Copyright Protection in Information Age

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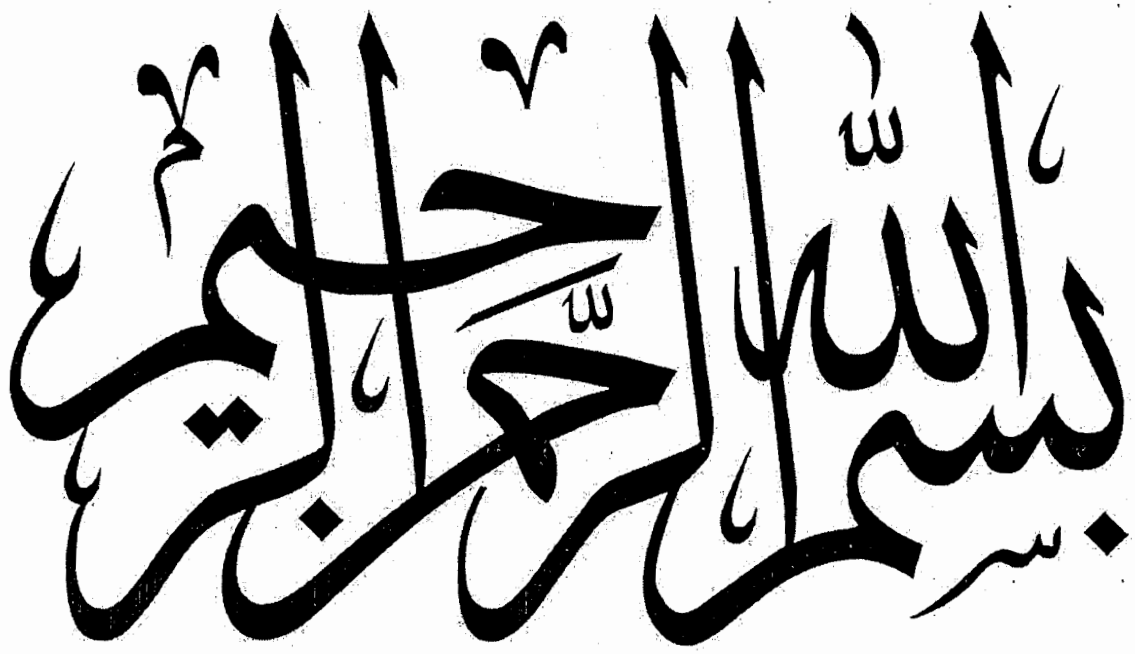
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It is certified that we have read the thesis submitted by Ayesha Saadia, Registration No 103SF/LLMCL/F05, entitled "Copyright Protection in Information age" as a partial fulfillment for the award of Degree of LLM (Corporate law). We have evaluated the thesis and found it to the requirement in its scope and quality for the award of degree.

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Declaration

I hereby declare that this dissertation has not been copied from any source. It is further declared that I have done this research entirely on the basis of my personal efforts made under the sincere guidance of my supervisor. No portion of work presented in this dissertation has been submitted in support of any application for any other degree or qualification of this or any other university or institute of learning.

Ayesha Saadia

103SF/LLMCL/F05

Dedication

I have the honor to mention here that this thesis has been scribed today all because of my parents, who always guided and inspired me to make hard effort in order to achieve this goal. I dedicate these efforts to my sweet parents.

Acknowledgement

All praise to the Almighty Allah, the most Merciful, and the most Gracious, without whose help and blessings, I will be unable to complete the dissertation.

Thanks to my parents and my elder brother Muhammad Asfand-e-yar who helped me during my most difficult times and it is due to their unexplainable care and love that I am at this position today.

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Abstract

Copyright is to secure the exclusive rights of the authors to their respective writing. Its aim is the progress of science and useful art. It provides the incentive for creation of new work. In copyright law expression is protected. Ideas and facts, whether they are original, or not are not protected. Authors are assured about their right to expression; others can freely build their ideas, conveyed by that expression.

Law does not restrict access to the copyrighted work. A person possessing a book does not need the author's permission to read it. Similarly people are free to look at a painting and to listen to cassette. A person purchases something when he is satisfied with its content. The owners neither demands to buy their creative work with out having a look at their creation, nor can an owner ask for a price for just watching their work.

Digital technologies have changed the traditional copyright law. It has expanded the monopoly of the copyright holder. In traditional copyright law there are certain limitations and exception for controlling monopoly of the right holder. The new technological development causes the current copyright law to protect facts and ideas along with expression. The new updated digital copyright law, given by World Intellectual Property Organization (WIPO) in the shape of Internet Treaties, restricts the use of ideas by forbidding access to the protected work.

America and European Union have adopted these Internet Treaties, and their digital copyright laws are criticized by many scholars and researchers. Pakistan is going to implement it in coming few years.

LIST OF ABBREVATIONS

1. Advance Research Project Agency Network	ARPANET
2. Digital Rights Management	DRM
3. Digital Millennium Copyright Act	DMCA
4. Domain Name Service	DNS
5. European Union Copyright Directive	EUCD
6. File Transfer Protocol	FTP
7. Hyper Text Markup Language	HTML
8. Hyper Text Transfer Protocol	HTTP
9. Intellectual Property Organization	IPO
10. Internet Relay Chat room's	IRC's
11. Internet Service Provider	ISP
12. Massachusetts Institute of Technology	MIT
13. Multi User Dungeon	MUD
14. Multi User Object Oriented	MOO
15. National Science Foundation	NFSNET
16. Network Control Protocol	NCP
17. Open Source Software	OSS
18. Pakistan Electronic Crime Ordinance	PECO
19. Peer-to-Peer file system	p2p
20. Random Access Memory	RAM

21. Right Management Information	RMI
22. Technological Protection Measures	TMP
23. Trade Related Aspects of Intellectual Property Rights	TRIPS
24. Transmission Control Protocol/ Internet Protocol	TCP/IP
25. Uniform Resource Locater	URL
26. United International bureau for the Protection of Intellectual Property	BIRPI
27. WIPO Copyright Treaty	WCT
28. WIPO Performance and Phonogram Treaty	WPPT
29. World Intellectual Property Organization	WIPO
30. World Wide Web	WWW

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Digital Copyright Laws of America and European Union are restricting free circulation of ideas and knowledge but curtailing cultural and economic progress. Pakistan has to insert fair use concept in access control provisions while adopting WIPO Internet Treaties, for cultural and economic progress.

CHAPTER NO: 1

INTRODUCTION

The World Wide Web or the Internet is the creation of Information technology. Technology began with the conversion of natural resources in to simple tools, creating means by which humans interacts directly to the environment, like the invention of the wheel which helped in traveling and controlling the environment. Anything people have made can be called technology but usually scientific knowledge and its application is called technology,[1] and when it is based on the use of computer or other integrated circuits to process data and produce information then it is known as information technology. [2]

This technology, as we know it today, is a fast growing field. Things, which were invented for specific purposes, are used in very different ways. Like the internet, this was to be used, as military tool became the conduit for electronic commerce, after the development of World Wide Web. The internet became the instrument by which people throughout the world exchanged and shared ideas, information and goods and services. The World Wide Web has made the internet a revolutionary tool.[3]

The speed of the technology is a break necking. Where ever we go, whether it is a developed country like United State of America or European States, or a developing country like Pakistan, internet is in use. The use of the internet in today's world is very

[1] Sally wehmeier, ed., Oxford Dictionary, s.v. "Technology".
[2] *Ibid,* s.v. "Information Technology".
[3] World Intellectual Property Organization, Geneva, *Intellectual Property Rights on the Internet: A Survey of Issues* (Geneva: World Intellectual Proeprty Organization, 2005), http://www.wipo.int/copyright/ecommerce/en/ip_survey/chap2.html#_ftn18 (last visited 28th Aug 2006).

different from the use a decade ago. The pace with which it is moving is greatly affecting the laws of the place. Every other minute a crime is committed in cyber space, when intellectual property laws are disregarded. This causes a legal catastrophe, where chaos and injustice reigns, in the cyber world. For this reason technology can be termed as "double edge sword" as for as copyright law is concerned.

The production of information on the internet has made the access to the knowledge very easy, in the same manner digitized materials are very easy to copy. Having no difference in terms of the quality, the effect will be the same no matter how many copies are made from the original text. Digitization is a process that reduces text, visual images and sound to computer readable binary code of 0's and1's. Due to the fear of easy coping, the right holder has extended the control over the digital content. Resulting in the misbalance between the rights of the copyright owner and the user's right.[4]

The speed of the dissemination of the copies has also increased. These binary digits travel over the networks enabling the material to transfer efficiently from one place to the other. The easy copying and dissemination has made the right holders to go beyond their limitations provided by the traditional law.[5]

Intellectual property rights have been changed with the development of technology. Certain legislative measures have been taken, for maintaining the balance between the right holder and the user. The exceptions to the traditional intellectual

[4] Nicola Lucchi, *Digital media and Intellectual Property* (Berlin: Springer, 2006), 2.
[5] *Ibid.*

property law and the user rights are the most controversial part now days. American and European legislation has given the content owner the power to go beyond their legal limits for the protection of their works. These legislations have compromise the user's right of fair use and private use exception. Traditional Intellectual Property Law stops the right holder from exercising the unlimited control over their creations. But due to the technological developments the right holders are capable to exercise these extra legal protections, given under the American and European legislation. [6]

The characteristic of Intellectual Property is evolutionary: gradually changing. It is constantly adapting to the developments of the new technologies. The form and the substance of copyright has been affected by the invention of the printing press, phonogram, radio, television, cable, videocassettes, compact disc (CD) and digital versatile disc (DVD) technology and now by the Internet. Intellectual Property Rights has migrated to the Internet, and has gained importance in the digital environment.[7]

Copyright, patent, trademark, domain name etc, each and every species of Intellectual Property rights has migrated to Internet. Here the focus is just on the migration of Copyrights. Huge number of literature, art and film has been digitized. Books and newspaper are digitized according to its demand. Demand for the online collection for electronic books has been increased. Large numbers of the libraries provide free remote access to the thousands of e-books. Newspapers are also available online. The participation of publishing houses and distributors has been effected due to

[6] *Ibid.*, 4.
[7] World Intellectual Property organization, Geneva, *Intellectual Property Rights on Internet.*

the online publishing. Numerous museums and art galleries have digitized their collections. Works of digital art are available on the Internet. Soft wares are also protected under Intellectual property rights, either through copyright or through patents. These soft wares support the operation of all the digital technologies.[8]

Digitization is very important for the economic growth. It encourages the creativity and enhances innovations in the modern age. It has given a new dimension to the Intellectual assets. It is very important to prepare new settlement for Intellectual Property Rights. [9]

Laws have been made to protect copyright on the Internet. New technologies for the protection has also been adopted, like encryption and watermarking, along with this technology. The legal precaution taken for the protection of intellectual works is World Intellectual Property Organization (WIPO) Internet Treaties and the American and European Union digital laws. However the right holder remains anxious about their rights. Business models also works in persuading subscribers to avoid relying on illegal markets. Music Industry has adopted different propriety systems for music download and streaming services to replace the unauthorized online music sharing sites. With all these efforts the problem is not yet solved. Many countries have taken legal action to prevent the spread of piracy but with little success. It is difficult for the states to coup

[8] *Ibid.*
[9] Lucchi, *Digital media*, 6.

with individual pirates, millions in numbers, and with the newly evolving technologies.[10]

From every aspect the Intellectual Property rights have migrated to the Internet. The basic criteria for the Intellectual Property remain the same that is innovation. It is the base for the Intellectual Property system. But with the interference of the technology, new laws must be adopted. The problem is that the speed of technological evolution is much faster then the development of the laws.[11]

The Internet has made a shift in power from the governmental decision making to the non governmental entity. This means that the government role in promoting Art and knowledge has been privatized in the digital environment. Traditional intellectual property rights offer legal protection for creators to protect their work. It dictates the right holders, how they can take benefit or reward from their work but not to have monopoly over it. In this age of Information technology it is difficult to control the right holder from going beyond his limits.[12]

For updating the laws according to the technological development, certain questions are to be considered. Like what are the traditional laws regarding copyright and how far they are effective in today's world? Keeping the current technological development how can Intellectual Property Law reward the author for their works with out hindering the fair use concept?[13] How can there be a balance between the right

[10] World Intellectual Property organization, Geneva, *Intellectual Property Rights on Internet.*
[11] *Ibid.*
[12] Lucchi, *Digital media*, 4.
[13] *Ibid.*

holder and the user's right with the legislation adopted by the American and European states?

GLOBAL SCENARIO:

Some of the pressing questions that need to be urgently addressed are whether the authors have exclusive right over their material and the users downloading material for their use are constantly committing a crime?

This matter has been raised by legal experts in countries where there is advanced Technology. One such country is the United States; law was enacted in 1998 called the "Digital Millennium Copyright Act" during the Clinton's administration. But this too has proved ineffective. To quote a legal expert Anthony Barmen says, "The DMCA (Digital Millennium Copyright Act) is woefully inadequate, and due to its vague language it is turning citizens into criminals".[14]

I propose to show in my thesis, the urgent need to get clean and practically applicable laws to stop the gross abuse of intellectual property right especially of copyright. And this law should be at par with technological advancements being carried out in this field.

