 906; 53 USPQ 2D (BNA) 1780 2 February 2000.
[76] Julie Hilden, 'The First Amendment Issues Raised by the Troubling Prosecution of e-Book Hacker Dmitry Sklyarov', a column in <www.FindLaw.com> Accessed 16 January 2020.

expense of the Public who need to have access to works and development[77].

5.0 United States of America (Trade Policy and Agreements) and Conclusion

The U.S has signed a number of agreements related to IPR protection, including several international conventions and treaties that are now administered under the auspices of WIPO, and the "WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs)." These agreements have enabled them to make significant progress in addressing overseas infringement of IPR, and have led to higher minimum standards of protection in both the U.S and a number of other countries. However, such standards have not yet been fully adopted in other parts of the world, where some countries lag behind in implementing the enforcement provisions of agreements they have entered into, Nigeria inclusive. The United States can be said to rely on both trade and domestic legislations, agreements, policies, actions and technical protection measures to help raise the standards of intellectual property protection, particularly copyright, in both the local and foreign markets, for their products majorly depends on intellectual property.

[77] Stephen A Merrill and William J Raduchel; Committee on the Impact of Copyright Policy on Innovation in the Digital Era; National Academies Press Washington DC (2010) 2.