

Submission to the Standing Committee on Industry Science and Technology, study into Canadian science and technology, by Russell McOrmond¹.

Summary

Advances in communications technology have enabled new methods of production, distribution and funding of innovation and creativity. Parliamentarians and the government must become familiar with these changes in order to regulate in a way that protects rather than disadvantages these new methods.

In any technological or economic change there are innovators who benefit from the change, and incumbents who are replaced by competitors². Incumbents in this area include some of the most visible lobbyists of the Canadian government and parliament. It needs to be understood that these incumbents are seeking to protect themselves against competition from innovators, and are not protecting innovation as they often claim.

Advancements in Information Technology

The core technological advancements which made what is often called "new media" possible are:

- the movement away from communications technology where the network was smart and the terminals were dumb (radio, television, telephone), towards a design where the network is dumb and the terminals are smart (also known as the end to end principle³)
- the movement away from communications technologies being expensive and only owned by large media companies, to technology being owned and controlled by private citizens

North America has a problem in that the companies most often offering "Internet" access services are incumbents from the legacy network configuration (smart networks, dumb terminals) such as phone (telecom) and cable (broadcast undertakings) companies. These companies are in a direct conflict of interests as they are from sectors that least want the end-to-end Internet to exist, and are often trying to transform the existing end-to-end infrastructure to legacy configurations and billing methods. This topic sometimes comes under the title of "Net Neutrality", and there is considerable misinformation spread by the incumbents⁴.

The second technological advancement allows for private ownership and control of information technology, enabling individual citizens or companies to innovate without requiring permission or additional payment to device manufacturers or any other third party. Opposition to private ownership/control of technology often comes under the title of "Digital Rights Management", "Broadcast Flags", or other mandates to lock down technology from their owners to "close the analog hole"⁵.

When Sir Tim Berners-Lee decided to create the communications protocol that has become known as the World Wide Web, he did not have to ask permission to do so. He wrote software to run on a computer he controlled to answer on a "port" of his choosing, and wrote software that could be run on other peoples computers that would connect to that port using a protocol of his own design.

1 Full Contact information for Russell McOrmond is at <http://www.flora.ca>

2 This dynamic is detailed in a series of books by Clayton M. Christensen, starting with "The Innovator's Dilemma"

3 Wikipedia offers a good explanation of this design principle at http://en.wikipedia.org/wiki/End-to-end_principle

4 I have been writing many articles on this topic at <http://blogs.itworldcanada.com/insights/>

5 Our community hosts a Petition to protect Information Technology Property Rights which tries to expose this issue <http://www.digital-copyright.ca/petition/ict/>

Pretty much all the innovation that we attribute to the Internet happened this way, and we know that the story would be very different if these innovators needed to ask permission or make special payments in order to create these new communications protocols.

Not requiring permission or payment from third parties will of course be opposed by those third parties, so you will see ongoing lobbying against these key innovations by these incumbents.

Advancements in methods of production

New communications technology has enabled new methods of production. As discussed by people as far back as Thomas Jefferson⁶, knowledge has a marginal cost to the producer of zero. Once an idea has been created, there is no cost for additional people to also know that idea.

Historically, communications costs were high which meant that communicating ideas had a marginal cost. Now that communications costs are so low, this has enabled modes of production that harness the fact that the marginal cost is zero.

Harvard Law School professor Yochai Benkler⁷ introduced the concept of "commons-based peer production" in his paper "Coase's Penguin, or Linux and the Nature of the Firm"⁸. He expanded this idea in a book titled "*The Wealth of Networks: How Social Production Transforms Markets and Freedom*". (Note: For members of the committee interested to read this book, I am willing to purchase copies to give you out of my own pocket)

In the software sector, the fastest growing component are companies producing and/or using Free/Libre and Open Source Software⁹. Some of the largest companies such as Google were built on top of this software, and companies from IBM to Novel, Redhat, Ubuntu and others exist primarily as commercial support and enhancement suppliers for this publicly licensed peer produced software. I am a self employed entrepreneur that specializes in support and enhancements of this type of software.

Parliamentarians must become more familiar with social production methods such that the government will regulate the economy in a way that enables, rather than disables or disadvantages, these production methods.