The best way to sort it out is to compare the different situations found in the developed countries with the developing ones. The two statutes I have chosen for my study are the statutes of the world's current developed countries and global trendsetter

[14] Anne K Fujita, "The great Internet Panic: How Digitization is Defaming Copyright law", *Journal of Technology Law & Policy* 1,(1996), http://grove.ufl.edu/~techlaw/vol2/fujita.html#s1 (last visited 28th Feb 2007).

in the field of technology, the statutes of European Union and United States of America. This will be compared against Pakistan's domestic law.

CHAPTER NO: 2

INTERNET AND THE DIGITAL ERA

Internet is a worldwide network of thousand computers and computer networks. It is a mechanism for information dissemination and a medium for interaction between individual and their computer with out regard for geographic location. Internet has revolutionized the computer and communication. With the recent growth, of Internet and world wide web, world is witnessing the arrival of a completely new technology.

This chapter traces the development of Internet. Its history revolves around different aspects, the technological evolution that begins with packet switches, the operational aspect. The social aspect, resulting in the formation of a broad community of Internet, and there is a commercialization aspect.[1]

It has the complex history, and it has influenced not only the technical field but our society as well. Internet came in to being as a result of cold war; Americans needed a system which links the military posts with one and another. Traditional technologies for communication were inadequate. Centralized system was prime targets of enemies in war. Government always feared that if war did come, how would military be able to communicate? Before that America would need state-to-state, base-to-base commends and control network. No matter how well protected that network was, it was always

[1] Barry M Leiner and others, "A Bref History of Internet", (Internet Society, Dec 2003), http://www.isoc.org/internet/history/brief.shtml#Introduction (last visited 7th Sep 2008).

vulnerable to atomic bombs which would reduced the network to tatters. This fear impressed a need on the government to make a new scheme for communication. [2]

In 1960s government announced the daring solution for this problem, and that was, the network would have no central authority, and it would be designed to operate while in tatters. Not only would this network always be assumed to be unreliable. This network would be consists of different nodes and all nodes would be equal in status. Each node would have the capability to originate, pass, and receive the massage. The massage would itself be divided into pieces and each piece would originate from one node and end at another. [3]

Today, a descendent of that Cold War is known as Information Highway. It is a widespread information infrastructure. Several years after the first operation of a computer, when researchers realized that computers interconnected with each other could transcend the capabilities of a single system, they considered its application that went far beyond simple numerical calculation. J. C.R. Licklider of Massachusetts Institute of Technology (MIT) gave the idea of the social interaction that could be enabled through networking in August 1962. According to him everyone could access data and program from any site through globally connected set of computers.[4]

In July 1961 Leonard Kleinrock at MIT gave the concept of using packets rather then circuits. Another step was toward computer networking, to make computers to

[2] *Ibid.*
[3] Bruce Sterling, "A Short History of Internet", (Feb 1997), http://www.library.yale.edu/div/instruct/internet/history.htm (last visited 7th Sep 2008).
[4] *Ibid.*

talk together. To explore this, in 1965, two computers were connected with a low speed dial up telephone line creating wide area computer network.[5]

Due to earlier development of packet switching theory of Kleinrock, his network measure center at University of California, Los Angeles (UCLA) was selected for the first node on the Advanced Research Projects Agency Network (ARPANET), in September1969. The second place selected for second node was at Stanford Research Institution after a month of connection of UCLA. After that host-to-host message was sent from UCLA to Stanford Research Institute (SRI). At the end of 1969 four host-to-host computers were connected. ARPANET was primarily a vehicle for experimentation rather then a service. More computers were added in the following years. The first host-to-host protocol also called Network Control Protocol (NCP) was completed in 1970, which remained till 1983, and in 1983 Transmission Control Protocol/Internet Protocol (TCP/IP) took place of NCP.[6]

During 1970s, ARPNET was performing experiments in resource sharing; as a result, Telnet protocol was developed, which allowed a user on one machine to log onto another machine over the network. In 1971 File Transfer Protocol (FTP) was developed. It enables the user on one system to connect to another system for sending or retrieving a particular file. With FTP, user could now move files to their own machines and work with them as local file. In 1972 Ray Tamlinson developed electronic mailing service. He

[5] *Ibid.*
[6] M, Leiner and others, "A Bref History of Internet".

had built an earlier e-mail system on Bolt Beranek and Newman's (BBN) Tenex time-sharing system, and then it was modified over the Internet, which remains in use today.[7]

Telnet, FTP, and e-mail provided the power to the Internet. As these capabilities were added, the efficiency and speed of knowledge dissemination improved. E-mail and FTP helped in collaboration of researchers geographically.

Internet was based on the idea that there would be multiple independent networks like terrestrial packet radio and packet satellite network. NetWare Core Protocol (NCP) was unable to interconnect these networks, having different properties then telephone lines. Researchers begin to work on it. In 1973 TCP/IP was describe which was designed to interconnect multiple networks. This protocol had the capability of error recovery mechanism.[8]

In 1969, ARPANET started from four nodes, which later on increased in numbers. In 1975, two phenomena caused the rapid increase in the size of the network. These phenomena were

a) Development of local area networks,

b) The integration of networking into operating system.

[7] *Ibid.*
[8] *Ibid.*

Researchers wanted to provide a remote access to have a different approach; telephone lines were inadequate for this purpose. So they used a shared Radio Network. This radio network had its potential drawback, so it led to many projects.[9]

1970 were the time of intensive networking research. Most of the technologies, which are use today, were developed at that time, ultimately resulted in today's Internet. Parallel advances in computer capacities and speed enabled the system to expand. This expansion, started to produce constraints, which stimulated further advances. When Internet started operation in 1980s it started to face problems like

a) A large number of host computers were linked to the net, and

b) Every host has a large number of users[10]

It seemed that at the end the entire system would grind to halt. So the next technology came in to being was the Domain Name Service (DNS). DNS provided hierarchical names to hosts. This name distribution scheme allowed the Internet to grow much more rapidly. New researches were carried on to enhance the speed. Regional networks were connected with each other. Educational and research communities were connected to supercomputing center. In 1984 the British government formed the Joint Academic Network to serve British Universities. The following year US formed NFSNET (National Science Foundation) for the same purpose. Private sector also stepped in,

[9] National Academy of Science, Washington D.C., *Funding a revolution: Government support for computing research* (Washington D.C: National Academies Press,1999), http://www.nap.edu/openbook.php?record_id=6323 (last visited 7th Sep 2008).
[10] *Ibid.*

which guided the Internet eventually to commercialization. In 1990 Internet operations were transferred to commercial providers, as a result public access to Internet expended, with such expansion Internet was still mostly used by academics and businessmen.[11]

2.1. World Wide Web (WWW)

It is the network of sites that can be searched by Hyper Text Transfer Protocol (HTTP). It simplified writing addresses, automatically searched the Internet for addresses, and automatically made access to the document for viewing. This concept was designed to make easier to retrieve research documentation.[12]

Internet provided screen full of text, it was good for exchanging information and accessing information. But it was unable to get people's attention. Different companies attempted to make it aesthetic; they carried out different projects like they developed Graphical User Interfaces (GUI). IBM personal computers adopted Windows Interfaces. But nothing served the net, as did the World Wide Web. It made possible for the net to exchange and display pictures and sounds. [13]

Timothy Berner-Lee and Robert Cailliau gave a proposal of developing a link between different information sources. In May 1991 they released a new document format called Hyper-Text Markup Language (HTML), and in June 1992, an accompanying document retrieval protocol called Hyper Text Transfer Protocol

[11] *Ibid.*
[12] *Ibid.*
[13] Ian Peter, "History of World Wide Web", (2004), http://nethistory.info/History%20of%20the%20Internet/index.html (last visited 1st Jan 2007).

(HTTP). HTML introduces a set of multimedia capabilities, while HTTP allowed an author to specify certain words, phrases or images as links to other HTTP documents. This was given the name of WWW, which proved to be another killer application, after electronic mail. In 1993 Mosaic graphical browser was developed, it allowed the use of hyperlink to video, audio and graphics, as well as text.[14]

The first search engine appeared in mid 1990s known as Archie. This search engine was for finding and retrieving computer files. The data and program files are place in two different categories, open and closed. One can only access to the open files and download it. After that gophers system developed in 1991, what the host servers did was to put the menu, and the public has to scroll over it and press the enter button on any one, and that would take you to the relevant Gopher address, where the content be viewed. After that Wide Area Information Server (WAIS) came. It was more advance version then early two. Web has been the world largest library, its uses increased due to search engine like Google, Yahoo, e-bay etc. Google uses the databases for listing and searching data.[15]

The invention of WWW, by simplifying the net, has catalyzed the development of the commercial content and applications. Its development quickly changed the tradition market behavior. With the search engines and economic activities the number of host increased every year.

[14] Sterling, "A Short History of Internet".

[15] Peter, "History of World Wide Web".

A question often comes in the mind is, what is the difference between Internet and World Wide Web? Internet is a network of networks, made form computers and cables. Lots of programs run over the Internet, one of which is the web. Web is the abstract form of information. The connections of networks are by cables, while on the web connection is the hyperlinks. Internet is the infrastructure and web works over that infrastructure. Web made the net useful, it provide information the people want.[16]

2.2. Community Formation on Internet

Internet, which was built for defense purposes, was then used for several other purposes. During 1990 there was a widespread academic adoption of internet, like use of internet for teaching purpose, rise of digital libraries which resulted in e-research, which ultimately resulted in making the internet a medium for searching, storing and retrieving data. This excess of information exchange resulted in bringing people together to form a community.[17]

Community is defined "as a group of people living in the same locality." Or "web of social relations that encompass shared meaning and shared values". One of the essential elements of community is the communication. It is a perquisite for structuring community. According to the definitions the general forms of communities are local community and community of interest. Local community is based upon physical boundaries of common location. Community of interest has social boundaries based

[16] Richard Griffths, "History of the Internet, Internet for Historians (and just about everyone else)", (University of Leiden, Oct 2002), http://www.let.leidenuniv.nl/history/ivh/frame_theorie.html (last visited 27th March 2007).
[17] Steve Cisler, "Conversation about Community and about computing", (1997), http://www.unesco.org/education/educprog/lwf/doc/portfolio/opinion2.htm (Last visited 7th Sep 2008).

upon common interest. The idea of community has mostly been tied to the idea of place, but an alternate approach of community relies upon social space. This form refers to network based upon shared interests. In this way internet is a community for the people having a common interest. [18]

The communities formed on the internet came in existence due to several kinds of forces like there are certain groups which are deliberately planned, sometime individual link up with each other or through environmental situation bringing people to each other. Communities like Usenet are the largest place for the exchange of information. People post massages to these groups, these massages are sent to the news servers. Then upon the request of any user the massages are displayed. Similar is the online mailing list. Any person can lurk on these messages, and to trace that person is impossible.[19]

Communication is now costless on internet. People communicate to other without knowing who is on the other side. They get attracted to internet mostly for information sharing. Programmers have invented Usenet, chat rooms, Internet Relay Chat rooms (IRC's), Multi User Dungeons (MUD's), and Multiuser Object Oriented (MOO's) to enables group communication. People can broadcast the massage to several

[18] Sara Ferlander, "The Internet, Social Capital and Local Community,"(Ph.D. diss., University of Sterling, Jan 2003), 5-9,http://www.crdlt.stir.ac.uk/Docs/SaraFerlanderPhD.pdf (last visited 7th Sep 2008).
[19] Jade Rubick, "Group Communication and Formation on the Internet," (Ph.D. diss., University of Oregon, Aug 1997), http://www.cs.uoregon.edu/research/ISL/research/papers/jarubick/thesis.html (last visited 7th Sep 2008).

recipients, and the recipients can broadcast there response immediately without any cost.[20]

2.3. Commercialization of Technology

Internet technology is the combination of communication technologies, protocols and standard for networking between different computers. It is not a single technology. Economic values can be gain with the combination of complementary inventions, investments, and equipments.

In 1992 internet was officially commercialized by National Science Foundation (NSF). In 1993 internet was provided to more then one million hosts, mostly used by scientific, educational, and military institutions. The WWW protocol, which allowed easy exchange of data between computers, and with the invention of Uniform Resource Locator (URL), HTML, Browser Softer, and Internet Explorer, the use of Internet became much easier and attractive then before. It has changed the commercial opportunity for Internet service provider, by fulfilling the demand of user, by providing access to Internet and with WWW providing access to electronic mail facility. With the growth of Internet, interest in the commercial sector was beginning to grow, and with the growth of commercial sectors there was a need for increase in standard processes, which might create technical, structure, and commercial challenges. [21]

[20] *Ibid.*

[21] Shane Greenstein, "Building and Developing virtual world: Commercializing Services for Internet Access", (Evanston: National Bureau of Economic Research, May 2000), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=228983 (last visited 7th Sep 2008).

In 1994 Internet Service Provider (ISP) came in to being. These firms were primarily devoted to dial-up system. In 1998 there were many well known national networks covering a large variety of dial-up and direct access, and thousand of regional and local providers of internet access serving as a link between end-users and Internet back bone. In 1999 ISPs provided internet access for most of the house hold and business user in United State, usually for fee or later on in exchange of advertising, depending on the user whether it is a business or personal residence.[22]

Against the expectations that commercialization might face technical, structure, and commercial challenges, commercialization go so well. The reasons were;

1. The inventers quickly learned that Internet access is commercially feasible. ISPs made few changes to the operating procedure borrowed from academic setting, and then started to offer commercial service. There was no need of addition new equipment supplies, for commercial Internet access. It didn't give rise to anticipated technical and operation challenges accept few.

2. Internet is not a single invention. It is the combination of communication technologies, protocol, and standards for networking between the computers. Commercialization enables the internet to restructure its access to suit commercial use.

