

Trolls in an Anti-Common Tragedy©

or

Patent Abuse in a Standardized Environment.

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1. ABSTRACT

Any discussion of unifying intellectual property rights (IPR) should also be concerned with unifying treatment of IPR abuse. Certainly there is no aspect of IPR that is in greater need of unification. Globally there is not even a universal acknowledgment that IPR abuse exists, let alone a consensus on how to deal with it in a unified manner. For many IPR proponents their belief is that the only cases of patent abuse occur when an applicant intentionally deceives the Patent Office when applying for a patent and that once the patent is granted anything goes. Under their view, a patent holder is fully entitled to extract as much as the market will bear in return for licensing their intellectual knowledge regardless of the methods used to extract that compensation. This author's view is that the question of whether or not intentionally deceiving a Patent Office is patent abuse or fraud is a diversion to the real question. The real question should be, is there a case to be made for viewing certain IPR licensing methods as an abuse and how should such abuses be dealt with? The specific abuse discussed in this paper relates to abuses that have come to light as a result of the standardization process. This abuse has become so pronounced that it has even generated a specific name for the abusers, the patent troll.

Before getting into the details of the paper it should be mentioned that the author anticipates that this discussion of abuse will almost certainly cause IPR proponents to invoke the trinity of IPR justification and suggest that any questions about abuse are a direct assault on the perceived sacrosanct nature of those rights. For those unfamiliar with the trinity of reasons used to justify the creation of IPR, they are as follows: 1) IPR provides an incentive to invent, 2) IPR provides an incentive to disclose inventions and 3) IPR protects the moral right of inventors to benefit from the fruits of their labor or alternatively prevents the unjust appropriation of another's labor.²

For the record this paper does not question those justifications and agrees that these were and are very valid reasons for society to create a set of rules that protect intellectual property by granting the inventor of technology an artificial monopoly of a limited duration during which they and only they can benefit from their invention. Further it is acknowledged that historically this artificial monopoly as worked extremely well as an incentive to invention, disclosure, as well as preventing free riders, particularly when there is only one inventor and one invention. The complications come when there are multiple inventors simultaneously working on various elements of a combined invention.³

It is in this simultaneous invention environment where the very rights intended to protect intellectual property can and are being used to appropriate the intellectual property of others. This appropriation requires little more than the simple process of participating in a standardization process and then making unjustifiable patent licensing demands on the respective industry after their technology has been included in the standard. Even though this behavior, unjustly rewards the licensee and eliminates the incentive to invent for third parties, it has often been enforced by courts because they rely on traditional concepts of the single party inventiveness and do not understand the simultaneous model of inventiveness that is the driving force behind today's technological advances.

This paper examines the nature and implications of unjustifiable patent licensing demands on a standardized industry, how to avoid it. The paper brings together a mix of economic, financial and legal knowledge while trying to maintain the dialogue with in lay terms in order to facilitate a better understanding of the dilemma currently faced by many industries.

The first part of the paper discusses various elements that contribute to the creation of an anti-common tragedy in an IPR setting. This concept is built upon the foundations of the old economic concept of a commons tragedy and the relatively new economic concept called the anti-commons tragedy, that when combined create the unified concept of property. While the commons tragedy provides an insight into the over use of common property, the anti-common tragedy examines under use of a property when too many participants have an ability to exclude other participants from any given market. Although these concepts initially were conceived to

² Bentley and Sherman: Intellectual Property Law 2nd, 2001

³ Ilkka Rahmasto: Intellectual Property Rights, External Effects, and Anti-trust Law (2003)

explain over or under utilization of physical property, they both can and have been applied to intellectual property rights. Also included in this section is a discussion of standards, standard setting organizations “SSO’s”, and the network effect. The final part of this section describes the benefits of avoiding the anti-common tragedy.

The second section of the paper starts by defining patent trolls and the legal obstacles or lack there of which have facilitated the advancement of the patent troll model. Finally it then goes on to describe a number of typical actions that are pursued by patent trolls in the pursuit of their unjust enrichment. The hope is that this section will not only create a better understanding of patent trolls but it will also make it easier for them to be identified.

The third part of the paper goes into the economic overview of various patent licensing scenarios. The progression of the scenarios illustrates the effect of different licensing conditions on the market and market equilibrium. It represents a standardized economic analysis given the cost structure of the industry. There is nothing new in this analysis other than perhaps its application to the specific licensing terms.

The fourth section of the paper provides a detailed description of the actions that a standards setting organization can take to prevent the emergence of a patent troll in their respective industry. Included in this description is a discussion of the potential legal implication of such action.

The paper concludes by summarizing the importance of balancing the essential incentive for inventiveness generated by the current patent granting process with the need for restricting abusive behaviour. It is the author’s contention that only with the proper balance is it possible to create an environment that maximizes economic and social welfare.

2. THE ANTI-COMMON TRAGEDY IN INTELLECTUAL PROPERTY

2.1. THE COMMONS TRAGEDY

The commons tragedy⁴ is a classic social dilemma⁵ which results from an individual having a non-cooperative choice which not only is more advantageous to the individual than a cooperative choice but also harms other individuals and creates a net welfare loss to society as a whole. A typical commons tragedy occurs when ever there is a depletable common resource and individuals are able to independently decide how much of that depletable common resource they will take for their own use. The first element of a dilemma is present because an individual can make an independent choice as to how much of the resource to use. The second element is present because the common and finite nature of the resource means that the choices made will necessarily reduce the choices available to the other parties. The final element is also present because the resource is susceptible to exhaustion or depletion if reasonable utilization program is not adopted. Under a common tragedy the most economically efficient and socially responsible solution is that the resource be shared under an agreed plan such that the aggregate use does not destroy the resource.

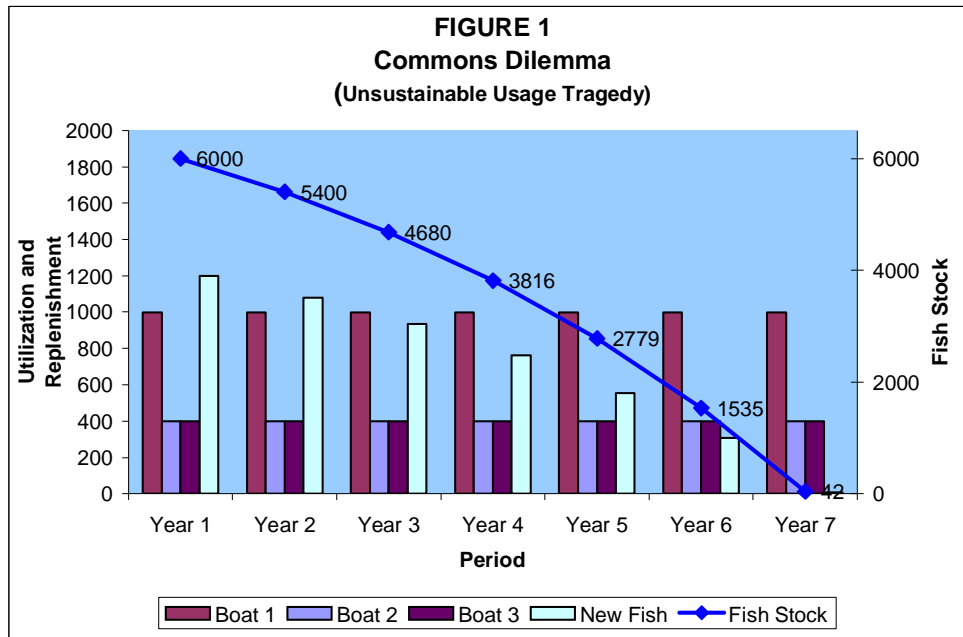
However, self interest provides individuals with an incentive to use more of the resource than they should if they cooperated. This increase usage by one individual while benefiting the individual directly harms other individuals by either restricting their use or by making the usage unsustainable. Unsustainable usage occurs if the increase usage exceeds the natural limit and eventually results in the complete destruction of the common resource. Individuals pursue this unsustainable usage because they do not consider the total social cost of their decision. Extinction of species due to over fishing or over hunting, deforestation, and climate change represent real world examples of this process.

Over fishing is the most regularly used example of a commons tragedy because it is something most of us have heard of and it easily lends itself to both hypothetical and practical analysis. A typical hypothetical example of this analysis would have a fish stock that harvested by fisherman and replenished an annual basis as old fish spawn new fish. Just as in real life it is generally assumed that there is direct correlation between the existing stock of fish and the number of new fish it can produce. Obviously any harvesting of the fish that exceeds the natural limits of reproduction not only reduces the overall fish stock but also limits the ability of future reproduction.

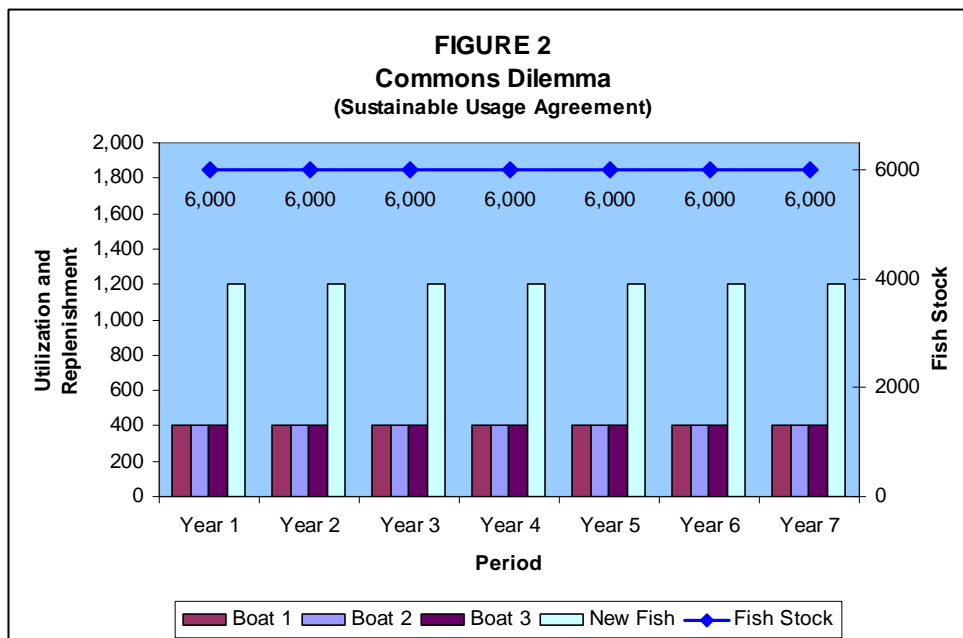
Figure 1 shows a situation where one party is fishing at an unsustainable level and two others are fishing at sustainable level. In the first few year there does not appear to be a problem as everyone is able to continue fishing at there chosen level even though the fish stock is being depleted. It is only after several periods that the true magnitude of the tragedy unfolds. At that time stocks are so depleted that a virtual ban on fishing would need to be imposed if the stock is to be saved. And all this because one party made an uncooperative decision that they thought would optimise their personal benefits, which instead turned into a tragedy not only for them but for all of society

⁴ Hardin (1968)

⁵ Kopeman, Weber and Messick (2002)



The initial proposed solutions to the tragedy of commons was; “Mutual coercion, mutually agreed upon”.⁶ While this sounds complicated it means nothing more than getting all parties to agree to be bound by the commonly agreed solution to the dilemma. Theoretically any commonly agreed solution should involve a fair distribution of both the pain and gain. Figure 2 shows how this solution would look given the previous example. In this diagram fish stocks are maintained at a constant level through a sustainable resource management agreement that has all parties fishing at agreed level. Basically society has pressured the fisherman who was over fishing to restrict his utilization to the same level as other parties.



