THE NEED FOR LEGALLY STANDARDISED SYSTEMS IN THE VALUATION AND MANAGEMENT OF INTELLECTUAL PROPERTIES IN MALAYSIA- AN ANALYSIS OF THE CURRENT AND FUTURE OPTIONS

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1. Introduction

The purpose of this paper is to explore and to propose areas wherein further research and development may be performed upon two different aspects of evolution of Intellectual Properties in the Information and Knowledge age. The first aspect is the current perception of value towards Intellectual Property and whether there is a need to have legally standardized criterias in the selection of valuation systems of different types of Intellectual Properties. The second aspect is the role that digital technology has in protecting the values of Intellectual Property, with special emphasis on the different aspects of digital rights management.

2. Principles of property with regard to ideas and information

2.1 The Jurisprudence of Intellectual Property

Ideas and expressions (hereinafter known collectively as 'ideas') may be separated into two broad categories. In the first category, these ideas are mere thoughts never to be exploited or copied by another individual as these ideas are not useful, novel or capable of being exploited for monetary returns. This is

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as opposed to ideas in the second category, whereby they are useful, novel and could be exploited for monetary gains.

It is this second category of ideas that caused the evolution of Intellectual Property Law ('IPL'). Governments have conferred the status of property upon ideas in the second category that are fixated or recorded in any material form. These ideas are also legally categorized into different types of property. Examples of such properties are Copyright, Patents, Trademarks, Design rights, etc. These types of property are now known as Intellectual Property ('IP'), the first use of such phrase was by the libertarian writer *Lysander Spooner*[1] in the 1850s.

The American legal system and most Commonwealth countries have adopted a Utilitarian approach in granting such property status upon ideas. The Utilitarian argument for the existence of IP is that such existence would bring about more benefits than a situation where such IP did exist. This is certainly so for copyrights and patents as the justification by the Constitution of the United States in conferring such rights are 'to promote the progress of science and useful arts'.

Other naturalist theories such as John Locke's labour theory[2] and Hegel's personhood theory of property provide different justifications for the existence of Copyright and Patents. According to Locke's labour theory, labour may form the basis of ownership of Intellectual Property as such property preceeds from the mental labour of a person. Therefore, every idea belongs to the thinker of the idea provided that the idea was expressed by the thinker with his actions in reducing it into a material form. Hegel, had amongst other things, in the 'Philosophy of Right', noted that property is derived from a person's right to 'put' his will 'into' a thing and make it his own. Europe largely adopts such naturalistic justifications for IP[3].

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[1] A Critique of Intellectual Property Rights, http:// dane.weber.org/concept/thesis.htm
[2] Second Treatise of Government, John Locke
[3] ibid

2.2 An economic justification in conferring such proprietary rights

Economic arguments in support of IP exist besides the foregoing jurisprudential justifications for IP. In an economic sense, IP is a 'public goods' problem. This is so as it may be difficult and costly to invent or produce but due to its transient nature, it is extremely easy and relatively cheap to copy. Such copying will inevitably lead to a loss of value in the original version, thereby forfeiting the owner of the original IP the fruits of his mental labour. This problem is now exacerbated by the availability of cheap reproduction technology and the existence of the Internet that facilitates fast and efficient dissemination of information to far reaching destinations around the world. Therefore, without the protection of IPL, there will be no incentive for companies and individuals to produce new IP. This will lead to a point where there will be a dearth of IP in the market, which may lead to a depletion of resources and advancement in the market and ultimately the end of the market.

2.3 The standardization of legal concepts

It is indeed a global legal culture that ideas and / or expressions may be conferred proprietary status. We have passed the stage of the evolution of IPL wherein legal frameworks must be implemented to draw the perimeters of what is and what is not an Intellectual Property. We have evolved to a stage where countries have agreed to uphold such status of property and to protect such property against infringement in a reciprocal manner. This is in effect the standardization of legal regimes[4] in acknowledging and protecting a new type of property that only came into existence about 350 to 400 years ago.