[22] *Ibid.*

3. Privatization of Internet fostered the Internet technology to a wide variety of location, circumstances and user. Technology before privatization was available to low density population. But after privatization, operation of technology was commercially transferred to set of decision maker who enable technology to new uses, new location, new market setting, and new application with other lines of business.

4. NSF commercialized the Internet access industry at the time of new inventions, like World Wide Web, Internet Explorer, Browser Softer, etc. these invention motivated further invention in this field. This helped in commercialization.[23]

2.4. Digitization

Internet has not only globalized the world but also digitized it. We are living in a digital world, in a sense that libraries, museums and archives had digitized their collections and placed them on the web. Nowadays the information on the web in digital format is limitless. It causes doubt about long term viability of digital files. This technology is the backbone of our entire information industry. It started in Bell Telephone Laboratory in 1936 when scientists were exploring ways to transform voice signal into digital data, which could then be restructured into intangible voice. [24]

Cornell University Library defines digital images as:

[23] *Ibid.*

[24] Boone & Peterson R, "Sigsaly - The Start of Digital Revolution", (National Security Agency, 2000), http://www.nsa.gov/about/cryptologic_heritage/center_crypt_history/publications/sigsaly_start_digital.shtml (last visited 7th Sep 2008).

> "electronic snapshots taken of a scene or scanned from documents, such as photographs, manuscripts, printed text, and artwork. The digital image is sampled and mapped as a grid of dots or picture elements. Each picture elements is assigned a total value, which is represented in binary code such zeros and ones. The binary digits for each picture element are stored in a sequence by computer and reduced to a mathematical representation. The bits are then interpreted and read by the computer to produce an analog version for display or printing."[25]

In short, digitization converts material from one format to another format, like from human readable format to computer readable format. It creates a digital replica of a page from book, which will be used in websites, or educational and community tool. Converting material from one format to another is not a single step process. It involves copyright clearance, which is to get permission from the creator of the work if that is not in public domain. Material is collected, scanned by scanner or digital camera, and the resulting images are saved on the server. Then the material is tagged and finally uploaded.[26]

Digitization is like a magic. It represents any thing in binary numbers, whether it is art, literature or music. . In music these numbers indicates which notes were played when, how long they lasted, their volume and so on. Pictures are digitized by measuring the colors at closely spaced dots, and then it is reproduced by putting the appropriate dots at the right place on the paper or the screen. Text digitization is

[25]Trevor Jones, "An Introduction to Digital Project for Libraries, Museums and Archives", (University of Illinois, May 2001), http://images.library.uiuc.edu/resources/introduction.htm (last visited 7th Sep).
[26] *Ibid.*

simple; each alphabet is assigned a code number. It is reproduced by putting right code number. Digital technology has converted every thing into binary values. It is the universal language of nearly every modern device. These numbers captures and convey the information from one place to another. Digital world is the world united by one language. Where people share their ideas and work together. The result of this revolution is in progress.[27]

2.5. Need for Digital Media

Digital technology has altered the way of accessing the information. People used to travel to gain information. The best source for information is the books as we know. There is a difference between the text of the book and the book. In our daily discussion we use the word book, but in truth texts are more important then books. Books are wonderful objects. Books were invented so that people could get at text, and libraries are the extension of that. People need books for reading text contained in it, and libraries bring the whole collection of the books in one place. Due to the digital revolution, text is now held electronically on screen connected to Internet. With the few key strokes it is available any where in the world, no need to go to the library. The importance of text remains unchanged and it will not change until communication, which does not relay on words, develops. Despite of the fact, that texts have the importance, more and more book are published with each passing year. People like books and are comfortable with it, and are not likely to move away from it. It is difficult

[27] National Academy of Science, Washington D.C., *The Emergence of Digital Dilemma: Intellectual Property in the Information Age* (Washington D.C: National Academies Press, 2000), www.nap.edu/catalog.php?record_id=9601 (last visited 10th Sep 2006).

to read a large amount of material from a screen rather then a piece of paper. But text is easily available on the net then in libraries. Technology is going to digitize the entire literature heritage in to digital form. Those who use the digital surrogates will recognize the benefits of the digitization. Libraries have preserved the books for a long period of time, but digitization is good form of insurance, it is not a replacement for physical objects, but a good surrogate.[28]

With digitization fewer people visit libraries. Campus libraries had a great value. It was the point of competition among academic institutes. Faculty students used to demand books and the buildings. Libraries were funded as a local public good. Now this local public good is turned into mass public good. Once a local copy of material is digitized, it is free for other users around the world. Large amount of journals has been digitized also. Very old forms of journal are used now a day in digital form. Now students work on digitized information. They relay on digitized material for rare treasures they never would have found in print collections. The readers know that libraries are more then brick and mortar. This doesn't mean that physical libraries are going away; both virtual and physical libraries will coexist. The advantages of virtual libraries or in other words the advantages of digitization, comes under the heading of increasing access, preservation, and meeting strategic goals. Increased access to the object is the most cited benefit of the digitization. It is also an advantage that the electronic reproduction of the object can be done with out any degradation in quality.

[28] David Pearson, "Digitization: Do We Have a Strategy?", (Dec2001), http://www.ariadne.ac.uk/issue30/digilib (last visited 28th Feb 2007).

On other hand making a photocopy of the material, the copy is not as sharp as the original, and each time we get a lower quality. Digitization liberates the document from the constraints of the traditional access methods. Traditional user access the material only if they have an appropriate reader's card. Then they would have to travel to that place, which costs time and money. But if that material is digitally mounted on the web, everybody can easily access it, from their homes. Digital information is more flexible then traditional media. A single copy of the book is not accessible to more than one or two people. But digital information is accessible to more than thousand people simultaneously. The reason is the multiple user servers can read the same file without creating any problem. Similarly, the digitization also helps in preservation of the content. Traditionally the content can be mishandled[29].

Anything that has its benefits has its adverse effects also. The most benefiting point of digitization is its easy access, as mentioned above. But this easy access is by making a copy. When information is digitized, its access is by copying whether it is a temporary copy. If anything is stored on the disk and anybody wants to examine it, it involves copying from the disk to computer's memory, and then displaying on the screen. This is how the computer works. Even if we have to view information on the web the remote computer have to send a copy of that page to our computer. Every digitized information involve copying, whether that information is about music, movie, picture, or literature etc. in contrast to the traditional media, listening to music,

[29] Stuart Lee, "Digitization: Is It Worth", *Computers in Libraries* vol 21, (May 2001), http://www.infotoday.com/cilmag/may01/lee.htm (last visited 7th Sep 2008).

watching a movie, reading a literature does not involve copying. The connection between access and making a copy has an importance in Intellectual Property Rights. The right to control reproduction of any material is an important element of Copyright, given to the owner of the copyright. But in digital media, control over reproducing any material, means control over access.[30]

Similarly digital information is largely liberated from the medium that carries it. Information is sent across the network, there is no need of physical substrate. Traditional information is more tightly bound to the underlying media it cannot be transported without that medium and cannot be extracted from copying. This liberation of information from medium has its effects on the Intellectual Property Protection. An intellectual Property law is solved on the artifacts which contain the information. Intellectual Property Laws are closely bound to a physical substrate. Digital information has changed the properties in substantial ways.[31]

Digital information can easily be changed. In contrast a paper book is difficult to change. Digital material can be changed by adding and rearranging the paragraph. This plasticity of digital information leads to fraudulent acts such as plagiarism. For example an online book, can be reproduced with little changes in it, by a knowledgeable person. Similarly framing has also raised a number of Intellectual Property related questions.

[30] *Ibid.*
[31] *Ibid.*

Framing is basically a web page representing information from another web page created by another author.[32]

2.6. Information Age

It is the name given to the period where information rapidly propagated, especially after the Industrial Revolution, from 1980 onward. Before Industrial era knowledge was reduced to few people. After Industrial Revolution, Information was started to distribute in every part of the world. The early development of information age started with the conversion of physical moment into electronic impulse through a device in 1837. Then in 1844 Telegraphy was used to transmit data from Washington D.C to Baltimore. After that a stream of devices were developed for processing Information. This processing of Information for distribution changed the economic and social behavior.[33]

In 19th century technology allowed the Information to disseminate faster and wider than before. Information was broadcasted, from one place to another through radio. Radio transmitted the sound, later on television transmitted the video to display with the sound. TV was invented solely for transmitting Information and news from different places, but quickly it becomes an entertainment device. With the television new industry of cable operators started.[34]

[32] Cisler, "Conversation about Community and about computing".
[33] Roland Robertson, Jan Scholte, ed., *Encyclopedia of Globalization*, s.v. "Information Age" (New York: Routledege Taylor and Francis Company, 2007).
[34] *Ibid.*

Technology and transmission merged together into a new field know as Information technology. It is the use of technology to enhance the speed and efficiency of the transfer of Information. Information technology has changed the lifestyles around the world. It has changed our lifestyles by the invention of personal computers and Internet. Internet then brought digital technology. The mode of communication in developing world is the mobile phones not the computers. People even access the Internet through their phones. Technological breakthroughs have revolutionized communication as discussed above.[35]

The consequences of technology are that it transformed our lives "by inventing new undreamed of things and making them in new undreamed ways." as economist Richard Lipsey said. This information technology has changed the economic behavior, it has changed the rules and regulation especially of Intellectual Property Laws and Antimonopoly Laws, it has changed the way we live and interact with each other. It has globalized the world. Due to the globalization and due to the new ways of communication, it has a great effect on interstate relationships. Effecting the rules and regulation, and social behavior, many states have enacted cyber laws. But the speed at which the technology is progressing is ten times greater then the speeds at which laws are made and implemented.[36]

[35] *Ibid.*
[36] *Ibid.*

2.7. Open Source Software

Software is a general term used for the programs operated by the computer and other related devices. It is a set of instruction or statements to be used directly or indirectly in a computer to bring about a certain result. Unlike hardware it is a variable part of the computer. There are different kinds of software. One particular kind of software is open source software and closed source software. The closed source software is the ones in which computer programs are distributed and the license provide no access to the program source code. Source code is the computer programming statements that are readable by humans and written in various programming languages. This software is normally copyright protected or patented and is legally protected as intellectual property. Nobody can give it away, copy it or modify it unless they have special permission in the form of programmer. On the other hand, open source software can be used for free and can be given to as many people as one person wants, provided that he does not pretend that he wrote it. In open source code software the source code is also distributed along with the computer program. Anyone can modify the source code, and can sell it along the modified part of the program. [37]

The basic premise of the open source software is that the source code for the program carries greater benefits to the public at large then the proprietary control over the material. The developers are always able to correct the deficiencies in the program any time due to its peculiar feature of open source code. This increases the pace of the

[37] David Wheeler, "Why Open Source Software/Free Software(OSS/OFS, FLOSS or FOSS)? Look at the numbers!", (April, 2007), http://www.dwheeler.com/oss_fs_why.html (last visited 7th Sep 2007).

market penetration for the original program as well. This provides an efficient and economic means of supporting software innovation.[38]

The open source development process challenges the traditional property rights together with Intellectual property. Open source idea is to eliminate the access cost and reducing the restriction of copyright by providing greater access to the original work. It relieves the society of administration and enforcement cost of copyright. The opponents of the open source say that society loses the monetary incentive to the creation of new goods through open sourced goods. The result will be that new product will not be created, this particularly apply to the area where research and development is done. But the proponents of Open source software say that Open Source encourage innovation. Eric S. Raymond in his essay "The cathedral and the bazaar" said that "to have good ideas is recognizing good ideas from your user" that is the user having access to the source code modifies the original work, which helps the other user to have the modified version. [39]The Open source is beneficial for innovation. The open source also relies on the standard Intellectual Property law principles by applying them to enforce the terms of the Open Source license. So it simultaneously undermines and enhances traditional theories of Intellectual Property management. [40]

Open Source Software continues to be Intellectual Property subject to legally enforceable licenses. Here the developer of the software dose not surrenders the

[38] *Ibid.*
[39] Eric Raymond, "The Cathedral and the Bazaar", *First Monday* 3, (March 1998), http://www.firstmonday.org/ISSUES/issue3_3/raymond/index.html (last visited 7th Sep 2008).
[40] Wheeler, "Why Open Source Software/Free Software(OSS/OFS, FLOSS or FOSS).

ownership of the software; it does not become public domain but is distributed under the Open Source license. The Open source licenses are as enforceable as other conventional software licenses. The difference is the developer grants the licensee the right to create additional work based on original work. The licensee as result is bound to distribute the modified software to other people as Open Source software, if he wants to distribute. Otherwise he has to retain the modification as proprietary material he cannot sell the modification. The modification must be for his internal purposes.[41]

Copyright is one of the major areas of Intellectual Property affected by Open Source. However Open Source has some interesting implications for software patents. In order to get patent the inventor must establish that the invention extend beyond the scope of prior art. Prior art includes anything which is once publicly disclosed, either through previously issued patents or have become known to public through other means. The Open Source development provides a dynamic environment for rapid expansion of prior art. Once the software is presented in Open Source format, the material is publicly disclosed and becomes part of the prior art. So the expansion of the Open Source software is the expansion of the prior art. It ultimately will decrease the ability to obtain the software patent. On the other hand the preexisting patents pose a barrier to the Open Source systems. If the specific code is protected under patent, the code then cannot be used in Open Source software. It can only be used with the permission of the owner of the software. As the number of the software patents

[41] *Ibid.*

increase, it becomes more difficult to expend Open Source offerings, due to its essential feature of free access to its source code. [42]