It should be pointed out that while an equal distribution of the pain and gain is theoretically the fairest way to solve the common dilemma this seldom is the result if agreement is strictly limited to a voluntary basis. This is because generally there is usually at least one party that demands a

⁶ Hardin (1968)

bigger proportion of the resource than is either fair or reasonable. Usually these parties will instead look at what the parties have to lose relative to what they have to lose. If for example the other parties have higher sunk costs and therefore stand to lose much more from the depletion than the resource, a hold up will be attempted. Think of it as a game of chicken with the resource and the industry as a hostage. This is why it is often necessary to have restrictions imposed on the parties by outside regulatory authorities. Such has certainly been the case with fish stocks in the real world.

It has subsequently been argued that the solution to the commons dilemma lies in the privatization of the common property⁷. Under the Coase Theorem the contention is that common resource should be either divided up with individual parts owned by individual parties or alternatively the resource should be transferred to the ownership of only one party. In either case the belief is that the private ownership of the resource will ensure long term profit maximization of profits from the resource which naturally will mean that it will not be used in an abusive manner that would result in its total depletion. The initial example used to demonstrate this potential had to do with a river that was used for both for waste disposal and tourism. In the example it was shown that regardless of who owned the property, the polluter or the tour operator its inherent value was maximised. Regardless of whether the tour operator paid the polluter to reduce pollution or polluter paid the tour operator to be allowed to pollute, the most efficient use of the river was realized. Needless to say this theorem has been heavily relied upon by conservative interests that view public property as some sort of unnatural transgression against private property rights. What the Coase Theorem does not address is the monopoly issues inherent in monopoly control of natural resources and other unintended consequences of such a non-competitive alternative solution.

2.2. THE ANTI-COMMON TRAGEDY

At the opposite end of the scale from the social dilemma of the tragedy of the commons is the anti-commons tragedy. This is a relatively recent concept which was first introduced in 1982 and then expanded in 1998.⁸ An anti-commons dilemma involves two or more individuals having common ownership with the right to exclude others from the use of common resource. Under this scenario each co-owner has an incentive to block the access to the common resources for others users, although the use of the common would be of net benefit to all. The resulting underuse of the resource providing a mirror image to the overuse observed in the commons tragedy. The real world example that was the initial catalyst for this concept was empty shops in a Moscow mall. Despite there being clear evidence of demand for the space, as numerous Kiosks were being set up on adjacent city streets, much of the shop space in the main Moscow mall had remained vacant, and the question was why?. What was happening was that access to the space in the mall was subject to exclusion rights of existing merchants in the mall. Apparently the existing tenants were gauging their individual cost and benefits from each potential new tenant and there always appeared to be at least one existing tenant that felt threatened by any new tenant so no new tenants were let if an old tenant went bust.

Of course the anti-common tragedy is not a new phenomenon. Perhaps the most proliferate examples of an anti-common tragedy are the difficulties faced with trying to acquire the necessary land required for large infrastructure projects. It is not hard to imagine and has often happened that the owner of the last piece of land located in the middle of a proposed superhighway demands an unreasonable price simply because of its ability to hold up the project. While paying holdup prices to one seller is possible, clearly if too many individuals are able to make unreasonable demands, (or alternatively refuse to sell their land), many roads, railway tracks, dams, hospitals and other essential infrastructure projects would never have been built. They would not have been built because the government would have been unable gather the necessary land to build the projects or the price being demanded by the land owners would have been so high as to make the projects unfeasible.

⁷ Coase Theory (1978)

⁸ Michelman (1982) and Heller (1998)

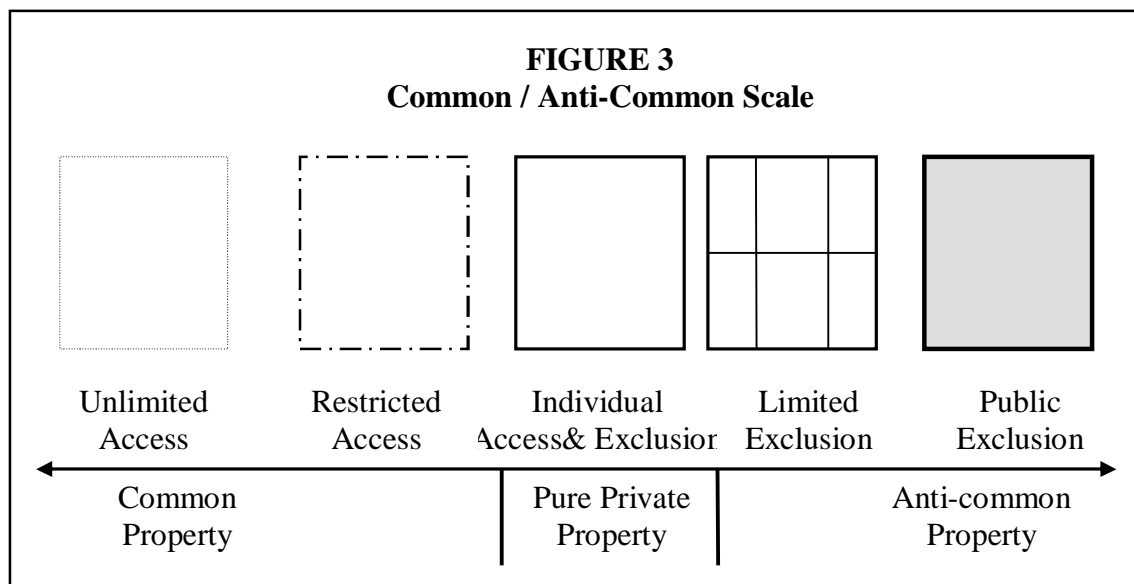
Society has solved that particular anti-common tragedy by adopting a doctrine called eminent domain. Eminent domain involves the forced sale/purchase of property by the government or government agencies for an infrastructure projects. When it is properly applied the purchase price should reflect the reasonable price which corresponded to the value of the land or property irrespective of the infrastructure project. While there have been numerous examples of eminent domain abuse, the overriding principle of using government authority to avoid hold-ups on infrastructure projects which benefit society is still considered valid.

In 1998 the anti-common concept was first applied to the ownership of intellectual property rights.⁹ This analysis related to the difficulties experienced with respect to biomedical research. During the 90's biomedical research had been shifting from a public financed activity to a privately financed activity. The privately financed research was generating patents to protect the research so that the research could be used for private commercialization. While this was increasing the research activity it was also causing downstream problems for subsequent researchers. Certain downstream researchers needed to acquire licenses from several upstream patent rights holders before they themselves could place their new products on the market. In some cases upstream patent holders were unwilling to provide the necessary licences thereby excluding the downstream researcher products from accessing the market. Further because the downstream researchers held the patent for their product the upstream patent holder could not develop and take the same product to the market effectively eliminating the product and its inherent benefits from the market.

The study concluded that excessive granting of patent rights to up stream patent holders could potential stifle discovery of life saving products. Hence the creation of property rights rather than helping enhance social welfare had actually created an anti-common tragedy that was detrimental to social welfare. Like the commons tragedy the solution to the anti-common tragedy appears to require "mutual coercion mutually agreed upon" or outside regulatory authority.

2.3. THE UNIFIED CONCEPT OF PROPERTY

Common and anti-commons tragedies have recently been framed together in one unified conception of property.¹⁰ According to the unified concept both private and public owners of property own a complementary bundle of rights over their property including the right to use it and the right to exclude others from its use. This unified concept of property is illustrated in figure 3.



⁹ Heller and Eisenberg (1998).

¹⁰ Buchanan & Yoon (2000), Heller (2001), Parisi, Shchulz and Depororter (2005)

As can be seen pure private property sits in the middle of this continuum with the owner having both the right to use and a right to exclude, common property sits to the left having the unconditional right to use but not the right to exclude, and anti-common property sits on the right having the unconditional right to exclude but not the right to use. Property with restricted access or limited exclusion potentially but not necessarily belonging in the private property category but could just as easily belong to one of the two public property categories.

Interestingly in diagnosing the welfare effects from both common and anti-common property it has been demonstrated that the negative welfare effect of an anti-common tragedy are greater than that of a commons tragedy.¹¹ This study involved game theory that had either common or anti-common characteristics.

In the common game while the players seemed to recognising the consequence of over usage they still on average consumed by a factor of the 2.4 time greater than the sustainable level. By contrast the anti-common game generated usage fees 3.3 times greater than the economically justifiable level.

The their conclusion the authors of the study state; "Our results unequivocally support the proposition that anti-common yields higher prices than the commons dilemma and that anti-commons dilemmas are more prone to underuse than commons are to overuse."¹²

They go on to speculate that it is perhaps the ambiguous nature of the anti-common dilemma which drives the higher price. Alternatively they suggest that it may be that framing the anti-common dilemma as a selling problem rather than a sharing problem that lies at the heart of the difference. This is because people tend to ask much more for something that they own in the mistaken belief that it is more valuable than others believe to be the case.

Regardless of the rational clearly both represent a challenge to social welfare and result in suboptimal economic outcomes.

2.4. COLLECTIVE INVENTIONS AND THE NETWORK EFFECT

The relevance of the anti-common model in the intellectual property field has significantly increased because of a dramatic shift in the nature of inventiveness. Where as until the early 90's, invention and the inventive process followed primarily a single party serial inventiveness model, today many inventions and much of the inventive processes follow a simultaneous or collective model.

The single party model generally revolved around individual companies developing and evolving their own proprietary technology. It is referred to as a serial model because it usually involved an initial invention followed by incorporation of improvements in a step by step process without or with very limited utilization of external technologies. This process provided companies with an exclusive area or walled garden in which they could exercise total control over their products. These separate products then competed in the market place for business. The individual advantages and disadvantages of any product would usually determine ultimate the market share of the product and the success of the company.

The best examples of the serial model of innovation would be in the field of pharmaceuticals. For almost every know disease there are several alternative drugs developed and provided by several different pharmaceutical companies that compete in marketplace based on their respective advantages and disadvantages. Naturally each pharmaceutical company constantly seeks to improve their respective products as part of their ongoing development process.

The simultaneous or combined development process is quite different. In this development process individual companies simultaneously work towards developing a technological solution with the individual innovations being aggregated to provide one final solution. This model has

¹¹ Vanneste, Van Hiel, Parisi, Depoorter (2006)

¹² *ibid*

become much more prominent for two reasons. First there has been a growing recognition that inventiveness in any particular field is not the sole preserve of any one entity and that combining the inventiveness of an industry in a complementary manner results in a better solution. And second many industries are subject to something called the network effect¹³ which generally requires a single solution in order to maximize operating efficiencies.

The network effect is an old concept that refers to notion that certain products or services become more valuable as their usage is expanded. The most often cited example of a network effect is the telecommunication industry. This is quite appropriate given the concept was first used in 1908 by Theodore Vail, the former president of Bell Telephone. He used it to justify the creation of a monopoly in telephone services because of his indisputable assertion that a single telephone network that includes all potential subscribers was superior to several separate networks that limit connectivity to a limited number of subscribers. It should be pointed out that the benefits of cumulative connectivity that drive the network effect are not just applicable to high technology industries, it also is prevalent in many other industries¹⁴. A more low technology example of the network effect would be the adoption by regional railways of the same gauge for their individual railway lines. That common solution meant that goods could travel from coast to coast without changing their railway cars significantly improving on the industries operating efficiencies and profit potential. Such a solution is called a standard and most industries that are subject to the network effect incorporated some degree of standardization.

2.5. STANDARDS

A standard can be defined as a set of technical specifications that provides for the common design of a product or process. This common design allows for interoperability between the products or services made by different companies. In its simplest form it can set the dimensions of the gauge of railway line or electrical plugs and their corresponding socket. In its more complex form it determines the software interfaces for satellites, computers, telephones to work together. While standards impact virtually all aspects of our lives for the most part they go unnoticed and are taken for granted. Yet without standards so many of today's technologies would not exist or exist only in the most limited of forms. It is this author's view that the more advanced technology not only requires a greater degree of combined inventiveness but that because of interoperability issues it is now no longer feasible to rely on a solely proprietary solution.

