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Tim JONES

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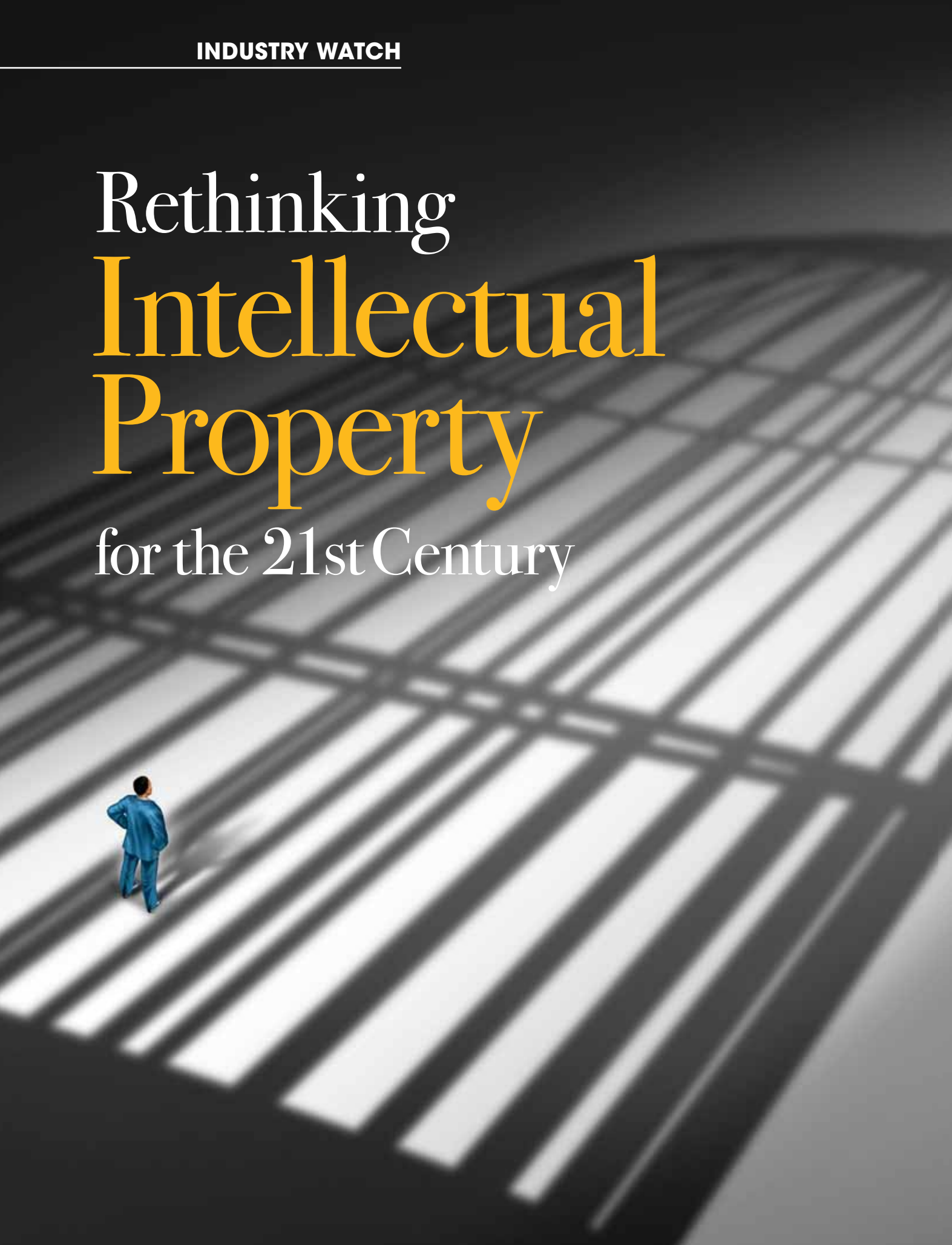

New models are undermining the traditional views of intellectual property.

By Tim Jones

We are facing a potential point of inflection for intellectual property (IP). With the rise of technologies such as 3D printing, the expansion of multiple authorships and an increasing democratisation of information, many see the systems designed in the 19th century, and refined in the 20th century, as not fit for purpose in the 21st century. Whether we should disregard IP, or reinvent it for the more collaborative world ahead, is open to question. What is becoming increasingly apparent is the need to change our perspectives on know-how, its sharing and trading, and consider how IP can support this.

