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Daniel Gervais, *Challenges in Intellectual Property Governance: Providing the Right Incentives in the Quest for Global Innovation*  
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CHALLENGES IN INTELLECTUAL PROPERTY GOVERNANCE:  
PROVIDING THE RIGHT INCENTIVES IN THE QUEST FOR  
GLOBAL INNOVATION

DANIEL GERVAIS\*

*The notion of governance is increasingly applied to the field of intellectual property. In this note, I explore how countries should make policy decisions in this key area, by keeping their focus on the promotion of domestic innovation while minimizing negative welfare impacts. The latter objective was well known when the TRIPS Agreement was negotiated in the 1990s, but the former, much less apparent. In this note, I consider recent research on innovation clusters and ways in which government, private capital and higher education institutions can work together, and specifically ways in which governments can “incentivize the quest” for innovation. I also discuss problems associated with the creation of incentives, including “patent trolls” and ways in which intellectual property might hinder full use of the internet as an innovation vector.*

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## I. INTRODUCTION

In this brief note, I wish to discuss three important challenges in the governance of intellectual property. I believe that each of these matters should be considered when deciding how best to make intellectual property policy and how to negotiate it internationally.

The first challenge—and by far the most complex—is how to ensure that intellectual property achieves its objective. This presupposes of course that one actually knows what the said objective is. The objective of intellectual property law and policy is, in my opinion, two-fold: on the one hand, maximize the development of the domestic innovation potential of each country and its conversion into an economic development lever, and, on the other hand, acknowledge and minimize the negative welfare impacts of high intellectual property protection and enforcement.<sup>1</sup> The governance of intellectual property is thus the governance of cultural and technological innovation. By this, I mean that decisions that a country, whether in its legislation, administration or indeed in a court of law, makes about the proper scope of intellectual property will affect how cultural goods are produced, archived and disseminated, and whether and how technological innovation happens, at which rate and under which incentives and constraints. The overarching methodological challenge is to design proper IP policy-making equations to achieve the objective while limiting unintended negative effects. This also requires balancing new insights about how entrepreneurship and innovation flourishes: “Recent social theories of technology have shown that innovation is not linear, but multi-directional, involving more actors and a multitude of mechanisms. Consequently, this points towards a significantly more prominent role of law in the dynamic of innovation and entrepreneurship.”<sup>2</sup>

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<sup>1</sup> On the latter point, see, for example, Cynthia M. Ho, *Global Access to Medicine: The Influence of Competing Patent Perspectives*, 35 *FORDHAM INT’L L.J.* 1, 4 (2011).

<sup>2</sup> Viktor Mayer-Schönberger, *The Law As Stimulus: The Role Of Law In Fostering Innovative*

I do not wish to imply, however, that there is one, and only one, way of getting this policy equation right, as reading too much in the term “governance” might imply. There are, however, lessons to be learned from how innovation policy is made in various countries.

## II. THE OBJECTIVES OF INTELLECTUAL PROPERTY IN INTERNATIONAL NEGOTIATIONS

While this may come as a surprise to some, the view that intellectual property governance is, first and foremost, about maximizing innovation, is only a recent one on the international IP scene. When Members of the World Trade Organization [WTO] implemented the Agreement on Trade-Related Aspects of Intellectual Property Rights [TRIPS Agreement] in the late 1990s and early 2000's, many of them did not view “intellectual property” as a domestic policy equation and only marginally related it to innovation.<sup>3</sup> Many critics perceived TRIPS as a set of rules developed in the West and imposed on the developing world in exchange for trade concessions in other sectors made during the Uruguay Round, such as exports of tropical fruits or textiles.<sup>4</sup> The justification for intellectual property at the WTO was, therefore, an extrinsic one. The rules were justified as being protective of investments made by companies (mostly Western) and perhaps more broadly as a form of market generation or market protection, at least for those companies in a number of developing countries where a burgeoning middle class was emerging. There were other advocates of higher intellectual property protection, at the time, suggesting that introducing those rules would be beneficial for developing countries in the long run, but their voices were rarely heard or listened to.<sup>5</sup>

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*Entrepreneurship*, 6 I/S: J. L. & POL'Y FOR INFO. SOC'Y 153, 187-88 (2010). This view supports the notion of innovation clusters discussed below.

<sup>3</sup> See Ruth L. Okediji, *The International Relations of Intellectual Property: Narratives of Developing Country Participation in the Global Intellectual Property System*, 7 SING. J. INT'L & COMP. L. 315, 324-25 (2003).