Take the internet for example. The technology driving the internet has been supplied by thousands of different companies. If each of those companies had focussed on producing their own proprietary solution the world would be awash in competing networks that would be unable to work together. At best one proprietary system would become dominate but it is highly unlikely that the technology developed by one company would be as good as the technology created by the combined creative ingenuity of thousands of companies.

In addition to the combining of creative ingenuity, once a standard is set it allow whole industries to benefit from the economies of scale resulting from that single standard. These economies combined with the increased competition generated by moving from a proprietary to a standardized solution means that prices are driven far below monopolistic levels, significantly increasing global economic welfare. At their best standards combine creative ingenuity to develop superior products and services, which also lower costs and increases supply.

That being said the pro-competitive nature of standards is not guaranteed. If an industrial standard becomes dominated by one or a small number of companies it can easily turn into a monopolistic or oligopolistic fiefdom. In such a fiefdom higher prices are charged for inferior products and services. Prices are higher because those that control the standard are not restrained by competition. Products are inferior because the superior ideas of others companies are not allowed to be incorporated into the standard. Such a situation is usually referred to as an

¹³ Theodore Vail 1908

¹⁴ The network effect is not the only name given to the phenomena for example in Moore's Gorilla Game it is referred to as the Tornado effect.

oligopoly or a cartel. The main thing that determines whether or not any particular standard will be pro-competitive is the policy decisions of the standard setting organization.

2.6. STANDARDS SETTING ORGANIZATIONS (SSO)

Standard setting organizations (SSOs) are organizations specifically set up to determine the technical specifications that provides for the common design of a product or process. Historically many of these organizations were government regulatory authorities that relied on input from industrial companies to set the standards. More recently many standard setting processes has been moved to non-governmental organizations made up solely of company representatives. While usually not expressly stated, the fundamental objective of a SSO is to facilitate the generation of a network effect in their respective industry. One can think of SSOs as network incubator that if successful will result in a standard that will be adopted across an industry.

As part of the process these organizations increasingly are faced with the situation where one or more companies claim to have proprietary rights over the technology proposed to be included in the standards.¹⁵ When this happens the SSO has to balance the beneficial aspect of including the intellectually protected technology in the standard, against the cost of including it in the standard. Different SSOs deal with this decision in different manners.

Some SSOs have determined that no technology that is covered by intellectual property rights will be included in the standard. For example the Internet Engineering Task Force (IETF), which is the SSO that controls the TCP and IP protocols that cover the internet, had a longstanding policy against the inclusion of any technology which were subject to proprietary rights. While that policy has now changed, that change has prompted tremendous criticism particularly as certain large multinationals have moved in to assert patent rights over the internet.¹⁶ Another example is the Open Invention Network (OIN), which essentially is the SSO that controls Linux, the open source operating software available for free to all developers and users.¹⁷

Others have determined that proprietary intellectual property can be included however the rights attached to property are limited by contractual obligations to the standardizations organizations and their members. Such limitations are usually referred to as FRAND (fair, reasonable and non-discriminatory) or RAND (reasonable and non-discriminatory) obligations. An example of this type of treatment is The European Telecommunications Standards Institute (ETSI), which is the SSO that controls the telecommunication standards in Europe. Since inception it has included proprietary technology but always under the strict proviso that such technology should be supplied to any party wishing to participate in the industry on FRAND terms.

Still other SSO require that holders of proprietary intellectual property only inform the organization of their ownership or have no notification or licensing requirements what so ever. It is in these SSO where the potential for intellectual property right abuse is the greatest.

2.7. FINDING A BALANCE

If one contrasts the different treatments of intellectual property against the unified concept it is easy to figure out which treatment most closely represents which segment on the common/anti-common scale.

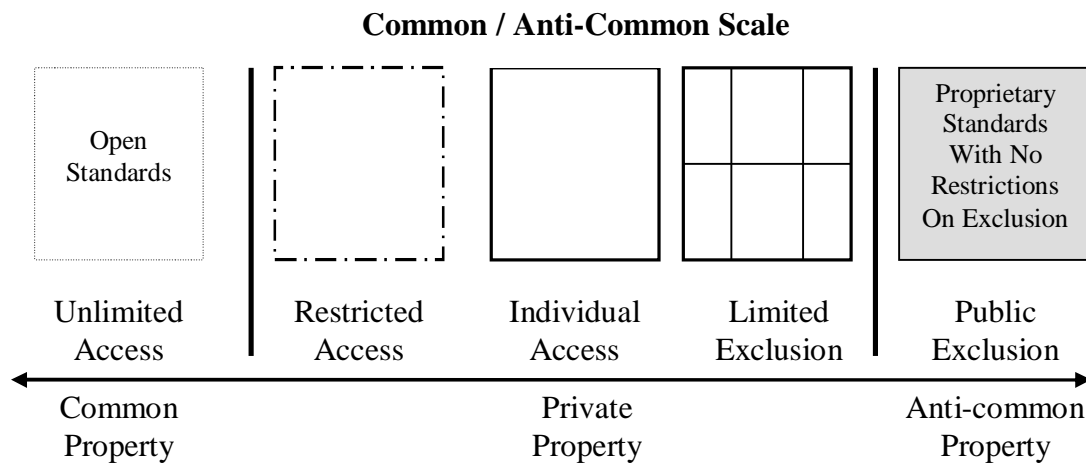
¹⁵ Ken Krechmer, Communications Standards and Patent Rights. (Working paper 2000)

¹⁶ David Berlind, IBM, Microsoft Plot Net Takeover, (2002)

¹⁷ Actually OIN is a limited liability company formed in 2005 specifically to promote and protect Linux Software. Initial investors include IBM, Sony, NEC, Phillips, Novell, and Red Hat. OIN will license any patent, royalty free, with the only stipulation being that licensees refrain from asserting their own patents against the Linux environment.

Clearly a standard that does not allow any proprietary rights creates a common property, as everyone is free to use the property and nobody can prevent another from using it.¹⁸ Alternatively a standard that includes proprietary technology with no limitations on how the intellectual property rights are utilised creates an anti-common property as every party that contributes technology to the standard can exclude anyone or everyone from its use.

Turning intellectual property into a common property has one major advantage and one major disadvantage. The advantage being that unlike tangible goods intellectual property or knowledge is not a depletable resource. It does not matter how many people use the knowledge it will never face exhaustion which would limit the use of others.¹⁹



The major drawback with turning intellectual property into a common property is that without some form of protection there is less incentive for companies to develop new technologies and almost no incentive to share those developments with the public. New technologies do not just simply appear, they are developed using significant creative powers and expending a great deal of time and resources. Resource expenditure that if not recovered will usually result in the termination of the creative process. Further while the first mover advantage may justify the development of a new technology, keeping it secret and developing proprietary products and services makes more sense if there is no incentive for making it public. As such the exclusion of proprietary intellectual property will generally lead to companies withdrawing from a standard and the standard therefore being forced to adopt inferior technologies. This drawback was likely the main reason for IETF's decision by to move from a proprietary exclusive to a proprietary inclusive regime.

Including proprietary intellectual property in a standard shifts the relevant category to the right on the scale. How far to the right depends on the limitation placed on the rights. A standard that included proprietary rights without any form of limitation would represent the furthest end of the spectrum. In that situation literally every company that had their technology included in the standard would have a veto over the use of the standard. This veto could take the form of exercising their primary intellectual property right not to license their technology for whatever reason they choose. While it is unlikely that a company participating in a standard setting organization would be unwilling to license their technology in some form it has happened that companies which did not participate in the standard setting process but have had their technologies included in the standard have categorically refused to license. A more likely scenario is that one or more SSO participants will be willing to license but only on terms that are

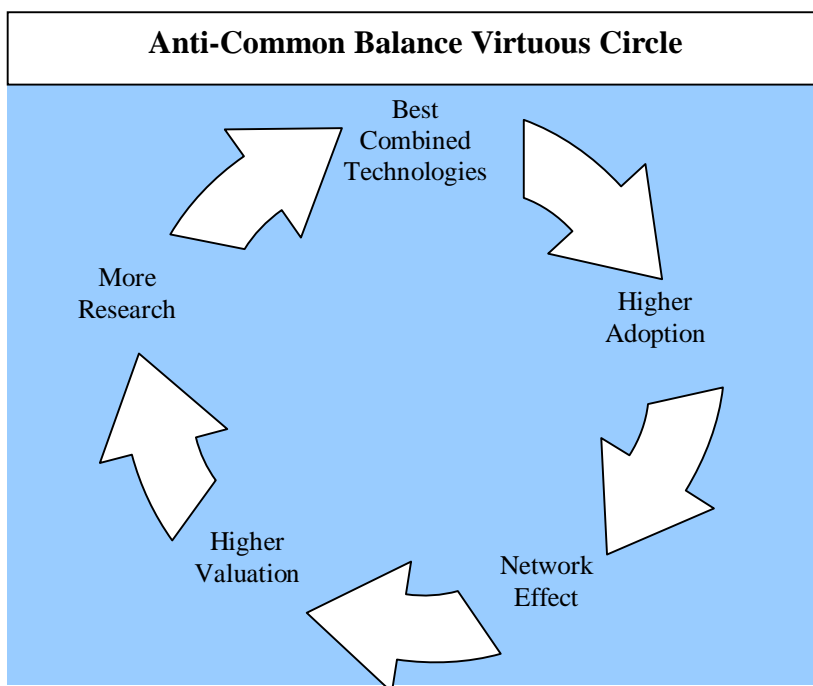
¹⁸ Unlike property or resources, knowledge is not depletable. That is the use of knowledge by one party does not in any way limit its use for another. Things of this nature are referred to as a public good and the best example of public goods are unprotected information or knowledge. It is this author's contention that a standard that does not allow proprietary rights should rightly be called a common good. Detailed analysis of this is outside the scope of paper.

¹⁹ This is what happens to the information provided in intellectual property after their artificial government granted monopoly expires.

unacceptable to other companies that wish to participate on the industry. Such a situation creates a classic anti-common tragedy. The best real life example of this is the Unicoal case.²⁰

Because open standards can lead to an abnormal commons tragedy, and unrestricted proprietary standards can lead to an anti-common tragedy it is this authors contention that including proprietary technology that have restricted rights in a standard will avoid both of these tragedies and leads to a better balance which generates a net welfare gain for the whole society. This balance represents a positive and pragmatic compromise between rights of intellectual property holders and the welfare of society where any given industry can grow to their full potential. That potential being realized through not only the use of the best technologies, but the weeding out of anti-competitive actions that enrich one party at the expense of the entire industry.

With a proper balance cumulative returns on investment in research are greater than under any other scenario. This is because utilizing the best technology ensures the maximum adoption which in turn leads to network effect, which provides economies of scale as well as higher valuations of the product or service. Those higher valuations lead to more research which leads to better technologies and the virtuous circle continues.



If one were to place the balance on the common / anti-common scale it would obviously be located between a private property and an anti-common property in the limited exclusion field. How far to the right or left would depend on the degree of limitation placed upon the intellectual property right's holders by the SSO. Simply requiring rights holders to disclose their patent does move a standard out of anti-commons classification, because potential users will still be subject to unlimited veto possibilities. Conversely entirely eliminating infringement options shifts the property over to the common property classification as there is no possibility to restrict use. Only a truly reasonable limitation on intellectual property rights can create a proper balance.

²⁰ Unicoal v Commission

3. DEFINING TROLLS

3.1. PATENT TROLLS

Patent Troll is a derogatory term used to describe patent owners that attempt to leverage the value of its patents beyond their true value by threatening companies with injunctive action unless they comply with their extortionate licensing demands. If successful a patent trolls are able to unjustly enrich itself at the expense of an entire industry.

It has been argued that such behaviour is simply “the business model for the new millennium” and that “Engaging in hold up doesn’t make patent owners evil, necessarily. It makes them capitalists they are entrepreneurs taking advantage of a system which is screwed up in the first place.”²¹ It is arguments like this that encourage anti-competitive behaviour. Rather than arguing about right and wrong, fair and unfair, just and unjust, this argument abandons the spirit of the law, to focus on the letter of the law. It is precisely this sort of thinking that has resulted in the rise of patent trolls.