As it is with the evolution of real property and goods, the concept of property attracts the concept of value. Perhaps the current issues that are to be resolved is to ascertain if there is a need to standardized the different methods of

[4] Copyright Convention 1886, Universal Copyright Convention 1971, Paris Convention, the Universal Nice Classifications, the Madrid Protocol and the World Trade Organization (WTO) Agreement on Trade Related Aspects of Intellectual Property Rigths (TRIPS Agreement)

measurement for the valuation of IP and whether the current and future methods are appropriate to be fitted into the IPL regime of Malaysia.

3. The different methods of valuation currently available for technological Intellectual Properties

There are in effect different methods of valuating an IP. Appended below are but simple illustrations of the more popular methods of valuation:

(i) The Industry Standard method;
(ii) The Rating/Ranking method;
(iii) The Rules of Thumb method;
(iv) The Discounted Cashflow method;
(v) The Auction method;
(vi) The Cost Approach;
(vii) The Income Approach; and
(viii) The Market Approach

3.1 The Industry Standard method

This method relies upon similar licensing agreements with similar subject matters and terms so as to arrive at a price. There must therefore exist a database of previous similar deals in the marketplace for a fair price to be arrived at. The database will serve as market history for the seller and buyer to determine a fair market price.

This method of valuation does have its disadvantages. One has to look into surveys, decided court cases and publicly available licenses to be exposed to the common market price. The buyer and seller have to contend with the fact that they may not be able to find a similar situation as their current licensing situation to derive an acceptable market value.

3.2 The Rating / Ranking method

This method is best used to quantify hard to measure issues. It is akin to that of the expert scoring system. The price is derived by comparing a series of common factors, for example, each factor will be rated with the scale from 1 to 5 or from 1 to 10. The buyer and seller or the licensor and licensee may then decide that certain factors are of heavier weight than the rest. This is due to the fact that certain factors are more important than the rest. Each factor is then assigned different numerical weights in accordance to its importance. After assigning the different scores to the different factors, the number of the score will be multiplied with the weight of the respective factors. The multiplied values will then be added together for an overall score. A similar license may then be put through the same process so as to use it as a point of reference in deciding the value of the current license in question. This method is useful to prepare oneself in deciding what factors are of value in a licensing situation.

A disadvantage of this method is in the determination of the weights. Parties concerned may have to resort to voting to ascertain the respective weights. These weights may therefore be only suitable for the specific IP that is to be valued.

3.3 The rules of thumb method

This method involves problem solving by using trial-and-error-methods. In any industry, there are rules of thumb methods to value the price of the respective goods. For example, the average tip that a waiter gets for services rendered in a restaurant is about ten percent of the cost of the meal. In the United States, there is a licensing rule that is known as the Twenty Five Percent Rule ('the 25% Rule'). Very simply put, the seller and buyer of a license shares the total value of the transaction with the ratio of 25:75[5].

This method also has its disadvantages. A yardstick or measurement of 25% may not be applicable to all types of transactions. It is also mandatory in

[5] See Valuation and Pricing of Technology-Based Intellectual Property, Richard Razgaitis, pg.148

nature as the true yardstick for that specific transaction may be 33% instead.

3.4 The Discounted Cash Flow Method

This method is based on the idea that something is worth what it can generate in cash over its life. The method provides for the valuation of the intrinsic value of the IP. Calculation of the value is generally by estimating the cash flow of the IP for the future and then discounting them back as an appropriate interest rate. Therefore the discounted rate is based on the level of risk of the IP and the opportunity cost of capital for the IP. Other methods such as the Monte Carlo Method, was developed from the Discounted Cash Flow Method. Generally, the Monte Carlo method provides for a range of estimates taking into account the different probabilities of risks and successes.

3.5 Auctions

This method is similar to the Industry Standard Method. Sellers using this method will call upon different buyers to determine the price of the IP. Response gathered from the prospective buyers will influence the seller's decision when fixing the price of the TP. Sellers may opt to use this method if in the event the seller has a higher bargaining power as compared to potential buyers.

3.6 Other methods of valuation

3.6.1 Cost approach

The cost approach seeks to determine the value of IP by aggregating the costs involved in its development. Examples of the cost factors that are taken into consideration are development costs, labor costs, overhead costs and management cost. There are two schools of approach with regard to this method of valuation. The first is reproduction cost and the second is replacement cost. In a gist, reproduction cost is the sum of all costs incurred to develop an exact duplicate of the IP that is to be valuated, by using the same methods and technology. Whereas, replacement cost is the estimated total cost to create an

IP, using the latest state of the art technology. The IP created must be of the same use uitility of the current IP being valued.

