

# New media technologies, law, and society: an ecological approach

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“The dog jumped on to his back and snapped at the black curls, till, finding that no notice was taken, he walked off to play with a black beetle. The beetle was hard at work trying to roll home a great ball of dung it had been collecting all the morning : but Doss broke the ball, and ate the beetle's hind legs, and then bit off its head. And it was all play, and no one could tell what it had lived and worked for. A striving, and a striving, and an ending in nothing.”

*-The Story of An African Farm*

Developments in new media<sup>1</sup> technologies, including the Internet, bring prophecies both of salvation and of doom<sup>2</sup>. Anthropologist Grant McCracken argues that new media innovations have resulted in a cultural “plenitude”, including new categories of gender and new species of social life<sup>3</sup>. Yet, one cannot assume universal access to these technologies. As well, they have the ability to suppress by facilitating certain forms of expressions at the cost of others. Some find this uncertainty exciting. Lance Knobel comments, the thrilling thing about software is that the “effects are inevitably uncontrolled. That is precisely why plotting the impact of coming technology is so difficult.”<sup>4</sup>

More to the point, these technologies have the power to foster an increase in the breadth and depth of intellectual property. And, as James Boyle argues, “[i]ntellectual property is the legal form of the information age [...] The intellectual property regime could make or break the educational, political, scientific and cultural promise of the Net.”<sup>5</sup> Thus, Knobel’s difficult plotting is precisely the sort of work that needs to be done if we want the structures we build – through law, technology, as well as other institutions – to foster and promote particular values.

Examining, and thus better understanding, the content and context of new media allows

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<sup>1</sup> Definition: “The forms of communicating in the digital world, which includes electronic publishing on CD-ROM, DVD, digital television and, most significantly, the Internet. It implies the use of desktop and portable computers as well as wireless, handheld devices” (“Encyclopedia” *PC Magazine*, online: PCMAG.COM: <http://www.pcmag.com/encyclopedia>).

<sup>2</sup> See, for example, Jon Evans, “Apocalypse Soon: The future of reading” *The Walrus* (7 January 2008), online: The Walrus: <http://www.walrusmagazine.com>.

<sup>3</sup> Grant McCracken, *Plenitude* (Toronto: Periph, Fluide, 1997).

<sup>4</sup> Lance Knobel, “Deakin lecture” *Davos Newbies* (10 May 2005), online: Davos Newbies: <http://www.davosnewbies.com/deakin-lecture>.

<sup>5</sup> James Boyle, “A politics of Intellectual Property: Environmentalism for the Net?” (1997) 47 *Duke L. J.* 87 at 2-3.

us to make conscious choices about what to do with, and how to relate to, new technologies rather than submitting meekly to technological determinism. Specifically, using an ecological framework to approach the interaction between law, the market, social forces and different types of architecture allows a more thorough appreciation of new media developments and their effects. Using open source software an example, this paper argue that examining the third landscapes that these developments foster allows discovery of innovations, frameworks, and understandings that may help to address some of the problems that these developments create.

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Lawrence Lessig contends that one of the unique properties of cyberspace is that it is partly regulated by its code: the software and hardware that make up its architecture<sup>6</sup>. This architecture forms the constitution of cyberspace; it “structures and constrains social and legal power, to the end of protecting fundamental values”. A rule can be defined, “not through a statute, but through the code that governs the space”<sup>7</sup>. Hence, rules are imposed not only through social sanctions or the state but also through the very architecture of cyberspace.

While the speed and invisibility with which this code can be (and has been) built is novel, using form to regulate behaviour or to control content is not. Lessig himself points to numerous instances where “real-space code” constrains or encourages certain behaviours. European constitutional courts, for example, are placed away from capital cities in order to alleviate government pressure on the courts. Speed bumps encourage drivers to slow down. In order to combat crime, streetlights are deployed and spaces are designed to maximize visibility<sup>8</sup>. Physical architecture is often used as a form of regulation<sup>9</sup>.

However, this regulation is both “physically produced and rhetorically constructed”. As the re-design saga of the Jacob Javits Plaza in New York – first as the site of a sculpture by Richard Serra, then reconceived by Martha Schwartz – illustrates, “[r]hetoric argues for or against the ‘appropriateness’ of different modes of behaviour and activities. Built form reinforces who the public is by limiting how a site can be used.”<sup>10</sup>

Situated in Lower Manhattan, the Jacob Javits Plaza flanks the Javits Federal Office Building. In 1981, Serra’s sculpture, *Tilted Arc*, was installed without public consultation: “[t]welve feet high and 120 feet long, the 2-inch thick plane of Cor-ten (rusted) steel bisected the tapering plaza space in a gentle east-west arc.”<sup>11</sup> Public protest began immediately. Many were concerned that the sculpture destroyed the plaza’s usability. The General Services

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<sup>6</sup> “Though built on top of the Internet, cyberspace is a richer experience. Cyberspace is something you get pulled ‘into’ ” (Lawrence Lessig, *Code: version 2.0* (New York: Basic Books, 2006) at 9).