Trolls first appeared in the early 90’s and were often just an off shoot of corporate scavengers. Those were the companies that were purchasing bankrupt or near bankrupt companies and then sold their assets rather than running the business. Often the assets included intellectual property rights and one can only imagine that after being unable to find a buyer to purchase the asset, they decided to try their luck at enforcing the intellectual rights. The term was popularized by former Intel General Council, Peter Detkin in 2001. He referred to patent trolls as entities that purchase patents at low value from inventors and then assert those patents across broad industries to generate nuisance value settlements.²²

While that may have been to origins of the patent troll they have evolved over the last few years. This evolution is a direct result of the first trolls showing the world the significant value which can be realised from seemingly insignificant patents. Today many companies that would have otherwise joined the ranks of failed manufacturers can now metamorphose into profitable patent trolls. Still other companies enter technology development fields with absolutely no intent to compete in the manufacturing area but with the sole intent of becoming a patent troll. Regardless of the origin of a specific patent troll its objective is always the same, to leverage the value of its intellectual property significantly above its true value by threatening litigation.

3.2. LEGAL RATIONAL

More than anything the reason why so many entities are becoming patent trolls is because of the surprising lack of limitations on their activities. While years ago the doctrine of patent misuse prohibited many unreasonable actions, that doctrine has been eviscerated by the constant onslaught of judicial rulings favouring patent holders. As things stand now under the U.S. judicial system, virtually any patent enforcement activities short of outright fraud, are considered legal. This lack of restraint on patent enforcement activities has led to the situation where extraordinary punitive legal action can be use as a weapon by patent trolls against potential licensees that do not acquiesce to their demands.

Obviously if there is nothing restraining patent trolls from demanding exorbitant term and imposing unfair conditions, and if the legal system that use to restrain them can now be used to enforce their demands, it is not surprising that that some parties have chosen to demand exorbitant terms and unfair conditions. After all they would argue that they are like any other enterprise seeking to maximise the value to their shareholders and if they can manipulate the legal system to increase revenues and control their markets they owe it to their shareholders to manipulate the legal system. This don’t blame us blame the system argument, is the standard response for everyone who knows that what their doing is neither fair nor just and only barely legal. Fortunately although certain legal systems have to a large abandoned the objective of dispenses justice in favour of interrupting contracts, this same contract based legal system can

²¹ Mark A. Lemley Ten Things to Do About Patent Holdup of Standards (and One Not to)

²² Intel Annual Report 2001

be used to frustrate patent trolls' efforts to unjustly enrich themselves at the expense of the industry. To better understand how this can be done it is perhaps useful to first look at the typical actions of a patent troll. After all these are the tactics that need to be frustrated if the battle is to be won.

3.3. TYPICAL ACTIONS

There are a number of typical actions pursued by patent trolls which enable them to enriching themselves at the expense of the industry. Provide below is a long but not necessarily exhaustive list of actions that can be used to identify patent trolls.

3.3.1. Non-Participation in the industry.

Patent trolls hardly ever participate in the industry where they are trying to unjustly enrich themselves. The reason for this is very simple. If they participated in the industry their competitors would almost certainly demand licensing conditions similar to their own demands. It is this mutually ensured destruction that keeps licensing demands in check in most industries.

3.3.2. Secrecy

Perhaps the first indication of a patent troll is an unreasonable demand for secrecy or confidentiality. Clearly the best way to protect abusive behaviour is to avoid the behaviour becoming public knowledge. Many patent trolls go so far as suggesting that a breach of non-disclosure agreements or covenants would irreparably hurt their business and therefore in the event of a breach they would seek damages equal to value of any opportunity costs resulting from having to modify their licensing demands regardless of how unreasonable those demands were. Such opportunity costs to be calculated for the entire industry not just for the breaching party. Given the theoretical size of such damages this is a very serious threat and it greatly assists patent trolls in avoiding both public and judicial scrutiny.

3.3.3. Aggressive Legal Activity

Another good indication of a patent troll is the number of times and speed at which they threaten to take legal action. Typically they tend to take legal action after only the most superficial of negotiation efforts. Basically they make their demand and if acquiescence is not immediate they sue. Checking for the ratio of lawyer in the company relative to the rest of the industry can often be used as proxy to the actual threat of legal activity which usually is not public knowledge.

3.3.4. Licensing Terms

Naturally the definitive factor in determining a patent troll is terms and conditions it tries to impose in its licensing agreements. At a minimum a patent troll will try to charge a higher licensing rate that can be justified by either the quality or quantity of its patents which read on to the relevant standard. This higher licensing rate results in the unjust appropriation of fruits of the labor of other patent holders that have contributed to the standard.

It should be noted that while the most aggressive patent trolls will simply include blatant over pricing in their agreements, more sophisticated trolls will often try to disguise their over pricing. The most common method of disguising over pricing is to insert the essential patents needed to exercise a standard into a bundle with patent not needed to exercise the standard. This bundling of patents allows the patent troll to point to the whole bundle as justification for its pricing terms. While it may be true that the bundle of patents has more value than those that are essential it is often the case that the additional patents are entirely superfluous to the needs of the licensee and will not be used. Even if the additional patents are useful bundling them together with the essential patents has the effect of foreclosing the possibility of other potential suppliers of similar technology from entering the market. Such foreclosure is naturally also of benefit to the patent troll because it limits the possibility of current and future competition. As such it can safely be said

that any licensor the refuses to license, just the essential patents needed to exercise the standard, is a patent troll.

Other ways of disguising over pricing is to insist on unpaid grant backs of the patents that the licensee may have that read on to the standard. By doing this patent trolls keep the technical licensing rate lower than the true licensing rate. In addition to disguising the licensing rate this also has the effect of foreclosing of other potential suppliers from participating in the market. Needless to say if a licensee is forced to give away its technology for free it has no incentive to invest in new technology. Again this naturally benefits the patent troll because it limits the possibility of current and future competition. As such it can safely be said that any licensor the demand unpaid grant backs is a patent troll.

Still another way of disguising over pricing would be through tying clauses. Under a tying clause a licensee would agree to purchase some other item or service from the Patent Troll as part of the overall agreement. A tying clause is different from bundling in that bundling takes place at the precise moment of purchase, whereas purchase of a tied product can take place at a later date. While tying is not nearly as common as bundling it is a sure sign of a patent troll.

Other clauses used by patent trolls include non-compete and exclusive purchasing clauses. While these types of clause do not directly affect the price of the license they do foreclose competition which is always to the benefit of a patent troll.

Remarkably while virtually all of these licensing conditions would be illegal in a non-IPR related contract the courts have been reluctant to declare them illegal in an IPR related context.

4. ECONOMIC OVERVIEW

Failing any legal or contract restraint the only restraint on a patent troll in pursuing its intellectual property rights is the limit of economic pain that a potential licensee is willing to endure. In a historical single patent situation this level of pain was quite low. This is because if a patent holder set unreasonable licensing conditions or asked too much for license, potential licensees would simply walk away. Either they would find alternative technology on better licensing terms or they would not even enter the market.

The level of economic pain that victims of patent trolls are willing to endure is however considerably higher. This is because by their very definition patent trolls are participating in SSO where other participants have already committed resources. It is these sunk costs inherent in these committed resources that increases to pain threshold and allows patent trolls to unjustly enrich themselves at the expense of the industry. While parties are not already active in the market can avoid participating if it becomes clear that any possibility of profits will be siphoned off by the patent trolls participants do not have that option.

However for companies which have already committed sunk cost in the standard and which are therefore “locked in”, the dilemma is of much greater concern. If they own their own proprietary intellectual property that is an acceptable substitute clearly that would be the best solution. Alternatively if they can purchase a substitute proprietary intellectual property from a more reasonable party that also represents a good solution. Finally if they can develop a substitute product this might provide a better alternative than acquiescing to the demands of a patent troll.

However if a manufacturer is locked into using the particular proprietary intellectual property because it is included in an industrial standard which they must abide by it in order to compete, their choices may be very limited. In a worst case either they accept the terms that all but eliminate their profits or exit the industry at a considerable loss to their shareholders and the industry at large.

There are obviously an unlimited number of economic scenarios that can be used to illustrate the dangers inherent in allowing the anti-competitive actions of patent trolls to go unchallenged. All that is needed is to adjust the quantum of the licensing fees or the range of anti-competitive licensing terms include in their contract. For the purposes of this paper it is perhaps most instructive to provide a simple examples of a two party industry, where two competitors are developing an equivalent amount of technology and producing an equal amount of product. The focus of these examples will be on how the behaviour of the parties affects both the other parties and the market. As will be demonstrated there can be significant differences in both price and quantity equilibriums depending on how the parties behave. Not surprisingly it is easy to demonstrate that anti-competitive behaviour not only unjustly rewards a patent troll but also increases prices and decreases supply to the market.

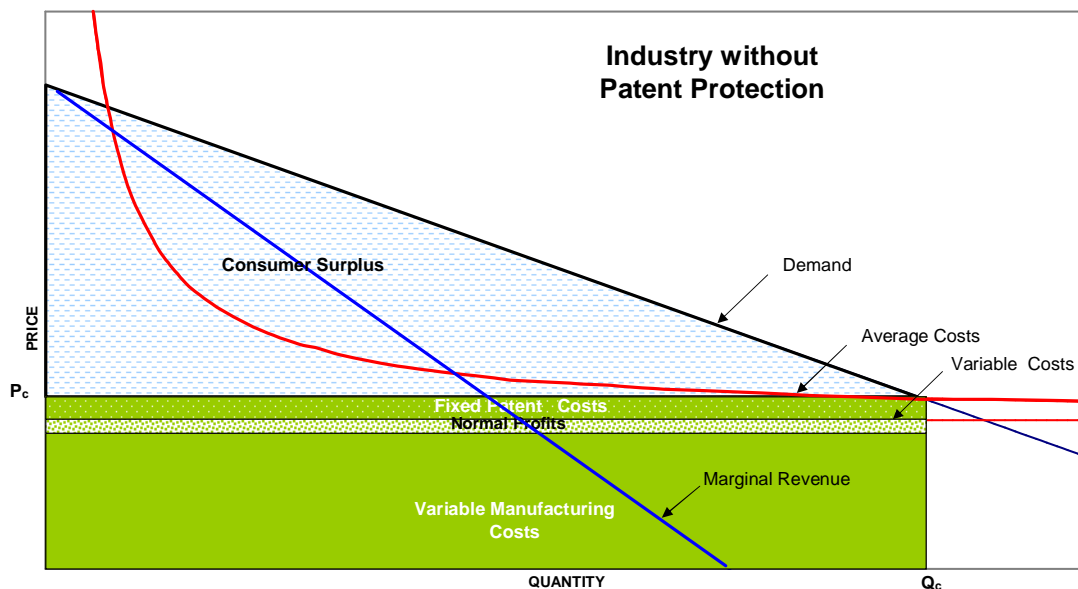
To construct this simple scenario a few basic assumptions are made as to the nature of the industry. Altering these assumptions to reflect a more complicated structure will not fundamentally alter the underlying conclusions that can be drawn from the simple scenarios. The first assumption being made is that the industry has a downward sloping demand curve. What this means is that as the price of the good is decreased the demand for the product is increased. While an actual demand curve would usually be non-linear, representing a situation where demand increases at an increasing rate as prices decrease, it is the downward sloping nature of the curve which is of greatest significance. The second assumption is that producing the product requires both fixed and variable costs. The fixed cost being the development cost for the creating the technology and the variable cost being a stable per unit manufacturing cost. The resulting combination creating a downward sloping average cost curve that reflects the fixed cost being spread over an increasing number of units. In reality an average cost curve will eventually start to slope upwards as more units are produced reflecting a shortage of inputs. Finally it is assumed that there is perfect information and the parties act rationally. These assumptions are also not entirely realistic as neither information nor rational behaviour can be guaranteed in the real world.