Open source approach to Intellectual Assets has a different meaning to different proponents of Open source but the most common is the one that balances broad content access with preservation of certain property rights. It is both disruptive to Intellectual Property and also reliant upon Intellectual Property management. It creates a setting in which the original developer of Intellectual assets relinquishes some measure of control over his creation, which makes it disruptive to Intellectual assets. It is reliant upon Intellectual Property as it depends upon Intellectual Property law rights in order to function. It is an alternate licensing strategy. If it is violated, compensation and treatment will be provided through Intellectual Property law.[43]

2.8. Peer-to-Peer file system

Peer-to-Peer file system is a system, where the content of one system can be accessible to all other computer systems on the network. It gives the computer the facility of content access easily and quickly.[44]

This system has developed a great challenge for the content developers, system operators and end users. The content developers fears that due to peer-to-peer file system they will lose control over their content. According to right holders the system operators are responsible for any infringement done in this way. The end users also fear

[42] Jeffrey Matsuura, *Managing Intellectual Assets in the Digital Age* (London: Arech House,2003), 33-35.
[43] *Ibid.*
[44] *Ibid.*, 112.

that they will be targeted for accessing the content with out having authority from the right holder. These three parties must work together to devise rules and principles for ownership, access and economic competition. There is a need for such principles to keep diverse media content accessible on p2p network. They may be different from the traditional principles applies to the distribution of media content.[45]

Napster was the first case debated in the court. It was the first generation p2p system. The first generation p2p system requires use of an intermediary server to process the file sharing function. Napster was an online music sharing system. Composers, musicians and recording companies sued Napster for providing online music sharing facility. They argued that Napster violated anti circumvention provision of DMCA. Court concluded that Napster has to block the distribution of music files that has not been properly licensed from the copyright owners.[46]

Napster in its defense presented its arguments that it had not violated any copyright. It had not duplicated or distributed any copyright directly. But this argument was rejected by court by saying that its technology facilitated circumvention of technological protection.[47]

[45] *Ibid.*
[46] *Ibid.*
[47] *Ibid.*

Napster also argued that the type of content sharing was noncommercial, and noncommercial use of copyright is a fair use. But the decision of court suggests that fair use concept may be interpreted differently in file sharing context.[48]

This p2p network also challenged the concept of first sale doctrine. It gives the buyer, of the copyright protected material, broad rights of use for the copy of work purchased by the buyer. The buyer has the right to sell, lease or to make limited number of copy of the work for his personal noncommercial use only. At present it is uncertain that first sale rights continues to exist in file sharing environment. The right of limited distribution for personal use in file sharing environment is also unclear, large number of users can have an access to the shared file. [49]

Digital Millennium Copyright Act (DMCA) is a threat to p2p file sharing system. The anti circumvention provisions of DMCA are a weapon against p2p files sharing. This provision allows the copyright owner to go to the court to stop use of system that helps in defeating copyright protection measures, before those system are operational. It allows the owners to file a preemptive strike against file sharing system.[50]

The second generation p2p system brings more challenges then the first generation. In the second generation p2p system there is no need for centralized severs to handle file search function. It is less centralized then the first generation. The second generation is difficult to control then the first generation p2pfile system. It provides the

[48] *Ibid.*
[49] *Ibid.*
[50] *Ibid.*

end users with greater control over the material they access. In such case there is no single organization to be held accountable for the material distributed. The copyright owners try to enforce their ownership against many different individual users. But most of the users are located outside United State.[51]

[51] *Ibid.*

CHAPTER NO: 3

COPYRIGHT ON INTERNET

This chapter is about copyright laws. It discusses the traditional copyright laws and then the emerging issues which are come forward with migration of copyright on the Internet.

3.1. Intellectual Property Right

We come across the word property in our daily life. Or we can say we go through the property transactions every single day. We call anything that we possess "our property". Anything that we possess and has value is our property. In this way we can define property "as a thing that contain value and is capable of possession is property". Every person has in his possession certain things; he considers these things to be his property under the definition we discussed above. Possession and value of the things appears to be the main elements of the definition of property. If I possess something it will become mine. There are things which a person possesses but still does not become his property. For example a person possesses a house he lives in but it is not his property. The house belongs to someone else. Similarly a person possesses a car but still not his property. The house or the car belongs to someone else and he uses it on the payment for such use. He is a lessee using that property, which belongs to someone else, on lease. It is apparent now that anything which is in possession of one person cannot always be his property. So the possession is not something to be looked in

defining property. Second thing we mentioned in the definition is that a thing must be valuable to be called property. But similarly as we said that not everything in one's possession becomes his property, not everything is valuable. Like a Human body, not having a value it does mean that it is value less, it mean that we cannot estimate maximum value for it. This shows that possession and value are something not to be used as a test for a property. The most proper way for examining anything to be any ones property is whether that person has its ownership. That is to say that if any person owns some thing, that thing becomes his property. What do we mean by ownership? Ownership contains three elements:

1. Right to use.
2. Right to get benefit.
3. Right to dispose off.

This gives a proper definition of property that is "any thing that is capable of ownership". Having a property will give rise to the question that whether he can use the property or not? Whether he can get benefit from it or not? And whether he can dispose it off? If anyone element is missing. Then a person does not have the ownership. The absence of any one element from the above three will not make the person an owner. The presence or absence of the third element of the ownership gives rise to the difference between legal title and equitable title. If a person can use, get benefit and can dispose off the property then he is the owner but if he cannot dispose

off the property then he has the equitable title in the property. He is the lessee and the property is of lease.

There are many types of property, Movable and Immovable, Tangible and Intangible, Personal and Real, Corporal and Incorporeal property. Any type of property that a person has can be used in commercial activity to gain benefit. That is his basic right. Property is the icon of commercial activity. People want to earn money and have a maximum benefit from the property. If a person produces something and sells it in the market, he is getting benefit: the profit that he earns. Now there are two things whether he just want to earn money? Or whether he wants to compete with others for the survival of his product?

Earning money is very simple; it just requires the production of that particular product. But ultimately the demand for his product will vanish with the passage of time. For example a mobile phone company produces mobiles. They get profit by selling their products. Now if there are several other companies producing their own mobiles. The profit of the first company will lowers with the passage of time. This company has two options either to earn profit as it is earning, or to get into competition with other companies if that company want to survive in the market. Because in the first option it can lose its costumers and then its product will be no more in the market. Over the years it has been noticed that a product comes in the market, and after few years a new product takes the place in the market. As a result the companies bring innovations to their products from time to time. The incentive behind innovation is maximization of

profit. Companies faces competition, and for this they try to increase making furnished goods. They try to make new things. Companies try to co-modify those things which were not traditionally recognized as commodities. The second thing they do with furnished goods is to protect it through Intellectual Property Law.

Unlike property rights in land and the ownership of physicals objects, Intellectual Property Rights are in intangibles. They refer to creations of the mind: inventions, literary and artistic work, and symbols, names and images.

Knowledge is the thing that makes the mind creative. That is why knowledge is also known to be property. Knowledge is abstract. Not like the tangibles to be locked and secured against theft. It does not reduced by sharing with others. It is property in two ways, by all cultures in secrecy that is by hiding it and second is by way of Intellectual Property Law.[1] IPR allows the creator or owner of the copyright, patent and trademark to benefit from his own work or investment (which is his property). The only purpose of Intellectual Property Law is to protect the rights of the inventor, author or creator.[2]

This is not a new phenomenon. Public willingness to apply the status of property on products of mind is very ancient. This evolution of public willingness has not been traced. If available it would be beneficial for international setting today. This inclination to permit creative expressions, designs and innovations goes back in human experience.

[1] Harry Hillman Chartrand, "Intellectual Property in the Global Village", (1995), http://library2.usask.ca/gic/v1n4/chartrand.html (last visited 28 Feb, 2008).
[2] Robert M Sherwood, *Intellectual Property and Economic Development* (Oxford: Westview Press, 1990), 11.

In past people used individual marks to identify their work and it carried great meaning in their communities. The tricks of the craftsmen were carried from one generation to the next generation. During Middle Ages craftsmen protected their methods against others with community approval. Person's "copyright" was observed for the first time, shortly after printing was invented. Then later on exclusive rights were recognized for practicing inventions.[3]

Trademark development was the part of the law of unfair competition. It evolved under the phenomenon that presenting one's goods as of another is an unfair practice. With the passage of time it gained importance for the benefit of the community. Later on countries started to protect their trademarks in other states. States has also given protection to the trade secrets. And the states where public laws contain no such provision, trade secrets are protected under the concept of unfair competition. In Roman times trade secretes were given protection. Master was allowed to get compensation, if the third party entices the slave of that master to share the secret with him.[4]

Copyright evolved with the invention of the printing press. The concept and purpose of the copyright has been changed with the passage of time. The most common practice in 16th and 17th century was that the sovereign has to grant exclusive publishing rights to the publisher. Unauthorized copies that reduced the revenues of sovereign

[3] *Ibid.*, 16.
[4] *Ibid.*, 17.

were considered to be illegal. Later on author was recognized to be the primary recipient of the protected right.[5]

The history of patent goes back to the Renaissance period. After that it spread in Europe. It was clarified that patent would only be available for new invention, not for the commodities that already excited, from the royal authority. In 18th century it was recognized in America, breaking finally from the notion of royal authority. After that full patent codes were adopted by many states. Each state had its own laws.[6]

With the increase of International trade, there arose a fluctuation in the value of intellectual property rights, among different states. Different multilateral treaties were adopted to deal with this fluctuation in intellectual property rights from one state to another. These multilateral treaties solved the problem through different techniques. Theses treaties gave a common definition of rights, gave common duration and limitation of these rights on the exercise of the supervening public interest. Some of the treaties assist in the creation of the right in countries beyond the country of origin. These multilateral treaties were, Berne Convention for the protection of the copyright, Paris Convention for the protection of the patents, TRIP, etc.[7]

The element behind all these Intellectual Property rights is the concept of an exclusive right of protection. This exclusive right is the central point to all Intellectual Properties; to safeguard products of the mind. It does not confer a monopoly; it is to

[5] *Ibid.*, 22.
[6] *Ibid.*, 24.
[7] *Ibid.*, 15.

exclude others from the use of that product of mind. The concept in each Intellectual Property right is different. Like in copyright the concept is to protect the creative expressions by not allowing others to copy. In patents the inventor is allowed to exclude others from the manufacture, use and sale of the invention. In trademarks the person is allowed to exclude others from the use of his mark. Similarly in trade secrets, the exclusive right is that the secret of the trade can not be misappropriated by others through unauthorized use or disclosure. The basic purpose of the exclusive rights is to reward creativity. A true break through deserves to be rewarded, not copying or imitation. Behind this exclusion and preclusion, there is a general policy of openness and inclusiveness. There are certain exceptions which creates a balance. In copyright, one can copy the material for education purpose, similarly in patents.[8]

3.2. Copyright Law

Copyright is a kind of monopoly, granted by the national law. The basic aim of it is to provide a possibility to commercially exploit the copyrighted material. No one but the right holder has the authority to exercise any act with out any kind of authorization from any other person. The act performed by right holder must be with in the scope of the monopoly or exclusive right provided by the national law. This exclusive right can be granted to any person who

a) Has created something, and

b) His creation must be fixed on something.

[8] *Ibid.*

Anything which is some one's creation and is recorded or is fixed to something, like moves, music, any kind text, software, pictures, photos etc, anything which provides information or entertainment is copyright protected. As soon as the work is created and got fixed, it is copyright protected. Unlike other forms of the IP, like patent or trademarks it does not require registration.[9] Once the material is copyright protected, the creator of the material has then the right to

a) Make copies of the material

b) Distribute and sell these copies

c) Make it available to the public

d) Translate the material

The public is allowed to use the copyrighted work in a certain way that is with the permission of the right holder. They have to seek permission from the right holder for any kind of use that economically benefits the user. Mere use of the work such as reading a book and listening to the music does not need permission. Mere use of the work is not protected but getting economical benefits are protected.[10]

The concept of copyright evolved from the moment when making multiple copies became feasible by the use of printing press. Prior to the invention of printing press, text were copied by hand. In those days occurrence of piracy was unlikely. Books

[9] David G Post, "An Introduction to Copyright Law", (April 1998), http://www.temple.edu/lawschool/dpost/copyrit.htm (last visited 6th Sep 2008).
[10] *Ibid.*

were copied by the literate slaves. Due to this fact the pirate would have had to pay the same expense as the publisher had to. With the development of printing press, mercantile trade also provoked the development of copyright. With the expansion of trade in European cities, people got interested in the information of the day. People started to demand copies of the books. Due to the print press the reproduction of the books became easy and cheaper. The publishers were more concerned, then the author, with the restriction on the copying of printed works. Publishers were considered to be the owner of the material published by them. They had the privilege of monopoly given by the kings. Copyright privileges were called monopolies. In 1623 Statute of Monopolies was enacted. This statute gave the publisher monopoly right over the text. Only those who had the permission of the king were allowed to publish the book.[11]

In 1710 Statute of Ann was enacted. This Statute was the result of Crown abuse of monopolies. The full title of the Statute was "An act for the Encouragement of Learning, by vesting the Copies of Printed Books in the Authors or Purchasers of such Copies, during the time their in mention". This Statute gave exclusive rights to the authors, instead of publishers.[12] There were loopholes in the statute. It did not extend to all British territories. The text produced in London was available in low price outside London. This led to the enactment of the Berne Convention of 1886. It establishes the copyright among several sovereign states.

[11] *Ibid.*
[12] John Ewing, "copyright and authors," *First Monday* 10, (Oct 2003), http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/1081/1001 (last visited 6th March).