<sup>4</sup> See, e.g., SUSAN K. SELL, *The TRIPS Critique*, in PRIVATE POWER, PUBLIC LAW: THE GLOBALIZATION OF INTELLECTUAL PROPERTY RIGHTS (2003); JAYASHREE WATAL, *INTELLECTUAL PROPERTY RIGHTS IN THE WTO AND DEVELOPING COUNTRIES* (2001). Post TRIPS concessions by both industrialized and developing countries for higher intellectual property protection usually concern market access. For a discussion of the relative value obtained in exchange for “TRIPS-Plus” concessions, see J. Janewa Oseitutu, *Value Divergence In Global Intellectual Property Law*, 87 IND. L.J. 1639 (2012).

<sup>5</sup> See Martin J. Adelman & S. Baldia, *Prospects and Limits of the Patent Provision in the TRIPS Agreement: The Case of India*, 29 VAND. J. TRANSNAT'L L. 507-533 (1996). Post TRIPS data seem to challenge this narrative at least for some WTO members. See, e.g., BASMA I. ABDELGAFAR, *THE ILLUSIVE TRADE-OFF: INTELLECTUAL PROPERTY RIGHTS*,

This is not surprising. Indeed, at the time of the TRIPS negotiations (the early 1990s), there were few existing studies and data to support the application of high intellectual property protection to all WTO members independently of their level of economic development.<sup>6</sup> In fact, the World Intellectual Property Organization (WIPO) hired its first full-time economist in 2009, 15 years after TRIPS was signed at Marrakesh. The World Bank published what, I believe, was its first major report on the application of intellectual property rules to developing countries only a few years before that (hence, also after TRIPS).<sup>7</sup> This means that we did not have sufficient data to make informed decisions at the time TRIPS was negotiated. Negotiators proceeded on the basis of assumptions, some of which have now been proven false, others most likely correct and many others on which the econometric jury is still out.

The ways in which advanced developing countries such as India, Brazil, China and South Africa can benefit from intellectual property are now much better understood. Among the things we understand now, that we could not fully demonstrate then, is that, intellectual property rules by themselves do very little work to stimulate innovation other than protecting foreign intellectual property owners. In other words, adopting high levels of intellectual property protection in a country or territory that did not have such laws (or enforcement) is unlikely to promote innovation *per se*. More is needed to develop a country's innovative potential. It also seems fair to posit that innovation is likely to be the main driver of growth in many economies.

### III. INNOVATION POLICY AGENDA AND ECONOMIC GROWTH

Intellectual property rules work to meet the stated objective (developing

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INNOVATION SYSTEMS, AND EGYPT'S PHARMACEUTICAL INDUSTRY (2006) [hereinafter ABDELGAFAR]; Hamed El-Said & Mohammed El-Said, *TRIPS Plus Implications for Access to Medicines in Developing Countries: Lessons from Jordan-United States Free Trade Agreement*, 10 (6) J. WORLD INTELL. PROP. 438, 453-55 (2007).

<sup>6</sup> See generally Sylvia Ostry, *Asymmetry in the Uruguay Round and in the Doha Round, in DEVELOPING COUNTRIES IN THE WTO LEGAL SYSTEM* 105-27 (Chantal Thomas & Joel P. Trachtman eds., 2009).

<sup>7</sup> The 1995 report was not specific. See WORLD BANK, *THE URUGUAY ROUND AND THE DEVELOPING ECONOMIES* (Will Martin & L. Alan Winters eds., 1995). A specific report was published in 2004, see WORLD BANK, *INTELLECTUAL PROPERTY AND DEVELOPMENT* (Carsten Fink & Keith E. Maskus eds., 2004). However, the World Bank had started to focus on the developmental impacts of intellectual property well before. See Michael P. Ryan, *Knowledge-Economy Elites, the International Law of Intellectual Property and Trade, and Economic Development*, 10 CARDOZO J. INT'L & COMP. L. 271, 303 (2002). See also Daniel Gervais, *Intellectual Property, Trade & Development: The State of Play*, 74 FORDHAM L. REV. 505 (2005).