4.1. Standard Economic Equilibrium

As with any economic discussion the initial starting point for any discussion of scenarios is the standard supply demand equilibrium as illustrated in Figure 1. In this scenario there are no patent protections provided to the industry and as such there are no monopoly patent profits available.

The first of the three lines on the graph is the demand curve which indicates the demand for the product at various price points. It is downward sloping which indicates that more product will be demanded at lower the prices. Almost all demand curves are downward sloping because the lower the price of the product relative to other, the greater the incentive of consumers to substitute the product for the relatively more expensive other products. It should be pointed out that while the demand curve represents a schedule of prices for a consumer it also represents average revenue schedule for a producer. That is to say just as it shows the maximum quantity of products that consumers will buy at various price points it also the maximum quantity that producers can sell at various price points. As such the demand curve could just as easily and is often referred to as the average revenue curve. Further assuming the producers charge one price for their product that price multiplied by the amount sold will determine industry revenue.

Figure 1



The second line is the marginal revenue curve. This line is derived from the demand curve and indicates the additional revenue that can be generated by selling one extra unit of the product. It is below the demand curve because the increased revenue from selling the extra unit is reduced by the price reduction applied to all other units which could have been sold at a higher price. As can be seen from the illustration there comes a point where the marginal revenue turns negative as price reduction on all other products exceeds that revenue from selling one extra unit.

The third line is the variable cost curve. In this particular example it represents the variable manufacturing cost plus the normal profits required to maintain a presents in the industry.

The final line is the average cost curve which includes both a fixed and variable cost components. Obviously the fixed costs are spread over an ever increasing number of units this cost curve will trend towards a number only slightly higher than the variable cost.

When supply and demand are in a state of equilibrium the quantity (Q_c) produced is determined by the intersection of the demand curve and the average cost curve. At this point producers are supplying as much product as consumers are willing to buy at a price (P_c) that is determined by the equilibrium. That equilibrium price being determined by average production costs which represent the lowest variable manufacturing cost, plus fixed development cost and also includes

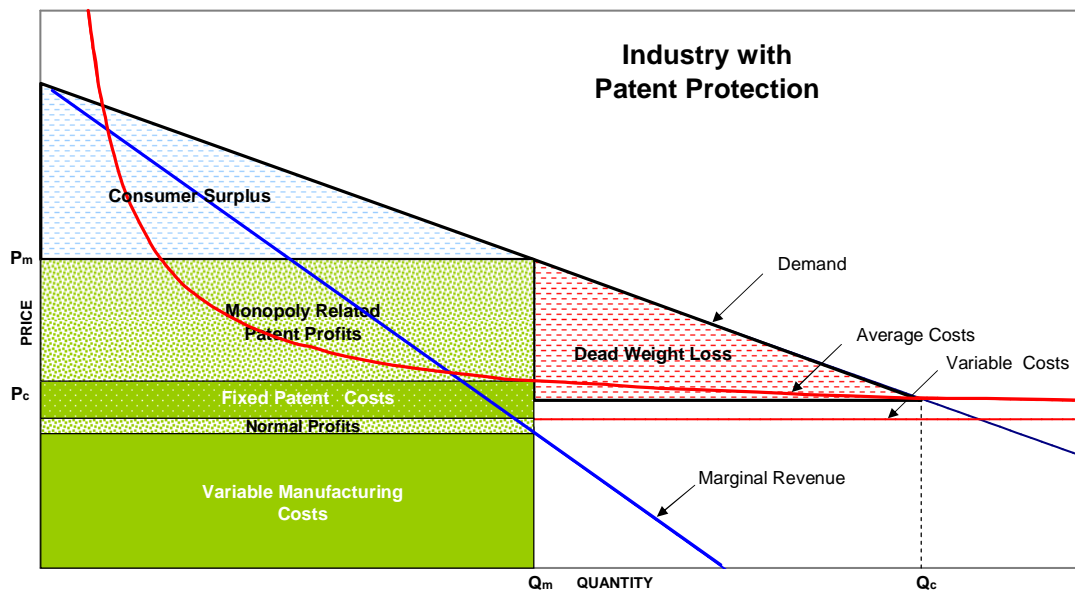
sufficient profit to maintain a presence in the industry. In a perfect market if manufacturers were to raise their prices above this cost level they would be replaced by other manufacturers who would offer the product at the lower price level therefore maintaining the same equilibrium point.

The area above the average cost curve but below the demand curve is a consumer surplus. This consumer surplus represents the difference between what individual consumers would be willing to pay for the produce and what they actually pay.

4.2. Monopoly Creation Through Patent Protection

When patent protection is provided the scenarios changes fairly dramatically. Because patent protection provide the patent holder with a monopoly over the production of their patented product it allows them to set their prices at any level without being worried about competitors taking away their customers. This new circumstance is illustrated in Figure 2.

Figure 2



No longer do producers have to sell at prices equal to their average cost now they can instead set their prices in a way that maximises their profits. This profit maximising quantity (Q_m) is the level where the marginal revenue received from the sale of one extra product is equal to the variable manufacturing costs of producing the product. Any production beyond that intersection will result in the variable cost being greater than the additional marginal revenue and will reduce profit. Any production less than that intersection will mean that producing an extra unit will provide revenue greater than the variable cost therefore representing a lost profit making opportunity. As illustrated the normal profit and the fixed patent costs are added variable manufacturing costs to determine the average total cost. The difference between the average total cost and the demand or average revenue price (P_m) at this quantity represents the monopoly related profits available as a result of the patent protection. It is these monopoly related profits that are intended as an additional incentive for investment in the development of new technology as they are above and beyond the profits required by an ordinary producer to maintain its presence in the industry.

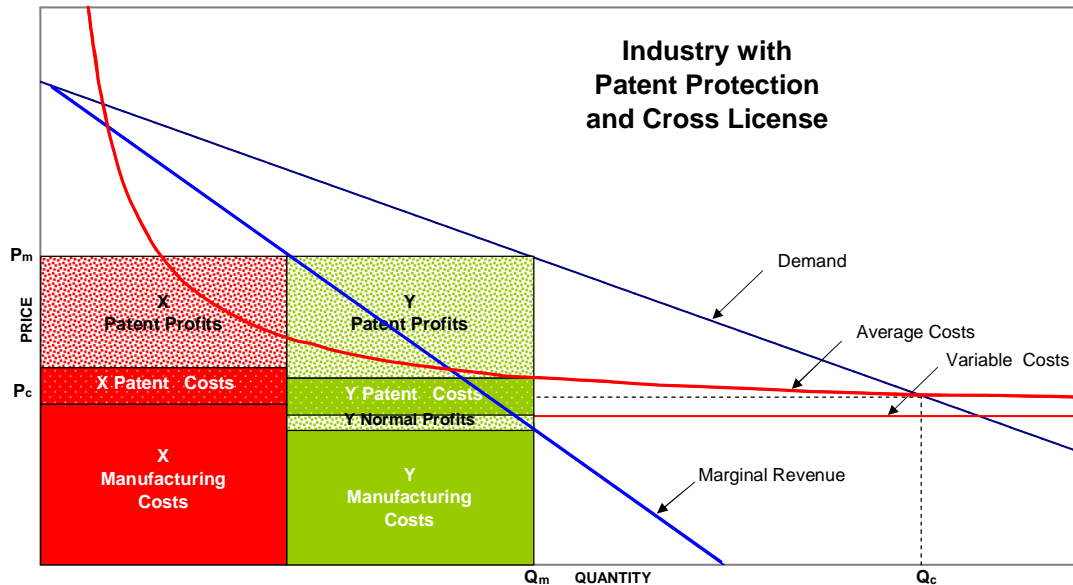
As far as the consumer goes they are worse off under this scenario because they have their supply greatly reduced and are charged a higher price for that remaining supply. As can be seen the consumer surplus has been reduced by both the patent profit and the dead weight loss. While the patent profits represent a transfer of consumer surplus to the producers, the dead weight loss is a loss to society as a whole. The reason why society accepts this loss is that it is assumed the benefits generated by encouraging additional technological development exceed that short term loss. Particularly as the patent monopoly is available for a finite period and after the patents expire, the industry is expected to return to a competitive situation.

Having set the stage by providing an explanation of the underlying monopoly conditions created by patent protections it is now possible to move on to illustrate and analyse the different behaviour of the parties effect the results.

4.3. Cross Licensing

In this stage of a simplified scenario we assume there are initial two competitors that have developed two equal parts of a new technology and have entered into a cross licensing agreement to bring this technology to market. Because they are providing an equal amount of technology to the industry the cross licensing agreement off sets the licensing fees that each would otherwise charge to provide the technology.

Figure 3



However, while they have the same manufacturing volume, Firm X has a higher variable manufacturing cost than Firm Y, as illustrated in Figure 3.

As with the monopolistic scenario the profit maximising situation for this oligopoly is where the variable manufacturing curve intersects with the marginal revenue curve. The cost curve that is used is that of the low cost manufacturer Y, because if X's manufacturing cost were to be used it would result in a higher priced, lower volume intersection which would not be a profit maximising position for Y. Given this situation X is effectively subsidizing its higher manufacturing costs with its patent profits.

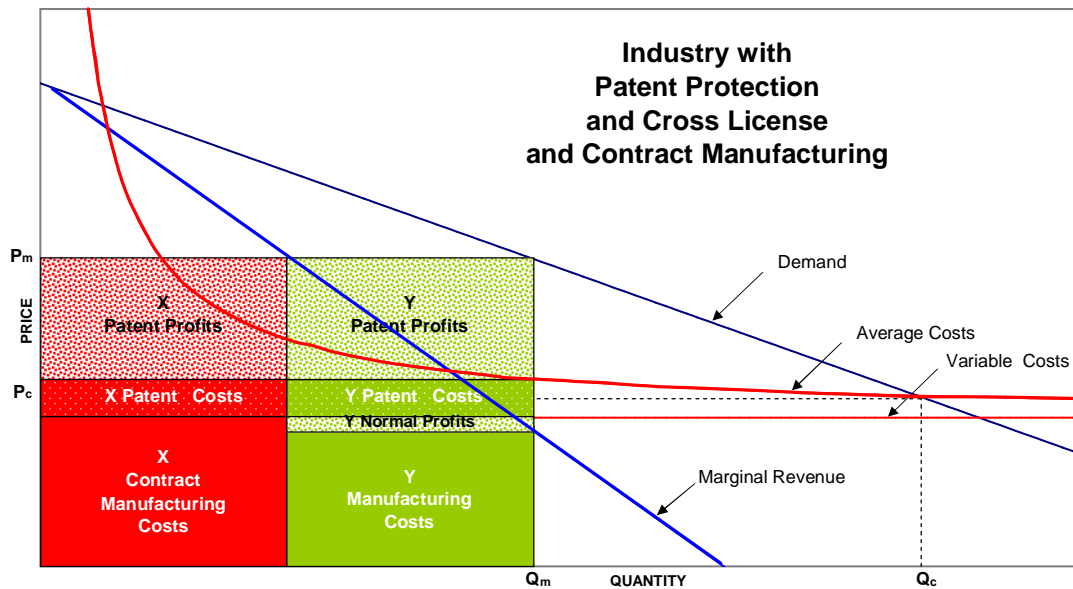
In a perfect information world where X would look at the patent profits being generated by Y and assuming it acts rationally it would try to restructure its activities to achieve the same result.

While it is no longer illustrated in Figure 3 it should be evident that the reduced consumer surplus and the dead weight loss that is present in the monopoly scenario are also present in this scenario. That is to say consumers are no better or worse off as a result of moving from a monopolistic to an oligopolistic structure with patent protection.

4.4. Contract Manufacturing

If X can't reduce its manufacturing costs the most rational thing to do would be to contract out its manufacturing operations to Y who should charge the same manufacturing cost that it uses for its own operations. After all such activity does not include any special patent requirements as the necessary patents are already covered under the existing cross licensing agreement. If X does arrange for contract manufacturing by Y the structure of the industry would change as reflected in Figure 4.