6 See the Jefferson Debate http://www.digital-copyright.ca/Jefferson_Debate which quotes Thomas Jefferson discussing the nature of ideas. Includes, "He who receives an idea from me, receives instruction himself without lessening mine; as he who lights his taper at mine, receives light without darkening me."

7 His personal website which references his books and papers is at <http://benkler.org/>

8 Benkler, Yochai. "Coase's Penguin, or Linux and the Nature of the Firm" <http://www.benkler.org/CoasesPenguin.html>

9 I discuss the different terms for this type of software at <http://flora.ca/floss>

Specific policy proposals

There are a number of policy areas which are affected by these new technologies and new methods of production.

Science Funding

Many of our trading partners are starting to mandate that the outputs of publicly funded research be made publicly available to the taxpayers. The term Open-access is often used in these discussions. Open-access (OA) literature is digital, online, free of charge, and free of most copyright and licensing restrictions¹⁰. What makes it possible is the internet and the consent of the author or copyright-holder.

Higher Education

There is a conflict at the moment where publicly funded educational institutions, specifically Universities, want to both receive royalties from the outputs of their institutions, and have special exceptions (IE: Educational use of the Internet, etc). As with public funding of research, a condition of public funding for educational institutions should include that the results of work paid for in these institutions be publicly available. This should include government mandates for academic papers to be published in Open Access journals.

Education should also be understood as something that happens outside of specific institutions, and is life-long. Institutional exceptions should give way to broad educational exceptions that are tied to the nature of the activity, and not the building the activity takes place within. We need to modernize our Copyright fair dealings regime to create a living Fair Use regime, and to also create a Fair Use regime for patent law¹¹.

Copyright

As the policy coordinator¹² for CLUE: Canada's Association for Open Source, I have created a copyright policy summary. Our primary copyright related concerns are:

- We disagree with the legalization or legal projection of techniques used by copyright holders to encode their content such that it can only be accessed with "authorized" technology brands.
- We disagree with the legalization or legal protection of techniques used by device manufacturers to lock down devices such that their owners are considered attackers, where owners are not able to control the technology or make their own software choices.
- We disagree with government promotion or mandating of royalty-based business models over fixed-cost based models used in peer production and peer distribution such as FLOSS.

¹⁰ Peter Suber offers an overview of Open Access, which includes both a brief and a longer explanation <http://www.earlham.edu/~peters/fos/overview.htm>

¹¹ O'Rourke, Maureen A., "Toward a Doctrine of Fair Use in Patent Law" . Columbia Law Review, Vol. 100, No. 5, 2000 Available at SSRN: <http://ssrn.com/abstract=1005650>

¹² Pages relating to CLUE policy, including our copyright policy summary, are at <http://cluecan.ca/policy>

Copyright **Policy proposals:**

- Canada should take the lead from our trading partners and adopt a living "fair use" model. This should include carving out from copyright private activities such as time, space and device shifting of legally acquired content. Canadians should not need permission or payment to carry out these activities which most Canadians already believe is legal.
- Canada should put "clarifying and simplifying the act" as the top priority for the revision process. Many Canadians carry out activities which they believe are legal, but which the act doesn't allow, as well as not carrying out legal activities which they believe may be illegal.
- Canada should clarify and simplify the term of copyright, resisting any proposals to extend and/or obfuscate the expiry date of copyright. For example, the term for photography should be a fixed 50 years from when the picture was taken, and not 50 years from the death of the (most often unknown) photographer.
- Extended/statutory (compulsory) licenses should only be used in extreme cases of market failure, and never in marketplaces where competition is growing. Royalty-free business models are rapidly growing worldwide in software as well as scientific and educational material.
- The 1996 WIPO treaties were primarily aimed at protecting incumbent business models from disruption from competitors (1994/1995 National Information Infrastructure task force in the USA). While it is ideal that the 1996 treaties not be implemented or ratified at all since we are under no obligation to do so (Knopf, etc), there are ways to implement that are less harmful.
 - Do not extend copyright to include a new "right of interoperability" where authors can encode their content to only interoperate with chosen brands of access technology.
 - Ensure that legal protection for technical measures only extend to infringing acts, as proposed in C-60, and not simply "unauthorized" acts.
 - Clarify that software is neither a "device" (as interpreted in the USA with relation to their DMCA) nor a "service" (as could be misinterpreted in the context of C-60), and that there would be no prohibition over the authoring and distribution of software that had substantial non-infringing uses.
- Intermediaries should not be liable when they are simply acting on behalf of their customers, or providing solutions under the control of customers. The "notice and notice" regime for ISPs proposed in Bill C-60 should be retained. Authors of software with non-infringing uses should similarly not be held liable for any abuses of that software to infringe copyright.

