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Society, Law and Ethics

In This Chapter

17.1 INTRODUCTION

We are now living an era called the information age where we see that most our activities are technology–influenced, be it making an online payment, creating or development of own piece of art or information (such as writing articles or clicking photographs and so forth). With the reach of technology to our day to day life, there has been a paradigm shift, and it has also raised specific issues and problems related to society, ethics and law. In this chapter, we shall talk about topics about this very domain such as intellectual property rights, plagiarism, cybercrime, cyberlaw, e-waste management etc.

17.2 ETHICAL ISSUES

These days, we can easily say that our society is information society and our era is information era. As we all know that ***information*** *is the means to acquire knowledge*. In other words, we can say that *information forms the intellectual capital* for a person or body. However, there are many ethical issues involved with the usage and availability of information.

Some common ethical issues are :

(*i*) Intellectual property rights (*ii*) Plagiarism (*iii*) Digital property rights

17.2.1 Intellectual Property Rights

As mentioned earlier, information makes intellectual property. Any piece of information is produced or created with a lot of efforts and it consumes a lot of time. The cost factor is also

involved with the creation or production of information. Though once produced, it becomes very easy to duplicate it or share it with others. But this very thing makes information difficult to safeguard unlike tangible property.

The creator/producer of the information is the real owner of the information. And the owner has every right to protect his/her intellectual property. To protect one's intellectual property rights one can get information **copyrighted** or **patented** or use trademarks. Let us talk about what these terms mean.

NOTE

Intellectual property rights are the rights of the owner of information to decide how much information is to be exchanged, shared or distributed. Also it gives the owner a right to decide the price for doing (exchanging/sharing/distributing) so.

	Copyright ©	Patents	Trademark ™
What is it ?	A copyright is a legal term to describe the rights of the creator of an original creative work such as a literary work, an artistic work, a design, song, movie or software etc.	A patent refers to a collection of exclusive rights given to the inventor for their invention(s).	Trademarks are some registered words, slogans, logos, shapes, colours and sounds etc used to distinguish the goods or services of one trader from another.
What's Protected ?	Original works of authorship, such as books, articles, songs, photographs, sculptures, choreography, sound recordings, motion pictures, and other works.	Inventions, such as processes, machines, manufactures, compositions of matter as well as improvements to these.	Any word, phrase, symbol, and/or design that identifies and distinguishes the source of the goods of one party from those of others.
Requirements to be Protected	A work must be original, creative and fixed in a tangible medium.	An invention must be new, useful and non-obvious.	A mark must be distinctive (*i.e.*, that is, it must be capable of identifying the source of a particular good).
Term of Protection	Author's life plus 60 more years in India.	20 years	For as long as the mark is used in commerce.
Rights Granted	Right to control the reproduction, making of derivative works, distribution and public performance and display of the copyrighted works.	Right to prevent others from making, selling, using or importing the patented invention.	Right to use the mark and to prevent others from using similar marks in a way that would cause likelihood-of-confusion about the origin of the goods or services.

The ethical issue involved with it is that information must not be exchanged without the consent of its owner. The intellectual property rights must be protected, for it :

- encourages individuals and businesses to create new software and new software applications, as well as improving existing applications,
- ensures new ideas and technologies are widely distributed,
- promotes investment in the national economy.

17.2.1A Violation of IPR

People, companies violate the intellectual property right (IPR) in many ways. The violation of IPR (Intellectual Property Rights) is called **infringement** or **IPR infringement**.

DIGITAL PROPERTY

The violation of IPR (Intellectual Property Rights) is called **infringement** or **IPR infringement**.

There are *three* forms of IPR infringement :

(*i*) Plagiarism (*ii*) Copyright infringement (*iii*) Trademark infringement

I. Plagiarism

Simply put, *Plagiarism* means *stealing*. Surprised? If you look into an English dictionary to find the meaning of word plagiarism, it will give somewhat like "the unauthorized use or close imitation of the language and thoughts of another author and the representation of them as one's own original work."

PLAGIARISM

Plagiarism is stealing someone else's intellectual work and representing it as your own work without citing the source of information.

Thus, **Plagiarism** is stealing someone else's intellectual work (can be an idea, *literary work* or *academic work* etc.) and representing it as your own work without giving credit to creator or without citing the source of information.