domestic innovation) when they form part of a broader innovation policy agenda as those rules can create opportunities for local creators and innovators. Rather surprisingly, an “innovation policy agenda” is also something we knew little about when TRIPS was being negotiated. For example, research on National Innovation Systems (NIS) emerged in the late 1970s and started to get noticed by policy-makers only 20 or 25 years later.<sup>8</sup> There are few things we now know with relative certainty as a result of this multidisciplinary research. The first is that while innovation can rely on intellectual property rights in some cases, in other cases intellectual property rights are unlikely to be very helpful.<sup>9</sup> For example, pharmaceutical research tends to respond to patent incentives better than the software industry, at least if one measures performance in those contexts in terms of outputs that actually reach and influence markets and economic development.<sup>10</sup> In other areas, other incentive models may work better.<sup>11</sup> This means that patents do not work with the same degree of effectiveness in every industry, and that in fact they may be possibly counterproductive in others. In the world of copyright, intellectual property is more important for the film industry than for new electronic commerce models. In fact, as research progresses along those lines, the same type of variegated picture emerges for almost all intellectual property rights including trademarks, designs, and geographical indications.<sup>12</sup> The conclusion we can draw in governance terms is clear: while intellectual property rules contained in TRIPS are mostly uniform, policies must target specific forms of innovation and specific industries differently or at least be prepared to do so.

#### IV. POST TRIPS RESEARCH: LESSONS LEARNT

Innovation is a complex mixture of people and capital. Innovation happens

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<sup>8</sup> See generally, Bengt-Åke Lundvall et al., *National Systems of Production, Innovation and Competence Building*, 31 RES. POL'Y 213 (2002) (referring to the establishment of the concept around 1978).

<sup>9</sup> See Daniel Gervais, *TRIPS 3.0: Policy Calibration and Innovation Displacement*, in DEVELOPING COUNTRIES IN THE WTO LEGAL SYSTEM, 363-94 (Chantal Thomas & Joel P. Trachtman, eds., 2009).

<sup>10</sup> See JAMES BESSEN & MICHAEL J. MEURER, PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK 88-89(2009); ADAM B. JAFFE & JOSH LERNER, INNOVATION AND ITS DISCONTENTS: HOW OUR BROKEN PATENT SYSTEM IS ENDANGERING INNOVATION AND PROGRESS, AND WHAT TO DO ABOUT IT 39-41 (2004).

<sup>11</sup> See Nancy Gallini & Suzanne Scotchmer, *Intellectual Property: When Is It the Best Incentive System?*, in INNOVATION POLICY AND THE ECONOMY 2 (Adam B. Jaffe et al. eds., 2002).

<sup>12</sup> See ABDELGAFAR, *supra* note 5, at 53-83; Daniel Gervais, *Reinventing Lisbon: The Case for a Protocol to the Lisbon Agreement (Geographical Indications)*, 11(1) CHI. J. INT'L L. 67, 73-5 (2010).

when people innovate and have the resources to do so. However, the resources necessarily vary tremendously from one industry to another. For example, pharmaceutical research requires enormous investments in laboratories, clinical trials, and governmental approval processes.<sup>13</sup> A very different level of investment is required to code software, for example, for new videogames, websites, or apps for tablets or smart phones.<sup>14</sup> Beyond capital investment and in particular, the need for venture capital and the entrepreneurial spirit that often drives this type of investment, it is obviously people—innovators who make the difference. There are very few Steve Jobs out there, but there are a number of people I would put in a high (though second-tier when compared to people like Jobs) level of innovation who create new business models, new technologies and other forms of innovation every day. Where are those people and how can intellectual property governance help them?

Research on National Innovation Systems (NIS) has demonstrated quite convincingly that globally competitive research is much more likely to be sustainable in clusters where industry, higher education and venture capital investors can work together.<sup>15</sup> Governments can provide infrastructural support for those clusters in terms of funding, promotion internationally and among top schools, recruitment of experts, infrastructure and possibly risk capital as well. There are many good reasons to do so. Clusters attract the best minds and, as a result, they become self-sustaining innovation pools even as the technology they initially centered upon disappears or morphs dramatically. This means they can adapt much better and faster than heavy industry. For example, Silicon Valley moved from mainframes to personal computers to digital entertainment with many of the same people and a lot of the same capital.<sup>16</sup> Another good reason to support cluster development is that successful venture capital investors are often those who can monitor and advise the companies they invest in, which is much easier to do with geographical proximity.

Another option is that governments can create those clusters from scratch. However, this is less certain. At least in the United States, recent research suggests that successful clusters must be seeded organically, typically by a new company located near existing higher education resources.<sup>17</sup> Then as the company develops,

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<sup>13</sup> See Lawrence A. Kogan, *Commercial High Technology Innovations Face Uncertain Future Amid Emerging “BRICS” Compulsory Licensing And IT Interoperability Frameworks*, 13 SAN DIEGO INT’L L.J. 201 (2011).

