The Payvote Scheme for Selling Intellectual Property by Ray Gardener

Introduction

Gordon Letwin, a longtime programmer and software architect at Microsoft, mentioned in his OS/2 book that new inventions typically go through two phases. He cited the phone as an example: initially, people used it to perform existing tasks, such as sending messages. But then they eventually realized that whole new forms of communication were possible, and the behavior of phone usage changed much more dramatically. Some of those changes, such as fax machines and cellular phones, continue today.

The same is true of the Internet. It is still very young, and we can't help but use it to simply speed up existing processes. But the Internet won't stay young for much longer, and like the phone, entirely new ways of using it will appear. This essay suggests one of these new ways, in order to solve the long-standing problem of intellectual property theft, which is more colloquially referred to as piracy. If you've been thinking of turning your software into open source, you may want to read this essay first, and then reconsider your options. Conversely, if you prefer open source work, you may find it possible to be financially compensated.

I had been thinking about the matter for a few years. It was after reading an article about Steve Davis, the CEO of Corbis (a Microsoft company that manages digital media archives) that things clicked into place.

Davis said that existing intellectual protection law was necessary and had to be enforced. And for some of the types of IP that Corbis manages, such as digitized art gallery pieces, I agree that existing copyright law is beneficial and is unlikely to be replaced by another scheme. But for other works, such as software and movies, I began to disagree, and felt that he was making too wide a blanket statement. I started to think: most of our laws are, after a fashion, arbitrary. They come about from changes in society, so shouldn't they change as society changes? Surely a societal change as big as the Internet should help modify some laws. And the more I thought about it, I realized that copyright law was one such law that perhaps should change. In fact, we might even be able to do away with it, at least for the types of IP that would be helped by such a change.

It sounds radical, and I agree. But at the very least, we have to start intelligently discussing how to adapt our legal codes to deal with technological progress, because what we have now clearly isn't working. We can change, or have change forced upon us. I'd much rather do the former. Change may be inevitable, but the impact of change can be minimized by an informed populace, and the economic stakes are very high. Surprising change can wreak havoc on people's employment plans, while managed change gives everyone time to adjust.

Back to Basics

It's been often noted that our economic model is based on the scarcity of resources. Air is so common, for example, that it's free. Precious gems, on the other hand, are quite rare and thus the people who own them can give them to others in exchange for something else. We all recognize this as the standard law of supply and demand.

Intellectual property is different. Being information, it has the virtue of implicitly duplicating itself every time it is given to someone. If I know something, and you pay me to know it as well, I can tell you, but I will still know what it is. I can tell it to someone else again, but now so can you. If you decide to give it away freely and your distribution methods are on par with mine, I will start losing sales. Add in network effects (you tell two friends, and they tell two friends, and so on), and pretty soon all demand for what I know evaporates.

We created copyright law and patents to help the original creator of IP retain ownership. This attempts to give the virtue of a physical object to a virtual one, which is necessary to create resource scarcity. But in reality, especially in today's reality where duplication, storage, and distribution of data is now trivially easy, this concept of "owning" IP is being shown up as the inherently untenable prospect it always was. In effect, trying to make an abundant resource like IP into a scarce resource just won't work, and that will only become more true with time, as the Internet becomes more ubiquitous, powerful, and faster. It was easy to enforce when copying was difficult or impractical, but things have changed, and the solution won't be found until we go back to basics and start examining copyright law itself.

True Scarcity

In chapter 11 of his book What Will Be, Michael Dertouzos of MIT says:

"Proponents of the cheap copy myth regard information as passive, what we have come to call an *information noun* — a memo, a database, a picture, a movie. And they imagine that there are a number of people around (a market) interested in buying copies at some low price. Both views are limited.

"To be sure, information in publishing and entertainment —books, musical recordings, videos — satisfy these conditions. To these you can add patents and other intellectual property. In these cases the argument of cheap copies is true."

He goes on to say that such information represents only a small (about five percent) portion of the economy. While that may be true, five percent of the economy is still a huge amount. The important thing is that he agrees that the cheap copy myth is true for IP.

It's no secret that a great deal of revenue is being lost to piracy. We now have reams of statistics compiled by the SPA and private companies about this. I was once asked by a former employer in a software company what would happen if everyone who truly used his software paid its full licencing price. I imagined we could afford to hire twice as many people, and most people in the software industry would agree. Dertouzos noted (later in the same chapter) that the other ninety-five percent of information is intermediate, and has value because its use leads to other goods and services. But that creates an insidious domino effect that makes piracy even worse: if the end result of a large amount of intermediate information is an IP work, then stealing the work effectively devalues a lot of that intermediate information too.