Any of the following acts would be termed as Plagiarism :

- Using some other author's work without giving credit to the author.
- Using someone else's work in incorrect form than intended originally by the author/creator.
- Modifying/lifting someone's production such as *music-composition* etc. without attributing it to the creator of the work.
- Giving incorrect or incorrect source of information *i.e.*, wrongful citation.
- Failure in giving credit or acknowledging the contribution of others in a collaborative effort, to which you are also part of.

How not to Plagiarize ?

As most universities[1] put in their student-handbook. 'To avoid plagiarism :

You must give credit whenever you use

- another person's idea, opinion, or theory;
- quotations of another person's actual spoken or written words ; or
- Paraphrase of another person's spoken or written words.

Plagiarism is Offence

'If plagiarism involves copying not only ideas but also a substantial portion of a copyrighted work without attribution and without permission, it would amount to both copyright infringement and the violation of the 'special right' of the author to be credited.

Copyright infringement and the violation of an author's right to be credited are both civil wrongs and criminal offences. A civil suit may be instituted, and criminal charges may also be filed'[2].

Both civil suit and criminal charges are punishable offences and amount to fine and penalties.

II. Copyright Infringement

A copyright infringement refers to using copyrighted work without the consent or permission of the copyright holder. The infringement of intellectual property occurs when an individual or group of individuals fabricate copywriters' work intentionally or unintentionally without giving them credit. For instance, if you use an image or a video available online, without asking

1. Found in most universities' guidelines for students/ student-handbooks
2. www.mxmindia.com (interview of *Nandita Saikia*)

for permission, it may be copyright infringement because not everything which is available on the Internet is available for free use. Most of the things available online are copyright protected.

Other examples of copyright infringement include :

- Selling pirated books
- Selling copied/duplicated art work
- Selling pirated software
- Performing a play in public without obtaining permission from the playright
- Online piracy and many other such acts.

COPYRIGHT INFRINGEMENT

A **copyright infringement** refers to using copyrighted work without the consent or permission of the copyright holder.

III. Trademark Infringement

The **trademark infringement** is the unauthorised usage of a mark that is identical or deceptively similar to a registered trademark. The term deceptively similar here means that when an average consumer looks at the mark, it is likely to confuse him/her of the origin of the goods or services.

TRADEMARK INFRINGEMENT

The **trademark infringement** is the unauthorised usage of a mark that is identical or deceptively similar to a registered trademark.

All types of IPR infringements are crimes and the owner can initiate a legal action against the people/companies who do it.

17.2.2 Digital Property Rights

Digital property (or **digital assets**) refers to any information about you or created by you that exists in digital form, either online or on an electronic storage device. All of your digital property comprises what is known as your ***digital estate***.

DIGITAL PROPERTY

Digital property (or **digital assets**) refers to any information about you or created by you that exists in digital form, either online or on an electronic storage device.

Examples of digital property include : *any online personal accounts, such as email and communications accounts, social media accounts, shopping accounts, photo and video sharing accounts, video gaming accounts, online storage accounts, and websites and blogs that you may manage ; domain names registered in your name ; intellectual property, including copyrighted materials, trademarks, patents and any software or code (such as software tools created by you or games or apps created by you) you may have written and own etc.*

Digital property rights lie with the owner. Legally a person who has created it or the owner who has got it developed by paying legally is the legal owner of a digital property. Only the owner can use and decide who all and in what form can his/her digital asset may be used by other, whether by making payments or by buying it or by obtaining its license or usage rights etc. But this is not the case generally; there are many threats to digital properties.

Threats to Digital Properties

Let us briefly talk about common threats to digital properties :

1. **Digital software penetration tools.** Although one needs to buy usage rights or license to use a digital property, there are many software penetration tools such as *cracks* and *keygens*, tools created by hackers to penetrate your software's registration system and enable unauthorized users to freely access your software without actually paying for it.

2. **Stealing and plagiarizing codes of your digital properties.** Sometimes other developers somehow get hold of your software's source code and then create plagiarized versions of your code and use it in their own software. In other words, they steal your software's source code and use it to build their own versions of it, and then sell it under their own company name.