Traditional intellectual property regimes are often seen as an inhibitor to innovation, protecting incumbent business models where the firm's value is measured in terms of profit and loss. The emphasis is on creating shareholder value, and not necessarily on contribution to society. The accounting of such a system relies on tangible assets, and thus, the intangible aspects around innovation and brand value are accounted for as IP assets. This approach is defensive: perhaps a more holistic, open and collaborative attitude towards intellectual property is needed to embrace disruption.

Perfect digital copies and peer-to-peer (P2P) file sharing started disrupting the media industry nearly two decades ago, beginning with Napster in 1999. The record labels never recovered and new business models have since emerged and continue to evolve. Industries today face greater disruption as more goods and services become digitised. An inherent characteristic of digital products is that whether there are five consumers, or five billion, the marginal cost for each additional person consuming it approaches zero. Moreover, the foundational technologies and protocols that make the Internet work also make these products, in all practical terms, non-excludable. In a competitive market, this means that digital goods and services are abundant, available and free. Where then, is the incentive to innovate and create new products that can have intrinsic value? And, if we are to believe that innovation arises through collaboration, is the current regime then too restrictive?

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The problem is that the barriers exist in legal terms and only manifest under the threat of coercion. This can be expensive, and since litigation takes place through public courts, a substantial burden of these costs is often passed on to the public. In addition, those with deeper pockets are better positioned to take action and are thus more likely to profit from settlement. As more products and services become digitised, governments and firms may find it increasingly expensive to chase down offenders. Clearly something is wrong when more time and money is spent on litigation than on R&D. This is increasingly the case in multiple sectors as strict intellectual property regimes not only increase the costs for new players to enter the market, but also open the door for copyright and patent trolls who aggressively pursue litigation as a means to make money.

We need to sort this out but the answer should not be to impose even more restrictions. IP should not be implemented as a market barrier, but rather a means to incentivise and promote progress through new knowledge and invention, in short, innovation. There is intrinsic social value in the sharing of insight and know-how. The best policy would be to make the most of this, but in a way that maybe allows for new robust business models to flourish in the digital age.

Lessons from the past and present

COPYRIGHT AND DESIGN RIGHTS

The more freely and openly information is shared, the more value society can create through collaboration and innovation. By restricting access, we impede progress. Indeed, the origins of copyright date back to the emergence of the printing press. The printed word spread information cheaply amongst the masses. Governments and the church reacted by restricting the right to print in order to contain infectious ideas, which threatened to upend traditional power structures. The ensuing freedom of thought at the end of the 15th century brought Europe the Protestant Reformation and the Enlightenment, which swept away the medieval world-view and ushered in modernity. Some 500 years later we potentially find ourselves in a similar revolutionary time.

Modern copyrights have evolved to be more about balancing the rights of creators and the rights of the public. Nonetheless, such restrictive rights inevitably protect the incumbent. This is perhaps now changing. Today we can see some evidence of organisations ignoring copyright, and the courts supporting them in this. The recent case of Magmatic, the maker of the Trunki children's ride-on suitcase, is a case in point.[1] The U.K. Supreme Court unanimously dismissed an appeal and allowed a ruling that PMS International, the copycat, did not infringe copyright even though the judge acknowledged that PMS conceived the idea of making their version after seeing the original. The implications of this are significant, and could effectively end the protection of designers from design rights and copyrights in their current form.

PATENTS

Back in the 1920s, auto-manufacturers were still quite new to the game. In order to speed advancements within their industry (and avoid reinventing the wheel), Ford, Chrysler and GM, amongst others, put their collective knowledge into patent pools. The same was done with sewing machine makers in the 1850s. And in World War I, aircraft development in the U.S. was severely stunted by the two largest patent holders, the Wright Company and Curtis Company, which ended in 1917 when the U.S. government pressured the industry to form an open patent pool. These collaborative mechanisms accelerated the development of multiple game-changing technologies.

In another example, Ericsson, the Swedish communications technology company and creator of Bluetooth technology, released its Bluetooth related patents into an open depository that anyone could access via a special interest group. In doing so, Ericsson relinquished any rights to royalties, but in the process, also established a standard.

