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Digital Piracy in Music Records Industry: An Economic and Legal Analysis on DRM Provisions in India

Shilpa B Nair
Student, Department of Law, Christ University, Bengaluru, India

***Abstract*—In response to piracy and online file trading, the music industry has begun to adopt technological measures, often referred to as digital rights management (DRM), to control the sale and distribution of music over the Internet. Previous economic analysis on the impact of DRM implementation has been overly simplistic. A careful analysis of copyright law and the microeconomic principles governing the music industry demonstrates that commentators have failed to account for factors relevant to the measure of social welfare within the music industry. This paper develops a more refined economic model that is better suited to accurately assessing how legal or technological changes like DRM will affect the music industry. Utilizing a refined economic model, the analysis suggests that the economic effects of implementing DRM technology are generally negative, albeit uncertain. While DRM implementation may inhibit piracy, facilitate price discrimination, and lower transactional costs, it will likely decrease social welfare by raising barriers to entry and exacerbating a number of existing market failures. Specifically, DRM implementation may facilitate the extension of monopoly pricing, decrease the amount of information available to potential music consumers, diminish the number of positive externalities, and raise artistic and informational barriers to entry into certain genres of music.**

***Index Terms*—DRM, Music, Technology, Copyright**

I. Introduction

The traditional music enterprises inventory network before the approach of web and digitization generally relied upon the account organizations who were in charge of physically delivering the music item, at that point this items were conveyed through retail dissemination channels which incorporates retail locations and in later occasions even the retailers. The record organizations were basically in charge of advancement of the collection to the clients. Music World retail outlets sold sound CDs, DVDs, gaming consoles and programming, notwithstanding other music extras. It was one of the early retail outlets that opened its first store in 1997, and after that opened a few establishments in 2003.

A. Digital Technology

Digital technology has upset the degree of control copyright holders have historically maintained over the use of and access to music. Computers, and related digital devices and components, as well as peer-to-peer (P2P) networking software, provide the populace with relatively inexpensive and effective means to copy and distribute music in digital formats without legal authorization. At its core, P2P networks offer users the ability to access the hard drives of other users worldwide merely by installing a piece of software. Once the software is installed, users can search for, copy, and transfer music files, typically in a compressed format such as MP3, stored in particular locations in the hard drives of other users, and vice versa. While the effects of such technology on the music industry as a whole are still debatable, as digital technologies become more ubiquitous, piracy and online file sharing continue to pose an imminent threat to the ability of artists to derive a sustainable profit from the creation of music.

Moreover, advanced innovation has upset the formation of music. At the core of that upheaval is the advanced sound workstation (DAW) and a strategy for reusing recorded sound, called testing, which is progressively utilized in the making of music. Alongside the capacity to make idealize computerized duplicates of recorded music has come the advancement of equipment to change over music from a simple to a computerized organize. Once the music is in an advanced configuration, a DAW enables one to import, cut, duplicate, layer and control (through impacts processors) computerized duplicates of the music, comparable to how word processors enable one to cut, duplicate, and control advanced portrayals of words or sections of words.

The advantages to the music consumer from these digital technologies are clear. Putting aside for the moment whether it is legal, digital technology provides cheap and near instant copying and distribution of music. As a result, the average music consumer (at least those with computers and access to the Internet) can access exponentially more music than ever before. Of particular, cheap copying and distribution, at least on a theoretical level, reduce the cost of providing music to the public, increasing the number of potential consumers. Copying and distributing music files on the Internet is dramatically cheaper than producing a CD and shipping the contents to brick and mortar stores, consumers can create multiple copies for personal use in different contexts.