<sup>14</sup> See John R. Allison, Abe Dunn & Ronald J. Mann, *Software Patents, Incumbents, and Entry*, 85 TEX. L. REV. 1579 (2007).

<sup>15</sup> See Daniel Gervais, *Of Clusters and Assumptions: Innovation as Part of a Full TRIPS Implementation*, 77 (5) FORDHAM L. REV. 2353 (2009) [hereinafter Gervais].

<sup>16</sup> See ENRICO MORETTI, *THE NEW GEOGRAPHY OF JOBS* 82-93 (2012).

<sup>17</sup> See *id.*



others in the field develop either as competitors or suppliers and ideally, educators will be nimble enough to adapt. For example, in Seattle, on the West Coast of the United States, Microsoft and its local supply chains have created a veritable innovation ecosystem in this region, one that extends to universities in the area.

## V. INNOVATION: INCENTIVIZING THE QUEST

Innovation begins early in life because it is a way of thinking about problems (how to identify and then to solve them). It is a way in which people think about new approaches, towards existing things, or ways of doing new things entirely. Innovation begins by observation, which leads to imitation, then adaptation of existing technologies to local needs and markets, and then, if one is lucky or otherwise able to get there, true global innovation. Clearly, India is at a point in its history where it can and will offer an increasing number of new global innovations to the world.<sup>18</sup> However, to achieve this objective and to accelerate the rate of domestically grown innovation, countries must nurture innovation in schools.<sup>19</sup> Teachers must teach primary and secondary school students new ways of thinking and the application of creative and not just repetitive learning processes. This is a challenge that may prove harder to surmount in countries with an authoritarian - inspired educational system that favors uniformity and obedience.<sup>20</sup> They must also teach the use of basic creative tools such as computers and art. One of the great virtues of computers is that they bring together art and science. To a computer, a three-dimensional model of a new rocket or of a statue is essentially a series of zeros and ones, in other words, a digital file. The worlds of art and science can collaborate to produce new innovative outcomes.

At a more fundamental human level, we know from psychological researchers that innovation emerges when people are able to combine ideas in new ways or to bring together ideas that were never joined before.<sup>21</sup> Typically, major innovation (also referred to as “pioneer innovation”) happens when ideas from completely unrelated fields are joined. An education system which values not just basic skills like memorization but also the ability to create and think ‘out of the box’ is more

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<sup>18</sup> See Thomas L. Friedman, *India's Innovation Stimulus*, N. Y. TIMES, Nov. 10, 2011, <http://www.nytimes.com/2011/11/10/opinion/sunday/friedman-indias-innovation-stimulus.html>.

<sup>19</sup> For a description of changing trends in this regard, see AKASH KAPUR, *A PORTRAIT OF LIFE IN MODERN INDIA* (2012).

<sup>20</sup> See Eric M. Griffin, *Stop Relying On Uncle Sam!—A Proactive Approach To Copyright Protection In The People's Republic Of China*, 6 TEX. INTELL. PROP. L.J. 169, 183 (1998). By using foreign educational resources and developing elite schools, countries such as China have attempted to overcome this difficulty.

<sup>21</sup> See Gervais, *supra* note 15.

likely to generate innovation because it is more likely to form future innovators.

The next important stage for us to consider is governmental assistance. Governments can help by working together with businesses in developing national strategies to bring innovation up to the surface in a number of ways. They can create national awards and other programs to recognize leading innovators. While complying with the rules of the WTO, countries can offer incentives to develop domestic innovation and export new products to foreign markets. More strictly linked to intellectual property, governments can help maximize the benefits of intellectual property, especially in cases where the TRIPS rules can in fact hurt if they are not applied properly. For example, governments can stimulate the formation of patent pools and other platforms to make available patents and other intellectual property rights.<sup>22</sup>

Governments face a number of high-level challenges when it comes to innovation policy. The existence of fairly uniform intellectual property rules (contained in the TRIPS Agreement) should not create the false impression that the “governance” of intellectual property and innovation is or should be uniform worldwide or that ready-made solutions exist. Innovation is partly cultural and it must reflect the strengths (and weaknesses) of each country or region. It is, therefore by nature multifaceted and results will emerge as a variegated picture. This is about much more than the metaphorical “level playing field.”<sup>23</sup>