3.6.2 Income approach

The income approach also has several methods of measurement. They are:

(i) Methods that estimates incremental levels of economic income wherein the owner of the IP will enjoy a bigger level of economic income by owning the IP as compared to not owning the IP;

(ii) Methods that estimates the lower economic costs as there is no longer the need to invest into developing IP or licensing IP as the owner already owns the IP as opposed to a situation where the owner does not own the IP.

(iii) Methods that quantify the amount of royalties that the owner has to pay to a third party if in the event the owner does not own the IP.

(iv) Methods that value the difference in value of the entire business entity as the result of the business entity owning and using the IP as opposed to the business entity not owning and being able to use the IP.

3.6.3 Market approach

The market approach is in effect the act of analyzing and conducting surveys in the market to obtain a value that is acceptable in the market. Similarly, as it is with the above valuation methods, this method of valuation has different phases. The first phase may require the valuer to determine the price of similar IP in the respective markets. The valuer may then proceed to compare such findings and seek to adjust the values to derive a fair value for the IP being valued.

4. The main factors contributing to the need to have standardized measurement systems

4.1 The current situation with regards to the valuation of IP

It is noted that there are no apparent industry standards in the valuation of IP though companies may have applied certain valuation methods in arriving at the price of their IP. Certain companies value their IP in conjunction with performing a valuation exercise upon their company. However, it may not be unusual to observe that frequently, industries have yet to recognize and adopt across the board favourite methods of valuation, which are economically and scientifically justifiable. This may be due to the fact that although a certain method of valuation is being used, that method may be subjective in nature. This may be true if the method employed is the Market approach or the Industry Standard approach.

It is perhaps timely that the respective industries apply and experiment with different valuation systems so as to be able to develop the best methods that will mature together with the market. This may prevent or lessen the likelihood that the market is not reflective of the true value of the IPs that are available thereby perhaps causing amongst other things, consumers to pay more for IPs that are of lesser value.

4.2 Industries, governments and consumers have different valuation systems

Industries, governments and consumers have different valuation systems. This may be due to the fact that each entity pursues different interests in the determination of the value of an IP. For the industries, profits are indeed one of their main concerns. Consumers on the other hand, are concerned with affordable and cheaper prices. Lastly, as it is with all governments, their concern is in balancing of the consumer's interests, the industries' interests and the position of the market as a whole.

The recent debate between the entertainment industry, software industry,

the public and the government with regard to the issue of price control for Video Compact Discs ('VCDs') and Digital Video Discs ('DVDs')[6] may be an example whereby there is an absence of a justifiable and standardized method of valuating IP embedded in VCDs and DVDs. This situation is a natural occurrence as the government, the public and the industry have different valuation systems due to the different interests and concerns that they are to protect as stated above.

It is also noted that perhaps the best valuation system for IP embedded in VCDs and DVDs may not be similar to that of chillies, rice, oil and etc. IP, being intangible in nature may have to be valued with a scientific method that is justifiable.

4.3 Minimum standards for universal methodologies in measuring different IP for different industries

Currently, the value for foreign manufactured IPs is influential in the determination of the value of locally manufactured IPs. This may be due in part to the importing of foreign IP into Malaysia wherein the price of these foreign imports form a basis for the local market to value their IP with the Market approach in determining their IP.

As was noted in paragraph 2.3 above, the evolution of IP has arrived at a stage wherein the perimeters of the legal status of IPs have been standardized. The next development globally may not be the standardizing of the methods of valuation but to standardize minimum requirements for the selection of the methods to value IP. The idea is not to control the selection of the different methods of valuation. As was pointed out above, different methods are ideal for different markets and situations. Furthermore, as it is in all free markets, the seller or the manufacturer is to be given a free hand in selecting an appropriate method that suits his business.

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[6] CNET News.com, July 07, 2003, 09:04 GMT, http://news.zdnet.co.uk/internet/0,39020369,2137118,00.htm and CNETAsia September 03, 2003, 10:54 GMT, http://news.zdnet.co.uk/software/0%2C39020381%2C39116087%2C00.htm

The idea in standardizing the minimum requirements in the selection of valuation methods will ensure that countries have taken similar valuation factors into consideration before deciding on a method to value the IPs. This will lead to IPs with values that have globally acceptable justifications, which will be more readily accepted by the consumers.