Figure 4



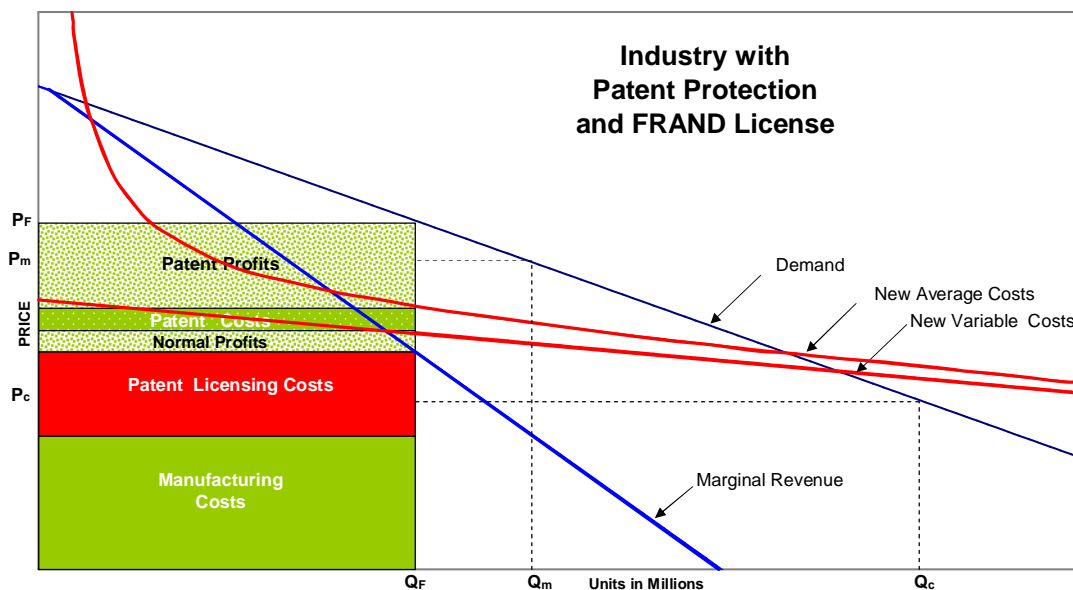
While this change in operating activities does not benefit consumers, it does increase efficiency for the benefit of the producers and society at large. Clearly X is better off because it is no longer subsidizing its higher manufacturing costs with its patent profits and now earns just as much patent profits as Y. But Y is also better off because it is earning additional normal profits from its contract manufacturing operations. Society is better off because resources that were previously dedicated to inefficient manufacturing are now free to be used for alternative purposes. In this simplified example this operational step up represents the most efficient structure as it provides consumers, producers and society with the greatest benefit in a patent protected oligopolistic environment. Because of the cross license anti-competitive behaviour is not possible because any anti-competitive terms will be reciprocated on a set off basis.

However in the real world this equilibrium is likely not sustainable because Y will tend to favour its own operation over those of X and over time Y's product will take over an increasing amount of the market. Faced with a declining market share X may simply abandon manufacturing and move to a straight forwards licensing arrangement.

4.5. FRAND Licensing

Under FRAND rather than having two separate manufactures we change the scenario so that only the most efficient manufacturer provides the product after signing a FRAND licensing agreement from the less efficient manufacturer. As the licensor is entitled to charge a fair, reasonable and non-discriminatory fee theoretically the license fee should therefore be equivalent of the patent costs and patent profits it would have received under a cross licensing arrangement. Given that this is a minor change from the contract manufacturing scenario which already had Y manufacturing product for X it could be assumed that the industry would not change very much, however it does. This is because when X exits manufacturing and Y increases its manufacturing it is only rational for Y to add X's licensing fees to its variable manufacturing costs. This addition shifts the variable manufacturing cost curve up and changes the intersection with the marginal revenue curve. In Figure 5 we can see that the new equilibrium point has a lower quantity (Q_f) and a higher price (P_f). While this new equilibrium both increases and maximises Y's profit the lower quantity results in a lower patent profit for X because X's licensing fees are calculated base on a higher volume consideration. When this situation occurs it is a natural reaction for the licensor to want to raise their licensee fees in an attempt to improve their profitability.

Figure 5

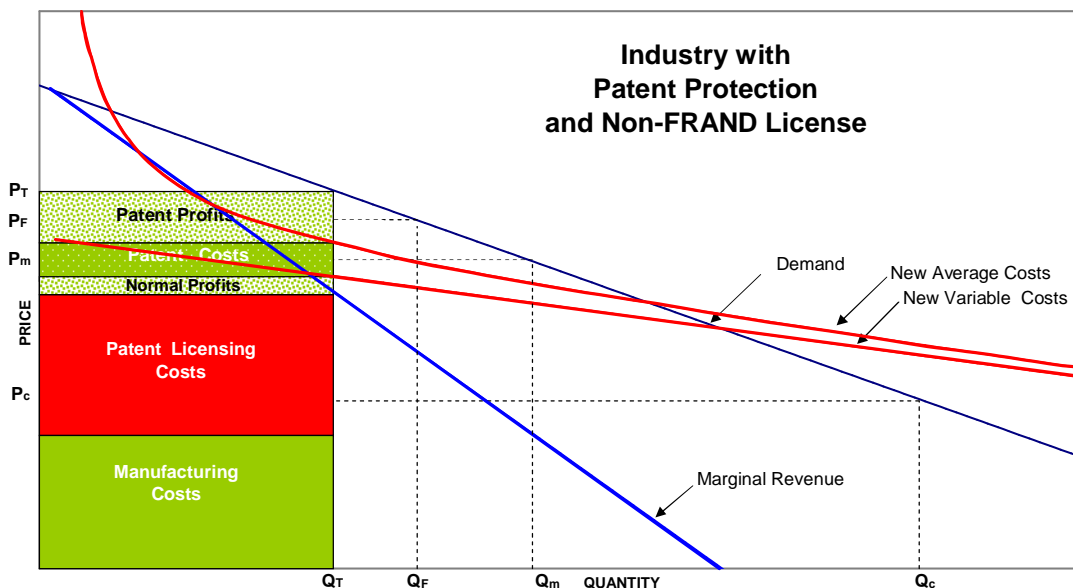


It should be pointed out that this would be a fairly extreme example as there is little possibility of one party monopolizing manufacturing for an entire industry and as such the patent licensing costs would be offset by the patent licensing fees generated from other manufacturers. However the basic point of how the participation of non-manufacturing patent holders increases prices remains valid.

4.6. Non-FRAND Licensing

If you have a situation where two parties develop a technology and only one continues to produce the product, the party that no longer produces the product is no longer constrained in their licensing demands by the fact that they need a license from the producing party.

Figure 6



If a FRAND licensing commitment is also absent, the only remaining limitation on licensing demands is the amount that the producing party is willing or able to pay. Figure 6 illustrates the case where X charges 50% more than it would be entitled to under FRAND licensing terms.

Assuming that the producer wants to stay in the business he has no choice but to pay the fee which once again is added to his variable manufacturing costs and shifts its cost curves even higher. As expected this would result in similar change to the equilibrium as any other addition to the variable costs with a new equilibrium point that has an even lower volume (QT) and higher price (PT). Obviously it is not in X's interest to charge a non-FRAND licensing fee so high that that would drive Y out of the market. Yet it does not take much imagination to see how this could happen if there were not one but several patent trolls charging excessive fees.

4.7. Benefit Sharing

While the individual actions of individual IP holders are usually exempt from competition laws, agreements between competitors who are IP holders are not unconditionally exempt. For example under EC competition law, agreements between competitors may be protected from anti-competitive legal action only if they "allow consumers a fair share of the resulting benefit"²³ Unlike many legal conditions there is no great mystery as to why this is required. Simply put if competition is going to be reduced through the allowing collusive agreements there must be something in it for the consumer.

With respect to standardization agreements this conditionality can be easily justified. Since when a technology is included in a standard it almost always increases the adoption rate and as a result also increases the potential value of the technology. As such it is clear that inclusion in a standard creates potential upside which would not be available if the standard did not exist. Being that this standardization value is above and beyond the intrinsic value of the IP, there is no reason why the IP holders should monopolize the benefits and not share them with consumers. The real difficulty is trying to determine how much of the potential monopoly rent is due to the intrinsic value of the IP and how much is due to the standardization process.

While analysis of this apportionment is beyond the scope of this paper common sense would suggest that the IP licensing rates should be somewhere between the ex-ante standardization licensing rate and a marginal cost licensing rate. Obviously a rate greater than the ex-ante rate would be a clear demonstration of patent hold-up, just as any rate below the marginal cost licensing rate would be a clear demonstration of a monopsony. The rate would therefore generate a certain amount of monopoly related patent profits, the question being how much?

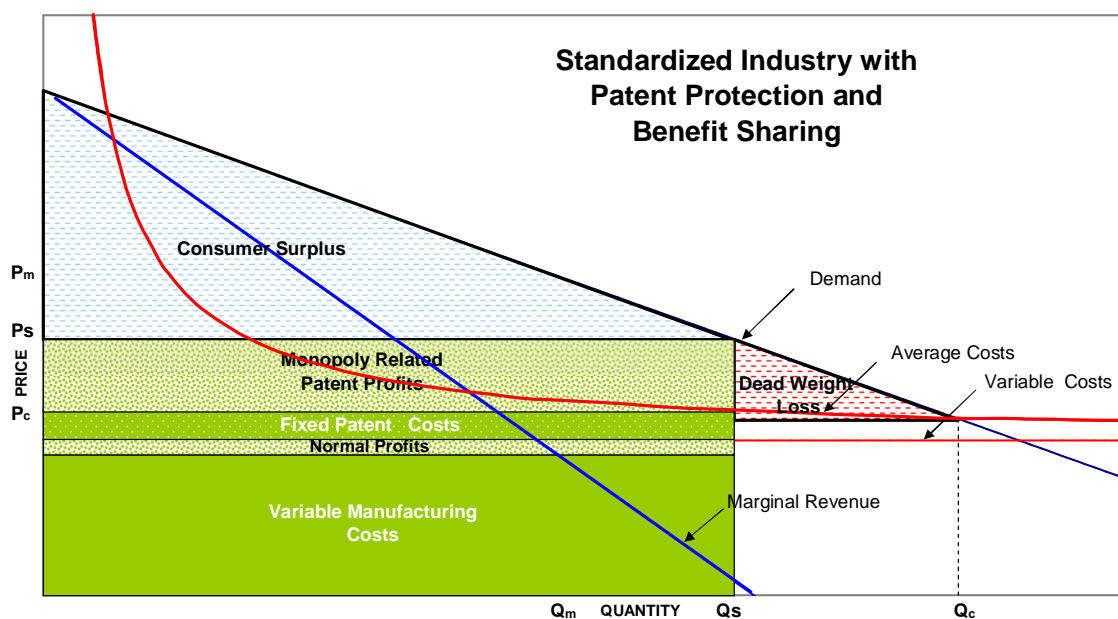
One way of determining where in that spectrum of rates should be set is by looking at the number of possible substitutions to the technology that were excluded from the standard. This number could be used as a proxy for the level of competition that the IP holder would have faced but for the standardization process. If there were no other possible solutions available then the appropriate rate would be the ex-ante rate. If there were two potential solutions then it would be logical to set the rate at the marginal cost rate plus half the difference between the ex-ante rate and the marginal cost rate. If there were three potential technologies then it appropriate rate would be the marginal cost rate plus one third of the difference between the ex-ante rate and the marginal cost rate. Such a calculation could obviously be done for any number of technology alternatives. While there is certain logic to this method it does rely on the determination of both an ex-ante and a marginal costs rate, neither of which may be readily available.

For the purposes of this paper it is assumed that there was one other technical alternative available to the standardization process so the simplified example will use a rate equal to the marginal cost rate plus half of the difference between the ex-ante rate and the marginal cost rate. This rate generates half the level of monopoly related patent profits that would otherwise be generated without the benefit sharing arrangement.