B. Digital Rights Management (DRM)

Digital rights management (DRM) is a set of access control technologies for restricting the use of proprietary hardware and copyrighted works. DRM technologies try to control the use, modification, and distribution of copyrighted works (such as software and multimedia content), as well as systems within devices that enforce these policies. Digital content distribution is a quickly developing industry especially with the help of Internet. Some researchers even claim Internet-based market for digital content has a nice prospective future. At the same time, many Digital Rights Management systems are designed to help digital content providers to have some control over their digital content and obtain some usage information from users to some extent to let relative business entities make strategy decisions towards their market. However, user privacy should be also considered as "rights" of users. Such rights must be also protected in Digital Rights Management systems because the main goal of DRM systems is to protect rights of all parties involved in digital content distribution.

Commentators have proposed three possible methods by which to implement DRM technology. The first and most direct method would be through the use of computer code. Under this method (hereinafter referred to as the "code-only" method), certain allowable uses would be programmed directly onto the rule set that controls access to a digital file. Whether the user is charged for a particular use is dependent simply on whether the underlying code requires the user to pay. An example, though certainly not the only possible example, of this type of implementation is the iTunes software. After charging to download a song to a user ís computer, the iTunes software. After charging to download a song to a user ís computer, the iTunes software allows the user to make a certain number of copies of playlists and move the song file, with certain limitations, to other specified devices, like MP3 players.

The second method for controlling consumer use of digitized music through DRM technology would be through the use of key access. Under this scheme, DRM technology would utilize an external, human decision-maker. Users would apply for digital keys to access files. The human decision-maker could then judge on a case-by-case basis whether to allow and whether to charge for the particular use requested by the user. As two commentators have noted, this method builds in judgment capabilities that cannot practically be emulated by technical defaults. The human decision-maker might be the copyright holder or a neutral third party, for example, a government body.

The third, and most likely, method would combine the first two methods. Under this scheme (hereinafter referred to as the "code-plus" method), certain allowable uses, and forced charging of the user for, or blocking of those uses not categorized as allowable, would be coded directly onto the file. If the user wished to use a file in a manner not allowed by the code, the user could then apply for an access key. The obvious advantage to such a system over the other methods is the quick automation of common uses with the added ability to inject a human intelligence into the decision-making process.

II. Legislative Measures Related to DRM

With the advent of digital technologies, a serious threat had emerged in order to cope up with the infringement of copyright, copyright infringement becomes rampant in the era of digitization and such the need to control and regulate digital piracy and copyright infringement emerged in law. The advantage of digital copies as compared to analog copies of the copyrighted work is more identical, easy to copy, and faster copying are the major factors which boosted the infringement of copyrights over the virtual world. With the emergence of this problem, WIPO comes up with the regulation related to digital copying in 1996 with two Internet treaties, WIPO Copyright Treaty (WCT) and the WIPO Performers and Phonograms Treaty (WPPT) to cope up with the challenge of digital copying.

Article 11 of WIPO Copyright Treaty and Article 18 of WIPO Performers and Phonograms Treaty obliges parties to have 'adequate and effective' legal remedies to prevent the circumvention against applied effectively technological protection measures, similarly Article 12 of WIPO Copyright Treaty and Article 19 of WIPO Performers and Phonograms Treaty provides for contracting parties to have adequate and effective legal remedies against the unauthorized tampering of rights management information which is provided by the owner and also dealing knowingly with the copies of tampered rights management information.

India though not being a party to these treaties provides for similar protection to the copyrighted works by virtue of Section 65A and sec 65B of the Indian Copyright Act 1957, these two new provisions facilitated the entry of WIPO internet treaties into copyright system. Sec 65A deals with protection against circumvention of technological measures while on the other hand section 65B deals with protection of rights management information. Section 65A(1) mandates that if any person circumvents an effective technological measure used for the purpose of protecting any of the rights conferred under the copyright act, with the intention of infringing such right, he shall be punished with imprisonment which may extend up to 2yrs and shall be fined. However section 65A (2) provides that it shall not prevent any person from doing anything referred to therein for a purpose not expressly prohibited by the Copyright Act.

The same provision also allows third parties to facilitate circumvention provided he maintains a complete record of the person and the purpose for which the circumvention was facilitated. Apart from this, the provision also specifically exempts circumvention of technological measures for the purpose of certain activities like encryption research, lawful investigation, security testing of a computer system or a computer network with the authorization of its owner or operator, protection of piracy, and measures necessary in the interest of national security.