## VI. PATENT WARS: QUANTITY OVER QUALITY?

Patents are, essentially, rights to exclude others from using a technology. In the traditional story, an innovator obtains a patent on his or her technology, develops that technology and then markets it, using the patent to prevent third parties from marketing the same technology. This provides an ability to recoup research and development expenditures and to make a profit, thus generating an incentive to invent. That story, unfortunately, is now the exception.<sup>24</sup> More than half the patents granted around the world are never exploited and often, fees to maintain them are not paid. This is a strong indication of worthlessness.<sup>25</sup>

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<sup>22</sup> See Krista L. Cox, *The Medicines Patent Pool: Promoting Access And Innovation For Life-Saving Medicines Through Voluntary Licenses*, 4 HASTINGS SCIENCE & TECH. L. J. 291, 307-13 (2012).

<sup>23</sup> See Christina L. Davis, *Do WTO Rules Create a Level Playing Field? Lessons from the Experience of Peru and Vietnam*, in NEGOTIATING TRADE: DEVELOPING COUNTRIES IN THE WTO AND NAFTA 219-20 (John S. Odell ed., 2006).

<sup>24</sup> See Christopher A. Cotropia, *The Individual Inventor Motif in the Age of the Patent Troll*, 12 YALE J. L. & TECH. 52 (2010).

<sup>25</sup> See Ted Sichelman, *Commercializing Patents*, 62 STAN. L. REV. 341, 362 (2010) (“As an

Moreover, a very significant number of patents are used by so-called “non-practicing entities”(NPEs are often referred to as “trolls”)<sup>26</sup> as litigation weapons to extract rent payment from companies using technology similar to what is described in a patent acquired by the NPE.<sup>27</sup> “Almost by definition, litigated patents are patents that are highly valuable. A large fraction of these patents are owned by NPEs, held mainly by invention specialists and by patent holding companies.”<sup>28</sup> This is increasingly problematic because patents are now routinely granted on “inventions” requiring very little research and development efforts, particularly in the field of software. In fact, we have reached a point in the world of software where it is not what the patent protects that matters - unlike, say, in the pharmaceutical field where it matters a great deal - but how many patents one has. Patents, in the online world, are like poker chips and the bigger stack wins.<sup>29</sup> Examples abound of large technology companies buying thousands of patents, often as a defensive strategy.<sup>30</sup> This is possible because in certain industries, especially telecommunication industry, hundreds, if not thousands, of patents can read on the same product, thus negating the incentive effect or rendering it ineffective if not entirely counterproductive.<sup>31</sup>

The proper governance of intellectual property requires governments to tackle the issue of patents used not to generate but rather to slow or impede innovation. The solutions are fairly well-known and include allowing third party opposition, re-examination of patents (after grant) and stay of proceedings in appropriate cases.<sup>32</sup> Countries that implement those solutions first will have an advantage in the global innovation race. In the recent past, India has taken some bold steps to limit patents

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empirical matter, it appears that less, probably much less, than half of all patented product inventions are commercialized.”). See also Kimberly A. Moore, *Worthless Patents*, 20 BERKELEY TECH. L.J. 1521, 1526 (2005) (“[T]his empirical study has found that 53.71% of all patentees do allow their patents to expire for failure to pay one of their maintenance fees.”).

<sup>26</sup> Although this is synonymous, this has (probably rightly) been challenged. See Anne Layne-Farrar & Klaus M. Schmidt, *Licensing Complementary Patents: “Patent Trolls,” Market Structure, And “Excessive” Royalties*, 25 BERKELEY TECH. L. J. 1121 (2010).

<sup>27</sup> *Id.* at 1140.

<sup>28</sup> *Id.*

<sup>29</sup> See Tom Ewing & Robin Feldman, *The Giants Among Us*, 2012 STAN. TECH. L. REV. 1, 13-18 (2012); Christopher T. Vrontas et al., *Patent Trolls: Who, What, Where & How to Defend Against Them*, 52 NEW HAMPSHIRE B.J. 40, 41 (2011).

<sup>30</sup> See Colleen V. Chien, *From Arms Race to Marketplace: The Complex Patent Ecosystem and Its Implications for the Patent System*, 62 HASTINGS L.J. 297, 327-32 (2010).

<sup>31</sup> See Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard Setting*, 1 INNOVATION POL'Y & ECON. 119, 124-26 (2001).