Not every writing get copyright protection, but there are conditions to be fulfilled. First, there must be originality in the text.[13] The originality means that the author must have created the work by himself. The worked copied from others will not get copyright protection. If the work produced by the author is exactly similar to the work produced by another author, but both the works were created independently then both will receive copyright protection. The novelty in the work is not required for it. It is the text that is protected not the idea. Secondly, there must be creativity in the work. The level of creativity varies depending on the kind of the work. Sometimes a very small amount of creativity in the work is copyright protected, like simple stories. But sometimes high level of creativity is required for the protection, like in creation of the software. Thirdly, the creation must be fixed in a material form. Like the stories must exist in draft form.[14]

The work present in the mind of the creator will never receive protection. This condition of fixation of the work is different in different nations, a poem recited by a poet get protection in some nations. Fourthly, copyright protection does not require registration. The work receives the protection as soon as it gets into the material form.[15]

Copyright protection accelerates creativity. Creativity can only be accelerated if the author receives economic benefits for his time investment, labor, effort and skills. Different nations have different laws, like in US this concept prevailed by the name of

[13] M Sherwood, *Intellectual Property and Economic Development*, 10.

[14] Charles Oppenheim, "Recent challenges to the copyright law and the implication for FE and HE", (June 2004), http://www.jisclegal.ac.uk/publications/copyrightcoppenheim.htm (last visited 1st March 2008).

[15] *Ibid.*

"sweat of the brow", but later on it was rejected by the Supreme Court. A spark of creativity must be present with labor and skills.[16] Similarly in common law states, there must be certain level of creativity with the skill and labor. Art.10 sec.2 of TRIPS is about collection of data like debates and court decisions and other type of collection of information. It says that there has to be an intellectual collection in the selection and arrangement of the data. The creativity in the collection is either in collections of information from the pool of data or in the arrangement of the particular information in specific order. It was in Feist Publication, Inc.v. Rural Telephone Service Company case, where Supreme Court concluded that copyright does not protect mere listing of names, addresses and telephone numbers in a directory. [17]

Computer programs and databases also come under copyright protection. At the time of preparing software the initial cost is very high. It takes a lot of efforts, time and money. Once it is made then making copies of the program become easy and the cost is extremely low. Copyright protects the economical rights of the software producer. Some states initially protected the computer programs under the patent law. Under Art.10 sec1 of TRIPS, computer programs must be protected under copyright law, as mention in Bern Convention. Protecting computer programs under copyright has some disadvantage as compared to patent law. As mention above copyright does not protects ideas, according to its idea/ expression dichotomy. Now if any other person produce similar thing with different expression, it will not come under

[16] *Ibid.*
[17] M Sherwood, *Intellectual Property and Economic Development*, 10.

infringement of copyright.[18] It does not matter if the person has created the program by means of reverse engineering or by his own effort or skills. Software industry is not pleased with these limitations. They want to overcome the limits of idea/ expression dichotomy.

As we discussed above that copyright provides the right holder to exploit his work in any commercial activity and preventing others from doing so. With the arrival of new technologies and introducing new forms of commercial exploitation, legal rights granted have to be expended. Like with the advent of television, new rights had to be made to make the work available to the public.

The work is exploited through material form and through immaterial form like broadcasting a play on television. Reproduction of a work is a material exploitation. Under Art.9 sec.1 RBC (also in Art.1 sec.4 WCT and Art.2 and 5 sec.1of EU Directive), the right holder have the right to control the reproduction of his work. This right also applies to the act of reproduction done by computer, by displaying the work on the screen. So viewing a film or playing a game on computer is said to be reproducing the work. Some national laws like EU Directive Art.5 sec.1 has excluded the temporary reproducing of the work from this right of reproduction. The second material form of exploitation is adaptation of the protected work for example translation of a book, revision or making a new edition of the work, making a film from the novel or drawing a picture from sculpture. Third form is distribution, whether it is in the form of selling,

[18] G Post, "An Introduction to Copyright Law".

leasing, renting, publicly lending or otherwise. The right holder has the right to control over it. But this only enables the right holder to control the first sale, after that the right of distribution is exhausted. This allows the purchaser of the protected work to resell the work, lend or rent out the work to others. But there is an exception to the exhaustion doctrine that is renting right is provided to the right holder. The right holder is allowed to commercial rental rights in specific categories like computer programs and cinematographic works. [19]

The immaterial exploitation consists of public performance; right holder has the right under Ar.11 RBC to authorize the public performance. Broadcasting is also immaterial exploitation. The right holder has the right to control the work communicated to the public, whether the public receive it or not. Mere transmission to the public with the intention to be received is enough.

All Intellectual Protections are to encourage creativity in the society. As we discussed above, that creativity can only be encouraged when the owners receive return on investment they made. Along with the safeguard of economical benefits IPR also defines rights and obligations of the right holder and a balance between them. This balance, between the interest of the right holder and those of the public at large, is retained through exception and limitations.[20] Art.9 (2) of Berne Convention gives three steps for measuring the legality of all limitation on copyright. This "three steps test" is

[19] *Ibid.*
[20] Alina NG, "Authors and Readers: Conceptualizing authorship in Copyright Law", (Mississippi: Mississippi College and school of Law, 2008), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1113760 (last visited 5th March 09).

incorporated into TRIPs agreement, WIPO Copyright Treaty (WCT), and WIPO Performance and Phonograms Treaty (WPPT). The three steps test mandates that copyright exceptions shell be confined to:

a) Certain special cases

b) Which do not conflict with the normal exploitation of the work

c) That does not unreasonably prejudice the legitimate interest of the right holder.

Limitation on copyright must be applied only in certain circumstances, like for education purposes. If someone wants to make a copy of a material, which is copyright protected, his act must not exploit the interest of the owner and must not be in conflict with normal exploitation of the work. For example photocopying a large number of copies, exploit the normal exploitation of the work. Making use of copyrighted material with out the permission of the right holder is allowed for certain specific purposes and there are certain conditions to be followed. Like in literary work Lord Denning in one of his judgment described:

- "You must consider first the number and the extent of quotations and extracts. Are they altogether too many and too long to be fair?

- Then you must consider the use made of them. If they are used as a basis of comment, criticism or review, that may be fair dealing. If they are used to convey the same information as the author, for a rival purpose, that may be unfair.

- Next you must consider the proportions. To take long extracts and use short comments, that may be unfair. But short extracts and long comments may be fair and other considerations may come to mind also.

- But after all is said and done, it is a matter of impression."[21]

This concept of fair use is present in the statutes of different countries. In US law this concept is for balancing the interest of right holders and interest of the general public. In EU Directive on Copyright in the information Society, a list of copyright exceptions has been given. The members are free to adopt which ever they prefer. In the beginning the EU legislators wish to establish limited exceptions and to harmonize the national laws. But it ended in listing all the relevant exceptions in the national laws, because the member states wanted to protect their national laws. All these exceptions in EU directive are subjected to the three step test.[22]

In specific cases as mention in three step test for free uses are, news reporting and its article, illustration of teaching, quotation of summaries, public speeches, official texts. There is one another case that is free use for "private copying". This exception

[21] *Hubbard V Vosper(1972) 2 QB 84*, http://uniset.ca/other/cs3/vosper.html (last visited 19th Sep 2008).
[22] Ian Brown, "Implementing the EU Copyright Directive", (Bedfordshire: Foundation for Information policy Research, 2000), www.fipr.org/copyright /guide/eucd-guide.pdf (last visited 25th May 2008).

granted to natural person, allowing them to make copies of the protected material for their private use, is present in many state laws. This exception has been subjected to a lot of controversies.[23]

Private copying came into being with the start of typewriter. At that time it had no great impact on the sale of copyrighted work. But as the technology advanced and photocopying machines and tape recorders were invented, private copying became a problem. Printed material with the typewriter had no impact on the sale of copyright protected work and had no interference with normal exploitation of the work and the legitimate interest of the right holder. But with the development of the photocopying machines and tape recorders the amount of private copies grew rapidly. All kinds of music, movies and cinematographic works are available for private copying. Now if a "three step test" is applied to the private copying, it will conflict with the exploitation of the work and will affect the legitimate interest of the right holder, despite of the fact that the material copied is not equal in quality to the original material.[24]

The right holder faced new problems with the invention of digital copying devices like computers, scanners, R-CD and R-DVD derives. With these devices the speed of copying increased with a large amount of data that can be stored on these devices. Copy of any protected material made on digitization technique was of exactly the same quality as the original .Later on, with the growth of internet as an open digital network which allowed interactive transmissions of large amount of data, gave birth to

[23] G Post, "An Introduction to Copyright Law".
[24] *Ibid.*

"file sharing" technique. This allowed millions of users to share and exchange data of the protected work like music, software, movies and films. These activities threaten the normal exploitation of the work and can even shut down the whole market due to the widespread digital "private copying". [25]

To prevent the unauthorized exploitation of the digital work, technological protection measures (TMP) like encryption techniques had been taken. There is another technique known as water marking in which information about right holder and other information like terms of license are digitally stored in the digital work. This information is not visible to the user in digital work. For the problems made by the technological development there are technological measures for protection but there are again technical counter measures such as circumvention devices. It weakens the technical protection applied to the work. For protection against circumvention, there can be technical solution, yet there will be another counter measure. There fore right holder are asking for legal protection against technical problems like circumvention. There is legal protection against circumvention in WCT, which are implemented in EU Directive on Copyright in Information society and US Digital Millennium Copyright Act.[26]

[25] *Ibid.*
[26] *Ibid.*

3.3. Copyright ordinance of Pakistan:

Copyright Ordinance of Pakistan 1962 was amended in 2000. Software and computer data bases were included in the ordnance. Section 2 of the ordinance gives the definitions. Sec 2 (p) is about the literary works it says "literary work" includes works on humanity, religion, social and physical sciences, tables, compilations of data or other material in any form and computer programs, that is to say programs recorded on any disc, tape, perforated media or other information storage device, which, if fed into or located in a computer or computer-based equipment is capable of reproducing any information."27

Softwares have been given protection under Art 10 (1) of the TRIPs agreement. Softwares are also protected under the Art 4 of the WIPO Copyright Treaties. Pakistan being the signatory of International conventions, has to protect the software and computer data bases under copyright laws.

Private use is one of the exceptions of the copyright. As discussed above, it fulfilled the three step test but with the technological development, now it is controversial. Private copying now threatens the normal exploitation of the work. A person may not use his private copy for commercial purpose. But his private copying

[27] Copyright ordinance 1962, section 2 (p).

can affect the market, due to the digital technology that has enabled everyone to have a copy of the material they want.28

Copyright ordinance provides an exception for the private use under section 57 (a) (1). It says that literary work for the purpose of private study or research work can not constitute an infringement of copyright. With the ease in copying of the digital data, this exception is very controversial.29

3.4. Digital Rights Management

The first chapter was about the development of Internet. The invention of internet was only for the military purpose. Now it is used for commercial purposes and is a best way for sharing and distribution of information. That is why it is known as Information Highway.

Every kind of digital information whether it is in the form of digital images, music, video and books it can be easily transferred form one place to another. This transfer of information on the online world caused adverse effect on the protection of Intellectual Property Rights. This ultimately leads to the need for the protection of digital Intellectual Property. This protection is known as Digital Rights Management.[30]

It is a system for the protection of digital assets; protection that includes the control of distribution and usage of those assets. It refers to the technologies that help in

[28] Robert M Sherwood, *Intellectual Property and Economic Development* (Oxford: Westview Press, 1990).
[29] Copyright ordinance 1962.
[30] Karen Coyle, "The Technology of Rights: Digital Rights Management", (19th Nov 2003), http://www.kcoyle.net/drm_basics.pdf (Last visited 30th Feb 2007).

controlling the access and its distribution. Along with these technologies it also refers to the restrictions associated to these devices. DRM prevents the user from accessing the material. This is the reason that the use of DRM has been controversial. It is necessary to prevent the work from unauthorized copying but it also restricts the use of copyrighted work by preventing access to it.[31] It is against the "fair use doctrine". According to this doctrine using the copyright protected work for teaching, research, news reporting or criticism without the permission of the right holder is not an infringement to the copyright protection. The doctrine allows a person to have an access to the content and can have a copy of it for his personal use. DRM does not seem to be admitting "fair use doctrine". It does not provide facilities to the students, researchers or anyone who want to use the content in a critical way or for reporting in the news paper.[32] Facilities like to save or to print a copy of the content even when he is allowed to have an access to the content, sometimes the purchaser cannot read the purchased content on another computer and the purchaser cannot convert the content from one format to another like copying from CD to MP3 or from hard ware to MP3. This restricts him from using the content in any other place he wants. Once he gets the ownership of any material he gets the right to use it in any manner he wants, according to the general rule.[33]

[31] *Ibid.*

[32] Fred von Lohmann, "Fair use and Digital Rights Managements: Preliminary thoughts on the (Irreconcilable?) Tension between them", (San Francisco: Electronic Frontier Foundation, 2002), http://w2.eff.org/IP/DRM/cfp_fair_use_and_drm.pdf (last visited 7th Sep 2008).

[33] Robin Jeweler, "Copyright Law: Digital Rights Management Legislation", (Washington D.C.: Congress Research Service, May 2004), http://digital.library.unt.edu/govdocs/crs//data/2004/upl-meta-crs-5956/RL32035_2004May28.pdf (last visited 8th Sep 2008).