<sup>7</sup> *Ibid.* at 24.

<sup>8</sup> *Ibid.* at 128.

<sup>9</sup> See: Armondo Montilla, “Socio-Political Phenomena and the Renaissance of the Public Space in the City: The Caracas Case” in James Gifford & Gabrielle Zezulka Mailloux eds., *Culture and the State: Landscape and Ecology* (Edmonton: CRC Studio, 2004) 38.

<sup>10</sup> Kristine Miller, “Art or Lunch: Designing a Public Space for New York’s Federal Plaza” in William Taylor ed., *The Geography of Law: Landscape, Identity and Regulation* (Portland: Hart, 2006) 137 at 147.

<sup>11</sup> John Hill, “Jacob Javits Plaza: Reconsidering Intentions” (27 May 2007), online: Archidose <http://www.archidose.org/writings/javits.html>.

Administration (“GSA”) called for a public hearing and subsequently removed the *Tilted Arc* in 1989 (despite Serra’s lawsuit – the sculpture was contracted for as a permanent commission). After a transitory period, Schwartz was contracted by the GSA to redesign the plaza with the explicit goal of maintaining it both as a work of art and as a usable space. The design was made available to the public for consultation before installation and Schwartz delivered a “curling maze of bright-green benches (about 1,700 linear feet of them) that snaked around six-grass covered mounds”<sup>12</sup>.



Richard Serra’s *Tilted Arc*



Martha Schwartz’s design



Notice of Hearing

In this case, the GSA’s decisions to involve or not involve the public, its goals for the space, the public outcry over Serra’s sculpture, the city’s response, the media attention, the legal battles that ensued, and Schwartz’s responsive design are all part of the rhetoric that helps construct the meaning of the plaza’s current architecture. Thus, physical architecture and rhetoric are part of the code that gives some spaces meaning.

Law participates in such structural formation and informs regulation. As Desmond Manderson explains, law “is one of the ways in which form is developed in society, and law expresses itself through form and structure and style and ritual”<sup>13</sup>. Even once structures are built, the “regulation of real-space code, by law, [can] ... change the constraint that real-space code creates.” Lessig provides the example of the *Americans with Disabilities Act*, which “in part aims to change [physical] constraint[s] by requiring builders to change the design of buildings so that the disabled are not excluded”<sup>14</sup>. More plainly, laws and legislation (such as municipal codes) regulate access to these structures and the sorts of behaviour tolerated within them. This regulation itself informs the meaning of the architecture.

A key difference with cyberspace lies in the ease with which government and commerce can covertly manipulate its code. Lessig warns of three concomitant dangers: firstly, government and commerce are already (re)constructing cyberspace’s architecture. Secondly, this (re)construction can foster an environment of perfect control. And, thirdly, the types of

<sup>12</sup> *Ibid.*

<sup>13</sup> Desmond Manderson, *Songs without music: aesthetic dimensions of law and justice* (Berkeley: University of California Press, 2000) at 191.

<sup>14</sup> Lessig, *supra* note 6 at 142.

fundamental values protected in this environment may not serve society well<sup>15</sup>.

While jurisdictional issues and anonymity may make it difficult for governments to directly regulate online behaviour, the structure of the Internet is highly susceptible to regulation. The alarming aspect of regulating through structure is that it “misdirects responsibility”. Lessig writes, when “a government uses other structures of constraint to effect a constraint it could impose directly, it muddies the responsibility for that constraint and so undermines political accountability”. It is imperative, then, to demand transparency and to “build, architect, or *code* cyberspace to protect values that we believe are fundamental”<sup>16</sup>.

The crux of Lessig’s argument in *Code: version 2.0* consists of the observations that code will supersede law as the “primary defense” of intellectual property in cyberspace and that this shift could result in a shift, or lack, of balance between control and access, expansive and potentially unchecked power for those who control this architecture, and a potential stifling of creativity<sup>17</sup>. Citing Tim Wu, Lessig outlines how “code itself is not necessarily regulation enhancing – code can be used to foil regulation. A gun is a bit of code. It works wonders to destroy the peace. Circumvention technologies are code. They weaken rules reinforcing control.”<sup>18</sup> Whether one argues for or against regulation, it is clear that Lessig sees code as the heart of the struggle. For Lessig, “code writers are increasingly lawmakers” and their “decisions, now made in the interstices of how the Net is coded, define what the Net is”<sup>19</sup>. The question then becomes who will these architects be and how will they choose to code?