Section 65B provides for penalty to any person who knowingly removes or alters the Rights Management information from the digital content or sells and distributes the content knowing that the rights management information is tampered or removed shall be penalized with 2 years of imprisonment and fine, this section also provides for availing civil remedies along with the criminal penalties prescribed.

III. Comparative Analysis of Indian DRM Provisions with US And European Union (EU) DRM Provisions

To recognize the significance of the minimalist approach taken by the Indian legislature with respect to DRM, one may have to see the provisions in comparison with some other jurisdictions that have implemented the provisions of the WCT and the WPPT. The DRM provisions in the US and the EU may be considered for this purpose. These jurisdictions are chosen not only for their prominent role in the evolution of the WCT and the WPPT, but also for their comparatively longer experience with DRM provisions. The DRM provisions proposed under the WIPO Internet treaties were implemented in the United States through the Digital Millennium Copyright Act (DMCA), in the year 1998 . One of the most important factors that distinguish the DMCA from other DRM legislation is that it attempts to make a distinction between protection for measures that control access to a work and protection for measures that control use of a work. Interestingly, the DMCA access control provisions not only outlaws the actual circumvention of access control measures placed on a work, but also aims to prevent preparatory activities like manufacture and distribution of tools that are primarily meant for facilitating circumvention of access control.

The DMCA provides civil as well as criminal remedies for violations of anti-circumvention provisions. The civil remedies provided under the DMCA include not only injunctions to prevent or restrain further violations, but also allows the right holders to receive either actual damages and any profits attributable to such violation or statutory damages. While the criminal remedies under the DMCA are limited to wilful violations and to cases where the violation was for the purposes of commercial gain or private financial gain, the punishments prescribed are imprisonment for a period of up to 5 years and/ or a fine of up to US$ 500,000. In cases of repeated violations, the punishments will increase to imprisonment for a period of up to 10 years and/ or a fine up to US$ 1,000,000.

A similar picture of DRM laws could be seen from Europe also. The copyright law in Europe is not yet completely harmonized at the community level and there are still considerable differences in the approaches taken by different member states of the European Union with regard to copyright law.

Article 6 of the Information Society Directive makes it obligatory for the member states to provide adequate legal protection against the circumvention of effective technological measures, if the person concerned is engaged in circumvention with the knowledge, or with reasonable grounds to know, that s/he is pursuing that objective. The Directive also specifically outlaws many preparatory activities of commercial nature, with regard to circumvention of technological protection measures.

Article 7 of the Directive also outlaws tampering of rights management information and dealing in such tampered works, when the person concerned is engaged in such acts with the knowledge or reasonable grounds to know that s/he is inducing, enabling, facilitating or concealing infringement of copyright or database rights through such actions. The Directive is also characterized by an extremely narrow casted exception provision for the anti-circumvention protection measures under Article 6(4) of the directive. Unlike the new Indian DRM provisions or the DMCA, the Directive does not give exceptions for any specific groups. As is evident from the provision, the member states can interfere for ensuring the legitimate use of exemptions provided under their national copyright legislation, only in the absence of 'voluntary measures' taken by right holders, including agreements between right holders and other parties concerned.

As one could see from a comparative analysis of the new DRM provisions in India with the DRM provisions in the US and the EU, the breadth of the new DRM provisions in India are less extensive compared to both the DMCA and the Information Society Directive. But this may not be without a reason. The DRM provisions in the US and the EU have been in existence for around a decade now and this has provided a great learning opportunity for many other nations to see how draconian and anti-progressive DRM provisions can be, in many real life situations.29 This includes serious transgressions over freedom of speech, scientific research, competition in the market, and most importantly, fair use/ fair dealing principles, which balance the copyright system between the interests of the copyright owner and that of the public.