<sup>32</sup> For a list of practical “tips”, see, for example, Jason Williams et al., *Strategies For Combating Patent Trolls*, 17 J. INTELL. PROP. L. 367 (2010) [hereinafter Williams].

on certain pharmaceutical products in order to prevent what is known as “ever-greening” through section 3 of the Indian Patents Act.<sup>33</sup>

## VII. IMPEDIMENTS IN INNOVATION: SOLUTIONS

The first challenge is that of “trolls”. One solution is to limit the availability of injunctive relief when the owner of the patent is a non-practicing entity.<sup>34</sup> There is no major affront to patent policy in asking a patent infringer (even if the patent was sold to an NPE) to pay damages. However, stopping use of the technology should not be ordered when it is merely a tool to extract a higher rent. There are cases, however, such as when the NPE has granted an exclusive license to a third party, when an injunction might be justified in the interest of the licensee exploiting the patented invention. In those cases, the licensee should ideally be the plaintiff or a co-plaintiff. Another option to deal with NPEs is to provide for compulsory licensing, in other words, allow a neutral third party to set the price for a license.

Beyond the issue of trolls, there are thousands of patents that contain useful innovation that patent owners are unable to develop themselves, and often for completely understandable reasons, such as lack of funding or prioritization of another area of research within a company. In other cases, a package of patents owned by different entities is required to exploit a technology. A typical smart phone is covered by more than 200 patents, for example.<sup>35</sup> Here, governments can help establish centralized mechanism such as a patent pools or other licensing mechanisms. We see this in the world of standards, where owners of patents that are essential for a standard function are requested or expected to make their patent available on a so-called FRAND (fair, reasonable and non-discriminatory) basis.<sup>36</sup>

A second challenge—one which I can describe in fewer words—is the ability of countries to look beyond TRIPS to develop new innovation rules and models. For

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<sup>33</sup> The Patents (Amendment) Act, 2005, No.39, Acts of Parliament, 2005 (India). For comments, see Janice M. Mueller, *Taking TRIPS to India - Novartis, Patent Law, and Access to Medicines*, 356 NEW ENG. J. MED. 541 (2007); Geoffrey Scott, *A Protocol For Evaluating Changing Global Attitudes Toward Innovation And Intellectual Property Regimes*, 32 UNIV. PA. J. INT'L L. 1165, 1259-60 (2011); Timothy Bazzle, *Pharmacy Of The Developing World: Reconciling Intellectual Property Rights In India With The Right To Health: TRIPS, India's Patent System And Essential Medicines* 42 GEO. J. INT'L L.785 (2011).

<sup>34</sup> See Williams, *supra* note 32.

<sup>35</sup> See Eric Mack, *Mobile Patent Wars: A Closer Look at How Everyone Loses*, PC WORLD, Nov. 6, 2011, [http://www.pcworld.com/article/239873/mobile\\_patent\\_wars\\_a\\_closer\\_look\\_at\\_how\\_everyone\\_loses.html](http://www.pcworld.com/article/239873/mobile_patent_wars_a_closer_look_at_how_everyone_loses.html).

<sup>36</sup> See Mario Mariniello, *Fair, Reasonable and Non-Discriminatory (FRAND) Terms: A Challenge for Competition Authorities*, 7(3) J. COMPETITION L. & ECON. 523 (2011).

example, in the pharmaceutical industry, the patent incentive appears to work well for drugs that have large potential markets. This tends to limit research to lifestyle drugs and drugs for chronic diseases - those that patients typically take for several years.<sup>37</sup> This leaves out research for tropical and orphan diseases and for a number of acute diseases.<sup>38</sup> A number of governance-based solutions are possible in this regard. Countries with leading pharmaceutical companies such as India could better coordinate their efforts to fund public research, perhaps through the World Health Organization, in order to optimize how each rupee, dollar, or euro is spent. Another option is to guarantee rewards to private innovators in this field but not in the form of patents because markets are too small, but rather in the form of success-based awards.<sup>39</sup>

In the specific case of India, the ability to tap into thousands of years of medicinal knowledge, in particular Ayurvedic medicine to create products for the world market may need to be incentivized outside of the traditional patent channels because many new products may not qualify as new inventions for patent purposes.<sup>40</sup> This is not a new idea. Indeed, I am very interested in the work that the Government of India has done in documenting traditional medicinal knowledge.<sup>41</sup> This may be one of the most promising avenues of innovation because for the most part we know that these traditional medicines work—even if, in some cases, we are not entirely sure why. The same claim can be made, for example, of a simple drug like aspirin.