As can be seen in Figure 7 this results in an equilibrium quantity (Qs) and equilibrium price (Ps) somewhere between the competitive and monopoly equilibriums respectively. Figure 7 being the same as Figure 2 but with a different equilibrium point. Note also that an added benefit to society of the significant reduction in the dead weight loss incurred using this shared benefit licensing rates.

²³ Article 81(3), Chapter 1 of Part III of the EC Treaty

Figure 7



4.8. Economic Conclusions

As these cases clearly illustrate the granting of an artificial monopoly inherent in IP rights automatically increases the price and reduces sales volume for a technological product. In addition if an industry moves from a cross licensing arrangement, to an external licensing arrangement this too will automatically raise prices and reduce volumes. Finally it is clear that if there is no FRAND licensing commitment the anti-common licensing aspects will almost certainly result in even higher prices and still lower volumes, and can easily result in the collapse of the standard. Fortunately there are competitive safeguards available to protect both the industry and consumers from these potential negative effects. In particular the European Commission's insinuations that standardization organization adopt FRAND licensing conditions²⁴ and share the benefits of standardization with consumers go a long way to preventing abuse and collapse.

Before leaving this topic perhaps it is worth while to examine the old Chicago School argument about only one monopoly rent being available²⁵. This concept is often used by antitrust opponents who want to eliminate competitive authorities or at least severely restrict their power. Basically their argument is that because there is only one monopoly rent available it is unnecessary to regulate an industry as the industry will naturally regulate itself. While there may be a valid basis for this argument in some conventional case, there is not a valid base where there are either common or anti-common considerations. History has shown that where either a common or an anti-common effect is evident, markets will fail or at the least be highly inefficient unless they are somehow regulated. In this case clearly if every participant that contributes technology to a standard makes a claim for a disproportionate share of that one monopoly rent, the result will be an uneconomical cost that can either reduce or eliminate demand.

Further one point often overlooked by these same antitrust opponents is that while there is only one monopoly rent, that rent is the product of two quite different components. The first of these is the actual monopoly rents attributable to the actual patents and the second is the rents that result from the actual standardization. As discussed above it is not unusual to encounter situation where that standardization provides a greater contribution to the monopoly rent than does the actual patents. It is in these cases where the application of anti-trust laws are not only justified but also required in order to ensure that unjust benefits are not appropriated by undeserving parties, particularly if such benefits are appropriated using techniques such as litigation extortion.

²⁴ Ibid

²⁵ Robert H. Bork, *The Antitrust Paradox: A Policy at War with Itself* (1973)

5. AVOIDING AN ANTI-COMMON TRAGEDY

As has been discussed earlier there are three recognised solutions to either a common or anti-common tragedy. As the third solution involves the unworkable and less desirable option of concentrating all the ownership rights in to the hands of a single party²⁶ this paper focus on the more practical first two options.

The first option involves an outside entity imposing rules or regulations governing the use of the common or limitation to on the veto rights in the anti-common. For example in a commons tragedy like over fishing the governments of the world have for many years regulated the quantity of fish that are allowed to be caught. While it can be argued that this has not proved to be an effective solution it has relieved the pressure on fish stocks and has increased the chances of avoiding extinction of entire species.

Another example of an imposed regulation in an anti-common tragedy would be eminent domain which involves the forced purchase of property with required for infrastructure project. Even though many critics opposed to the exercise of eminent domain because it breaches what they believe is the sacrosanct nature of private property, society as a whole has judged private rights must be subordinated to the welfare of the of the entire society. It is due to this social welfare argument that this policy continues to be maintained. It should that be mentioned that that subordination does not mean that the property holder do not receive fair compensation for their property, rather that their ability to veto the project though an refusal to sell or the demanding of an unreasonable price for the sale are not permitted.

An alternative to out right appropriation of a property is something called essential facility doctrine. The judicial system invokes this doctrine not to change the ownership of a property but to force property holders to provide reasonable access to an essential facility in order to enhance competition. While this would appear to be the ideal solution to IPR abuse and has been used as a remedy for IPR abuse²⁷ it is not yet a mainstream legal remedy that can be relied upon when IPR abuse occurs.

Unfortunately given the current reluctance of the external authorities to impose restrictions on IPR abuse this is not a reliable option in terms of avoiding the IPR abuse that can result in an anti-common tragedy.

The second recognised solution to either a common or anti-common tragedy as described by Hardin is "Mutual coercion, mutually agreed upon". While it sounds quite ominous this involves nothing more than reaching a consensus on the optimal use of the resource and a pre-agreement on how breaches of that consensus will be dealt with. Or in the case of an anti-common reaching consensus on the limitations of the veto rights and a pre-agreement on how the breaches of that consensus will be dealt with. Both of these have the same effect as an externally imposed solution only the optimal outcome is achieved through consensus agreement.

The major advantages of a consensus agreement over an externally imposed solution are three fold. First each party to the agreement is able to provide input as to their principle concerns and have those concerns considered during the course of the negotiations. Second, the act of negotiating the agreement increases the vested interest that each party feel with respect to the rights and obligations included in the agreement therefore improving the chances of its ultimate success. And finally that same vested interest while not ensuring its success, certainly ensures that all parties will more closely monitor each other for breaches.

The corresponding disadvantages are as follows. First it may be impossible to reach consensus. Second consensus usually means finding the lowest common denominator and agreeing on it. Unfortunately when the lowest common denominator leaves out major issues, those issues retain their potential for creating a tragedy. And finally often consensus terms are drafted so vague as to render them virtually useless. As any good lawyer will confirm an agreement that is too general can be worse than no agreement at all. This is because a vague agreement gives

²⁶ Corse Theorem

²⁷ IMS Health Inc v EC Commission

the illusion of security when in fact they provide little or no security. At least when there is no agreement there are no illusions.

Assuming that a consensus can be reached on a clearly defined agreement that deals with all the relevant issues this is obviously the preferred option to having an externally imposed solution. Further in the absence of the possibility of an externally imposed solution a mutually agreed solution may be not only the best option, but the only option. Given the current environment any agreement which is intended to create an anti-common balance should include most if not all of the following provisions.

5.1. MANDITORY DISCLOSURE

Recently there have been a number of high profile cases in the field of intellectual property rights involving non-disclosure of patents to SSO by their members.²⁸ The message sent by the courts in these cases has been that non-disclosure is considered a serious matter and may result in the unenforceability of the intellectual property right. This type of judgement is being actively applied in cases where a patent hold-up situation is brought on by intentional non-disclosure. In cases of unintentional non-disclosure the remedy is usually less harsh and may not result in any judicial remedy at all.

While mandatory disclosure helps to avoid hold up, SSO can avoid all non-disclosure issues by insisting on verifying the proprietary nature and ownership of any technology before it is considered for inclusion in the standard. This does three things first if the technology is clearly identified as being non-proprietary it removes the need for concern. Second it obliges any member of SSO to step forward and claim ownership of a particular technology prior to its adoption, if they want it to be adopted. Alternatively if the member does not want the technology to be adopted it provides a useful means of avoiding having the SSO adopt it and making it subject to the SSO rules. Finally it allows the SSO to avoid adopting a technology that is the proprietary property of a non-member. Needless to say if a SSO adopts technology owned by a non-member, that non-member is not bound by any agreement it is not party to and so can enforce its intellectual property rights without the limitation of the SSO agreement.

5.2. INJUNCTION LIMITATIONS

Perhaps the most important issue that needs to be clearly addressed with any agreement covering intellectual property rights is the limits to be applied on the right holder's ability to seek injunctive relief against potential licensees. This is because unrestrained injunctive relief means absolute veto power and provides patent trolls with their most powerful weapon of coercion. It is not just that this weapon has the ability stop the sale of all infringing products in the relevant territory, under American law it can also result in triple damages for infringement²⁹. If that were not bad enough recent cases have shown that the old defences against patent misuse have been eroded so much that the probability of a patent troll achieving success in a patent infringement case have significantly increased. For all these reasons many potential licensee when threatened with injunction action seek to avoid it by settling on terms that they know are neither fair nor reasonable

Some SSO's argue that injunction now represents such a huge threat that it should not be available at all. This author contends that injunction is a necessary threat but one that needs to have limitation imposed on its utilization.

It is a necessary threat because without it any enforcement actions against serial infringers would be impossible and free riding would give the infringers a material advantage over licensees who pay royalties. In other words seeking injunction is a legitimate legal response to illegal infringement. The difficulty is in trying to prevent its misuse. Likely the best option available to prevent misuse is to limit injunction relief to a last resort legal remedy. Delaying the possibility of injunctive relief until after other legal remedies have been pursued both removes

²⁸ Dell v Commission, Rambus Inc v Infineon Technologies AG

²⁹ 35 U.S.C. § 271

much of its negative coercive power and effectively eliminates nuisance lawsuits, while still retaining its positive coercive power.

Those legal remedies could and should involve first nonbinding arbitration, followed either binding arbitration or courtroom adjudication. Only if a party breaches a binding arbitration decision or a court order should injunctive relief be available. By agreeing to move injunctive relief to the back of the legal queue SSO members are providing a clear indication that they are not going to try to coerce potential licensees into unreasonable agreements with nuisance litigation. Any SSO participant or potential participant that is unwilling to move injunctive relief to the back of the legal queue is almost certainly a patent troll.

5.3. FRAND

Assuming that an agreement on limiting injunctive relief can be reached the next most important issue is the actual licensing terms. Many SSO have included in their membership agreements a commitment to FRAND licensing terms. FRAND being an acronym for "Fair, Reasonable and Non-Discriminatory". Unfortunately few SSO clearly define what FRAND means in detail. While the commitment is intended to prevent members from engaging in licensing abuse based on the monopolistic advantage generated as a result of having their proprietary technology rights included in the industry standards, the vague nature of the commitment greatly undermines its value. That is not to say that vague meanings do not have legal consequences just that both in the U.S. and in Europe it is much easier to enforce clearly defined rules than it is to enforce the spirit of an agreement. Further as there are no solid legal precedence available for determining the meaning of fair, reasonable and non-discriminatory judges and juries are free to interrupt their meaning in any way they choose. As such in order for FRAND commitments to have meaningful legal consequences they need to be clearly defined and it is this author's contention that they should be defined as follows:

5.3.1. Defining Fair

Fair should refer to the underlying licensing terms. Drawing from anti-trust/competition law; fair terms means terms which are not anticompetitive and that would not be considered unlawful if imposed by a dominant firm in their relative market. Such competition law compliance would preclude the inclusion of most egregious anti-competitive conditions in licensing agreements. Including but not limited to; price fixing, collusion, exclusive dealings, bundling, mandatory grant backs and legal prohibitions.

- i. Precluding price fixing has obvious implications and is perhaps the most hard core of competition violations.
- ii. Precluding collusion would mean banning licensing terms which require the licensor and licensee to co-ordinate their activities with respect to the SSO or its members. An example of a term which would be prevented would be one that would require the licensee to stop supplying a third party in the event that the third party challenges the legal validity of the licensor's patents or patent terms. Such terms are generally included to increase the leverage that a licensor has against third parties and if incorporated into sufficient agreements makes challenging a predatory practices virtually impossible. An alternative example might require the licensee to support the licensors submissions to the SSO. Again this type of clause is clearly anti-competitive and can prevent proper consideration being given to alternative proposals.
- iii. Precluding exclusive dealings would help ensure the continued availability of alternative competitive offerings. This is particularly important with respect to non-essential intellectual property. While all licensees need access to essential patents if licensees are forced to license and use the licensor's complimentary non-essential patents this will eliminate the possibility of purchasing similar offerings from alternative supplier. Such a restriction will eventually eliminate the alternative competitor significantly reducing future competition.
- iv. Bundling in and of itself is a not necessary anti-competitive and may even be pro-competitive. However that assumes that the bundles are limited to the products actually desired by the licensee. If the bundles consist of elements not desired or required by the licensee it imposes an unwanted burden on the licensee and may forestall competition in the unwanted portion of the bundle. For these reason mandatory bundling of non-essential

products should be precluded. That is not to say that such bundles should not be available only that they should not be mandatory in nature and licensees should be able to decide on the basis of their own self interest whether to license only the essential patents or a larger bundle.