Similar to Ericsson, the electric car company Tesla Motors has made all its patents publicly available for use. According to Elon Musk, CEO of Tesla, "When I started out with my first company, Zip2, I thought patents were a good thing and worked hard to obtain them. And maybe they were good long ago, but too often these days they serve merely to stifle progress, entrench the positions of giant corporations and enrich those in the legal profession, rather than the actual inventors. After Zip2, when I realized that receiving a patent really just meant that you bought a lottery ticket to a lawsuit, I avoided them whenever possible."[2]

Lawsuits aside, there is a shrewd business strategy behind Tesla's patent policy. Policies like these help to create ecosystems, which have made products and services such as the Internet and numerous other information-communications technologies possible.

New business models

As access to the Internet becomes ubiquitous, digital goods and services

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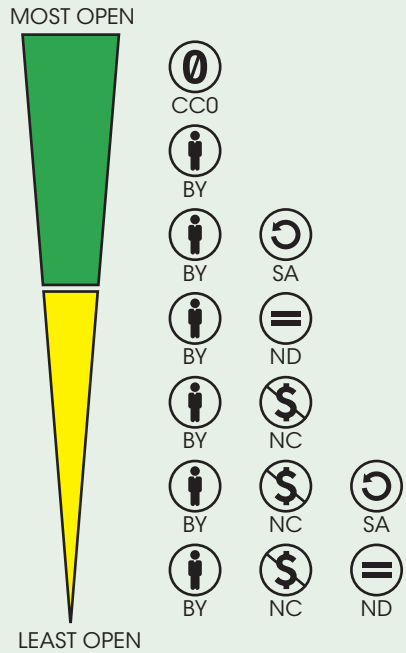
will increasingly resemble global public goods, which are non-rival and non-excludable. This could result in a market failure, where profit-seeking behaviour is incapable of satisfying demand. Original creators are not incentivised to produce because the positive externalities of the goods are not remunerated as innovation, and progress in this domain arises through collaboration and open access. The IP law that protects proprietary knowledge through restricted access and use may therefore be inefficient. Thankfully, there are alternative regimes that attempt to reconcile social benefit and individual compensation, Creative Commons and copyleft licencing being prime examples.

Creating and sharing music, stories and art is innate to human beings. To think that new creative content would not be produced because there is no monetary payoff is, according to some, misguided. Jeremy Rifkin writes in his 2014 *Huffington Post* article, "The end of the capitalist era, and what comes next", that "today, more than 40 percent of the human race is producing its own music, videos, news, and knowledge on relatively cheap cell phones and computers, and sharing it at near zero marginal cost in a collaborative networked world."[3]

Although marginal costs are zero, fixed costs and overhead are not. It takes a lot of time and effort to produce high quality content. People who create value through digital works still have material needs. How then, can they trade their digital work for food or to keep the lights on?

As one option gaining popularity over recent years, Creative Commons licencing provides an avenue for creators to monetise their work, either directly or indirectly, through copyright recognition and the option to control the commercialisation of their work while providing a framework for free distribution and space for open collaboration (refer to Figure 1).

CREATIVE COMMONS



ICON	Description	Acronym	Free/Libre
PUBLIC DOMAIN	Freeing content globally without restrictions	CC0	YES
BY	Attribution alone	BY	YES
BY SA	Attribution + ShareAlike	BY-SA	YES
BY NC	Attribution + Noncommercial	BY-NC	NO
BY ND	Attribution + NoDerivatives	BY-ND	NO
BY NC SA	Attribution + Noncommercial + ShareAlike	BY-NC-SA	NO
BY NC ND	Attribution + Noncommercial + NoDerivatives	BY-NC-ND	NO

FIGURE 1

Source: Creative Commons Attribution 4.0 International license

For instance, work can be commissioned through crowdsourcing or commercialised through freemium models that have an added-value physical component, such as live concerts, movie theatre experiences, speaking engagements, workshops, merchandise and prints which are sold at a premium above the basic free content. A good example of this is the heavy metal band, Iron Maiden, that used BitTorrent analytics to plot a successful concert tour around the cities where their music was most downloaded from P2P networks.