The third and final governance challenge I want to discuss is of a different

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<sup>37</sup> See David Fagundes & Jonathan S. Masur, *Costly Intellectual Property*, 65 VAND. L. REV. 677, 701 (2012).

<sup>38</sup> See Christopher-Paul Milne & Joyce Tait, *Evolution Along The Government-Governance Continuum: FDA's Orphan Products and Fast Track Programs as Exemplars of "What Works" for Innovation and Regulation*, 4 FOOD & DRUG L.J. 733, 740-47(2009); Geneviève Michaux, *EU Orphan Regulation - Ten Years Of Application*, 65 FOOD & DRUG L.J. 639, 655-68(2010).

<sup>39</sup> See Rajashree Sharma, *Public Funded Research In India--A Reckoner On Recent Legislative Actions*, 45 LES NOUVELLES 255 (2010). On 26 May 2012, the Health Assembly at the WHO (finally) considered a report by the Consultative Expert Working Group on Research and Development: Financing and Coordination "containing recommendations for securing new funds for health research and development on diseases that affect people in developing countries." See *65th World Health Assembly closes with new global health measures*, WHO NEWS, May 26, 2012, [http://www.who.int/mediacentre/news/releases/2012/wha65\\_closes\\_20120526/en/index.html](http://www.who.int/mediacentre/news/releases/2012/wha65_closes_20120526/en/index.html).

<sup>40</sup> See J. Janewa Osei Tutu, *A Sui Generis Regime for Traditional Knowledge: The Cultural Divide in Intellectual Property Law*, 15 MARQ. INTELL. PROP. L. REV. 147, 163-64 (2011).

<sup>41</sup> See Janice M. Mueller, *The Tiger Awakens: The Tumultuous Transformation of India's Patent System and the Rise of Indian Pharmaceutical Innovation*, 68 U. PITT. L. REV. 491 (2007).

nature. I want to focus now on cultural innovation. It is well-known that India has the largest film industry in the world. It is equally well-known that the internet has reshaped business models for almost all cultural products. Not long ago, it was necessary for a record company, a film company, or a book publisher to decide whether something was worthy of mass commercial distribution. These professional entities functioned as cultural filters. They made decisions on new cultural products based on their experience, their perception of market demand and other factors. While they helped bring many new great songs, books and films to the public, we paid a collective price for their mistakes. The number of stories of great writers and musicians who were turned down by every major publisher record company are plenty. They are responsible for having undersized cultural innovation. The internet has completely reshaped this environment. The recording industry has been unable to stem the tide of file-sharing and its continuing efforts to increase enforcement of copyright rules against individual users has failed to significantly lower the number of music and other files illegally “shared” on the internet.<sup>42</sup> More importantly, it is not by taking content off the internet or by imposing fines on individual internet users that the industry is going to increase its revenue.

I am particularly worried about the growing resentment of individual internet users against copyright itself.<sup>43</sup> Copyright as we know it is approximately 300 years old, dating back to the British *Statute of Anne* of 1710.<sup>44</sup> For approximately 290 of those 302 years, copyright was a tool used to trade rights in intangible property between professionals such as writers, publishers, producers and broadcasters. It was also a tool used to fight professional pirates, by which I mean people whose business it was to make illegal copies of cassettes, CDs, and other copyright material. For the last 10 or 12 years, however, the same copyright holders have turned their guns towards individuals. Historically, individuals rarely, if ever, had to worry about copyright. When one buys a book in a bookstore or borrows one from a library, one does not need to sign a license. The occasional photocopy that one might have made was not something that individual copyright owners cared about very much nor did individual users have to think much about the exact scope of fair dealing or other exceptions. This was, at most, an issue for librarians and educators.

Nowadays, individual internet users are routinely referred to as “pirates”, as if

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<sup>42</sup> See Annemarie Bridy, *Graduated Response American Style: “Six Strikes” Measured Against Five Norms*, 23 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 1 (2012).

<sup>43</sup> See Daniel Gervais, *The Tangled Web of UGC: Making Copyright Sense of User-Generated Content*, 11(4) VAND. J. ENT. & TECH. L. 841 (2009).

