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## Comment

# Charming a Snake: Open Source Strategies for Developing Countries Disillusioned with TRIPs

Daniel F. Olejko\*

### I. Introduction

As the phase-in period for implementation of the Agreement on Trade-Related Aspects of Intellectual Property Rights<sup>1</sup> (“TRIPs”) has reached expiration,<sup>2</sup> developing countries continue to scramble to prepare

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\* J.D., The Dickinson School of Law of the Pennsylvania State University, 2007; B.S. Computer Science, Purdue University, 2004. I would like to thank Eben Moglen, Professor of Law and Legal History at Columbia University Law School and Chairman of the Software Freedom Law Center, for his assistance in surmising the topic. In March 2006, this comment was awarded the Richard R. Baxter award in recognition of writing excellence in international law.

1. Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, Legal Instruments—Results of the Uruguay Round, 33 I.L.M. 1125, 1197 (1994) [hereinafter TRIPs].

2. The agreement provides for “Transitional Arrangements” for WTO members based on level of development. *Id.* at pt. VI. TRIPs granted “developed countries” one year to implement the TRIPs provisions. *Id.* at art. 65. “Developing countries” were allowed a longer period extending until January 1, 2000. *Id.* TRIPs provided the “least developed countries” the longest transition period expiring on January 1, 2006. *Id.* at art.

for the inevitable reality of compliance. However, rather than fully endorse the agreement inspired by the United States and European Community, disillusioned developing countries have considered alternative practices to circumvent and supplement the TRIPs protections.<sup>3</sup> The inspiration for these alternatives is a manifestation of the recent crosscurrents of resistance to international intellectual property.<sup>4</sup> However, the resistance is not unified; competing regimes have formed among the diverse group of World Trade Organization (“WTO”) participants and even among the subgroup of developing countries.<sup>5</sup> Fundamentally, the split is the product of a power struggle over competing interests and values.<sup>6</sup> The goal of the resistance: a restructured, legitimate agreement embracing common social, environmental, and economic values of the entire WTO membership.<sup>7</sup>

Reacting to “increased tensions between intellectual property protection standards and the principles, norms, and rules of other international regimes,”<sup>8</sup> some governments have implemented the practice of abandonment.<sup>9</sup> Abandonment rejects multilateral agreements such as TRIPs and resorts to “protection outside of the international intellectual property regime.”<sup>10</sup> These rights holders choose to evade underlying intellectual property law through the formation of contractual private agreements.<sup>11</sup> Contract law provides greater control to rights holders in the protection of their intellectual assets and allows governments to advance their internationally underrepresented policy considerations.<sup>12</sup>

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66.

3. Peter K. Yu, *Currents and Crosscurrents in the International Intellectual Property Regime*, 38 LOY. L.A. L. REV. 323, 408 (2004).

4. *See id.* at 375 (identifying and explaining the practices of divergent international crosscurrents: reciprocization, diversification, bilateralism, non-nationalization, and abandonment).

5. *See* Laurence R. Helfer, *Regime Shifting: The TRIPs Agreement and New Dynamics of International Intellectual Property Lawmaking*, 29 YALE J. INT’L L. 1 (2004) (explaining regime theory including the causal factors at play and the consequences of regime formation).

6. *Id.* at 7.

7. *NGOs Demand ‘Re-Thinking’ on TRIPs*, 21 S. BULL. 3, 3 (2001) (noting how “little, if any, of TRIPs’ promised benefits of technology transfer, innovation and increased foreign direct investment has materialized”).

8. Helfer, *supra* note 5, at 27.

9. Yu, *supra* note 3, at 406.

10. *Id.*

11. *Id.*

12. *See generally* Council for Trade-Related Aspects of Intellectual Property Rights, *Article 27.3(B), Relationship Between the TRIPs Agreement and the CBD, and the Protection of Traditional Knowledge and Folklore*, ¶ 18, IP/C/W/434 (Nov. 26, 2004) [hereinafter U.S. Submission] (advocating contractual agreements to developing countries seeking to protect and benefit from their indigenous knowledge and materials).