To address the context of this architectural coding, Lessig posits architecture, the law, social norms, and the market as constraints that regulate individuals. The sum of these four constraints is “regulation”<sup>20</sup>. And, though these constraints are distinct, “they are plainly interdependent. Each can support or oppose the others.” Each constraint is a “regulator”. Each has a “complex nature, and the interaction among these four is also hard to describe”<sup>21</sup>. In the appendix of his book, Lessig attempts to set out some of these interactions. He explains how these constraints differ from, translate into, and provide contexts for each other.

A more organic view of these influences renders a better sense of the impact of new technology and its regulation. To alter behaviour, Lessig argues, the law can operate directly on individuals (through the threat of punishment) or indirectly by modifying social norms, the market, or architecture<sup>22</sup>. Thus, “[s]tructure X does not determine behavior Y. Instead, these forms are always influences that can change, and when they are changed, they alter the affected

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<sup>15</sup> Lessig suggests that we will know what serves society well by what makes us “happy” and what does not by what we should all “regret” (*Ibid.* at 5). My formulation for what serves society well would be more aligned with the sustainability argument that follows – that which encourages a diverse and sustainable environment.

<sup>16</sup> *Ibid.* at 6.

<sup>17</sup> *Ibid.* at 1-138 ff.

<sup>18</sup> *Ibid.* at 118.

<sup>19</sup> *Ibid.* at 79.

<sup>20</sup> *Ibid.* at 123.

<sup>21</sup> *Ibid.* at 124.

<sup>22</sup> *Ibid.* at 130-132.

behavior.”<sup>23</sup> I aim to extend this discussion by examining the materiality of structure X, the behaviours that influenced structure X to begin with, and how the behaviour that X alters then affects the structure in return.

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The materiality of Lessig’s code deserves careful consideration. He defines code as the software and hardware that make up the architecture of cyberspace. While the physicality of hardware is obvious (though less so as it becomes either smaller, more transparent, or more removed from the user), the concrete embodiment of software is more elusive. As N. Katherine Hayles notes, “a defining characteristic of the present cultural moment is the belief that information can circulate unchanged among different material substrates. It is not for nothing that ‘Beam me up, Scotty’, has become a cultural icon for the global information society.”<sup>24</sup> Hayles’ work illustrates how the body is crucial to perception, understanding, and consciousness. Rhetoric, which can be seen as a type of software, derives meaning from embodiment.

Just as the body is integral to the construction and appreciation of rhetoric, the materiality of software constitutes a large portion of its meaning and its effect. A large part of the story of the development of new media has been the “search for a stable, but also erasable – a variable but non-volatile – medium”<sup>25</sup>. The 1s and 0s that make up digital information are stored on mountains of tape, transmitted through reams of wire, processed by hardware – and, most importantly, understood and given meaning by users and by other machines.

This material context involves tangible economic, social, and legal implications. The fastest networks currently run on millions of dollars worth of fiber optic wire. The cost of the fiber optic itself aside, the potential costs of digging up and replacing the miles of copper wire currently going into most Canadian homes is a serious economic consideration for service providers. Some countries have neither the budget nor the expertise to even consider installing a fiber optic network.

This materiality causes concern for legal reasons as well through the traces that it leaves. Matthew Kirschenbaum narrates: “while scholars and theoreticians were feeling their ways towards metaphors and neologisms designed to capture something of the fleeting quality of the flickering signifiers on their screens, bureaucrats at the [United States Department of Defence] were wringing their hands over electronic data’s troubling penchant for remanence.”<sup>26</sup> The possibilities presented by computer forensics present procedural, evidentiary, privacy, and security concerns.

Less direct consequences can also accompany changes in materiality. Paying attention to

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<sup>23</sup> *Ibid.* at 345.

<sup>24</sup> N. Katherine Hayles, *How We Become Posthuman: Virtual Bodies in Cybernetics, Literature and Informatics* (Chicago: University of Chicago Press, 1999) at 1-2.

<sup>25</sup> Matthew G. Kirschenbaum, “‘Every Contact Leaves a Trace’: Computers, Forensics and Electronic Textuality” (Paper presented to the History of Material Texts workshop, University of Pennsylvania, 4 April 2005) at 3.

<sup>26</sup> *Ibid.* at 1.



these developments as we foster or prevent them can help to predict, and thus allows us to choose, certain consequences. Alain Pottage's work – on how developments in mapping and property law changed the status of land to a commodity – illustrates this point. Pottage comments that until the late nineteenth century, “lines of property followed lines of topography that were not drawn according to external standards of proportion and orientation, but according to a logic of localised practice”<sup>27</sup>. This sort of scheme left uncertainties in title that required assessment and apportionment by the parties involved in any given transaction. Thus, “[p]roperty simply could not be presupposed. In contrast to this, registration in its modern ‘cadastral’ form implied the introduction of a horizon for bargaining around rather than about property”<sup>28</sup>. Thus, the change in the material embodiment of land as a concept (from being understood in reference to itself and to people to being understood in reference to maps and cadastral numbers) changed the way that we conceive of and exchange property.