The need to segregate software embedded in VCDs and DVDs from movies and songs in VCDs and DVDs for the purposes of price control may not have to arise. With the implementation of a standardized system of the selection of valuation of methods, the government may have a better indication of the situation of the market when deciding policies in relation to the protection of IP.

4.4 Minimum standards of valuation and the calculation of losses and risk

The basis of IP damages is akin to that of the Law of Torts wherein damages are to put the aggrieved party into the position before the wrong was committed following *General Tyre & Rubber Co. v Firestone Tyre & Rubber Co. Ltd.*[7]

However, IP owners may not be able to claim full compensation for the abovementioned losses. This may be due to the fact that it is indeed difficult if not impossible to ascertain the true value of such losses. Losses such as the loss of goodwill, reputation and future losses are difficult to ascertain. There is also room for parties to dispute on the amount of the award. If in the event there is a regime whereby methods of valuation are selected based upon a set of minimum standards, there will be less room for parties to dispute on the amount of the award as the award can be justified by proof of calculation in accordance with a method widely accepted by the industry.

[7] [1975] 2 All ER 173

4.5 Minimum standardized requirements for valuation methods and legal risks

IP owners face different types of risks that vary in degrees at different points of the IP's lifetime, ie., from the development of a raw idea to an economically profitable product or process. As an illustration, the different types of risks, inter alia are:

(i) Failing to prevent the reproduction of the IP without the consent of the owner;
(ii) The accidental loss of IP due to improper storage;
(iii) Failing to secure the IP in time to prevent a competitor to secure a similar IP;
(iv) Failing to exploit the IP so as to obtain the deserved remuneration for the initial mental and labour investment in the production of the IP; and
(v) Producing IP in jurisdictions that do not confer the status of property upon such IP;
(vi) Omission to register the IP at the relevant national and / or international registries; and
(vii) Piracy

Such risks increase the chances of IP rights being infringed and thereby causing loss. It is therefore a natural notion that IP should be protected and managed efficiently so as to prevent or minimize the risks faced by the IP. It is noted that IP will be protected and effectively managed if in the event the owner of the IP has implemented a proper system to value the IP during the different stages of the lifespan of the IP and to protect the IP from the abovementioned losses.

5. The management and protection of Intellectual Properties

There are different types of protection for different types of IP. Certain types of information, process or product are to be registered before they are conferred protection and property status. Legal protection of the IP may also be said to

be an effective way to manage IP. Other types of information or expressions such as Copyright and trade secrets are not required to be registered to be IP.

5.1 Protection conferred by the law

IP such as Copyright and Trade Secret need not be registered. A work will be conferred Copyright status if it complies with the requirements stated in the Copyright Act 1987. Trade Secrets, also known as confidential information are protected as long as it is kept secret from the public domain as according to *Coco v A N Clark (Engineers) Ltd*[8] and referred to by *Electro Cad Australia Pty Ltd. & Ors. v Mejati RCS Sdn. Bhd. & Ors*[9]. in Malaysia.

5.2 Protection against losses and risks via contract

5.2.1 Licence Contracts

IPs may be protected and managed contractually. Use rights and obligations may be set out in detail between the IP owner and the user. This allows for a double protection: by law and by a detailed contract. A detailed contract may create a highly individual relationship between user and IP owner. Licence contracts for mass IP products, e.g. software, are a profitable initial one-off investment and may be used for a whole product line. Individual and more elaborate IPs, e.g. patents, certainly require a licence contract that ensures an adequate reward for the IP owner or creator. This is particularly important since IPs may be subject to a prompt loss of value on the market, in today's age of innovation and rapid technological advancements. A licence contract could provide for such contingencies and ensure that research and development costs of the IP owner will in any event be covered.

Contracts may also be instrumental in defining and creating the value of the IP itself, because they can set forth a certain status of exclusivity or ensure limited use options and use utility.