For example, the Commonwealth of Massachusetts has proposed dropping Microsoft Office in favor of alternative office applications that utilize an open file standard such as the Open Document Format (\*.odf).<sup>13</sup> Unlike Microsoft's Office file format (\*.doc, \*.xls, etc.), which has been traditionally kept secret,<sup>14</sup> open formats are released to the public via reference schemas.<sup>15</sup> As its hosted reason for adopting open formats, Massachusetts cites the need for "ease of access."<sup>16</sup> It explains:

Ease of access to electronic records created in proprietary formats is limited in time. Once the proprietary vendor abandons a particular version of an application or format, documents created and formatted in those applications and formats may become inaccessible to all readers. The proprietary formats supported by our current office applications may place a permanent lock on future access.<sup>17</sup>

While the Massachusetts announcement is a unique example of governmental regulation of software file formats in the United States,<sup>18</sup> it is hardly alone in the international sphere.<sup>19</sup> Governments around the

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13. Martin LaMonica, *Massachusetts to Adopt 'Open' Desktop*, ZDNET NEWS, Sept. 1, 2005, [http://news.zdnet.com/2100-3513\\_22-5845451.html](http://news.zdnet.com/2100-3513_22-5845451.html) (last visited Jan. 10, 2006). The final version as adopted December 29, 2006 can be found at [http://www.mass.gov/?pageID=itdsubtopic&L=4&L0=Home&L1=Policies%2C+Standards+%26+Guidance&L2=Enterprise+Architecture&L3=Enterprise+Technical+Reference+Model+-+Service-Oriented+Architecture+\(ETRM+v3.6\)&sid=Aitd](http://www.mass.gov/?pageID=itdsubtopic&L=4&L0=Home&L1=Policies%2C+Standards+%26+Guidance&L2=Enterprise+Architecture&L3=Enterprise+Technical+Reference+Model+-+Service-Oriented+Architecture+(ETRM+v3.6)&sid=Aitd). For more information about the Open Document Format see [http://www.oasis-open.org/committees/tc\\_home.php?wg\\_abbrev=office](http://www.oasis-open.org/committees/tc_home.php?wg_abbrev=office) (last visited Nov. 25, 2005).

14. Microsoft has announced it will license the file formats used in the latest editions of its office applications on a royalty-free basis. Martin LaMonica, *Microsoft Pries Open Office 2003*, ZDNET NEWS, Nov. 17, 2003, [http://news.zdnet.com/2100-3513\\_22-5108018.html?tag=al](http://news.zdnet.com/2100-3513_22-5108018.html?tag=al) (last visited Jan. 10, 2006).

15. Both the Open Document and Microsoft formats utilize XML schemas. See David Berlind, *Top Open Source Lawyer Blesses New Terms on Microsoft's XML File Format*, ZDNET BLOGS, Nov. 28, 2005, <http://blogs.zdnet.com/BTL/index.php?p=2192> (last visited Jan. 23, 2006). XML schemas define the "structure, content and semantics of XML documents," WC3 XML Schema, <http://www.w3.org/XML/Schema> (last visited Jan. 23, 2006), at a high level of abstraction "allow[ing] machines to carry out rules made by people." *Id.*

16. ETRM v. 3.5: Frequently Asked Questions, [http://www.mass.gov/?pageID=itdterminal&L=3&L0=Home&L1=Open+Initiatives&L2=OpenDocument&sid=Aitd&b=terminalcontent&f=policies\\_standards\\_opendocformfaqs&csid=Aitd](http://www.mass.gov/?pageID=itdterminal&L=3&L0=Home&L1=Open+Initiatives&L2=OpenDocument&sid=Aitd&b=terminalcontent&f=policies_standards_opendocformfaqs&csid=Aitd) (last visited July 2, 2007) [hereinafter ETRM FAQ].

17. *Id.*

18. See Declan McCullagh, *Perspective: The Politics of Open-Source Software*, CNET NEWS.COM, July 14, 2003, [http://news.com.com/2010-1071\\_3-1025268.html](http://news.com.com/2010-1071_3-1025268.html) (last visited Nov. 25, 2005) (acknowledging over 70 other proposals in U.S. state capitals).

19. The French, German, Spanish, South Korean, and Chinese governments as well as the European Community have all considered legislation or projects implementing free software alternatives in place of proprietary software. Paul Festa, *Governments Push Open-Source Software*, CNET NEWS.COM, Aug. 29, 2001, <http://news.com.com/>

world are rallying behind cries of “software libre!”<sup>20</sup> The movement’s strongest support and largest concentration of countries lies in South America where Argentina, Brazil, Chile, Peru, and Venezuela have displayed wide acceptance of open source software in both government and industry.<sup>21</sup> Each country has unique reasons for jumping on the bandwagon.<sup>22</sup>

As emerging countries become increasingly interested in the large-scale deployment of open source software for practical reasons,<sup>23</sup> they may also be inspired by its theoretical and mechanical underpinnings. The open source legal scheme may be adapted to allow protection in areas unrepresented by the current international intellectual property regime. To what extent are developing countries dissatisfied with the protections of the current system and how could open source software possibly save them?