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How do we understand developments in new media technology – in relation to other mediums, to the law, and to ourselves? Marshall and Eric McLuhan set out four questions that “can be asked (and the answers checked) by anyone, anywhere, at any time, about any human artifact”<sup>29</sup>. They are: 1) what does it enhance or intensify? 2) what does it render obsolete or displace? 3) what does it retrieve that was previously obsolesced? 4) what does it produce or become when pressured to an extreme? This inquiry forms the basis for much of media studies today. Problematically, however, the questions place agency squarely on the artifact or media examined. When applied to new media, they ask: *what does new media do? what does it replace? what does it bring back? what will it become?* The form of this inquiry renders the context from which new media emerges irrelevant and older media agent-less.

David Jay Bolter attempts a more reflexive analysis through the examination of “remediation”; however, the framework he sets out still place context and agency at the periphery. In *Writing Space*, Bolter defines remediation as what occurs when “a newer medium takes the place of an older one, borrowing and reorganizing the characteristics of [...] the older medium and reforming its cultural space”<sup>30</sup>. This unilateral definition places power and agency on new media – depicting old media as helpless and needing to be replaced – and thereby negates the role that existing media play in fostering the context from which new media emerges.

Later on, in *Remediation*, Bolter and Richard Grusin engage in a more reflexive analysis. Unfortunately, they believe that the ultimate goal of remediation is to “refashion or rehabilitate other media”<sup>31</sup>. Thus, while “older media refashion themselves to answer new media’s challenges” and “each act of mediation depends on other acts of mediation”, new media is posited as the agent that acts on older media. New media justified because they fill “a lack” or repair “a fault” in their predecessor. They fulfill “the unkept promise of an older medium”<sup>32</sup>.

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<sup>27</sup> Alain Pottage, “The Measure of Land” (1994) 57 *The Modern Law Review* 361 at 366.

<sup>28</sup> *Ibid.* at 382.

<sup>29</sup> Marshall McLuhan & Eric McLuhan, *Laws of Media* (Toronto: University of Toronto Press, 1988) at 7.

<sup>30</sup> Jay David Bolter, *Writing Space* (New Jersey: Lawrence Erlbaum Associates, 200) at 23.

<sup>31</sup> Jay David Bolter & Richard Grusin, *Remediation* (Cambridge: MIT Press, 1999) at 56.

<sup>32</sup> *Ibid.* at 60.

And, in the majority of their book, Bolter and Grusin seldomly examine existing media's responses.

Bolter and Grusin's rhetoric points to a larger problem by placing agency with the media itself. They attempt to avoid both technological determinism and determined technology by claiming to treat "social forces and technical forms as two aspects of the same phenomenon ... [and] explor[ing] digital technology themselves as hybrids of technical, material, social, and economic facets". In a caveat, they note that "in all cases we mean to say that the agency for cultural change is located in the interaction of formal, material, and economic logics that slip into and out of grasp of individuals and social groups"<sup>33</sup>. Unfortunately, a claim that one means to take into account context does not equate to an examination of such context. And, for the most part in *Remediation*, Bolter and Grusin examine media without introducing the historical and social context into which the media are introduced and out of which they were born. When these contexts are examined, they treat technology as the generative force.

Ronald Deibert offers a more holistic, evolutionary, model. In order to avoid slighting "the extent to which the technology itself emerges out of a particular context", Deibert writes that "we must underscore the 'social embeddedness' of technology". In other words, we "must place greater emphasis on the historical and social context in which technologies are introduced"<sup>34</sup>. Thus, the market, social needs, scientific innovation and restraints, material resources, and popular imagination all help drive technological innovation. These forces facilitate the development of certain technologies.

Once developed, "new technologies of communication do not *generate* specific social forces and/or ideas, as technological determinists would have it. Rather, they facilitate and constrain the extant social forces and ideas of a society."<sup>35</sup> In other words, new media do not 'do' anything to society and culture; rather, some trends, ideas, laws, and practices are more suited to certain technologies than are others. Being more suited, these cultural traits prosper. However, it is important to remember that the existence of the technologies themselves are due to the various social, material, and economic factors in the environment that evolve and select them.

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Applying Deibert's ecological model to Lessig's regulation generates a richer picture of cyberspace that more accurately illustrates the role of regulation in this environment. Deibert's model, based on evolutionary theory, illustrates the complex reflexive interplay between social, material, economic, and technological forces whose functional properties either reinforce or constrain particular traits and developments.

I propose to re-examine the interaction between Lessig's regulators – the law, the social norms, the market, and the code – as well add an unsurprising one: art. In Lessig's model, the individual is constrained by these four forces. The forces themselves affect each other (despite

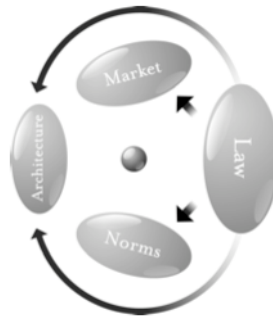
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<sup>33</sup> *Ibid.* at 78.