Copyright holders are very pleased with the DRM. They wanted to have a control over the material they produced from an unauthorized copying to have a continuous revenue from it. They always tried to continually gain profit from their content. Before the digital media, copyright holder had objection to copying technologies. Like audio tape recorder, video tape recorder and photo copying technologies, known as analog media. All these technologies are for duplicating the protected material. The digital media increased the scope of copying the content. Each time material copied from analog media or used for long time, losses its quality. This is not the case in digital media, every time the material copied is similar to the original material. It has also made the distribution of these copies much easier with the help of internet and file sharing system.[34]

DRM is to enable the copyright holder to have control by restricting the use of digital copies. But the restrictions used in it are against the fair use doctrine. The aim of fair use doctrine is to encourage creativity by taking guidance from different content. DRM is not cent percent effective in protecting the content from illegal copying. Once the content is copied through circumventing the encryption code, it is available to the entire world on the internet. It is a defective technology for the protection of the content in digital world. [35]

[34] *Ibid.*
[35] *Ibid.*

3.5. Emerging Copyright Issues

As we know that digitization is the process of representing the image in binary code of zeros and ones which is interpreted by computer to give analog version of display. This technology of digitization enables the transmission of these protected materials over the internet. It is then redistributed, copied and stored in digital form. Internet has been described as "the world's biggest copying machine". It is very necessary to make legal rules so that the basic principles of copyright must not get undermine by digital technology. These issues have been examined at WIPO and other international organizations. As a result two treaties were adopted; WIPO Copyright Treaty (WCT) and WIPO Performances and Phonograms Treaty (WPPT). These treaties respond to the dissemination of the protected material over the internet. There are a number of recent developments in the field of copyright that has certain implication on the industry. These developments are being discussed in different international fora. For effective protection new laws are also being considered. Here we will discuss some of the most emerging issues and their significance.[36]

Copyright has maintained a balance between the right holder and the public who uses that material. There are exceptions for the public to use the work without the permission of the right holder. This balance between the right holder and the user is now in question because of the change in access and use of the information due to the digital technologies. Now in each access to the digital material, an act of copying is

[36] World Intellectual Property Right Organization, Geneva, *Intellectual Property Rights on Internet: A Survey of Issues* (Geneva: World Intellectual Property Organization, 2005), http://www.wipo.int/copyright/ecommerce/en/ip_survey/chap3.html#_ftn78 (last visited 19th Aug 2006).

involved. Computer makes a temporary copy in its RAM (random access memory), whenever a user clicks on the material just for the simple purpose of viewing. While in physical world any one can use the material without infringing the rights of the right holder by borrowing a book from library. The copyright materials on the internet are used by the user under certain terms and conditions of license. The user does not purchase the material just like he purchases books, paintings and movies. All these have its effects on the application of traditional exceptions and limitation of copyright that creates a balance between the right holder and the user. Some of the traditional copyright exception if applied in the digital environment could eliminate large sector of existing market. These new circumstances needs new set of exceptions and limitations. That is why WIPO Internet Treaties have asked the individual countries to develop exceptions and limitation that are appropriate to their environment.[37] The aim of the policy maker is to achieve a balance in the copyright law, so that the right holders exploit the market and make valuable work and the limitations and exceptions safeguard the public interest.[38]

Copyright material is more vulnerable to infringement in the digital world. It is very easy to have a copy of the material without any loss in quality of the material. The material can be easily redistributed over the network. Who will be responsible for these infringements taking place in the online world? It is very difficult to trace out the person infringing the copyrighted material online. Numerous parties are involved in

[38] *Ibid.*

transmitting the copyright material from one place to another. Among them are the one who provides internet access, the Internet Service Provider (ISP). Can these service providers who participate in transmitting the material which infringe the copyright law be held liable for the infringement? During the diplomatic conference on the WIPO Internet Treaties in 1996, the liability of Internet Service Provider was discussed. The agreed statement to the WCT Art, 8 says that the mere provision of wires does not constitute an act of communication. In some states the Internet service Provider is liable for the infringement of copyright, where he knows the existence of the material and the material is infringing or that he knows that there is a probability that the material will infringe the copyright. European Union has adopted a Directive on Electronic Commerce using a horizontal approach that is rules about the liability of service provider regardless of the ground for illegality of the material. In U.S.A a different approach has been adopted. The DMCA (Digital Millennium Copyright Act) does not give guidelines for copyright infringement but gives those categories which exclude the service provider from liability of damages. According to it the provider is not the producer but is a passive conduit for the information. He has to remove the material upon the notice of the copyright holder. [39]

In one of the U.S case the Internet service Provider was held liable for providing access to the photograph of the plaintiff, while the plaintiff has informed him that the site is infringing. The provider asked the plaintiff to identify the sufficient specificity

[39] *Ibid.*

then he will remove them. The court held that the provider cannot rely on the immunity, because the plaintiff had given the notice to the service provider.[40]

Internet provides multiple opportunities to provide and distribute the protected material to the users. That includes webcasting and digital film and television online. Webcasting is the process of digitally transmitting music, radio and television broadcasts through the internet. By webcasting permanent copies of the material, like movies or music, are not made on the hard disk of the end user. But there are some software's which can convert those files into other formats. This software infringes the copyright protection. Sometimes the radio transmissions are also retransmitted on the internet, it also raises copyright concerns. In iCrave TV.com case the court issued a permanent injunction to prevent a Canadian website from streaming the copyright television material over the internet.[41] Internet is an unprecedented channel for global distribution of film and television work. This caused a problem for the one who releases the film; the film is available in market before its official release. A change in business model can overcome the problem. The digital file can also be removed through analog hole; it is a gap in protection created when digital signals are created and it can be removed. Then a file can be uploaded and then pirated.[42]

Hyperlink is to allow the user to surf fluidly from one website to another. A simple link from one site to the home page of other website does not constitute

[40] *ALS Scan, Inc.v. Remarq Communities, Inc.,239F.3d 619(4th Cir. 2001),* http://pacer.ca4.uscourts.gov/opinion.pdf/011812.P.pdf.
[41] *Twentieth Century Fox Film Corporation v. ICraveTV, February 8, 2000,* http://legal.web.aol.com/decisions/dlip/icravecomplaint.pdf.
[42] *Ibid.*

infringement. In this process a copy of the content is created on the RAM of the computer, no copy is made other than that. Therefore no permission is required from the right holder. But the 'Deep Linking' and 'Embedded link' creates the copyright issues. The Deep Linking connects the user to the secondary material without going to the home page of the site. In Embedded link the secondary material of a site appears to be the content of the first site, the one which is giving the link to that site. In Deep Linking a copy of the content is made for this reason it is a violation to the copyright, but in Embedded link a copy is not made even then it is a violation the copyright.[43]

In EU Database Directive European member states are required to protect their database owner from repeated or reutilization of insubstantial parts of the database which conflicts with the normal exploitation of that database. A Denmark court issued an injunction to prevent a news site that enabled the user to search for the news and it also distributed headlines e-newsletters through deep links.[44] Unlike European states, in U.S.A the owner have found protection for their database through laws of copyright, trespass, breach of contract and common law misappropriation. In EBay Inc. v. Bidder's Edge Inc, a web bots extracted the data form an auction site. It was said to be trespass.[45]

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[43] *Ibid.*

[44] *Danish Newspaper Publishers' Association v. Newsbooster.com ApS, Denmark Bailiff's Court, July 5,2002.* as quoted in, *Intellectual Property Rights on Internet: A Survay of Issues* (Geneva: World Intellectual Proeprty Rights Organization, 2005), http://www.wipo.int/copyright/en/ecommerce/ip_survey/chap3.html, (last visited 28th Aug2006).

[45] *EBay Inc. v. Bidder's Edge Inc., 100 F. saupp.2d 1058 (N.D. Cal, 2000).* as quoted in *Intellectual Property Rights on Internet:A Survey of Issues* (Geneva: World Intellectual Property Rights Organization, 2005), http://www.wipo.int/copyright/en/ecommerce/ip_survey/chap3.html, (last visited 28th Aug2006).

Music is ideally suited to distribute through the internet. Music piracy has reached unprecedented level due to the emergence of peer-to-peer file sharing. Originally the peer-to-peer file sharing started by the Nepster, it was a notorious file sharing network. The user of the Nepster site could download the music from other Nepster user. The court said that if the user is not commercially distributing the files downloaded through p2p and uses it for his personal use, even then it is an infringement to the copyright protection.[46]Under United States Copyright Act says that if the material is for personal use even then it is an infringement to the copyright. These free copies for personal use are created to save the cost of purchase. There are many other cases of p2p file sharing in which different sites like KaZaA, MusicCity, Morpheuc and Grokster provided facility to the user to copy free music through p2p file sharing. There certain technologies to monitor the users of copyright material for such type of violations. One of the technique is 'spoof files' it contain only small portion the film, so discourages the coping through file sharing.[47]

[46] *A&M Records, Inc. v. Nepster, Inc., 239 F. 3d 1004 (9th Cir., 2001).* As quoted in, *Intellectual Property and the Internet,* by Margaret Jane, J Rothchild & G Silverman (Foundation press New York, 2004).
[47] *Ibid.*

CHAPTER NO: 4

COMPARISON OF STATE LAWS IN THE FIELD OF DIGITAL COPYRIGHT

This third chapter is about the comparison between different states laws. The laws implemented in United State of America, European Union, with the laws enforced in Pakistan. United state of America and European states are the most developed states; on the other hand Pakistan is a developing state. The aim behind this comparison is that due to Internet and due to the development of technologies, the protection of Intellectual Property Rights is very complex whether it is United State of America or European Union or any state from the developed countries or least developed countries.

The pervious chapter explained the Intellectual Property Rights, especially the copyrights and the emerging issues in the copyrights. The changes brought by the technologies in the field of Intellectual Property Rights especially Copyrights. Digitization that has created different challenges to the Intellectual Property rights mostly to the Copyrights. Due to these digitization technologies, as mentioned in the second chapter, the Internet, a product of technology, has become "world's biggest copying machine".

Internet has changed the world in to a global village. Global village is term used by W. Lewis for the first time in his book in 1948. Marshal McLuhan describes how the space and time barriers break down in human communication by electronic mass

media[1]. The globe has been turned into a village due to the people's interaction on a global scale. Now the Internet and World Wide Web are mostly described by the use of the term global village as a metaphor. Internet has allowed the users to communicate around the world and connect with each other. [2]

Technology is the pillar of the globalization besides economy and law. The purpose of law is to regulate the relations among different authorities and different fields. Any other field must not dictate Law. Law must play its role in regulating economy and technology and their relation with each other, as stated above they are the pillars of globalizations. The speed of technological development in today's world is as fast as to be called as break necking. It has its influence in every field of life. It has changed the things in such a way that lawful use of certain things becomes controversial. That is the case with Intellectual Property Rights.

In Copyright, a major branch of Intellectual Property Rights, legislators has to make new laws due to the technological development. Not only new laws are required but also they are required with the same speed of technological development. There is a tug of war between law and technology and to win the game law has to put a great effort.

The world's biggest copying machine "The Internet" is the source of dissemination of copyright material. Traditional rules of distribution and dissemination

[1] Marshal McLuhan, "Understanding Media: The Extensions of Man", (New York, 1964), http://www9.georgetown.edu/faculty/irvinem/theory/McLuhan-Understanding_Media-I-1-7.html (last visited 6th sep 2008).
[2] Benjamin Symes, "Marshal McLuhan's 'Global Village'", (May 1995), http://aber.ac.uk/media/students/bas9401.html (last visited, 3rd Sep, 2008).

of information has been changed by the Internet. Internet has brought great challenges to the legal enforcement of copyrights. Like it has reduced the cost of the making multiple copies and brought great conveniences in dissemination of online materials, which results in increase in piracy.[3]

The copyright owners now fear that these new development in technologies may causes a lose of control over their creative work. The traditional copyright law cannot help them in protecting their rights on the Internet. The challenges created by the technologies can only be protected trough the technology itself but for a limited time period. The technological measures are not effective, it was pointed out by one of the commentator "as soon as the copyright industries seals its products under a protective wrap, hackers will restore free access"[4]. It is difficult for the technology alone to protect the content. Technology needs legal support for this purpose. The copyright industries gradually realized this and started to take help from international and domestic legislation.

4.1. WIPO Internet Treaties

WIPO is a specialized agency of the United Nations. The predecessor to WIPO was BIRPI (United International Bureau for the Protection of Intellectual Property). It was established in 1893; initially it administered the Berne Convention for the

[3] YiJun Tian, "Problems of Anti Circumvention Rules in the DMCA and more Heterogeneous Solutions," *Fordham Intellectual Property, Media & Entertainment Law Journal* vol 15, (April 2005), http://law.fordham.edu/publications/articles/200flspub6135.pdf (last visited 30th May 2008).
[4] *Ibid.*

Protection of Literary and Artistic work and Paris Convention for the Protection of Industrial Property. In 1974 it became a specialized agency of UN.[5]

The WIPO copyright treaty is a copyright agreement, updating the Berne Convention. It all started in 1989[6]. The process was known as "Berne Protocol". This protocol was to update or we can say to modernize the Berne Convention, instead of revising the whole Convention with the development of new technology. It updates the Paris version of Berne Convention by incorporating Berne Convention articles. The aim of this work program was to up date the Berne Convention by including the computer programs and databases as a copyright subject matter and the use of copyright work in digital environment. This new treaty is special agreement supported by the Berne Convention. For the states already member of the Berne Convention, this new treaty is like a special agreement, under Art.20 of the Berne Convention, but to the nonmember states they have to comply with the substantive articles of the Berne Convention.[7]

Art.4 and 5, of the WCT explicitly states the computer program and databases must be protected under the copyright protection. It states that these programs must be protected as literary work under Art.2, of the Berne Convention.