Digital Property Rights Protection

As there are multiple types of threats to digital properties, there are many ways you can ensure protection of your digital properties. Let us talk about these protective measures :

1. **Anti-Temper Solutions.** There are many anti-tamper solution available today which ensure that your digital property is tamper-proof. These anti-temper solutions use a host of advanced technologies to prevent hackers from hacking, reverse-engineering or manipulating your digital properties such as *utility tools, software, apps, video games* and so forth.
2. **Legal Clauses.** Add legal clause in the clauses of use of your software/digital properties. You must include a transparent clause in your software's *Terms of Service* that prohibits the scraping of your software's source code for reuse. This is a sound legal backup for you.
3. **Limit the sharing of software code.** You should share your software code only with trusted individuals who are part of development team. You should also use a Digital Rights Management (DRM) solution to protect your software from being scraped for source code using decompilers etc.

17.3 OPEN SOURCE PHILOSOPHY AND SOFTWARE LICENCES

Broadly the term '*open source software*' is used to refer to those categories of software / programs whose licenses do not impose much conditions. Such software, generally, give users freedom to run/use the software for any purpose, to study and modify the program, and to redistribute copies of either the original or modified program (without having to pay royalties to previous developers).

There are many categories of software that may be referred to as open source software. Following subsection is going to talk about the same.

17.3.1 Terminology

Before we talk about various terms and definitions pertaining to '**Open**' world, you must be clear about *two* terms which are often misunderstood or misinterpreted.

These terms are :

- Free software and
- Open source software

Free Software

Free Software means the software is freely accessible and can be freely used, changed, improved, copied and distributed by all who wish to do so. And no payments are needed to be made for free software. Example— Linux Kernel, Apache, The GIMP, PostgreSQL

The definition of **Free Software** is published by *Richard Stallman's Free Software Foundation*. Here is the key text[3] of that definition :

3. Excerpt courtesy *Free Software Foundation*. This keytext is available at *www.gnu.org/philosophy/free-sw.html*.

"Free software" is a matter of liberty, not price. To understand the concept, you should think of "free" as in "free speech," not as in "free beer." Free software is a matter of the users' freedom to run, copy, distribute, study, change and improve the software. More precisely, it refers to four kinds of freedom, for the users of the software :

- *The freedom to run the program, for any purpose (freedom 0).*
- *The freedom to study how the program works, and adapt it to your needs (freedom 1). Access to the source code is a precondition for this.*
- *The freedom to redistribute copies so you can help your neighbor (freedom 2).*
- *The freedom to improve the program, and release your improvements to the public, so that the whole community benefits (freedom 3). Access to the source code is a precondition for this.*

A program is free software if users have all of these freedoms.

Open Source Software

(Example → firefox, OpenOffice, Gimp, Zimbra,

Open Source Software, on the other hand, can be **freely used** (in terms of making modifications, constructing business models around the software and so on) but it ***does not have to be free of charge***. Here the company constructing the business models around *open source software* may receive payments concerning support, further development. What is important to know here is that in *open source software, the source code is freely available* to the customer.

MySQL, Alfresco, SugarCRM)

17.3.2 Philosophy of Open Source

Open source software is officially defined by the **open source definition** at *http://www.opensource.org/docs/definition_plain.html*.

It states that :

Open source doesn't just mean access to the source code. The distribution terms of open-source software must comply with the following criteria :

Free Redistribution	No restriction on the re-distribution of the software whether as a whole or in part.
Source Code	The program must include source code, and must allow distribution in source code as well as compiled form.
Derived Works	The license must allow modifications and derived works, and must allow them to be distributed under the same terms as the license of the original software.
Integrity of the Author's Source Code	The integrity of the author'source code must be maintained. Any additions / modifications should carry a different name or version number from the original software.
No Discrimination Against Persons or Groups	The license must not discriminate against any person or group of persons.
No Discrimination Against Fields of Endeavor	The license must not restrict anyone from making use of the program in a specific field of endeavor. For example, it may not restrict the program from being used in a business, or from being used for genetic research.
Distribution of License	The rights attached to the program must apply to all to whom the program is redistributed.
License must not be Specific to a Product	There must not be any restriction on the rights attached to the program, *i.e.*, there should not be a condition on the program's being part of a particular software distribution.