Metacreations, for example, recently discontinued its popular Bryce software application. Being in the graphics software business, I am not only familiar with this application, but I can assure you that it is extremely popular with a great many people. As Metacreations explained in their press release, it simply didn't make good economic sense to sell Bryce anymore. I don't know precisely to what extent piracy contributed to Bryce's demise, but I am sure it was not insignificant. Or let's put it another way: if the decision to keep Bryce was of a borderline nature, then without piracy, they could have kept selling it.

The creator of an IP work can enforce resource scarcity *before* he or she shares it with anyone, and that is our starting point. If I know something, but I haven't told anyone what it is, then I am truly the owner of that information. If you want it, the only options you have are to pay me, pay someone else who has similar information, or hope that the information becomes public knowledge (and wait) and then get it for free. Most of the time, if the information is particular enough, and time is of the essence, the first choice is usually the only one. At the point of nondisclosure, information is just as concrete as any physical object, and the normal laws of supply and demand can work.

Initially, I had imagined that musicians in the future might become completely disenchanted with the Internet, due to piracy, and begin playing to small, tightly managed audiences in private venues. To some, this would be a step forward, since it would herald the return of live music. But it would be quite exclusionary also, and not very profitable for the artists. To make a good living, they would have to charge

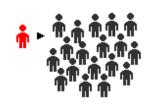
each listener a large sum of money, so only the rich would have new music. The more they tried to increase the size of the audience, the harder they would have to work to ensure that no one had smuggled in a recording device. As a solution, it's understandably not too popular. A person who creates IP should be able to receive compensation from all who benefit from it, but the law of diminishing returns comes rapidly into play as the number of buyers increases. Ironically, the more people one tries to sell IP to, the less revenue there will be.



Sale of IP to one party. Copy protection is very easy; full revenue can be realized.



Sale of IP to several parties. Copy protection is more difficult; some revenue may be lost.



Sale of IP to many parties. Copy protection impossible to enforce; full revenue is never realized.

People who pirate IP don't feel too badly about their behavior. But without fair compensation for work, especially for IP which is laborious to create (like software), the economy becomes skewed. And like nature abhorring a vacuum, people tend to abhor skewed economies. At some point, producing IP becomes impractical, and people will stop doing it. Who knows how many products have quietly died for lack of fair revenue? Or what products might have been if compensations had been fairly paid? If I may be permitted to stretch this reasoning, it's even possible that the Microsoft antitrust case might never have happened either. Microsoft, by selling its principle OS products through bundling arrangements with hardware OEMs, enjoys a natural "physicality" of software that other software vendors do not. This weakens the effect of piracy for Microsoft but leaves it unfettered for its competitors. This is not Microsoft's fault, of course; it is merely circumstance — but one can't help imagining what would have happened if everyone enjoyed the same natural "copy protection" as Microsoft.

Bill Gates himself recognized this advantage of tying software to hardware in his 1976 (?) interview with *Personal Computing* magazine. He noticed right away that his company's Altair BASIC interpreter product was being copied wholeheartedly, and realized that Microsoft couldn't do business under such conditions. Since the Internet wasn't available to provide the remedy I will describe, he did the next best thing, and focused on selling his software for large amounts of money to fewer buyers. Fortunately for him, BASIC interpreters were a fundamental enough piece of software that he was able to do business with wealthy hardware manufacturers. It's not hard to see why he followed up BASIC with DOS, and then with Windows. Unfortunately for everyone else, they kept trying to sell software without such bundling, and it proved more and more disastrous over time. Not only was Microsoft hard to beat, but its competitors were losing sales to piracy. The economy became unfairly skewed, and as a result, the software industry grew up lopsided. If Microsoft had engaged in the locking out of competitors from enjoying hardware OEM bundles, it would have been the equivalent of enjoying a piracy-free zone, while forcing others to remain in a piracy-laden area. As if losing sales to piracy wasn't bad enough already!

Realizing the True IP Buyer

Once an IP owner makes his first sale, aren't we back to square one? Can the IP not now be ruthlessly copied and the revenue diluted? Yes, but only if we sell to an individual person. What has to change is the way IP is sold.