Success today in music is also about broadening access. As a streaming service, Spotify's value proposition is built around easy and convenient access to essentially unlimited genres and quantities of music. Artists benefit by the sheer volume going through Spotify, and the exposure they get, as well as opportunities to be discovered through discussion forums, playlists and recommendations from the user community. While Spotify is nowhere near as lucrative as the record labels once were, it does provide a mechanism for artists to reach a large audience. Spotify gives them not only scale, but also provides access to niche pockets. People use Spotify for convenience, access, and the community. Traditional record labels rely on mass consumption and hence communication through radio and television. Spotify and its peers provide a way to democratise music, getting content out there and reaching the audience, while still getting paid for it. And something like a Creative Commons license prevents Spotify from becoming too dominant in the distribution process. Artists' music need not be exclusive but can be available on P2P networks or competing streaming networks.

YouTube, Spotify and other similar services bring in revenues from advertisements, subscriptions, or some combination of both. Artists are paid based on the number of listeners/viewers they attract. Five years ago, the *New York Times*, in response to digital disruption, experimented with their contributors' pay structure. They asked their writers if they would rather be paid by number of words or number of views. Many chose views, but of course it changes the type of things they were incentivised to write about.

MIT gives a considerable amount of their content and services away for free through Massive Online Open Courses, as well as a plethora of other online resources. What MIT saw, ahead of the curve, was that the value was not in the content or the lecture, but in the discussion and interaction around the content, which enhances the university's brand, reputation and thought leadership. MIT is not alone in this endeavour; this has become common practice for hundreds of universities around the world.

All these examples show that change is in the air. They may be mutually exclusive but collectively they show a potential future direction. The core point is, intellectual property is important as it provides authors and inventors with essential recognition and sets the rules of the game. The Creative Commons approach does this by creating a legal framework between the extremes of traditional copyrights and the public domain.

Collaborations among users, government and private enterprise

Creative Commons licencing certainly offers a solution for more traditional

forms of authorship, such as music, images and literature–but what about work that is constantly evolving with multiple authors, such as software? This may, it has been argued, require a more liberal 'copyleft' solution.

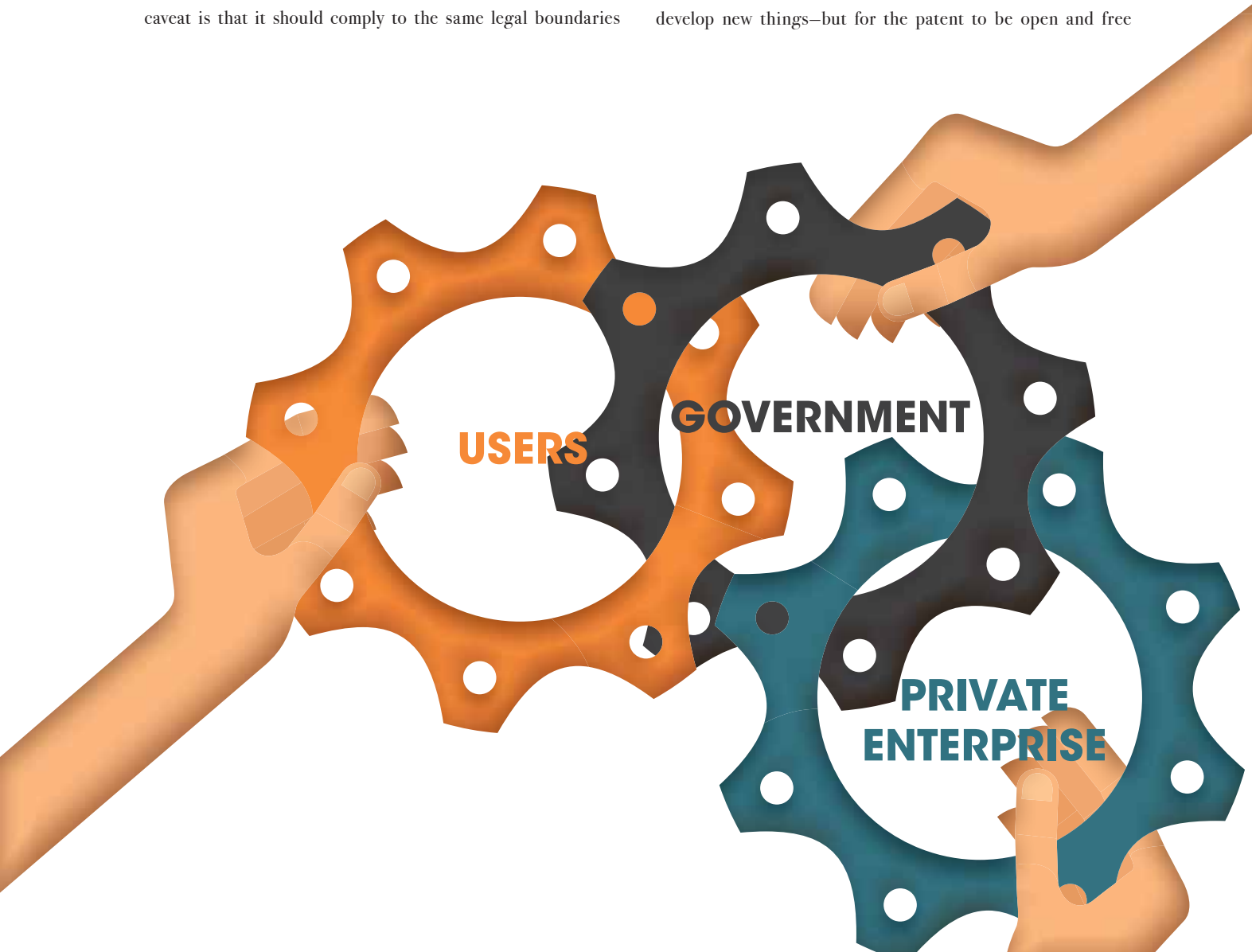
Copyleft licenses are a form of copyright that grew out of the Free Software Movement (FSM), which was born out of the initial 1970s hacker culture. A major component of this was the rejection of proprietary software. This culminated in the GNU Project in 1983, led by the pioneering work of Richard Stallman, founder of FSM and the GNU Public License. The GNU Project sought to develop an alternative operating system (OS) to Unix, the leading proprietary OS at the time.