The License must not Restrict other Software — The license must not place restrictions on other software that is distributed along with the licensed software. *For example*, the license must not insist that all other programs distributed on the same medium must be open-source software.

Licence must be Technology Neutral — No provision of the license may be predicated on any individual technology or style of interface.

A software which is **free** as well as **open** belongs to category **FOSS** (*Free and Open Source Software*).

NOTE

The terms Free and Open represent a differing emphasis on importance of ***freedom*** (*free software*) or ***technical progress*** (open source software)

17.3.3 Definitions

After understanding the difference between the terms free and **open**, let us now proceed to our discussion on terminology and definitions pertaining to open source software.

OSS and FLOSS — OSS refers to *open source software*, which refers to software whose source code is available to customers and it can be modified and redistributed without any limitation. An OSS may come free of cost or with a payment of nominal charges that its developers may charge in the name of development, support of software.

FLOSS refers to *Free Libre and Open Source Software* or to *Free Livre and Open Source Software*. The term FLOSS is used to refer to a software which is both ***free software*** as well as ***open source software***. Here the words **libre** (a Spanish word) and **livre** (a Portuguese word) mean ***freedom***.

GNU — GNU[4] refers to ***GNU's Not Unix***. GNU Project emphasizes on freedom. The GNU project was initiated by *Richard M. Stallman* with an objective to create an operating system. With time, GNU project expanded and now it is not limited to only an operating system. Now, it offers a wide range of software, including applications apart from operating system.

FSF — FSF is *Free Software Foundation*. FSF is a non-profit organization created for the purpose of supporting free software movement. *Richard Stallman* founded FSF in 1985 to support GNU project and GNU licences. Now a days, it also works on legal and structural issues for the free software community.

OSI — OSI is *Open Source Initiative*. It is an organization dedicated to cause of promoting open source software. *Bruce Perens* and *Erics Raymond* were the founders of OSI, that was founded in February 1998.

OSI specifies the criteria for open source software and properly defines the terms and specifications of *open source software*.

Open source doesn't just mean access to the source code. The distribution terms of open source software must comply with the *Open Source Definition* by OSI.

Freeware — The term *freeware* is generally used for software, which is available free of cost and which allows copying and further distribution, but not modification and whose source code is not available. Freeware should not be mistaken for open software or for free software. Freeware is distributed in binary form (ready to run) without any licensing fee. In some instances the right to use the software is limited to certain types of users, for instance, for private and non-commercial purposes. One example is Microsoft Internet Explorer, which is made available as freeware.

4. GNU is recrusive acronym for GNU's Not Unix. A recursive acronym is the one that uses its abbreviation in full form *e.g.*, VISA is also recursive acronym – VISA International Service Association.

W3C	W3C is acronym for *World Wide Web Consortium*. W3C is responsible for producing the software standards for world wide web. The W3C was created in October 1994, to lead the world wide web to its full potential by developing common protocols that promote its evolution and ensure its interoperability. The World Wide Web Consortium (W3C) describes itself as follows : The World Wide Web Consortium exists to realize the full potential of the Web. The W3C is an industry consortium that seeks to promote standards for the evolution of the Web and interoperability between WWW products by producing specifications and reference software. Although industrial members fund W3C, it is vendor-neutral, and its products are freely available to all.
Proprietary Software	***Proprietary software*** is the software that is *neither open nor freely available*. Its use is regulated and further distribution and modification is either forbidden or requires special permission by the supplier or vendor. Source code of proprietary software is normally not available.
Shareware	***Shareware*** is software, which is made available with the right to redistribute copies, but it is stipulated that if one intends to use the software, often after a certain period of time, then a license fee should be paid. Example → Adobe Acrobat, WinZip, Getright) Shareware is not the same thing as *free and open source software* (FOSS) for *two* main reasons : (*i*) the source code is not available and, (*ii*) modifications to the software are not allowed. The objective of shareware is to make the software available to try for as many users as possible. This is done in order to increase prospective users' will to pay for the software. The software is distributed in binary form and often includes a built-in timed mechanism, which usually limits functionality after a trial period of usually one to three months.
Copylefted Software	Copylefted software is free software whose distribution terms ensure that all copies of all versions carry more or less the same distribution terms. This means, for instance, that copyleft licenses generally disallow others to add additional requirements to the software) and require making source code available. This shields the program, and its modified versions, from some of the common ways of making a program proprietary.