The major issues came forward in the diplomatic conference 1996 were

[5] A report by World Intellectual Property Organization, "WIPO Copyright Treaty and Agreed Statements Concerning the WIPO Copyright Treaty", published in Oct 1998, http://ipmall.info/hosted_resources/lipa/copyrights/WIPO%20Copyright%20Treaty%20and%20Agreed%20Statements%20Concerning%20the%20WIPO.pdf (last visited 6th Sep 2008).

[6] Ian Brown, "Implementing the EU Copyright Directive", (Bedfordshire: Foundation for Information Policy Research, 2000), www.fipr.org/copyright /guide/eucd-guide.pdf (last visited 25th May 2008).

[7] Supra note 5.

a) The liabilities of the Internet service provider and other entities that provide the communication through the Internet.

b) The scope of reproduction right in data transmission over the Internet.

The copyright treaty resolved the issues, it states that

a) The Internet service provider is not liable for infringement of copyright protection by mere provision of Internet communication Art.8, WCT.

b) Art 9 of the Berne Convention says that "reproduction right" applies over the digital storage of the data in the electronic medium. However the actual article was dropped from the copyright treaty. The treaty does not provide the enforcement mechanism and leave it to the individual state.[8]

In December 1996 the World Intellectual Property Organization (WIPO) in Geneva considered the concerns of the copyright industries regarding the technological challenges to the copyright legislation. To update the traditional copyright law in response to the challenges created by the digital technologies, WIPO adopted two treaties, WIPO copyright treaty (WCT) and WIPO Performances and Phonograms treaty (WPPT). Both of these treaties are called as WIPO Internet Treaties. [9]

WIPO Internet treaties are the first international treaties to deal with copyright infringement over the Internet. Both treaties (WCT and WPPT) obliges the member states to implement the Anti circumvention provision in their legislation, which

[8] *Ibid.*
[9] Tian, "Problems of Anti Circumvention Rules in the DMCA and more Heterogeneous Solutions".

prevents the circumvention of the technological measures that helps in protecting the copyrighted work. WCT is to provide copyright protection to computer programs, databases and digital communication; that include transmission of copyrighted work over the world wide Internet. On the other hand the WPPT is for the protection of performance and phonograms on the Internet. The treaties contain identical language for obliging the member states to have Anti circumvention provision. For example Art. 11 of WCT and Art.18 of the WPPT contain identical language obliging the contracting states to provide legal protection and legal remedies for the protection of technological measures that are used by the right holders for using their rights under the treaties.[10]

WCT gives a fundamental condition for the protection of copyright in digital environment in its Art 11. An appropriate legal measure must be there to prevent the circumvention of technological measures, is required under this Art. It is upon the right holder if he wants to apply any technical protection to his work. This Art is applicable to both, the digital format and to the traditional analog world. That is why this Art can be applied in the case of circumvention of code applied to the broad cast program also.[11]

The word circumvention means to avoid, bypass, remove, deactivating or impairing technological measures. It is applied by authors to prevent the others from

[10] *Ibid.*
[11] World Intellectual Property Organization, Geneva, *Guide to the Copyright and Related Right treaties Administered by WIPO and Glossary of Copyright and Related Rights Terms* (Geneva: World Intellectual Property Organization, Nov 2003), 215- 219.

doing any act unauthorized by the right holder. The states must provide legal protection to the technical measures. [12]

The provisions of the articles in the Internet treaties show the intentions of the drafters. The drafters were very careful in making the provisions not to eliminate any thing or go against any provision that is mentioned in Berne convention. This shows that the privileges given to the users may still prevail over anti circumvention provision.[13]

WIPO Internet treaties give the individual member states the freedom to apply their own domestic laws to deal with the anti circumvention laws. The treaties provide legal remedies for the circumvention of the technological measures, but remain silent on enforcement mechanism. They even do not specify any technological measure that to be followed by the member states. The contracting states are free to implement their own laws and enforcement mechanism. [14]

4.2. Digital Millennium Copyright Act 1998 (DMCA)

After the WIPO Internet treaties, different nations showed its intention for introducing Anti circumvention rules in their domestic legal system. United States was the first country in enticing the anti circumvention provisions in to their domestic laws. United States raised the issue of technological protection measures (TMP) in 1995. In 1996 Clinton Administration took this issue (TMP) to the international arena. WIPO, in

[12] *Ibid.*
[13] Tian, "Problems of Anti Circumvention Rules in the DMCA and more Heterogeneous Solutions".
[14] *Ibid.*

1996, included it in their Internet Treaties.[15] WIPO has given the states the minimum level for the establishment of Anti circumvention provision in their domestic laws. Some countries, including the United States, has given more protection to the digital copyright material and to their owners then required by the WIPO Internet treaties.[16]

United States passed their digital copyright law in 1998 called as Digital Millennium Copyright Act (DMCA). As we have said above that United States has given more protection then WIPO treaties, this DMCA not only prohibits the circumvention of technology, but also protects the technological measures that prohibit the access to the protected work giving the copyright owner the exclusive right over the access control.

Section 1201 is the most discussed or it will be more appropriate to say that criticized section in DMCA. The three provisions in 1201 are about access control and right control in the copyright material. These three provisions are the principle rules for the prevention of the circumvention of the technological measures. Section 1201(a)(1) and section 1201(a)(2) are about prohibition of access control while section 1201(b) is about prohibition of right control to the protected work. Section 1201(a)(1) prohibits the access to the protected work by means of circumventing the technological measure. Section 1201(a)(2) prohibits the trafficking of the devices or the distribution of the devices that helps in the circumvention of the technology, which the right holder has used to control the access to the protected work. Section 1201(b) like section 1201(a)(2) is

[15] Fred von Lohmann, "Measuring the Digital Copyright Act against the Darknet: Implication for the Regulation of Technological Protection Measures", *24 of Loyola of Los Angeles Entertainment Law Review*, (2004), http://w2.eff.org/IP/DMCA/DMCA_against_the_darknet.pdf, (last visited 6th Sep 2008).
[16] Tian, "Problems of Anti Circumvention Rules in the DMCA and more Heterogeneous Solutions".

about trafficking in the devices, but section 1201(a)(2) deals with access control while section 1201(b) deals with post access control.[17]

As we have said that section 1201(a)(1) talks about the prohibition of circumvention of technological measures. What does the circumvention mean? The actions that comes under the circumvention includes varies things like, descrambling scramble work, decrypting the encrypted work, avoiding, bypassing, removing, deactivating the technological measures with out the permission of the right holder. On the other hand the technological measures are the measures that effectively control the access to a work that needs application of certain information or treatment of certain information, to gain access to the copyright protected work with the approval of the right holder. These technological measures can be the password page like the password page of the Pakistan law site, which prevents the access to the law site by any user who doesn't have the permission form the right holder. In order to have an access to the site, the user has to ask permission from the owner of the site, usually in the form of payment of the license fee. It will be an infringement of the copyright protection if any one who has not paid the license fee and has an access to that site by avoiding the password page. [18]

Section 1201(a)(2) and section 1201(b) are known as anti device provisions. Section 1201(a)(2) says that no person is allowed to import, traffic or by any means provide the circumvention devices to the public. The person is not allowed to transfer

[17] *Ibid.*
[18] *Ibid.*

the technology that is to circumvent the protective measures in order to have an access to the particular material. In this case the person who provide the devices or transfer the technology to other person just to let him have an access to the website, for example Pakistan law site, by avoiding the password page. The person who is forwarding that technology is violating section 1201(a)(2) of DMCA. [19]

Section1201 (b) is also an anti device provision. But it prohibits the transfer of any device that is used to circumvent the technology measures, which is used to protect the exclusive right of the right holder. Under this section the access to the website is allowed, but what is pointed out, is reproduction of or making a copy of the material without the permission of the right holder. It prohibits the manufacture or transfer of the technology or device that helps in making a copy of the material.[20]

There are many websites, which allows the user to have an access to the required documents. The user can view the document but he cannot have a copy of it. These websites prevent the print or the download button from performing its functions. The documents are only downloaded temporarily; the user can only view the document.[21]

Section 1201(b) states that "no person shell manufacture, import, offers to the public, provide or otherwise traffic". A person is not allowed to do the said activities, and if he does, he will be liable for the infringement. For instance a person manufactures a device or software, the only purpose is to disable the technique used by the website and to have a copy of the document. The user of that very website comes

[19] *Ibid.*
[20] *Ibid.*
[21] *Ibid.*

across the technology through the Internet and downloads that software, and then gets a copy of the document, for which he has the permission of have an access only, but not for making a copy of it. Here the user is not liable for infringement but the manufacture or that person who distributes the software to the public is liable for such infringement, according to the provision of sec1201 (b). The user will be liable if he gets the copy of the document, for which he is not allowed, and then distribute it among the public, either in the form of hardcopies or in the form softcopies. The user is liable to the copyright holder, for the act of distribution and reproduction of copies under the copyright law. [22]

DMCA also provide a set of exceptions to the anti circumvention rules. The exception for the act of circumventing access control are separate from that of the anti device provisions. Section 1201(a)(1) is subject to seven specific exceptions. These exceptions are:

a) Libraries, archives, educational institution are allowed to circumvent the technological protection measures. But if the educational institutions can access the work in another manner then this exception does not apply on them.

b) The law enforcing agencies, intelligence, and other government agencies can circumvent the access control measures.

c) For the purpose of reverse engineering the circumvention of technological protection is allowed. If a person has the right to use the

[22] *Ibid.*

copy of a computer program, he circumvents the protection for the purpose to identify and analyze the elements of the program that are necessary for the interoperability with other programs. But his acts must not constitute the infringement under the copyright law.

d) The researchers are allowed to circumvent the technological protection for the purpose to identify the flaws and vulnerabilities in encryption technologies.

e) Parents can circumvent the technology to prevent their children from accessing the harmful content on the Internet.

f) The user can circumvent the technological protection for his own privacy. For example the protected work collects the information about the user's online activities.

g) For testing the computer security system or security of the computer network. The user can, with the consent of the right holder, circumvent the protection measures.[23]

Along with these exceptions, DMCA also provide exception for the "classes of works". The librarian of Congress is authorized to exempt after every three years any class of work from the prohibition on access circumvention.

The exceptions for anti device provisions are:

[23] *Ibid.*

a) For the purpose of reverse engineering, the user is allowed to circumvent the access control device and right control device, to know the inter operability between the computer networks.

b) The researchers are allowed to circumvent the protection of access control device, for the purpose to identify the flaws and vulnerability in encryption technology.

c) Exemption is also given for the security testing in case of circumventing access control protection.[24]

4.3. European Union Copyright Directive (EUCD)

After few years of WIPO Internet Treaties, European Union also passed its Copyright Directive. This Copyright directive is not binding on any individual person but rather the member states are required to make a harmonized legislation on copyrights. As we have seen that Americans has given a detailed complex list of anti circumvention provisions and their exceptions. Likewise European Union Copyright Directive has also made the act of circumvention of technological measures illegal. In Art 6.1 of EUCD it is explicitly stated "Member states shall provide adequate legal protection against the circumvention of any effective technological measure". European Union did not feel any need to go in detail as the Americans did. Its anti circumvention provisions are just in few paragraphs.[25]

[24] *Ibid.*

[25] Daniel P Homiller, "The Digital Millinnium Copyright Act and the European Copyright Directive: next step", (n.d.), http://www.law.duke.edu/cspd/papers/nextsteps.doc (last visited 1st May 2008).

Here the "technological measures" is defined under art 6.3, as any technology restricting the act that is not authorized by the copyright holder. Secondly technological measure is effective where the right holder have any of these controls:

a) The access control over the protected work or,

b) The copy control over such work or

c) A protection mechanism.

This means that the weakest protection mechanism gets the legal protection against the weakest type of circumvention. Like the marker pen if used to break the protection mechanism of a CD by drawing or writing over the CD, then the marker will become the circumvention devise and the person will be held liable under Art6.2 if he advertised the marker in such away. If the person has knowledge of what he is doing that is circumventing the technological protection, he will be held liable regardless of whether there was any infringement of copyright and regardless of the purpose for which he has done such circumvention.[26]

The European copyright Directive is very brief in expending, as compared to DMCA, its protection is through banning the trafficking in the technological devices that help in circumventing the technological protection.[27] Art 6.2 states that adequate legal protection must be given against manufacture, sale, rental, import, distribution, or advertisement of such acts, or provision of services that have limited commercial importance and are for the purposes of circumvention or facilitate in the circumvention

[26] Tian, "Problems of Anti Circumvention Rules in the DMCA and more Heterogeneous Solutions".
[27] *Ibid.*

of technological measures. This applies to any device that is made for the purpose to circumvent but again regardless of whether it involve any infringement of copyright. States may ban the possession of private devices, component or products used for circumvention under recital 49 of the Directive.[28]

Recital 48 forbids the member states form extending the technological protection measure. Technical protection must be given to all acts forbidden by the right holder but it should not prevent the normal operation of the electronic equipment and its technical development. It also states that technological protection must not prohibit any device or activity that has commercial significance and are not used in circumvention of technical protections. It further explains that the legal protection of technical measures must not hinder the researchers from their research in cryptography. Member states must give exemption for such research.[29]

Art 6.4 requires the right holders to allow the user to have an access to the material that is otherwise prohibited by the right holder. The right holders must not prohibit the users from exercising any exception provided by their national legislation in accordance with the Art 5 of the copyright directive. Where there the member states consider that the right holders are not providing voluntary measures for the users in the exercise of the exception then the states must play their role in doing so, but not in the on-demand services. The member states must also facilitate the users with the reproduction right exception and right of communication exception. The right holder

[28] *Ibid.*
[29] *Ibid.*

can restrict the number of the private copies made by the users, during exercising the exception.[30]

Art 5 of the EUCD is about the exception and limitations. A very exhaustive list of exceptions is given by the EUCD. The temporary reproduction that is necessary for the technological process like:

a) In the network transmission to the third parties, or

b) Is used for any lawful purpose,

are exempted from the reproduction right provided in Art 2, if they don't have any economic significance.[31]

EUCD gives the member states an option to implement certain exemption in right of reproduction. They give exemption in:

a) Photocopying except sheet music but on fair compensation to the right holder,

b) Reproduction for private use but on fair compensation to the right holder,

c) Reproduction by the public libraries and educational institutions,

d) Ephemeral recordings by the broad casters for their own use,

e) Broad coasts by the social institution for non-commercial purposes like hospital and prisons, on the conditions that of fair compensation to the right holder.