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[8] [1969] RPC 41
[9] [1998] 3 CLJ Supp 196

5.3 Protection against losses and risks via digital management

The wide adoption of Digital Rights Management Systems (DRMS), which consist of various technological measures for the protection of Intellectual Property, was brought about due to the fact that a lot of IPs are produced, sold and used in digital format today. Technological measures of protection are reflected in the language of the law[10], also in the Malaysian Copyright Act 1987[11].

DRMS complement various technological measures for different purposes, which all, alone and/or together, have the same goal: protection and control of digital format IPs (e.g. software, computer games, CDs, e-books etc.) even after a sale or licence. Appended below is a short overview of existing tools, illustrating the different varieties of DRM technology[12]:

6. DRMS Technology

6.1 Digital Watermarks

Digital watermarks[13] are visible or invisible brands for digital IP content (music, pictures, software). They can be tracked through the internet by the right owner, e.g. with tracking tools like so called webspiders[14]. Illegal copies can be discovered and reported.

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[10] See WIPO Copyright Treaty 1996, http://clea.wipo.int/PDFFILES/English/WO/WO033EN.PDF, EU Copyright Directive, http://europa.eu.int/eur-lex/en/consleg/pdf/2001/en_2001L0029_do_001.pdf and the US Digital Millenium Copyright Act http://lcweb.loc.gov/copyright/title17.html

[11] S.36(3) of the Copyright Act 1987 is modeled after Article 11 of the WIPO Copyright Treaty 1996, S.36(4) of the Copyright Act 1987 is modeled after Article 12 of the WIPO Copyright Treaty 1996

[12] For a good overview of DRM technologies see Bill Rosenblatt, Bill Trippe and Stephen Mooney 'Digital Rights Management, Business and technology' M&T Books 2002

[13] http://www.digimarc.com, http://www.watermarkingworld.org/,

[14] http://www.digimarc.com/products/imagebridge/MarcSpider/default.asp

6.2 Digital Rights Locker Architecture

Digital rights locker architectures store the IP on an external server. Use permission data is also stored on the server and a user, who has purchased a licence conferring certain rights to the IP, may access the IP from wherever he is, provided his request contains the correct authorisation information. This method ensures utmost portability and independence as well as easy recoverability of IPs for the authorised user.

6.3 Encryption and decryption

Encryption and decryption keys were used since the emergence of DRMS for copy and access protection. More sophisticated encryption systems are on the market now and are not as susceptible to hacks or cloning as they used to be.

Rendering and recording devices contain DRMS features, which correspond to the features in the IP carriers and ensure that only authorised uses of authorised carriers are possible.

A unique feature of DRMS is that they are actually putting contracts directly into practice and enforce them at the same time. A breach of contract by the user or a third person is rendered near to being impossible. The need to require the assistance of enforcement agencies is not necessary to prevent or to stop the breach of the contractual or statutory obligations. The enforcement of law and contractual provisions of the IP's license and information about the IP owner's data, rights and the IP creation date (digital rights information) are coded directly into the digital IP itself. Separation of or tampering with the technological measures or digital rights information destroys or damages the content, thus rendering the IP useless.

Of course, DRMS is in need of legal protection from tampering, too. This has led to the WIPO Copyright Treaty 1996, to which also Malaysia is signatory, wherein for the first time, an international treaty contained legal protection provisions for technological measures and rights management information (anti-circumvention and anti-tampering provisions).

The value of the IP will be enhanced considerably with DRMS, because the protection of the IP is enforced and may be controlled to a time period extending beyond the time of sale or licensing of the IP. The value may even surpass the value of similar IPs in the market as DRMS may create certain technological standards and may also include rendering and recording devices. Thus, a whole interdependent infrastructure of IP and supplementary devices can be created and protected[15].

Also patents or trade secrets may be subject to DRMS protection. Certain patented or secret technologies would then not only be protected by law and/or the patent registration, a DRMS could act as a 'safe' for the invention or trade secret if it is implemented into a public product. An illegal use of the patent or trade secret could then be initially prevented and sanctions may not have to be resorted to. Of course, in the case of patents the registration of the patents render the inventions public, but it would be more difficult for an infringer to go simply by the patent registration text than using an actual model or product which contains the patented invention.

7. Contracts and DRMSs as value enhancers for IP trading

The application of DRMS and licence contracts are value enhancers and protectors of IP in the context of IP trade. However, the implications for other areas of law must not be overlooked.