<sup>34</sup> Ronald J. Diebert, *Parchment, Printing, and Hypermedia* (New York: Columbia University Press, 1997) at 29.

<sup>35</sup> *Ibid.* at 30.

the fact that the arrows in the diagram are unidirectional).



Lessig's Model

However, a more holistic, ecological, model would also strive to illustrate how these forces have developed and evolved out of the environment created by the whole system. It would aim to demonstrate that the relationship among the forces is not simply a matter of cause-and-effect but rather a much more complex interaction of selection and evolution.

Lessig gestures towards this interaction, noting that the “constraints of the market exist because of an elaborate background of law and norms defining what is buyable and sellable, as well as rules of property and contract for how things may be bought and sold. But given these laws and norms, the market still constrains in a distinct way.”<sup>36</sup> A more thorough examination would account for how market constraints also form part of the environment that will foster and restrain these laws and norms. A more holistic account would consider not only the gap between laws and norms but also “the gap between state legal rules [...] and *what the legal institutions actually do*, which norms they in fact enforce and how they do so, regardless of what they claim” by acknowledging the interplay *between* the two.<sup>37</sup>

In addition, this model reveals that Lessig’s “pathetic dot” – “a creature (you or me) subject to different regulations that have the effect of constraining (or as we’ll see, enabling) the dot’s behaviour” – is not so pathetic. The dot is not simply subject to the system; it is an integral part of the system itself. Its behaviour – whether in reaction *against* or *to* regulation – affects the regulators and alters the environment that constrains or reinforces them (this interaction can be seen explicitly in the popularization of interactive viewer-feedback driven television programming – i.e. telephone and online voting for a show’s contestants, comments and feedback on plot and character through polls and forums on a show’s website).

As Henry Jenkins notes, “convergence is being shaped bottom-up by the participatory impulses of consumers, who want the ability to control and shape the flow of media in their lives; they want the media they want when they want it and where they want it. And, as a result, they pull media content into new spaces illegally if that content is not available for purchase in

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<sup>36</sup> Lessig, *supra* note 6 at 341.

<sup>37</sup> Brian Z. Tamanaha, “An Analytical Map of Social Scientific Approaches to the Concept of Law” (1995) 4 Oxford J. of Legal Stud. 501 at 511.



those formats”<sup>38</sup>. The dot – especially in combination with other dots – is a force to be reckoned with. Thus, not only would Lessig’s arrows need to be multi-directional, they would need to be placed in a way that demonstrates how all parts have a role to play in creating the environment from which they emerge and out of which developments continue to arise.

Into this analysis, I add one more regulator: art – defined in its most expansive sense as “the expression or application of human creative skill and imagination” and including visual arts, dramatic arts, musical arts, and literature. Robert Ellickson notes that:

“[a]rt and literature can serve to sustain the man layers of incentives that are necessary to support the altruistic enforcement of norms. In prior eras, Odysseus, El Cid, and Lancelot were model heroic avengers; more recently we have Rambo and the Karate Kid. Popular culture not only reinforces first-party preferences to enforce norms altruistically; it also tells third parties that it is appropriate to reward enforcers after the fact.”<sup>39</sup>

Manderson argues that an aesthetic dimension lies at the heart of law and justice and that the discourse of law is fundamentally governed by rhetoric, metaphor, form, image, and symbols. Paying attention to this aesthetic dimension “deepens our understanding of the law by giving readers new tools with which to interpret the meaning of legal texts”<sup>40</sup>. Thus, if you “want to understand what ‘the law’ means and where it is to be found, you have to explore the aesthetic – formal and stylistic – elements of law’s meaning”<sup>41</sup>. Lessig himself illustrates the serious effects – both positive and negative – that forms of art (defined broadly enough to include violent pornography and narratives in *Second Life*) can have on the communications environment.<sup>42</sup>

Thus, rather than seeing code as superseding law, a more holistic approach asks whether cyberspace evolved in a way that fostered particular regulators (i.e. code) while constraining others (i.e. law). Lessig contends that what differentiates code and architecture from the other regulators is “the agency of the constraint: no individual or group imposes the constraint, or at least not directly. Individuals are no doubt ultimately responsible for much of the constraint, but in its actual execution the constraint takes care of itself.”<sup>43</sup> This view discounts the various social, legal, and physical factors that come into play.