This paper will analyze the implications of the emergence of the open source movement in the crosscurrents of the international intellectual property regime and provide an alternate solution for concerned developing countries. Part II will provide background information to the complex legal issues involved. Further, it will examine the genesis and current state of the open source community in the United States. This background will be followed by a general discussion of TRIPs, its formation, and its current status in the world community. Finally, this part will provide a thorough discussion of the impact of TRIPs and the international intellectual property regime on developing countries.

Part III will present alternatives for developing countries disillusioned by the existing international intellectual property system. This discussion will be followed by an alternative solution for developing countries partly inspired by the open source movement. It will present a strategy for these countries to overcome the hardships of TRIPs by utilizing existing intellectual property law to further

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Governments+push+open-source+software/2100-1001\_3-272299.html (last visited Jan. 23, 2006). See also David Jackson, *ICT Project Tests the Waters*, BUSINESS DAY, Aug. 24, 2005, 2005 WLNR 13416707 (reporting on a South African open source project); Venkatesh Hariharan, *Why Linux Makes Sense for India*, SLASHDOT, Jan. 30, 2000, <http://slashdot.org/article.pl?sid=00/01/30/1042201> (last visited Nov. 25, 2005) (explaining why Linux best suits India’s language needs).

20. Festa, *supra* note 15.

21. Robin Bloor, *South America Goes Open Source*, IT-ANALYSIS.COM, Feb. 10, 2005, <http://www.it-analysis.com/article.php?articleid=12563> (last visited Nov. 25, 2005).

22. *Id.*

23. Ingrid Marson, *Open Source: Developing Markets and Anti-Americanism*, ZDNET UK, Nov. 14, 2005, <http://insight.zdnet.co.uk/software/0,39020463,39236745-1,00.htm> (last visited Jan. 22, 2006).

underrepresented public policy and modify or supplement existing international norms, principles, and rules. Part IV will briefly conclude.

## II. Foundational and Historical Background

This section will cover the necessary background information to deal with the above issues. First, it will explain the birth and evolution of the open source community in the United States. Second, it will describe the birth of the international intellectual property regime, its goals, protections, and current state. Finally, it will consider the impact of the system on developing countries and the resulting undercurrents of dissent.

### A. *The Open Source Movement*

The open source movement has become a growing pain for proprietary software giants such as Microsoft.<sup>24</sup> For others like IBM, it has become a new and profitable method of software development that pleases both developers and customers.<sup>25</sup> For purists, it has become the movement of a generation.<sup>26</sup>

#### 1. Founding Principles and Methodologies

Richard Stallman created GNU,<sup>27</sup> the project credited with starting the free software movement,<sup>28</sup> in the early 1980s at MIT's Artificial

24. Eileen Yu, *Microsoft's Eye on Open Source*, CNET NEWS.COM, July 20, 2005, [http://news.com.com/Microsofts+eye+on+open+source/2008-1082\\_3-5796496.html](http://news.com.com/Microsofts+eye+on+open+source/2008-1082_3-5796496.html) (last visited Jan. 23, 2006).

25. Stephen Shankland, *IBM: Linux Investment Nearly Recouped*, CNET NEWS.COM, Jan. 29, 2002, <http://news.com.com/2100-1001-825723.html> (last visited Nov. 25, 2005).

26. See RICHARD M. STALLMAN, *FREE SOFTWARE, FREE SOCIETY: SELECTED ESSAYS OF RICHARD M. STALLMAN* 31 (2002).

27. "The GNU Project was launched . . . to develop a complete UNIX like operating system which is free software. . . ." The GNU Operating System, <http://www.gnu.org/> (last visited Jan. 23, 2006) ("GNU is a recursive acronym for 'GNU's Not UNIX'; it is pronounced 'guh-noo', 'noo' being like the American 'new'."). GNU is not synonymous with Linux. While most GNU implementations run the Linux kernel, GNU is actively developing its own kernel project, Hurd. The GNU Hurd, <http://www.gnu.org/software/hurd/> (last visited Nov. 25, 2005).

28. "Free software' is a matter of liberty, not price. To understand the concept, you should think of 'free' as in 'free speech,' not as in 'free beer.'" STALLMAN, *supra* note 26, at 41. At this point it is appropriate to distinguish between "free software" and "open source." The obvious definition of "open source" is publicly available source code. The non-profit corporation Open Source Initiative maintains a more detailed definition equivalent to a licensing scheme. See Open Source Initiative OSI—The Open Source Definition, <http://www.opensource.org/docs/definition.php> (last visited Jan. 23, 2006). The free software community considers the "open source" requirement just one piece of a larger puzzle. Its focus is on the fundamental freedoms associated with free software. "Open source is a development methodology; free software is a social movement."