After a while, a simple thought occurred to me. I had even mentioned this in cruder form on Usenet last year to someone who wanted my software to be in open source form. I suggested that, since there were many people like him, to arrange to collect one dollar from each of them until there was at least \$100,000, and once I received that money, I would do as he asked. Not surprisingly, the idea was not well received.

Other readers who were intrigued said that it sounded good in principle but unworkable in practice. Another mentioned that some Web sites were doing something similar, trying to raise money ahead of time for useful open source projects. After watching some of these sites for a while, I concluded that their lack of success lay from a combination of factors, the largest of which was that their method of collecting funds, hiring and managing the right engineers, and convincing people that those funds would be properly used, were unsatisfactory. People, as a rule, don't like to risk their money (the popularity of gambling and the stock market notwithstanding).

So we had managed to identify the true IP buyer: the general public. But we were selling to him the wrong way. All that's needed to make things work is to change the sales method.

Selling IP to its True Buyer (the Public)

The sale of physical goods to the general public can be (and is) done on an immediate basis, or on a deferred basis in the case of resellers, who help with distribution (since there are many people to sell to). The dynamics of this process set up the necessary context for the buyer to be receptive to a sale. The product is visible or well known, is available (more or less), competitive knowledge about the product exists, the product's reputation is known, and the product's purpose and method of use are understood.

You can buy a stereo with confidence, for example, because of this context. You know what a stereo is and what it does. You can see working stereos at the store and try them out. You can compare notes and prices about different stereos with different shops, manufacturers, and friends. And you know how to operate a stereo (or at least you know that it will not be difficult to operate it once you own it). The same is true of simpler items such as food, although the process tends to much more subconscious since food is so basic. Sometimes a strange new food will appear for sale, and suddenly it becomes more apparent how necessary the sales context is. For more costly items such as cars, a good number of consumers are willing to engage in detailed usage of the context, comparing all manner of items such as qualities, options, and costs.

The general public, before it can spend a large aggregate sum of money on an IP, must have a similar context. This means that instead of starting a project and looking for funding, the project must have reached its first product stage (1.0, in the case of software) and then attempt a sale. Because a one-time sale of IP is costly (it can easily range into the millions of dollars), the information in the sales context must be exhaustive, exactly as if the IP were being sold as part of an IP technology sale to a company. Indeed, any member of the buying public, before participating in the purchase of an IP item, would expect to be able to know everything about it.

None of the above is difficult. What is difficult (or has been difficult) is securely organizing the specifics of the sale. But since the Internet is here, it is (or soon will be) possible to conduct such sales. The process would work like this:

- A company creates an IP, say, a new software program.
- The company sets up a web site for the application and distributes limited demos of it to everyone.
- The company registers the software with a central trusted IP sales authority to ensure accountability. The authority conducts an audit to make sure that the IP exists, it performs as expected, is documented, does not contain viruses, etc. etc. Legislation is passed beforehand making it a considerable crime to falsify IP registrations, which no company would generally want to do.
- The company does some other marketing to make people aware of the program. The goal is to effectively establish a working sales context for the software.
- People download the demos, try them out, and over the next few months, vote through the Web (and maybe also at public kiosks) indicating their interest in the program, which is expressed as an amount of how much they're willing to personally pay. People who need the software very badly may opt to pay a large fee, while others may choose a smaller token amount. A certain minimum payvote value

may exist, below which, the transaction and other server fees negate the vote's value. Along with the vote, people provide their credit card number or other means of future financial payment (e.g., the number of their payment account at the IP authority). Or the payment may be automatically deducted from their next paycheque (as part of taxation). Payments are never processed if the IP is not sold.

- The company waits until a sufficient number of votes accumulates. If the total dollar amount is too low, the company can wait longer, or conclude that there was insufficient demand and go back to improving the software to make it more saleable. Or it may restructure the IP into multiple IPs, merge some with the IP of another company's, etc. We could assume that existing copyright law would remain as a legal agreement between companies, along with NDAs.
- The company provides the software to the IP authority (or agrees to release the software itself).
- The IP authority charges the voter's accounts, collects the aggregate payment, and gives it to the company.
- The public is given access to the software. In exchange for voting, those who voted are given preferred access (e.g., e-mail notices with direct download links) while everyone else visits a web site or gets a copy of the software from a friend.