IV. Lack of Proper Economic Analysis Regarding the Need/ Potential Impacts of DRM Provisions in India

One of the most important steps that any legislature must undertake before engaging in a legislative process is to conduct a proper economic analysis of the need as well as the impact of the proposed legislation in society. Economic analysis of law can provide invaluable insights as to how the changes in law will influence the behaviour of different actors in the society. Laws are instruments aimed at achieving important social goals and economic analyses will help to predict the effects of laws on efficiency also. While economic analysis of law has not in general received its due attention in the Indian law making scenario, subjects like copyright law certainly deserve a rigorous analytical analysis, considering their far reaching implications in the

society

If one looks at the legislative background of the new DRM provisions in India, it can be seen that the provisions have not been subject to proper economic analysis regarding both the need as well as the impact of those provisions on the country/copyright based industries in India. This is very much evident from the statement of objects and reasoning the Bill introduced in the Parliament. It focuses primarily on the desire to comply with the WIPO Internet treaties and also expresses the firm belief that adherence to those two treaties is necessary for protecting the copyrighted material in India over digital networks like Internet. A careful analysis of the impact of the DRM provisions on social welfare is highly necessary to avoid serious long term negative consequences for the Indian society. Even the question of seeking membership in TRIPS-plus treaties like WCT and WPPT should be subject to such analyses, as the welfare implications are high. A detailed cost-benefit analysis will be helpful in this regard and this section highlights some of the positive as well as the negative implications to be considered in this regard.

While this basic economic rationale for copyright protection is applicable to both digital and non-digital works, one may note that many digital technologies have undermined the traditional protection fences around copyrighted works.

Moreover, unlike non-digital copies, most digital copies are perfect substitutes for original works. The new DRM provisions may help the copyright law to address the market failure explained in the contemporary digital transactions context.

Another economic argument that could favour providing legal protection measures against circumvention of DRM technologies is that it can help the right holders to engage confidently in better price discrimination strategies. The term 'price discrimination' refers to charging consumers different prices for the same goods/services or charging different prices for similar goods/services of the same producer, but where the price choices are unrelated to the costs.

Utilization of DRM technology would foster price discrimination. DRMs take away the anonymity of the consumption. Since the producers can practically monitor the content usage of the user, this has led to wide scale of price discrimination. This means that producers would monitor and assess the preferences of the user and subsequently raise the prices of that particular class of products. In the report of FIPR (Foundation of Information Policy and Research) it was found that Microsoft had been trying to implement their DRM systems in their products using a similar approach to gain a monopoly position as in their strategy of browser implementation.

The Sony BMG copy protection rootkit scandal in 2005 brought much criticism to DRM. It was found out that Sony BMG had introduced illegal and harmful copy protection measure in its CDs. The rootkit element of the software is used to hide virtually all traces of the copy protection software's presence on a PC, so that an ordinary computer user would have no way to find it. Further more than just the DRM part of it the software also made the user's system open to a number of malwares and created vulnerabilities in the system. Sony was eventually made to compensate consumer costs, etc on the same. However the question of whether the database in the hands of companies can be used in arbitrary manner was intensely discussed after this.

As one could see from the experience of other jurisdictions that have implemented DRM provisions under copyright law, DRM provisions can be misused by firms to stifle competition and innovation in the market. Two prominent cases that could very well illustrate such effects are Lexmark International Inc v Static Control Components Inc and Chamberlain Group Inc v Skylink Technologies Inc. The facts of Lexmark International case show a printer manufacturer attempting to use the anti-circumvention provisions under the DMCA to prevent another firm from marketing toner cartridges. The District Court ruled in favour of Lexmark under the DMCA provisions and the Court of Appeals had to interfere to vacate the injunction granted by the District Court. Similarly, in Chamberlain Group case, one could see a manufacturer of garage door opening systems attempting to use the DMCA anti-circumvention provisions to prevent competitors from entering the market of remote controllers for the garage door opening systems of the plaintiff.