Intelligence Lab.<sup>29</sup> When Stallman began work at the lab in 1971, developers regularly distributed source code with software.<sup>30</sup> Access to source code allowed Stallman to collaborate with his co-workers to analyze, modify, and cannibalize software.<sup>31</sup>

In the early 1980s, software companies began to distribute operating systems under proprietary licensing schemes.<sup>32</sup> Under a proprietary licensing scheme, users must agree to the terms defined by the software vendor.<sup>33</sup> Terms typically limit the user's rights to transfer, modify, and use the software and restrict access to source code.<sup>34</sup> Because of his frustration with the restrictions of the new proprietary licensing system,<sup>35</sup> Stallman created the GNU Project premised on the idea that users should be able to freely share software within a cooperating community.<sup>36</sup>

Stallman considers software "free software" if it grants users the following four freedoms:

- The freedom to run the program for any purpose;
- The freedom to change and modify the program;
- The freedom to copy and share the program;
- The freedom to share improved versions of the program.<sup>37</sup>

These freedoms are absolute; there may be "no restrictions on how these freedoms can be exercised."<sup>38</sup> Stallman's freedoms ensure the collaborative development process of the open source community.<sup>39</sup> These "development communities exploit the power of peer review to

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STALLMAN, *supra* note 26, at 55.

29. *Id.* at 15.

30. *Id.* Source code is defined as a series of human-readable statements written in computer programming language. TAN TZE MENG, THE CASE FOR OPEN SOURCE, OSS VS. PROPRIETARY SOFTWARE 4 (2003), available at [http://opensource.mimos.my/foscon2003cd/paper/full\\_paper/tan\\_tze\\_meng.pdf](http://opensource.mimos.my/foscon2003cd/paper/full_paper/tan_tze_meng.pdf) (last visited Jan. 23, 2006).

31. STALLMAN, *supra* note 26, at 15.

32. *Id.* at 15-16.

33. Michael Barr, *Know Your Rights*, EMBEDDED SYSTEMS PROGRAMMING, Sept. 2000, at 80, available at <http://www.netrino.com/Articles/OpenSource/> (last visited Jan. 23, 2006).

34. *Id.* For example, see the Microsoft Windows End-User License Agreement forbidding users to "install, use, access, display and run [Windows]", Microsoft Windows XP Home Edition (Retail) End-User License Agreement for Microsoft Software, <http://www.microsoft.com/windowsxp/home/eula.msp> (last visited Jan. 23, 2006) [hereinafter Microsoft EULA], on multiple computers or "reverse engineer, decompile, or disassemble [Windows]," and allowing a one-time permanent transfer provided the transferor completely removes and retains no copies of the software. *Id.*

35. STALLMAN, *supra* note 26, at 17.

36. *Id.* at 15, 17.

37. DANIEL RAVICHER & DAVID TURNER, FREE SOFTWARE FOUND., THE GPL AND LEGAL ASPECTS OF FREE SOFTWARE DEVELOPMENT 1 (2005) [hereinafter LEGAL ASPECTS OF FSD].

38. *Id.* at 2.

39. STALLMAN, *supra* note 26, at 41-42.

facilitate the debugging process of feature enhancement.”<sup>40</sup> This peer review process results in projects “generally characterized by rapid, incremental release schedules, in which limited extra functionality is added in each release.”<sup>41</sup> While this solution may appear to be paradoxical, consider the parallel drawn by Professor Lawrence Lessig between software development and the legal system of a free society:

A “free society” is regulated by law. But there are limits that any free society places on this regulation through law: No society that kept its laws secret could ever be called free. . . . Law controls. But it does so justly only when visibly. And law is visible only when its terms are knowable and controllable by those it regulates, or by the agents of those it regulates (lawyers, legislatures).

....

The ideals of freedom, of life within a free society, demand more than [the] efficient application [of law]. Instead, openness and transparency are the constraints within which a legal system gets built, not options to be added if convenient to the leaders. Life governed by software code should be no less.

Code writing is not litigation. It is better, richer, more productive. But the law is an obvious instance of how creativity and incentives do not depend upon perfect control over the products created.<sup>42</sup>

Free software may be distributed at any price and is distinguishable from “freeware”<sup>43</sup> and “shareware.”<sup>44</sup> Likewise, free software is not non-commercial.<sup>45</sup> In fact, commercial development of free software is a multi-billion dollar industry in the United States.<sup>46</sup> Free software has been successfully integrated into the software industry via several business models. Often companies use free software in-house, distributing the software throughout the enterprise for use among staff.<sup>47</sup>

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40. JOSEPH FELLER & BRIAN FITZGERALD, UNDERSTANDING OPEN SOURCE SOFTWARE DEVELOPMENT 24 (2002).