[30] *Ibid.*
[31] *Ibid.*

Fair compensation is determined by the damage done to the right holder. On minimum damage the member states may provide the damages.[32]

Art 5.3 gives a long list of exemption in the communication and reproduction right. The most important for general purposes are:

a) Teaching and scientific research,

b) Use by the disable people,

c) News reporting,

d) Criticism and review,

e) For caricature, parody and pastiche.

Similar exemptions are given for the right of communication. All these exemption are applied in 3-step test mention in the Berne Convention.

Art 7 is about electronic Right Management Information. Right Management Information is any type of data given by the right holder that contains identification of the author, work, its terms and conditions to access the data. Legal protection must be provided against the person who removes or alter any type of Right Management Information or broadcast, communicate or distribute the information after removal or alteration, with out the authority from the right holder. [33]

4.4. Analyzing DMCA and EUCD

Both of the statutes have the same aim of providing the safe environment for transmission of digital information. Both of the statutes contain the provisions that

[32] *Ibid.*
[33] *Ibid.*

make the circumvention of copy protection technology, as well as any other activity that facilitate in such circumvention, illegal. Content provider asserts that these technological protection measures prevent the unauthorized access to copyright material, thereby keeping the users away from illegal activities and restores the artist's right. With the intention to allow the honest users to exercise their rights, according to some commentators, these provisions fail in their stated purpose, and provide a high level of protection for authors. The reason behind this failure is that technology is not capable to distinguish between legal use and illegal use.[34]

Anti circumvention provisions were vital to prevent circumvention but it has broken the balance of interest between the copyright holders and the users. The public users are at the weak position.[35] The DMCA states that "Nothing in this section will affect rights, remedies, limitations, or defaces to copyright infringement, including fair use under this title." This seems to be a good balance that the technological measures will not affect the exceptions and limitations of the copyright law, but to enjoy these rights the users have to have the access to the protected material.[36] Section 1201 does not allow circumventing the access control as a "fair circumvention". In one of the decided cases the ruling of the US court was that lawful access was prerequisite for fair use right.[37] DMCA criminalizes the circumvention of technological protection; as a

[34] Nicola Lucchi, "Intellectual Property right in Digital Media: A Comparative analysis of Legal Protection, Technological Measures and new Business Models under EU and U.S. Laws", *Buffalo Law Review* 4, (Aug 2005), http://papers.ssrn..com/sol3/papers.cfm (last visited 6th Sep 2008).
[35] Ian Brown, "Implementing the EU Copyright Directive".
[36] Lucchi, "Intellectual Property right in Digital Media".
[37] Tian, "Problems of Anti Circumvention Rules in the DMCA and more Heterogeneous Solutions":

result the exercise of legitimate rights may become a crime, as it is mentioned above that the technology cannot detect which uses are legal and which are illegal.[38]

If a person circumvent to have an access under the concept of fair use, without having authority then he is liable under section 1201(a)(1), and who ever assists him then the later will be liable under section 1201(a)(2). On the other hand if the user have the authority to have an access and he circumvent then he wont be liable under section 1201(a)(1) but the other person who is helping him will be liable under 1201(a)(2). The users cannot enjoy the concept of the fair use, first of all he must have fair access then he can have fair use by circumventing. But if he does not know how to circumvent then he cannot take help from other person (section 1201(a)(2) will apply on the later person) and if he has the knowledge then he won't find the devices for it, which is prohibited under section 1201(b).[39]

European Union also obliges member states to have anti circumvention provision in their laws. Under Art 6.1 the EUCD criminalized the circumvention, whether such act infringes the copyright law or not, but it encourages the right holders to provide the beneficries the means to get benefits from the exceptions and limitations. The member states have to ensure the compliance over providing the means for benefiting.[40]

It is hard to have a harmonized legislation in the digital copyright in European Union. First of all the Art 6 does not clearly states the method of intervention, it leaves

[38] Lucchi, "Intellectual Property right in Digital Media".
[39] Tian, "Problems of Anti Circumvention Rules in the DMCA and more Heterogeneous Solutions".
[40] Lucchi, "Intellectual Property right in Digital Media".

the intervention to the member states, this uncertainty continues to remain in the implementation of legislation of the member states. As a result there will be differences between member states implementation especially in the prohibited acts of circumvention.[41]

Both of the statutes (DMCA and EUCD) have failed to solve the problem of legitimate access and pose high barriers to the uses that are legally recognized. DMCA does not need to give the detail list of exception as it is well established in the other statutes (17 U.S.C). The EUCD gives a long list of exceptions that relates to the right of distribution and right of communication. It does not states exceptions to the anti circumvention provision.[42] The exceptions provided in Art 5 are optional. Member states are free to choose exception they want to have in their legislation. A closer look to the Directive and to the DMCA shows that they do not do much for the authors at all. They are just for the protection of producers, broad casters, and institutional users, even not for the creators of the protected work.[43]

In Real Network, Inc. v. Streambox, Inc., the plaintiff developed software design to facilitate the owner of audio, video and other multimedia content in sending their content through streaming to the other users by internet. The Real Networks claimed that the defendant had developed and distributed their software which helps the users in making unauthorized copies of files and then convert them in other formats. Thus

[41] Bernt Huqenholtz , "Why Copyright Directive is Unimportant, and Possibly Invalid", (Amsterdam: Institute for Information Law, University of Amsterdam, Nov 2000), http://www.ivir.nl/publications/hugenholtz/opinion-EIPR.html (last visited 6th sep2008).
[42] Lucchi, "Intellectual Property right in Digital Media".
[43] P Homiller, "The Digital Millinnium Copyright Act and the European Copyright Directive: next step".

their software was design to circumvent the access control and copy control measures. The court held that Strembox violated 1201(b) of DMCA. In this case only producers were involved.[44]

Anti circumvention provisions enables the right holders to have a new form of exclusive right "the right of access". These provisions are different from the traditional copyright provisions. As stated above a person is held liable under the anti circumvention provision even if he has not infringed any exclusive right under traditional copyright. That is why some commentators dub the anti circumvention right as Para-copyright.[45]

4.5. Digital Copyright Law in Pakistan.

In Pakistan laws relating to internet crimes passed on 31st December, 2007. Prevention of Electronic Crime Ordinance (PECO) made by Ministry of Law, Justice and Human rights. The basic object of this ordinance is "to make provision for prevention of electronic crimes".[46] The ordinance says that when ever any action is against the confidentiality, integrity, of electronic system, networks, data, or misuse if such system, network, data, it will be prevented, investigated and punished. [47]

This ordinance is for any crime committed through electronic system. There are certain sections which are related to data accessing, encryption of data, data trafficking

[44] Tian, "Problems of Anti Circumvention Rules in the DMCA and more Heterogeneous Solutions".
[45] *Ibid.*
[46] Prevention of Electronic Crime Ordinance 2007.
[47] *Ibid.*

that can relate to digital copyright law. Pakistan is in its way to implement the WIPO Internet Treaties.[48]

Section 2 of the PECO defines access in clause (1) sub clause (a). It says that access means to enter in any electronic system or to reach to any data in the electronic system, whether with the permission or with out permission. Sec 2(1)(y) gives unauthorized access, entering the electronic system or device to gain access without authority or in access of that authority. Sec 2(1) (e) defines data as representation of the information in such a way that is suitable for use in the electronic system, it include text, images, sound, video or any information in database. It also defines encrypted data, under section 2(1)(m), any data which is changed into an unreadable format from its plain version, but by decoding technique that plain version can be recovered. The purpose of such encryption is to protect the information contained in any electronic system or any device used for the collection of such data. Data traffic is defined under sec 2(1)(w). Unauthorized interception is defined under sec 16(1) that is to prevent communication or transmission of data from one system to another.[49]

Chapter 2 of the PECO, is about punishment and offences. Section 4 explains the punishment for the unauthorized access to the data in any electronic system or electronic device. The punishment for such access may increase to three years of imprisonment or fine or both. The same punishment is for the data damage. Under sec 10 if any person discloses a password, or gain access to any system or device with the

[48] *Ibid.*
[49] *Ibid.*

intention of wrongful doing, or for reverse engineering, his punishment may also extend to three years or he will be fined, or both. Any person if with the intent to conceal incriminating evidence, encrypts data contained in electronic system or device, will be punished, under sec 11, with the imprisonment which may extend to five years, or fine, or both. The punishment for unauthorized interception is of five years imprisonment or fine or both under sec 16.[50]

[50] *Ibid.*

CHAPTER NO: 5

CONCLUSION

It has been discussed that different technologies have affected the intellectual property right especially the copyright. They were made for the specific purposes but now are mostly used as infringing the copyright laws. Copyright violation issues began with the beginning of the technologies. Before the printing press, to have the copy of the work required the same labor and cost. Different laws were made with the progress of the technology. But the pace with which technology is moving is very fast as compared to the speed of laws.

It has been discussed that laws are there for today's technology but have failed in bringing a balance between the rights of the owners and the general public: tilting toward the right holders and extending the boundaries of their exclusive rights on the cost of public domain. Copyright has been adapted to the new technologies and has tried to protect the public interest by providing the privileges through the fair use doctrine, but have failed to achieve this goal. According to a legal expert these newly updated laws are turning citizens into criminals.

It has also been discussed that United States and European Union have adopted the Internet Treaties in their legislation, but there is a lacuna in their anti circumvention provisions. Fair use exceptions are given in these legislations. They have allowed the public to have the copy of the material without the permission of right holder under certain circumstances. This seems to be a good balance that technological development

is not effecting the exceptions and limitation of the copyright law, but to enjoy these rights the users have to have the access to the protected material. Copy control circumvention is not prohibited for fair use purpose but the right holders have prohibited the circumvention of the access control.

These technological protection measures provide protection to all the works on which the owners have used these protection measures. This is another glaring lacuna of the anti circumvention provisions. The works which can not other wise have a copyright protection or any work that has entered in the public domain can be protected through these access control mechanism.

The present copyright laws of Pakistan are in compliance with the Berne convention. These laws provide very long list of exceptions and limitations, which are to forbid the right holders from having a monopoly over their creations, and to safeguard the interest of different communities that include researchers, academic community and student's communities.

Pakistan has adopted the international conventions relating to the intellectual property, but due to the technological developments our copyright laws are far behind the western copyright laws. We have not adopted the WIPO Internet Treaties. That is why we don't have an equal legislation to the United State and European Union.

In December 2007, Pakistan had an Electronic Crime Ordinance. This ordinance doesn't have any provision regarding the 'technological protection measures'. This ordinance deals with any crime committed through electronic systems. Some of the sections relates to data accessing, encryption of the data, data trafficking etc.

Nevertheless these provisions may be enough in some way to provide legal protection for technological protection measures. Sec 2(1)(a) is about the definition of access, sec 2(1)(y) is about unauthorized access, sec 4 gives the punishment of unauthorized access to the data. Sec 10 is if any person passes away the password with the intention of wrongful doing. Sec 11 gives the punishment for any person who encrypts data with wrongful intention.

These provisions of Prevention of Electronic Crime Ordinance are for the customary offenses, they are not enough for the highly technical crimes done over internet. Considering these laws and the crimes of the present day, one will think about adopting the technological protection measures. Pakistan has to adopt these technological protection measures indeed, but before such legislation there must be a capacity building training course for the common man. Internet usage in Pakistan is not as common as in the west. More then half percent of population does not know how to use the internet.

Pakistan has to implement the infrastructure first. Educational ministry and Information Technology ministry have to play there role in educating the public and providing the basic necessities. Pakistan is among the countries where the internet utilization is very low. In the cities the utilization is increasing day by day. If Pakistan adopts the anti circumvention provisions, as United State and European Union did with limited fair use exception, the result will be depleting the public domain which will further result in harming the basic principle of copyright and that is public interest. And

if Pakistan does not provide legal protection to the technological measures then the internet will create an upset to the enforcement of copyright protection.

Pakistan will be compelled one day by the developed countries to implement the Internet Treaties and to have anti circumvention provisions, and it has to adopt these laws as it will suffer a lot in the absence of legal protection to the technological measures. But if it provides such protection to the technological measures, it must not ignore the public interests. Public interest is in having an access to the information, giving them permission to have a copy as a fair use, with out having an access is not a fair use. The fair use provision should be applicable to the access control technology as well.

An organization name Intellectual Property Organization is there for the awareness in the public about the Intellectual Property Laws.

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