While the Courts might have finally come to the rescue of defendants in both these cases, they represent the serious danger posed by DRM provisions on innovation and competition, particularly on medium and small scale entrepreneurs. One may ask whether the possibility of misuse can be an argument for negating any legislation. But there are two factors that make the threat posed by the new legislation a serious one in the contemporary Indian context. Firstly, some of the recent judgments from the trial courts in India show serious failures from the side of the courts to recognize the limitations of copyright law and they are seen providing blanket bans in favour of right holders. Passing broad injunction orders against Internet access providers on John Doe applications filed by the film producers is just one example. Considering the time and costs involved in getting a remedy from the judicial process, the legitimate uses and legitimate users might be the one at the suffering end.

if the online piracy of Indian media content is primarily happening abroad, drafting of DRM provisions under the Indian copyright law is never a solution for such piracy, considering the territorial limitations of copyright law. Secondly, the arguments of the industry that online piracy is causing huge revenue losses for the industry are also not correct from an economic point of view.

The important reasoning behind this argument is that the industry was not serving this market, except in the form of some limited theatrical releases. So there are no major sale

displacements happening in the present context and hence the revenue losses for the industry from online piracy are limited.

V. Negative Impact of the Indian DRM Provisions on the Rights of the Consumers

While it is beyond the scope of this article to consider whether combating piracy as a policy objective is desirable, what is certain is that new concerns regarding the rights of consumers in relation to copyrighted works will arise. In practice, one can expect to find media houses and record companies employing more resources and effort in developing new means and methods of DRM, given that the latter are now are protected by the force of law. For the same reason, one can also expect companies increasingly to deploy such means and methods in attempts to protect their copyright material.

In the present context, the decision to introduce DRM-protection measures has been justified by the government which reasons that DRM-protection was necessary to bring India's copyright law in line with WIPO's Copyright (WCT) and Performances and Phonograms (WPPT) treaties. The fact that India has not ratified, much less signed, either of these treaties seems to have gone unnoticed. The World Trade Organization's Agreement on Trade Related Intellectual Property Rights (TRIPS) itself makes no mention of an obligation on signatories—of which India is one—to protect DRM measures. A combination of influences such as sustained if not well-disguised media house lobbying and international pressure due to India's consistent presence on the United States Trade Representative's Special 301 Report (which lists countries that do not provide ‘adequate and effective’ intellectual property protection) seems to have their intended effect.

DRM techniques have important implications which go against a consumer's rights, for example on his rights to fair use, choice and full enjoyment of the works purchased by him. DRM, by its impact on fair use, can also have a chilling effect on free speech as comment and discussion are stifled by the threat of infringement litigation. Purposes and activities defined as a fair use activity is permissible in the copyright and it also encourages creation of new works, and this is well settled in the copyright that adverse economic incentives will be created if unrestricted and absolute copyright is created, with this in mind a common goal of the copyright law with a look over fair use doctrine is creation of new work and also development of knowledge the restriction of the work into the locked compartments of the Digital Rights Management protected copyrighted contents will not allow one to use, even though fair as explained by the law. The application of Digital Rights Management restricts the users to engage with the existing works, and use them accordingly in the terms of fair use, and also these digital lockups will be creating a monopoly in terms of rights exercised by the owners, such a creation of monopoly has never been the objectives of copyright law. The deployment of DRM technology, added to the legal protection, virtually destroyed the fair use provisions of the copyright law. One of the major challenges for the legal doctrine is the ambiguity in defining what constitutes a fair use and what not.

A large number of concerns have been raised due to the use of technology of DRM as its impact is negative mainly in the sphere of fair use and privacy. The digital rights management tries to protect a work from being accessed by different persons and unlike other form of copyright protection, digital rights management restricts the privileges earlier enjoyed by the consumers by way of fair use. It allows users to use the work for the exceptions provided. However, it becomes impossible once digital rights management is employed. Another issue is that when a consumer purchases a copyrighted work, the customised unilateral contract is being entered into, in which he is unable to exercise the rights of a consumer. Thus the rights available under the copyright law will vanish replacing the rights with contractual obligations and limitations. Further another problem faced while digital rights management is used for safeguarding the content is that, the technical protection will not be able to distinguish between an authorised and unauthorised copying under the law. In effect, this would curtail the legitimate right of fair use. Information that is in the public domain, where no copyright exists, would also be curtailed. It would be greatly affected by the use of anti-circumvention measures also.