Another example is the Free Software license that gives users the freedom to run, copy, distribute, study, change and improve the software–and even sell it–regardless of how they obtained the software to begin with.[4] An important clarification here is that free does not mean free of price, but rather, freedom of use. Commercialising free software is fair game, the only caveat is that it should comply to the same legal boundaries and that modified versions are identifiable and distinct from other versions (e.g. changing the version name or logo), which allows for trademarks, for example, to be protected.

This form of licencing has been hugely successful. It established a framework for open collaboration and iterative improvement. Indeed, the architecture of the Internet itself is built on free and open source technologies. The most common type of operating system used for web servers, Linux, originated from the GNU Project.

But would a regime such as this work for something like the pharmaceutical industry? Perhaps, but not yet. Food and drug regulation aside, the main difference between software R&D and pharmaceutical R&D is money. It's cheaper to develop software than it is to develop drugs. This may change over time though, as technological advancement may bring down even drug development costs.

In the future, it may be more efficient to compensate pharmaceutical firms on completing a task to discover and develop new things–but for the patent to be open and free



to use. In this way, pharmaceuticals could compete on public grants or contracts. Some pharmaceutical companies, like Pfizer and GSK, are already starting to put selected patents on drugs that did not make it through clinical trials into a public depository or giving them to academia. Looking further ahead at the escalating costs of healthcare generally, and drug development specifically, some see a world where drug discovery could become an increasingly state-led and state-funded activity with the associated intellectual property made available to all.

Besides being able to incentivise invention and innovation, patents also protect the public by assigning liability. For example, companies can get sued for developing dangerous products. While investment in new product development has its return, it is not without liability. Counterfeiters, however, escape this liability; they are often hard to find and operate outside of a legal jurisdiction. Legal and ethical restrictions clearly do not bother them, and so alternative models must be explored to protect customers and society more broadly. Counterfeiters must be disincentivised economically.

Liabilities and ethics

Tim O'Reilly, populariser of the terms 'open-source' and 'web 2.0', offers an interesting and controversial statement on the point of piracy, that is, "piracy is progressive taxation". The statement draws our attention to those who benefit from intellectual property laws, and by how much. When intellectual property creates barriers, it is those who control the distribution channel that profit–often disproportionally more than the author or creator of the work.