One example of an architectural constraint that Lessig provides is the speed bump. While they may seem self-executory, speed bumps elicit specific behaviour because they operate in a particular environment where social norms foster recognition (yellow bump on the road) and encourage certain understandings and actions (there may be children; I should slow down); where legal rules and norms threaten (there’s a policeman!) and warn (if I’m jolted by the speed

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<sup>38</sup> Henry Jenkins, “Eight Traits of the New Media Landscape” *Confessions of an Aca-Fan* (6 November 2006), online: Confessions of an Aca-Fan <[http://www.henryjenkins.org/2006/11/eight\\_traits\\_of\\_the\\_new\\_media.html](http://www.henryjenkins.org/2006/11/eight_traits_of_the_new_media.html)>.

<sup>39</sup> Robert C. Ellickson, *Order without law: how neighbors settle disputes* (Cambridge, Mass: Harvard University Press, 1991) at 238.

<sup>40</sup> Manderson, *supra* note 13 at 52.

<sup>41</sup> *Ibid.* at 200.

<sup>42</sup> See Lessig, *supra* note 6 at 17-25 ff.

<sup>43</sup> *Ibid.* at 342.

bum, I'm probably going past the speed limit); where physical factors foster (speed bumps are easy and cheap to make) and constrain (they *would* be more effective, for example, *if* they employed some sort of force field to physically slow down cars going too fast). And, of course, these factors interact (we could have a force field but would that be safe, would it interfere with individual freedom, and what about in cases of emergency?).

An ecological model allows us to avoid technological determinism. Rather than simply seeing code as “taking over”, this mode of analysis allows us to develop a rich understanding of the environment causing code’s movement, what this movement does to the environment in turn, and how one may prevent or effect such changes. Even if one cannot affect how code operates directly, I argue it is still beneficial to understand how it interacts indirectly.

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Others have examined both law and intellectual property under the framework of evolution and environmentalism. Joseph Savirimuthu, for example, examines the “process of natural selection and its significance for the emerging information commons in the network society”. He chooses the evolutionary model for its ability to refocus “our attention squarely on the relationship between the development and transformation of the environment on the one hand and the process of interactivity, unpredictability and scarcity on the other”. Savirimuthu highlights how the interactions between Lessig’s regulators in cyberspace are not fundamentally different from those between ‘real’ space regulators<sup>44</sup>.

Boyles notes a more direct correspondence between digital and material evolution – pointing to electronic ecologies that software designers have created where computer code compete with each other in the way that genes compete with each other in nature. He also attempts to illuminate growing concerns over the demise of the public domain by way of analogy to the rise of the environmental movement:

“[just as the] environmental movement gained much of its persuasive power by pointing out that there were structural reasons that we were likely to make bad environmental decisions – [including] a legal system based on a particular notion of what ‘private property’ entailed, ‘the’ structure of our property rights discourse tends to undervalue the public domain ... by failing to make actors and society as a whole internalize the losses caused by the extension and exercise of intellectual property rights.”<sup>45</sup>

Both Savirimuthu and Boyles approach the law through a holistic, ecological, model that account for the environment within which law operates.

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My aim here is not to examine any particular interaction within the communications environment or to comment upon the system as a whole. Rather, I contend that examining neglected spaces – what Gilles Clement terms third landscapes – within this environment can provide ecologically viable solutions to the problems that many have identified. Specifically, I

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<sup>44</sup> Joseph Savirimuthu, “Open Source, Code and Architecture: It is the Memes Stupid” (2005) 19 Int’l Rev. L. Comp. & Tech. 341.

<sup>45</sup> Boyles, *supra* note 5 at 25-26.

focus on the open source software movement as a third landscape and the proposals it holds for the regulation of cyberspace as a whole.

Clement writes that there are essentially three types of third landscapes: leftover and transitional spaces (the *délaissé*), undeveloped spaces (the *reserve*), and spaces set aside by administrative decree (the *ensemble primaire*). Found “everywhere in the world”, these spaces often result, ironically, from development itself. As Clement notes, “[e]very rural or urban development venture, however technically accomplished and in whatever spirit of land use, generates some wasted space that awaits a future use”<sup>46</sup>. Part of the value these landscapes offer derives from their diversity – guaranteed through their neglect by institutions. In these undetermined, unregulated, fragments of space, different species and systems can take refuge. And, the interactions among them make the landscapes sites of potential innovation.

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The Open Source movement<sup>47</sup>, I argue, constitutes a third landscape in cyberspace. For at least a decade, articles have touted open source development’s entry into the mainstream. Yet, the continued popularity of the announcement itself demonstrates that open source remains the exception rather than the norm<sup>48</sup>.

Though modes of open source development can be seen as early as the development of ARPANET, the movement came into the public conscience fairly recently – its flagship project, Linux, was started in 1991; popular articulation of its theories and the development of groups and initiatives began in the late 90s<sup>49</sup>. While some developers have managed to make open source development economically viable as a career, it remains what most coders do outside of their day-jobs as commercial developers.