7.1 IP Law

The control of IP rights has certain limits. Mandatory rights exceptions or rights limitations are often set down in law in order to ensure social justice. In copyright law certain use of IP, for example copying and parodies etc. are allowed out of public or social interest. Likewise for research, protection of the

[15] Microsoft's NGSCB, formerly called Palladium is a good example for a DRMS environment, also the (already hacked) DVD protection system CSS, which includes 'software' (the DVDs) and hardware (DVD players), and SDMI, addressing MP3 files and recording/rendering devices.

disabled, or freedom of opinion and information, German IP Law (and in certain cases, European Law) allows for enforced licences (mandatory licenses) wherein public interest outweights the monopolistic interest of the IP owner. The use of DRMS must provide for these contingencies and also for public obligations of IP right owners.

The use of DRMS for certain products or technologies can on the other hand cause problems for right owners as well: infringers could implement DRMS in order to thwart detection. To overcome this kind of problem, eg German Patent law has an institute called 'Besichtigungsanspruch' (a claim of inspection). This allows an inspection of an allegedly infringing product or technology by a neutral specialist who is ordered by the court, in cases where a patent or trade secret infringement is very probable. The details and content of this examination and findings will remain confidential, the specialist will only determine whether an infringement took place and report his result to the court. This legal institute could in the future possibly be used for DRMS protected products or technologies that may infringe other's IP rights.

Another IP Law and DRMS issue is the 'levy problem' (royalty problem): levy systems, which allow for levies paid on recording and rendering devices and carriers for copyright content have always been used to counter the financial loss of the copyright holders due to private copying. Levy systems ensure remuneration for rightholders, but also represent compulsory licences in almost all EU member states and other countries. Since the employment of DRMS may now restrict or prevent private copying, levies may become obsolete and also the control of the IPs would now lie individually in the hand of the respective rightholders. Some argue that levies existing alongside DRMS would result in consumers having to pay twice for the same IP. Others argue that DRMS can complement and execute a levy system automatically and efficiently.

7.2 Contracts

The validity of automated IP licence contracts, in particular with regard to consumers, have attracted strong interests and discussions in the field of software. Not only were the content of the contractual provisions for this mass

market production under strong scrutiny, but also the way the contracts were forced upon the consumer. The validity of licence contracts which had to be accepted with a one-click method by the consumer who had bought and intended to install the software, possibly even with an online contract facility, or which the consumer actually was considered to have accepted by just unwrapping the software carrier from its cellophane cover (shrinkwrap contracts), was highly disputed and in many cases considered invalid, especially in Europe. Therefore existing mandatory consumer protection laws and legal provisions with regards to the validity of contracts have to be considered while using DRMS and particularly when including an automated conclusion of contracts into the systems. Otherwise the whole DRM system may, under certain circumstances, be pronounced to be invalid by a court of law.

7.3 Data Protection

DRMS generate a high volume of user data collection, storage and combination. In countries with stricter data protection laws (especially Germany, but also all other EU member states) this may cause major problems. Not only is it an issue on how the data is treated by the IP owner or by the agencies, which the IP owner has enlisted to monitor and control his IPs after the sale or licence of the IP. Another point in contention may be the extent to which the user may waive his data protection rights in the first place or the extent to which the user is even aware of this whilst concluding an IP licence contract within a DRMS. The relevant issues would be: When is the collected data to be deleted? Which data would be allowed to be combined with another, so that a user profile is created?

These are very serious issues, discussed especially in the EU, as the right of privacy is guaranteed in all of the EU member state's constitutions or laws. The US has less strict data protection laws, but a certain level of data care and protection has to be complied with. Malaysia too may have to be subjected to the same issues as there are current efforts by the government to enact a Data Protection Act though the relevant bill has yet to be tabled.

7.4 Competition and Antitrust

So far, the topic 'DRMS and competition law' has been almost completely ignored in academic research. But the actual use of DRMS and the anti-circumvention provisions as direct or indirect instruments to control competitive markets and market entry is spreading.