However, perfect digital copies along with replication and distribution at zero marginal cost through P2P networks disintegrates any centralised control of the channel. For instance, as technology matures, 3D printing will drastically reduce the barriers to production. Anything that can be 3D printed will essentially become digital, and so potentially can be shared in the same way as music. Royalties on a digital file are increasingly unlikely, despite the attempts of many in the industry to enforce digital rights.

The new enlightenment

Reconciling twentieth century capitalism with twenty-first century technology will become increasingly difficult. Emerging technologies like the Internet of Things, Big Data, 3D printing, genetic engineering, Artificial Intelligence and robotics will allow digitisation, perfect copying and manipulation of almost anything. The distinction between patent and copyright will blur, as will the difference between public and private goods. Many people still have a pre-Internet mindset when it comes to thinking about IP, and might be resistant to reimagining intellectual property for the new economy–whose features include rapid change, hyper-competition and information sharing. Most importantly, it is the transition from ownership to access.

Erecting barriers to protect us from change would be a step backwards, and could have repercussions that hinder progress. It is increasingly believed that IP regimes designed to support old-school profit and loss statements are currently based on an incomplete model of our socio-economic system. As a shift forward, many see that Integrated Reporting, which accounts for a firm's financial, social and environmental impact, goes some way to address this. The Five Capitals model, which supports environmental boundaries,

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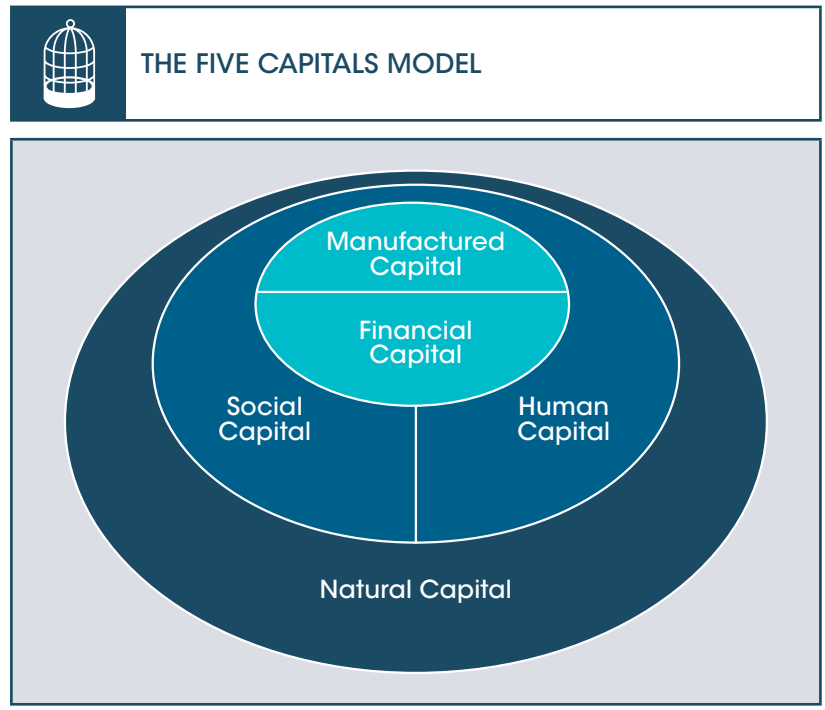

FIGURE 2 *Source: Forum for the Future, "The Five Capitals"*

social conditions and characteristics of the economy, is an even more complete approach (refer to Figure 2). A holistic legal construct would thus be able to account for the multidimensional value of intellectual property beyond the short-sighted ambitions of profit.

As with any significant change, the journey is complex and the ride is often bumpy. New models are undermining the traditional views of IP in some sectors and testing the boundaries of traditional models. Whether by 2030, 2050 or later, what we can be confident about is that significant change will come within the 21st century–not just around technology but also on how value is created–and with it a different view of IP will emerge. This will be less focused on protection and defence against imitation, and will instead support wider and more democratic sharing, greater collaboration and new business models focused on value creation defined in a much broader sense. While some may fear this change, others will embrace it and many will see that it will both enable and reflect a positive shift for the role of the firm in an ever more connected and global society.

Tim Jones, PhD.
is Programme Director of the Future Agenda global open foresight programme. He is also a founder of the Growth Agenda network and leads the Innovation Leaders research project

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