Further, insofar as open source is moving into the mainstream, it can be seen as a site of transition. Its economic development potential (while growing) has not been fully tapped<sup>50</sup>. And, while the open source movement is not untouched by official state regimes, it has, in using existing intellectual property laws, developed around the rationales underlying them. In these ways, I consider open source a transitional space generated through the economic and technological development of cyberspace. It is a space that has created its own system of

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<sup>46</sup> Gilles Clément, “Third Landscape” in Giovanni Borasi ed., *Gilles Clément / Philippe Rahm: environ(ne)ment : manières d’agir pour demain = approaches for tomorrow* (Montreal: CCA, 2006) 90 at 92.

<sup>47</sup> Here I use the term specifically to refer to “Open Source” exclusive of “Free Software.”

<sup>48</sup> See generally Aaron Weiss, “Open Source Moves to the Mainstream” *Information Week* (10 April 2000), online: Information Week Online <http://www.informationweek.com/781/open.htm> ; Stephen Shankland, “Study: Open-source databases going mainstream” *CNET* (8 March 2004), online: News.com [http://www.news.com/Study-Open-source-databases-going-mainstream/2100-7344\\_3-5171543.html](http://www.news.com/Study-Open-source-databases-going-mainstream/2100-7344_3-5171543.html) ; Robert Mullins, “Open source joins the mainstream” *InfoWorld* (3 August 2007), online: InfoWorld [http://www.infoworld.com/article/07/08/03/open-source-going-mainstream\\_1.html?source=searchresult](http://www.infoworld.com/article/07/08/03/open-source-going-mainstream_1.html?source=searchresult).

<sup>49</sup> See generally *Open Source Initiativ*, online: <http://www.opensource.org/about>.

<sup>50</sup> Worldwide revenue for open source software reached \$1.8 billion in 2006 ; however, this is compared to Microsoft’s first quarter general revenue of \$10.81 billion and IBM’s fourth quarter software revenue of \$5.6 billion in the same year.

regulation within the official regime and, importantly, a space that contains much room for growth.

Lessig writes that open code projects:

“share the feature that the knowledge necessary to replicate the project is intended always to be available to others. There is no effort, through law or technology, for the developer of an open code project to make that development exclusive. And, more importantly, the capacity to replicate and redirect the evolution of a project provided in its most efficient form is also always preserved.”<sup>51</sup>

Put more concretely, open source software is subject to a breed of license agreement that requires developers to make their source code available to licensees. Licensees are then generally free to use, modify, and redistribute the source code (under the same open source license terms).

Examining the open source movement as a third landscape within an ecological model – focusing on how the law has contributed to its emergence and can be influenced by its presence – allows a more robust understanding of, and provides potential solutions to, Lessig’s concern over the possibility of hidden regulatory control.

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Open source is not prohibited by copyright law. Rather, copyright law helped to foster the environment out of which open source was born. Despite being marketed as “an important marketplace framework law *and* cultural policy instrument that supports creativity and innovation”, the Canadian *Copyright Act*, with its US counterpart, centers on economics<sup>52</sup>. In the resulting environment, a limited number of transnational corporations have been able to use copyright “much like the printers did: to stifle competition, restrict the rights of authors, control access to information, as well as, controlling access to alternative innovative products”<sup>53</sup>. With a narrow policy focus centered on economic exchange, copyright law helped to create an environment ripe for alternatives.

Yet, the open source alternative has proved economically viable without according the traditional exclusive ownership rights on which copyright law is based. As H. Maura Lendon argues, the open source model:

“demonstrates a welfare maximizing use of copyright [...] Its openness (including the requirement of openness of modifications to the original) supports follow-on innovation and reduces the economic waste of duplication efforts, reverse engineering or the need to replicate a program’s behaviour using new non-infringing expression (*i.e.*, code).”<sup>54</sup>

In fact, the “ecology as a whole has a more rapid response to market demands, and more

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<sup>51</sup> Lessig, *supra* note 6 at 149.

<sup>52</sup> Canadian Heritage, *Government Statement on Proposals for Copyright Reform*, online: Canadian Heritage [http://www.pch.gc.ca/progs/ac-ca/progs/pda-cpb/reform/statement\\_e.cfm](http://www.pch.gc.ca/progs/ac-ca/progs/pda-cpb/reform/statement_e.cfm) ; R.S.C. 1985, c. C-42.

<sup>53</sup> Dina Koutouki, “Reconsidering Copyright Protection for Software” (1995) 48 U.N.B. L.J. 95 at 100.

<sup>54</sup> H. Maura Lendon, “The Linux Revolution” (2000) 15 *Intell. Prop. J.* 143 at 166.

capability to resist shocks and regenerate itself, than any monolithic vendor of a closed-source operating system can possibly muster”<sup>55</sup>.

A market rationale often cited for giving individuals (or groups) a legal interest in their property is the desire to avoid the tragedy of the commons. In this scenario, free and unrestricted access to a finite resource results in over-exploitation and, ultimately, loss of that resource. However, if individuals are given property rights in the resource, they exercise responsibility for it and the resource prospers.