In essence, the Internet makes it possible to quantify the public as a single transaction participant. Without this ability, the payvote scheme is not feasible. But since the Internet is here, it would be remiss not to consider its ability to cast the public in the potential role of aggregate buyer. Indeed, some enterprising firms have realized this, trying to use large numbers of individuals to buy things in bulk, thereby lowering prices to more wholesale levels. The payvote scheme could be interpreted as the logical conclusion of such a business model.

Effects and Concerns

Today (2000) not everyone is on the Internet. And of the people that are, they are mostly North American. This means that the liquidity of buyers is not fully optimized. It also means that the people who have yet to use the Internet will benefit more from the actions of the voters, since by the time they start using it, a number of IP items will have been purchased and be freely available. This may create some animosity between those who vote and those who don't, but on the whole, people pay so little individually that it's hard to get upset. Over time, as voter liquidity increases, people tend to pay as often as they benefit from someone else having paid, and the issue fades away.

The need for cracking software goes away, and with it, most of the cracker and warez population. With the possible exception of the crackers themselves, nobody will really lament this.

Copyright law becomes obsolete, because making copies will be allowed by law, because ownership of IP will exist only before its sale. A writer or movie producer, for example, must accept the fact that, after he or she has been paid, the public can do whatever it wants with his book or film. This is not so bad, actually, because a) protecting copyright was always difficult and gets moreso all the time, and b) all the time and money spent on protecting copyright can be put to better use. The worry that a competitor will use sold IP to create a new IP product is largely unjustified, because a) the public generally doesn't like me-too variations of IP, b) since IP is only sold to the IP authority, such situations can be dealt with, and c) someone trying to sell the revised IP the old-fashioned way won't, for piracy reasons, make anywhere near as much as those selling to the IP authority.

With copying legal, it will be possible to quote not only small passages from a book, but the entire book if necessary. The question of how much is permissible to quote, or whether linking to someone else's information is acceptable, will simply vanish. Good riddance, I say.

In the case of software, payvoters will worry that IP sellers will not bother to support their product after the sale, or that they will not continue to invest in additional R+D to produce upgrades. This is unlikely to

happen — one only has to look at Hollywood to realize that sequels tend to be the rule, and that making a lot of money once is never enough. If anything, it would be silly for an IP company not to continue R+D, since the cost of producing a product upgrade tends to be incremental after the initial development. As for support, support services can be a nice secondary profit center for a software developer, as well as a good job provider. Charging for support, in fact, is more justifiable since support would be perceived more as its own standalone service, rather than being implied in the sale of IP. We are already seeing this with the arrival of support-based software companies, such as Red Hat and other Linux vendors.

It would no longer be possible for an IP owner to rest on his laurels and take in licencing revenue for long periods of time (which is often seen as one of the basest aspects of copyright law). The one-time sales revenue for the IP would be the only revenue the owner would ever receive for it. To earn additional income, he would be forced to innovate again and produce another IP. This is already the way it works in the physical goods sector — if you want to make more money, you have to keep coming up with more goods to sell. Trying to decide what constitutes a "fair" length of time for a person to hold copyright is no longer necessary.

IP owners may worry that even with payvoting, they will still not receive all the revenue that should have been theirs. If a million people vote, they will think that another million should have voted, but didn't because they didn't need the IP as badly, but will nevertheless use it later. What's important to realize is that, if the owner thinks his compensation is unfair, he at least **has the choice not to sell**. This is no different than the sale of any physical good.

If payvoting succeeds, people may find it unwholesome that so many IP owners are getting wealthy. But that's what we want: more millionaires, not fewer. How else are we going to get the wealth more fairly distributed? If everyone who has a decent play, story, movie screenplay, music album, software product, etc. can be fairly compensated, this is more equitable than what we've had before. It will also lead to the development of more IP, which in turn will make society as a whole richer and life more enjoyable.

The IP authority may seem like having too much power. In truth, the public is already used to such authorities, like Network Solutions, which manages all the domain names and top-level name servers. If people are worried about giving their credit card numbers when voting, what they can do is set up small-money accounts (containing, say, \$200), and allow the authority access only to those. If the average IP purchase costs a payvoter \$5, then even a small account will last a good length of time.