<sup>44</sup> See Daniel Gervais, *The Price of Social Norms: Towards a Liability Regime for File-Sharing*, 12(1) J. INTELL. PROP. L. 39 (2003).

each and every unpaid use of online material was both illegal and causing a direct loss to copyright owners. To quote Francis Gurry, the Director General of the World Intellectual Property Organization (WIPO): “People do not respond to being called pirates. Indeed, some, as we have seen, even make a pride of it. They would respond, I believe, to a challenge to sharing responsibility for cultural policy. We need to speak less in terms of piracy and more in terms of the threat to the financial viability of culture in the 21st Century, because it is this which is at risk if we do not have an effective, properly balanced copyright policy.”<sup>45</sup>

### VIII. HOW DID THIS HAPPEN, AND WHY?

In the world of physical goods, value is created by maintaining scarcity. This is the very real and very necessary foundation of property rights. On the internet, value is created differently in a way that many copyright owners still fail to completely understand it appears. Value is created by connecting content to users who value that content. This presupposes that the content is available, and that the users can connect to the content.<sup>46</sup> This is another area where governance can again play a crucial role.

What I referred to above as the filtering function of professional intermediaries such as book publishers or record companies has been replaced not by disintermediation, which would be the removal of any intermediary between creator and user, but by *re-intermediation* or, as it may be put, re-filtering. In this new environment, anyone can make material available online. Record companies, film companies and book publishers can still push major hits and in the case of film production, given the much higher production costs, it is likely that some companies will continue to play a major role for years to come. However, the world is changing very fast. In the world of music, an incredible amount of music produced outside the traditional channels is now available because artists can use inexpensive digital tools to create sound recordings and make them available worldwide. The challenge is not availability, but rather how to get found and then paid. To be found often means that someone has found and identified your content as valuable, either by friending your page on Facebook, emailing it to a friend, putting a starred review online etc. I call this “crowd-filtering”. New types of intermediaries are emerging that try to aggregate content and orient internet users towards content that they might value based on information from previous

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<sup>45</sup> Francis Gurry, Director-General, WIPO, *The Future of Copyright*, at Sydney, Australia (Feb. 25, 2011), [http://www.wipo.int/about-wipo/en/dgo/speeches/dg\\_blueskyconf\\_11.html](http://www.wipo.int/about-wipo/en/dgo/speeches/dg_blueskyconf_11.html).

<sup>46</sup> See Daniel Gervais & Daniel J. Hyndman, *Cloud Control: Copyright, Global Memes and Privacy*, 10(1) J. TELECOMM. & HIGH TECH. L. 53, 70 (2011).

purchases, information provided by someone on social media etc. There is societal cost in getting fed a diet of more of the same culturally or politically, but I shall leave that issue aside for now.<sup>47</sup>

The issue I do want to focus on is how the new intermediaries can create value for themselves and also for songwriters, video artists, writers and other creators. No existing intermediary has a right to exist or survive in the new environment. They must make their case. However, there are two parts of the cultural chain we cannot do without, namely creators, and people to use or enjoy their creations. How creators and users link up (via which intermediary) is going to remain a rather dynamic picture for some time.

Should governments disappear from the scene because of the changing nature of online business models? Governments should not support dying business models and legislation should be both technology and business-model neutral to the extent possible. However, I believe it is the role of governments to make their creative communities aware of fundamental changes in order to allow their creators and businesses to use these new tools and to maximize their worldwide exposure because it is very likely that, in the not-too-distant future, revenue streams for creative material will be not one major local or domestic stream but rather many trickles from all over the world. This presupposes that artists are aware of new business models, new intermediaries and new ways of making their content available worldwide in a way that allows them to get paid for their work. I call upon governments and businesses to work together to create the new business models that will undoubtedly emerge once the fight to preserve obsolete models is in our back view mirror.

## IX. CONCLUSION

What can we conclude from this brief *tour d'horizon*? First, that in the world of intellectual property governance, I hope to have demonstrated that governments are not just regulators. In fact, the regulatory function almost takes a backseat to a function which might be described as stimulative. Stimulus can be provided in a number of ways, mostly in the form of information for potential creators and innovators, but also in the form of venture capital or national information systems to make available information to domestic industry. Very often, it will be too expensive for a single company or indeed even an industry to develop information-sharing tools. However, these tools create new public goods and it is in the creation of those types of goods that governments typically have a role to play.

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<sup>47</sup> See Daniel Gervais, *Democracy, Technology and Social Justice* (Mar. 2003) (unpublished manuscript), available at [http://works.bepress.com/daniel\\_gervais/30/](http://works.bepress.com/daniel_gervais/30/).



Second, the regulatory function remains essential, in particular in the field of patents, to ensure that both abuses of individual patents and welfare costs in certain areas are controlled. India has been the leader in experimenting in this area. It is an experiment that many around the world are watching very closely.