- v. Mandatory grant backs involve the granting back to the licensor all rights related to the development of the licensor's technology that the licensee makes while the license is in force. This needs to be precluded because it eliminates the incentive for licensees to develop their own intellectual property. Clearly there is no point expending resources to develop new technology if the benefit of doing so accrues to the licensor. Further when only the licensor has an incentive to engage in development it virtually guarantees that future competition will be significantly reduced.
- vi. Perhaps the most controversial of the proposed preclusion involves legal prohibitions. Included in many proprietary licensing agreements is a prohibition that forbids the licensee from challenging the legal status of the underlying patents or any licensing terms included in the actual licensing agreement. Licensors justify including this prohibition because they believe that if a license forecloses their option to pursue an infringement against the licensee it should also foreclose the possibility of the licensee pursuing any legal action against them. This view reflects that idea that the license represents negotiated settlement of the respective licensing issue and allowing a subsequent challenge would give the licensee at an unfair advantage because it would allow licensee to the opportunity to renegotiate an agreement that binds the licensor. While there is a certain merit to this argument the counter-argument has greater legitimacy. The counter-argument being that if a license forbids licensees from challenging the validity of a patent or the terms and conditions of a licensing agreement then invalid patents and anti-competitive licensing terms will not be subject to legal review. Such a situation would logically lead to an increase in anti-competitive activities at the expense of the industry as a whole.

5.3.2. Defining Reasonable

The term reasonable in the FRAND acronym should refer to the licensing rates. A reasonable licensing rate is a proportionate rate charged on licenses which would not result in an unreasonable cumulative royalty rate if all licensees charged a similar rate.

- i. Clearly cumulative rates that would significantly increase the cost to the industry and make the industry uncompetitive are unreasonable, but so are rates that reflect "what the market will bear". As discussed through out this paper the market will bear quite a lot, and if that is the only criteria patent trolls will almost certainly enrich themselves at the expense of the entire industry.
- ii. For rates to be reasonable they must be proportionate. That is to say they must take account the percentage of essential patents that their patents represent in the over all standard.
- iii. Whether it is a flat rate or a "percentage of sale" rate that is applied for royalty purposes, dividing that rate by the licensor's percentage share of standards total portfolio determines the cumulative rate.
- iv. Clearly there is some merit to the argument that certain patents are more important than others and as such deserve a higher royalty rate. However a prerequisite for a licensor to be able to claim a higher rate should be that the licensor notify the SSO in advance of the patent's adoption that they intend to charge a higher rate. This will allow the SSO to decide whether or not the particular patent deserves special consideration and remuneration.
- v. It is worth noting that a licensor which has several different licensing bundles might be tempted to have both reasonable and unreasonable priced bundles. However having a reasonable rate for a larger bundle does not excuse having unreasonable licensing rates for smaller bundle or single patent. All licensing rates should be reasonable.
- vi. It is the authors contention that the very best way to deal with royalty rates in an standardized setting is for the SSO to set what it considers to be a reasonable target rate for the aggregate of all licensing fees. In the event that a technology provider does not indicated prior to adoption of their technology into the standard that they wish to charge a different rate, this target rate will be used in the proportional rate calculations for their contribution. This system not only would provide clarity it would also introduce an element of price competition in to the standardization process. Technology contributors would be free to set either higher

or lower rates for their technology based on their own individual valuation, and the SSO would take price considerations into account when making standardization decisions.

5.3.3. Defining Non-Discriminatory

Non-Discriminatory should and does relate to both the terms and the rates included in licensing agreements. As the name suggests this commitment requires that licensors treat each individual licensee in a similar manner.

- i. This does not mean that the rates and payment terms can't change dependent on the volume and creditworthiness of the licensee. However it does mean that the underlying licensing condition included in a licensing agreement must be the same regardless of the licensee.
- ii. Not only does this obligation help maintain a level playing field with respect to existing competitors, it also ensure the potential new entrants are free to enter the market on the same basis.

5.4. Transparency

The best way for any SSO to ensure that no members breach the SSO's licensing obligations is to insist on transparency of their general licensing terms. This disclosure not only assists in the decision making process of deciding which technologies the standard can afford to adopt, it also provides licensees the ability to compare their individual offer against that the general terms to make sure that it is non-discriminatory. As an additional benefit this ex-ante disclosure limits the legal threats regarding non-disclosure which are used by patent trolls to hide their anti-competitive behaviour. Clearly companies which insist on secrecy are attempting to hide something and it often is something that can not stand the light of day.³⁰

5.5. Judicial Review

Any SSO membership licensing requirements must of course be able to withstand the scrutiny of the judicial system. Given that all of the proposals in this paper are driven by pro-competitive concerns and founded on anti-trust and competition rules, it is very likely they will be able to withstand the scrutiny of the competition authorities. That being said it is likely given these requirements would severely restrict or even eliminate leveraging opportunities it is also very likely that eventually patent trolls will challenge the legality of the restrictions.

The most likely path of challenge would involve accusing the SSO of representing a monopsony.³¹ That is accusing the buyer of attempting to force suppliers to accept licensing terms and conditions that are unfair. While it is obvious that the focus of most of the attention will given to royalty rates it is perhaps useful to address the competition guidelines with respect to each of the proposed provisions.

- **Mandatory Disclosure:** There is nothing in competition law to prevent a SSO from either insisting on mandatory disclosure from its members or verifying the proprietary status of a technology before it is adopted into a standard. Actually it seems to be quite the reverse, in several recent judgements intentional non-disclosure has resulted in holders being barred from enforcing their rights.
- **Injunction Limitations:** Because the proposed limitation involves postponing injunctive actions until other pre-agreed legal avenues have been followed it does not eliminate the option, only delays it. This is a significant point because eliminating the opportunity for injunctive relief fundamentally destroys the value of a patent which could be frowned on in many jurisdictions. Conversely requiring the incorporation of pre-agreed litigation

³⁰ There are good reasons why the world's most trusted corruption monitoring organization is called Transparency International.

³¹ Monopsony is an economic term that refers to a buyer's monopoly. In a monopsony there is only one buyer and suppliers are forced to accept what ever term the monopsony dictates if they want to participate in the market.

rules in contracts have been around for a considerable time and have long been considered a prudent measure to incorporate in any significant legal document.

- Fair terms: Price fixing, exclusive dealing, bundling are generally viewed as unacceptable restrictive actions under existing competition law so it is only the banning mandatory grant backs and legal prohibitions that should be subject to any sort of judicial challenge. The mandatory grant back is an intellectual property specific issue that has yet to be properly addressed in the judicial system. Given that the overall FRAND commitment provides the equal access to all licences in a given standard, mandatory grant backs represents little more than an unnecessary contract restriction designed to appropriate licensor intellectual property without payment. As there is little or no justification for such a restrictive term it is hard to see how the courts could find banning such terms anti-competitive. Only the restriction on including legal prohibitions in licensing terms is somewhat contentious. However given the intent of the restriction is to eliminate invalid patents and anti-competitive licensing terms it seems likely that such a restriction would be upheld.
- Reasonable Royalty Rates: There is a great deal of debate about what is reasonable royalty rate. Under the current U.S. judicial system the view of the courts seems to be that the virtually sacrosanct nature of intellectual property rights means that rights holders are free to charge what ever "the market can bear".³² The European and other international judicial systems tend to take a more balanced view and impose greater restrictions on monopolistic pricing practices by rights holders.³³ It should be pointed out that these cases involve challenges to what were alleged to be excessive pricing policies by rights holders. To date there is no precedence involving an SSO setting a target rate or limiting royalty rates to no more than is a pre-agreed reasonable commutative rate. Assuming the target rate or pre-agreed cumulative rate does not attract a monopoly pricing complain while providing holders with a reasonable return on their investment, it is hard to see how an SSO would be condemned for precluding patent trolls from unjustly enrichment themselves at the expense of the entire industry.
- Transparency: There is nothing in commercial law that forbids the practice of open tender on open contracts, so insisting on ex-ante provision of general licensing terms should not be an issue. Given that there is no requirement for disclosure of individual contract terms this should leave licensors and licensees with the flexibility and secrecy desired for licensing purposes while ensuring the non-discriminatory nature of the agreements.

Underlying any defences of a SSO's rules would be the argument that participation in the SSO is voluntary. In the event that a particular standard represents less than the competition authority prescribed minimum percentage of a particular industry this argument would provide a high hurdle a monopsony charge. For just as in monopoly cases, monopsony cases assess the relevant market and the alleged monopsony position in it. Usually if the market position does not constitute a market control monopsony charges will be dropped.

In the event that a particular standard represents more than the competition authority prescribed minimum standard each of the rules will and should be subject to judicial review. And if that judicial review finds that any particular SSO rule contravene legal doctrines than that clearly will need to be amended. SSO have little to fear from a ruling instructing them to amend a rule, as long as they had initially adopted the rule for the pro-competitive reasons described above. For it is usually only when actions are taken out of an anti-competitive malice that serious anti-competitive sanctions are applied.

5.6. Vigilantes

Obviously the both the scope and the success of remedies will vary greatly depending on the rules currently governing individual SSOs. SSOs that have little or no rules regarding treatment of proprietary technology but have included proprietary technologies in their standards will greater difficulty in avoiding anti-competitive behaviours. Even SSOs that have strong and detailed rules

³² Phillips v Commission

³³ IMS Health Inc v EC Commission

will likely see attempts to circumvent those rules so the key is to be vigilant and address attempts unjust enrichment before they become ingrained in the industry.³⁴

³⁴ Carnegie Mellon University professor Allan Meltzer, Federal Reserve's annual retreat 2008. "Lawyers and bureaucrats make regulation, and markets decide how to circumvent them,"

6. CONCLUSION

Supreme Court Justice Oliver Wendell Holmes is often quoted as having said, "This is a court of law, young man, not a court of justice." This statement is certainly becoming more and more appropriate in IPR cases. Unfortunately because the courts still rely on outdated concepts of inventiveness they no longer provide a serious obstacle to preventing the unjust enrichment of Patent Trolls through IPR abuse. It is precisely because SSO members can no longer reasonably rely on justice to prevent anti-competitive acts that their SSO's must adopt licensing policies that prohibit anti-competitive acts.

Fortunately even though justice may no longer be the driving force in judicial systems, most western judicial systems has become highly effective in enforcing contracts. Few lawyers would argue with the suggestion that under today's legal system a valid contract sits at the pinnacle of jurist prudence. To that end if SSO's incorporate a mutually agreed explicit set of rules to govern licensing activities between members, the courts can be relied upon to provide the mutual coercion required to avoid an anti-common tragedy. In short it is possible to ensure; fair, reasonable and non-discriminatory behaviour from SSO participants but only if SSOs explicitly prohibit; un-fair, unreasonable, and discriminatory licensing terms.

As for the prospects of reaching agreement on a unified method of dealing with IPR abuse under the universal law, it is this author's contention that it will not be possible for a very long time. Unlike with the TRIPs Agreement where all IP developers had common cause in trying to protect their property from outright theft, IPR abuse is a more nuanced and there is not one standard perspective or a standard remedy. Just as this paper condemns the anti-competitive activities in a standardised environment, it is certain that the patent trolls will produce papers that justify their action. Competing notions of fairness will be presented to the lawmakers and different lawmakers will view the matter differently.

As such if any progress is to be made on this legal issue it will not likely result from statutory activities. Rather legal resolution of IPR abuse will come from judicial review of SSO's licensing rules that are challenged by in the courts by potential abusers. Eventually when there is sufficient precedence in case law to reveal a doctrine, the law makers may seek to make statutory that doctrine.