17.3.4 Licenses and Domains of Open Source Technology

As per Open Source Initiative, *"Open source licenses are licenses that comply with the Open Source Definition — in brief, they allow software to be freely used, modified, and shared."*

Open-source licenses make it easy for others to contribute to a project without having to seek special permission. It also protects you as the original creator, making sure you at least get some credit for your contributions. It also helps to prevent others from claiming your work as their own.

Broadly used open source licences are being given below for your reference :

1. Creative Commons Licenses (CC licenses)

CC licences, issued by Creative Commons organisation (non-profit organisation), allow the creator of the work to select how they want others to use the work. When a creator releases their work under a CC licence, people only need to seek the creator's permission when they want to use the work in a way not permitted by the licence.

Standard rights and obligations of CC licenses. CC provides six core licences, each of which allow members of the pubic to use the material in different ways, but each of them include certain standard rights and obligations as listed below :

NOTE

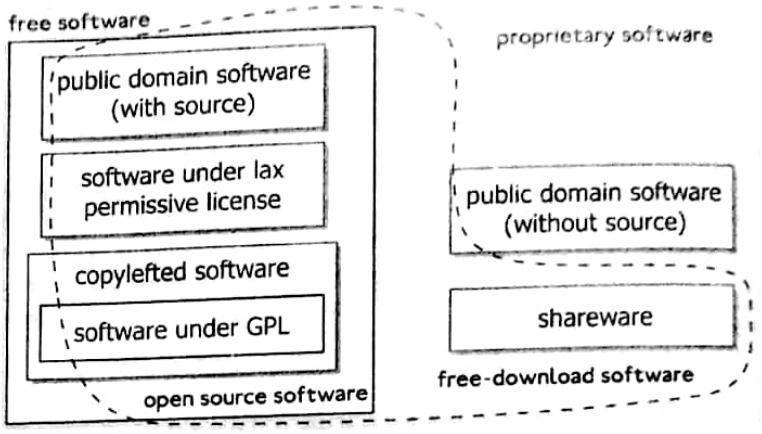
The CC licenses give permissions to copy, modify, distribute the original works by attributing the creator of the work.

Public Domain Software vs. Proprietary Software

Public-domain software is free and can be used without restrictions. The term public-domain software is often used incorrectly to include freeware, free software that is nevertheless copyrighted. *Public domain software* is, by its very nature, outside the scope of copyright and licensing.

On the contrary, there is *Proprietary software*, which is neither free nor available for public. There is a proper license attached to it. User has to buy the licence in order to use it.

Consider the diagram (Fig. 17.1) originally made by *Chao-Kuei*[5] that describes the categories of software.



Figre 17.1 Categories and domains of software.

17.4 TECHNOLOGY AND SOCIETY

ICTs are general purpose technologies, *i.e.* technologies whose value and impact arise primarily from their use in other economic and social sectors. *Three* capabilities are especially important for economic and social development.

ICTs :

- enable greater efficiency in economic and social processes ;
- enhance the effectiveness of cooperation between different stakeholders ; and
- increase the volume and range of information available to people, businesses and governments.

Systemic impacts which ICTs have had on the development of economies, societies and culture, include :

Economic Impacts include the globalisation of production in goods and services, changes in international trade and distribution networks, changes in patterns of consumption, the virtualisation of some products and behaviours, and the growing importance of the ICT sector within the world and national economies.

Social Impacts include mass market access to an enormously increased range of information resources, enhanced freedom of expression and association, new patterns of work and human settlement, changes in the relationships between government, citizen and the state, and between citizens, and associated challenges to traditional ideas of privacy and individuality.

17.4.1 Economic Benefits

The impact of ICT on the economic sector has a positive multiplier effect on the Business World. Some major benefits include :

1. **Secure Transactions.** Banks and similar institutions could be said to be the sector that have benefited the most from latest developments in ICT. Fund transfer can now be made in a matter of seconds within a locality and to the most parts of the world with a greater security than ever.

5. and available under GNU GPL v2.