From the privacy perspective, the important questions include the extent to which digital right mechanisms will collect and further process personal data i.e. the data which relate to and enable to identify an individual person and the purposes to which these data will be used and the conditions under which these data will be used and the conditions under which they will be disseminated to external agencies. Today, when a person uses internet to read news, check fares, book a ticket or order some consumer goods online, he is supposed to give numerous personal details like his full name, age, sex, financial details and employment details. Some digital rights management technologies have been developed with scant regard for privacy protection. Hence privacy should be a part of the initial considerations while designing a digital rights management. The systems usually require the user to reveal his/her identity and rights in order to access protected content, which in a way curtail the rights of the consumer.

In order to preserve fair use exceptions and keeping in mind the rights of the consumers, DRM systems would need to accommodate for unauthorized uses of copyrighted works, but the fluidity of the doctrine means that it cannot be defined with precision. As such, the difficulty lies in expressing the variables that may arise in each case in computer code; from a technological perspective, there is no precise algorithm for deciding whether a use is fair or not. Copyright and the fair use doctrine serve to provide authors with incentives to create whilst also allowing users to engage with creative content and inspiring the creation of new works, thus benefitting society overall.

VI. Suggestions

This paper shows the need for a careful reconsideration of the new DRM provisions under the Indian copyright law and thus gives the following suggestions:

- Having examined the theoretical economic effects of DRM implementation on the music industry, we are left with a rather uncertain future. DRM may indeed tend to increase competition and diversity in the music industry. However, it is also quite possible that DRM implementation will create losses in total surplus in the music industry. Empirical analysis is necessary to study whether the DRM solution can be implemented cheaply enough to lead to greater competition. Furthermore, the analysis suggests DRM will impede some of copyright law is attempts at curing various market failures. Although by bringing up a change in the existing legislation it might cure part of that problem, for example by mandating the free use of samples within DAWs.
- Also in order to preserve fair use exceptions and keeping in mind the rights of the consumers, DRM systems would need to accommodate for unauthorized uses of copyrighted works, but the fluidity of the doctrine means that it cannot be defined with precision. As such, the difficulty lies in expressing the variables that may arise in each case in computer code; from a technological perspective, there is no precise algorithm for deciding whether a use is fair or not. Copyright and the fair use doctrine serve to provide authors with incentives to create whilst also allowing users to engage with creative content and inspiring the creation of new works, thus benefitting society overall.
- Further also to clarify many of the inherent ambiguities present in the new sections, most of which deal with cutting-edge technological issues which the judiciary will have to adapt to quickly. Given the on-going debates over whether criminal liability is, in the first place, to be enforced in the name of DRM protection, the thin line between common consumer and common criminal is likely to grow even thinner in time to come and therefore such harsh criminal liability of 2years imprisonment should be extensively repealed off and only civil liability should be imposed.

VII. Conclusion

By including the DRM provisions in the Indian copyright law, without engaging in due economic and legal analysis as to their need as well as consequences, the proponents of the new DRM provisions have risked a reduction in social welfare. The danger is further aggravated by the fact that the new legislation does not even provide a mandatory periodical review of the working of those provisions. What is required at this point of time is better enforcement of the rights already guaranteed to the copyright holders and the rights of the consumers. With better use of existing copyright remedies like doctrine of contributory infringement and doctrine of fair use, India can provide sufficient protection of the rights of the consumers and copyright holders in the digital world and ensure that balance of the copyright system is not tinkered. Such an approach would also provide incentives for the right holders to innovate better business management strategies, taking into consideration the changing preferences and needs of consumers in a digital world.

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