People who consistently avoid payvoting in hopes of getting IP for free will likely exist. It's human nature (and due diligence) to get as much as possible for as little as possible. But there will also always be people who genuinely need IP and will payvote early for it. This may cause a new social class division to occur, between those who regularly payvote and those who don't but use the IP anyway. We are actually already seeing this on Usenet: pirates asking for free copies of IP are routinely shunned and denounced by their peers. If we assume that those who don't pay are doing so because they genuinely lack the funds, then the situation corrects itself as they grow older and acquire jobs. Another thing to remember is that, because the payvote fees tend to be small, the percentage of those abstaining should also be small. Finally, if the existing peer pressure continues, most people will gladly join "payvoting" society to gain acceptance. It could become "faux pas" to ask people to copy their IP, even though copying is legal, simply because the person being asked will know that the asker is an abstainer. It could be legal for the original IP owners to stop providing downloads of the IP from their site once a sufficient amount of time has passed. Warez dealers could shift to providing mirror sites for the abstainers, which, in a way, is eerily a social parallel to what they're doing now. In that case, the stigma would occur if someone found out that you had downloaded from a warez site (not to mention risking viruses or other changes to the IP). But as I mentioned before, it's hard to see someone abstaining when the payvote amount is so low.

The payvote amounts may not be high enough, or the number of votes may not be high enough, or both. A company could spend \$2 million developing an IP, only to collect \$1.5 million in payvotes. I think the idea is to start using the payvote scheme on small IPs first, to get an accurate feel for the responses. Over time, as the payvote scheme replaces the old sales method, people will use it more, and the ones who genuinely like the IP will tend to encourage their friends to payvote similarly (instead of battling over politicians,

they'll debate over products). Large corporations whose employees payvote en masse can act as stabilizing nodes that make predicting success easier, since getting payvote consensus within such organizations is easier. An MIS manager wanting to standardize on a certain groupware client, for example, would get his company to payvote for it more as a group, with a proportionally higher payment amount. Canvassing the voters and running test polls can also be done ahead of time. A company could do this when starting a project, before investing serious R+D funds. Considering that investing in an IP product is a gamble even without the payvote scheme, the risk is a moot point. Over time, after racking up a history of winners and losers, it should become easier to tell which IP items are likely to succeed and which will fail.

People won't bother to vote. They barely vote for politicians, so why should they vote for IP, especially since the number of IP items is far greater? This could be the big chicken-and-the-egg problem. If payvoting becomes the only way of buying IP, then the issue is fairly moot, because people will need to acclimate themselves to the payvoting process, and eventually they will perceive it as entirely normal, just like using an ATM is today. The challenge is for the payvote infrastructure designers to make it as easy and fast to use as possible, and secure and reliable. If it only takes me thirty seconds, for example, to payvote for an IP item I truly desire, then I'd do it. Security and reliability I'm not worried about — those are good today, and getting better all the time.

People may feel foolish payvoting for something and then something better pops up the next week. This is a moot point; it's been happening to products for a long time now. Who hasn't bought a TV set somewhere, only to see it advertised for less the next day? For some IPs, it doesn't matter, and for others, they tend to dominate their niches, so these situations should be comfortably infrequent.

The monetary results of demand will not be approximated, but accurately known. This is good, since it will help marketers understand much better what IP goods are desired and how much they are wanted. The direction of future technologies will be much better predicted and managed, which will cause resources to be better utilized. Duplication of effort may be minimized while still retaining a necessary competitive element.

Traditional resellers, distributors, and credit transaction processors of IP will not be needed, since IP will be transmitted directly from the owner, the IP authority, and/or any number of mirrors, at no charge to end users (since they've already paid). This is not all that bad —the owner gets more money, so he can afford to charge less, and owners of creative works such as musicians can get away from "getting ripped off by the record companies". The economy simply becomes more efficient, and middlemen can focus on providing their services to where they are still needed. The money that distributors took can go towards other things, and something has to finance the IP authority's work (unless we use taxes).

Companies that employ large numbers of people to produce IP would fear that crackers would a) attempt to acquire the IP from within the company's facilities, b) bribe or otherwise coerce a company employee to copy the IP to them, or c) that one or more employees may, of their own volition, place the IP into the public domain. This could already occur now, but (surprisingly, I guess) it doesn't, although I agree that the effects could be devastating. Since it is easier to control access of IP within a small group of people (as compared to the entire public, where it is impossible), security measures will be employed. Companies may structure development work so that no one employee has access to the entire product, or may legally obtain severe remedies for infringements. The public, if their individual costs are not great, may not view such infringements as meaningful, and so the incentive for such infringement may become greatly diminished. If, for example, you can get a prerelease version of something for free, and the full genuine article for two dollars, you may prefer paying for the latter. Conversely, we may see an increase in the number of small IP creation shops, where secrecy (and the incentive for secrecy) is more easily obtained.