The application of this theory to intellectual property engenders a serious difficulty: intellectual property differs from traditional forms of property in a number of respects. Unlike land, it is not finite. As well, often copies can be made in such a way that allows others to use or access the intellectual property without preventing or impeding use of the “original”. With intellectual property, one person’s use of a resource does not necessarily degrade or interfere with another’s.

As a result, theorists such as James Boyle argue, an intellectual property regime that analyzes information primarily through economics, that centers property rights on a fiction of “original author”, and that is politically blind to the importance of the public domain will inevitably cause the public domain to disappear, “first in concept and then, increasingly, in reality”<sup>56</sup>. And, Lessig adds, as code (in terms of architecture) plays an increasing role in the protection of intellectual property, there will be a corresponding rise of “[p]rivate fences”, as opposed to public law. The question then becomes whether legislation like the *Copyright Act* provides too much protection? Lessig predicts that the “lesson in the future will be that copyright is protected far too well. The problem will center not on copy-right but on copy-duty – the duty of owners of protected property to make that property accessible”<sup>57</sup>.

Yet, the non-finite nature of intellectual property may foster an environment where the rationales underlying the open source model may thrive over the traditional underpinnings of copyright law. In the open source environment, licensees are given a stake in community domain. This stake has engendered responsibility and the open source resource has prospered. Eric Raymond notes that the volume of open source software being developed increases steadily and rapidly. Thus, “[c]learly there is some critical way in which the ‘Tragedy of the Commons’ model fails to capture what is actually going on”. Raymond posits that “[p]art of the answer certainly lies in the fact that using software does not decrease its value. Indeed, widespread use of open-source software tends to *increase* its value”<sup>58</sup>. However, it is important to remember that the code from open source projects does not sit in the public domain; rather, it is copyrighted and licensed to users with a set of restrictions aimed at fostering community development.

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<sup>55</sup> Eric S. Raymond, *The Cathedral & the Bazaar* (Revised Edition) (O’Reilly: Safari Books Online, 2001) at section 4.13.

<sup>56</sup> Boyle, *supra* note 5 at 25-6.

<sup>57</sup> Lessig, *supra* note 6 at 175.

<sup>58</sup> Raymond, *supra* note 55 at section 4.5.

So, interestingly, the desire to develop a particular kind of market encouraged the development of certain legal rights in architecture. However, the interaction of (and disjunction between) particular social and market forces with those legal rights helped to develop an architecture that allowed the rise of an alternative model, which is itself threatening the existing market and legal forces.

It is important to account for the social forces at work here as well. Open source – like copyright law – has the potential to dramatically alter the architecture of the Internet, *as well as* the social environment. Raymond notes that some of open source’s most important features are sociological (rather than technical)<sup>59</sup>. It is important, then, to examine what sort of environment the sociological developments of open source contribute to – how might this environment affect the social order?

Lessig worries that architecture will replace copyright law as a force of regulation because nothing in code requires it to strike a balance between control and access. He writes, “[w]hatever problems there are when contracts replace copyright law, the problems are worse when code displaces copyright law [...] [W]here do we challenge the code? When the software protects without relying on the state, where can we challenge the nature of the protection? Where can we demand balance when the code takes it way?”<sup>60</sup>

One way to challenge this new code is to keep it open. If, as Lessig predicts, code writers will be *de facto* lawmakers and their decisions will set the Net’s nature, then by encouraging the development and use of open source, we encourage wide-spread participation in this law-making – while also sustaining the possibility that oppression in the architecture will be ‘developed’ out through modification and derivation. Open source architecture “is an important check on the government’s regulatory power. Open code means open control – there is control, but the user is aware of it”<sup>61</sup>. Thus, innovation and creation, as well as democratization, economic welfare, and market robustness, are fostered<sup>62</sup> in a system that accords individuals fewer proprietary rights but encourages wider participatory interaction.

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Thus, by examining the interaction between law, the market, social forces, and different types of architecture (code) using an ecological framework, one can gain a more thorough appreciation of new media developments and better predict their effects. And, in examining the third landscapes that these developments foster, one can find innovations, frameworks, and understandings that may help to address some of the problems that these developments create. Closely attending to the context of new media (as well as its content) occasions informed and conscious choices about the creation and use of new technologies. This prevents accession to technological determinism and ensures that technological development will not be a “striving, and a striving, and an ending in nothing”<sup>63</sup>.

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<sup>59</sup> *Ibid.* at section 1.6.

<sup>60</sup> Lessig, *supra* note 6 at 188.

<sup>61</sup> *Ibid.* at 151.

<sup>62</sup> Though not guaranteed.

<sup>63</sup> Olive Schreiner, *The Story of an African Farm* (London: Penguin, 1995) at 135.



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