Patent

Patent law is economic policy, intended to provide an incentive for innovation by providing a temporary government granted monopoly on an art, process, machine, manufacture or composition of matter which are workable, new, and ingenious (useful, novel, unobvious). While this is economic policy, changes in patent law have come as a result of legal analysis rather than economic analysis. There are subject matter where independent studies have indicated that patents stifle rather than provide an incentive for innovation. Governments must commission independent studies and make decisions about patentable subject matter based on these studies, rather than legal arguments presented by those who benefit from legal uncertainty or stifling of innovation.

Patent law should have exclusions for practical, moral, and ethical reasons. Canada needs only to look at the European **Patent** Convention's article 92 exclusion list for an example.

Patent quality is very low in some subject matter, such as software, which creates a practical problem. Patent quality must be assured in each subject matter area., possibly with a rule saying that 50% must be good quality in order for patents to be granted and/or enforceable in that subject matter? It is competition and first mover advantage, not exclusive rights, that drive innovation in software

We need a "Fair Use" doctrine for patent law, possibly carving out interface patents, royalty-free FLOSS implementations, and the activities of private citizens in their home or as amateurs and tinkerers. Patents for producing hardware or other tangibles are often opened up to competitors using RAND (Reasonable And Non-Discriminatory) licensing terms where there is a low per-copy royalty which is offered to anyone. While RAND is appropriate for tangibles, it is inappropriate for software which has a natural marginal cost of zero. RAND excludes from implementation any businesses using peer production methodologies.

Competition Policy

For many years I have been critical¹³ of the Competition Bureau's Intellectual Property Enforcement Guidelines (IPEG)¹⁴ which gives precedence of overly broad exclusive rights over competition. We need to properly balance these policy goals, ensuring that abuse of exclusive rights doesn't become a method to bypass policy necessary to protect a free market.

Conflicts between competition policy and Intellectual Property can be seen in current cases in Europe against Microsoft. The effects they are observing with Microsoft are simply cases of abuse of exclusive rights. Their remedies have not been productive as demanding Microsoft publish documentation for their interfaces is not sufficient if their major competitors are not able to implement these interfaces without violating patents. Microsoft often confuses policy makers by releasing their patents under RAND terms, which is sufficient for businesses using similar business models, but excludes their major competitors which are using Free/Libre and Open Source Software licensing and are not able to use RAND licensed methods.

Rather than taking the extremely expensive route of lawsuits against those who abuse exclusive rights, we need to modernize the laws which grant exclusive rights to reduce these abuses. A living Fair Use regime, and excluding interfaces from exclusive rights¹⁵ would be one way to accomplish this goal.

Telecommunications

Recognize convergence, and regulate phone and cable companies in similar ways, including competitive access to facilities. Ultimately it may be appropriate to configure this sector as was done in Ontario for electricity by the Ontario Conservative government: separate "distribution" ("last mile" infrastructure to customer premises) from "generation"(services such as telephone and ISP built on top of infrastructure)¹⁶. It makes no more sense for every phone and ISP company to run their own wires to customer premises than it does for retailers to run their own roads.

¹³See 2002 submission on Canada's Innovation Strategy <http://www.flora.ca/innovation-2002.shtml#ipeg>

¹⁴ IPEG <http://www.competitionbureau.gc.ca/epic/site/cb-bc.nsf/en/01286e.html>

¹⁵ For instance, the European COUNCIL DIRECTIVE of 14 May 1991 on the legal protection of computer programs (91/250/EEC) http://eur-lex.europa.eu/smartapi/cgi/sga_doc?smartapi!celexplus!prod!DocNumber&lg=en&type_doc=Directive&an_doc=1991&nu_doc=250 (Accessed March 19, 2008)

¹⁶ Details of this proposal in "An ideal future communications infrastructure, how do we get there, and what is stopping us!" <http://www.digital-copyright.ca/node/4593>