It lies in the interest of competitors to prevent others from entering software or hardware market platforms or from creating interoperable platforms. Interoperability can be achieved through the reverse-engineering of the very technology which governing the competitor's market platform. The question of when reverse-engineering should be permissible has already been widely discussed with regards to software. As it is, reverse-engineering may, under certain circumstances, violate copyright law. Therefore, a technological 'work' and maybe a whole market platform, governed by this technology, can be protected from reverse-engineering by the law itself. Add DRMS protection to that technology and one may get triple protection: copyright law protection with regards to the reverse-engineering, technological DRMS protection and copyright law protection with regards to the anti-circumvention provisions which protect the DRMS protecting the technological 'work'. Since the law does allow for reverse-engineering under certain circumstances, it could still in a way be rendered 'illegal' if technological protection measures have to be circumvented first. Add to that a virtually unbreakable DRMS, or one, which at least is extremely costly to circumvent, and you have 1 legal and 1 practical protection left. A codified exception to the anti-circumvention provisions for the benefit of an allowable reverse-engineering, at least in German law or EU law, does not exist, yet.[16] Neither does one exist in Malaysia.

DRMS may generate a platform market themselves or evolve to a standard on which a whole infrastructure of products is dependant. If technological measures, which are part of DRMS are eg being patented[17], again, new entries to market platforms where the patented DRMS has become a standard for

[16] A practical example of such a case is *Blizzard Entertainment v bnetd*, http://www.eff.org/IP/Emulation/Blizzard_v_bnetd

[17] Intertrust and Microsoft have patented various DRMS components.

hardware and software can be prevented through the execution of the rights a patent confers. These issues belong to the general question as to what extent the patenting of standards should be allowed and when would mandatory licences be required.

The business to business licence for a DRMS decoder to be inset into certain hardware componens, thus enabling the device to decode DRMS-protected carriers, may easily be used in an anti-competitive way: In the license agreement, the licensor may demand from the licensee not to include other DRMS decoders into the hardware or to allow for any interoperability. For the pay TV market, this danger has been addressed by the European Access Directive[18], which prohibits that DRMS licensors use their technology licence agreements in such a way.

Another very good example of how DRMS can be used anti-competitively is the Sony Aibo dog. Much of the Aibo dog software is hosted in a storage device that can be inserted in the dog. A great Aibo dog fan wanted to teach the dog new tricks and therefore circumvented the DRMS protected storage device in order to store the new software which he had invented on the device. Sony took action eventually claiming the violation of DMCA anti-circumvention provisions, but later, on second thoughts, Sony even offered a software development kit for the Aibo enthusiast.[19]

As shown in the foregoing, the issues and conflicts surrounding the application of DRMS vary greatly and are often extremely complicated. It cannot be said what issues may still arise. But as yet it seems that while implementing DRMS protection in law, the impact of this on other fields of law and especially freedom of rights has been underrated. Be that as it may, DRMS offers a great potential for IP value enhancement and will certainly open up great new business possibilities in the field of digital technology.

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[18] Directive 2002/19/EC, March 7th 2002, on Access to and Interconnection of Electronic Communications Networks and Associated Facilities

[19] http://www.sciam.com/article.cfm?articleID=0005510C-EABD-1CD6-B4A8809EC588EEDF ; Another very important example is the emergence of the TCPA, http://www.trustedcomputing.org. This has caused concern in various circles, just type in TCPS into the Google search machine and be overwhelmed by the discussion that is currently going on.

8. Conclusions

It is to be noted that DRMS is just the start of utilising digital technology to manage IP. In the future, digital technology and artificial intelligence could enable the value calculation for the IP in the different stages of its lifespan, especially when the IP is embedded within a DRMS. This would to a certain extent set standards for the valuation and protection of IP.

However, firstly, there is a need to have standardised sets of minimum criterias in selecting the appropriate valuation method for different types of IPs for different industries[20]. It is therefore prudent for all countries and industries to explore and research into the relevant sets of criterias and valuation methods before a consensus may be arrived at in having such standardizations. This may lead to effective self-governance by the respective industries.

It is well worth the effort, because, unlike traditional property (ie, real property and goods), IPs may be bought, sold, licensed, assigned, broadcasted, duplicated and created daily throughout the whole world via digital and/or electromagnetic technology by different nationals in different countries. Such ease of use and trade as well as cost effectiveness require different approaches in the valuation and management IP as compared to other types of property.

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