Music stores may not exist in the future. Their disappearance (or transformation into music listening centers) is already well underway, thanks to things like MP3. Under the payvote scheme, they would likely be turned into music sampling centers.

The resistance of movie studios from switching to digital film distribution would vanish, since they would be getting paid up-front for their work. Like other IP owners, they wouldn't care about what happened to

their content transmissions after the sale. We could finally do away with all the disadvantages of physical film distribution, and issues like the DVD cracking case would go away. It would be perfectly legal to watch a released movie anytime, anywhere. You could also copy it for friends without penalty, and even make your own home movies out of it and distribute those, if you wanted.

Open source software may increase in both quantity and quality. Software creators who cannot afford big marketing campaigns can get more payvoter attention (and better votes) by agreeing to sell not just the compiled binaries of their work but also its source code. This would not be desirable for larger companies to do (which expect to keep coming out with upgrades and newer versions), but then again, they can more easily afford marketing campaigns.

The price for IP goods from the individual's point of view will tend towards their ideal fair price, instead of an estimated price pre-established by the owner. Again, this makes the economy more efficient. It also makes the production of IP more efficient: instead of trying to recover costs, payment will be much more based on pure demand, which will reward truly desirable IP (even if it cost little to make) and cripple undesired IP (even if it cost a lot). IP creators will be motivated to appeal more to demand, so the market will be able to direct IP evolution much better.

People may not know what to payvote for. A confusing morass of thousands, even millions of IP items would be available. Marketing would be an integral part of any IP product offer, as it is today. As it has been noted, the Internet economy is an attention economy, and that won't change. It was an attention economy even before the Internet came along, so this is nothing new. The exploration of IP niches, however, should intensify, which is desirable.

With sufficient payvoter liquidity, per-person prices for IP may reach astoundingly low levels while, *simultaneously*, the IP sellers earn more money. When everyone is on-line, it may happen that a quarter billion people payvote fifty cents each for a copy of, say, Tom Wolfe's latest 300-page novel. While fifty cents for a novel is very cheap, Mr. Wolfe would gross \$125 million! Talk about a win-win situation. This assumes that the payvote transactions can be done for some small fraction of fifty cents apiece, but as we all know, technology is getting better and cheaper all the time. As the human population grows (crowding problems notwithstanding), this effect becomes more and more pronounced. Even trivially small payments can make IP sellers very wealthy. This would make more people try their hand at producing IP, which would help stimulate education, research, art, etc. At a really far extreme, if the entire solar system is colonized by thirty billion people, and the Internet connects them all, a popular author could easily earn a billion dollars per book.

The poor become less disenfranchised over time, because the amount of publicly available free IP keeps increasing. We already live in a world with millions of art pieces, films, music recordings, and software titles. Imagine that same collection legally copyable. Most of it would be old, but there would be a significant amount that would be recent. A lot of the software, as explained, would be open source as well. At the very least, it becomes much easier for the poor to gain access to the things that will give them wealth. In some ways, the poor of tomorrow will be richer than we are today.

Conclusions

The physicality of IP is key to the fair compensation of IP owners, because a) copy protection is inherently futile, and b) people's need to expend minimum effort for maximum gain cannot (and should not) be changed. Fair compensation is vital to keeping the IP sector of the economy properly balanced.

The Internet makes it possible to treat the general public as a single IP transaction participant, which makes IP physical by bringing the transaction to the same level at which resource scarcity prevails. This also makes copyright law unnecessary for some types of IP, most notably consumer software. Prior to the Internet, the only other way of making IP physical was to tie it to physical goods such as computer hardware, but this is possible for only a tiny subset of IP goods, and leads to skewed economies that unfairly favor some while disadvantaging many others.

Other methods by which to make IP physical, such as copy protection, led to undesirable side effects and failed to exploit the inherent advantages of information's copyable, mutable nature. The payvote scheme may be the method of choice, although it requires the Internet in order to work. As the Internet grows, payvoting may evolve from a radical idea to the logical, and eminently natural, way to acquire IP.

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The irony of a copyright notice on a document describing the possible end of copyright law was not lost on me. But at the time this was written, copyright law was still in effect.