41. *Id.*

42. STALLMAN, *supra* note 26, at 10-11.

43. “Freeware” is software typically distributed free of charge without source code and carries a restrictive license. Barr, *supra* note 33, at 80.

44. “Shareware” is software typically obtained free of charge that provides users with a trial version of a proprietary program. *Id.* Usually, the trial is for a fixed period of time after which payment is required. *Id.*

45. STALLMAN, *supra* note 26, at 41.

46. Robert McMillan, *Linux Server Sales Top \$1 Billion in Q3*, COMPUTERWORLD, Nov. 24, 2004, <http://www.computerworld.com/hardwaretopics/hardware/server/story/0,10801,97841,00.html> (last visited Jan. 23, 2006).

47. LEGAL ASPECTS OF FSD, *supra* note 37, at 57.



Other companies, such as IBM and Red Hat,<sup>48</sup> generate substantial revenue from the sale of customized free software packages.<sup>49</sup> The most popular free software business model provides distributions free of charge, but offers customer support, service, and software improvement contracts for a fee.<sup>50</sup> Finally, some companies re-license free software as proprietary and generate profit from the sale of those packages.<sup>51</sup>

Free software advocates insist that there is no natural right to intellectual property ownership.<sup>52</sup> The Constitution permits but does not require a system of copyright and patent protection.<sup>53</sup> The Constitution only grants exclusive rights over intellectual property for a temporary period.<sup>54</sup> The object of copyright and patent protection is not to reward authors and inventors,<sup>55</sup> but to promote progress and the useful arts by creating an incentive to innovate.<sup>56</sup> However, this purpose becomes frustrated by the economic consequences of monopolies in the software industry.<sup>57</sup>

Further, copyright protection creates economic inefficiency in the software market.<sup>58</sup> Efficiency is maximized when products sell at the marginal cost of production.<sup>59</sup> The monopoly provided to copyright

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48. Red Hat was founded in 1993 and is an industry leader in open source solutions through Linux operating platforms and services ranging from consulting and support to training programs. See Red Hat Company Profile, [http://www.redhat.com/en\\_us/USA/home/company/companyprofile/](http://www.redhat.com/en_us/USA/home/company/companyprofile/) (last visited Jan. 23, 2006).

49. LEGAL ASPECTS OF FSD, *supra* note 37, at 58.

50. *Id.*

51. *Id.*

52. STALLMAN, *supra* note 266, at 77-78; see LAWRENCE LESSIG, THE FUTURE OF IDEAS: THE FATE OF THE COMMONS IN A CONNECTED WORLD 95 (2002) (“[W]ithout government, in the state of nature, there would be no such thing as a ‘patent’ since patents are granted for ‘inventions’ and inventions, ‘in nature,’ cannot be ‘a subject of property.’”). Also relevant here is the historic philosophical debate over the traditional concept of authorship. See SIVA VAIDHYANATHAN, COPYRIGHTS AND COPYWRONGS: THE RISE OF INTELLECTUAL PROPERTY AND HOW IT THREATENS CREATIVITY 9 (2001) (discussing how Roland Barthes’ essay, *The Death of the Author*, defined author not as a human being, but as “the sum of the assumptions of psychological consistency, meaning, and unity that readers and critics . . . imposed on a text”).

53. U.S. CONST. art. I, § 8, cl. 8.

54. *Id.* See also 35 U.S.C. § 154 (2000) (patent protection expires twenty years “from the date on which the application for the patent was filed”); 17 U.S.C. § 302(a) (2000) (copyright protection expires seventy years after the death of the author).

55. RONALD H. BROWN & BRUCE A. LEHMAN, INTELLECTUAL PROPERTY AND THE NATIONAL INFORMATION INFRASTRUCTURE (1995), available at <http://www.ladas.com/NII/CopyrightPurpose.html> (last visited Jan. 23, 2006).

56. U.S. CONST. art. I, § 8, cl. 8.

57. DEAN BAKER, OPENING DOORS AND SMASHING WINDOWS: ALTERNATIVE MEASURES FOR FUNDING SOFTWARE DEVELOPMENT 8 (2005), available at [http://www.cepr.net/publications/windows\\_2005\\_10.pdf](http://www.cepr.net/publications/windows_2005_10.pdf) (last visited Jan. 23, 2006).

58. *Id.* at 3.

59. *Id.*

holders allows holders to charge prices far above the marginal cost because the cost of software distribution is nearly zero.<sup>60</sup> The difference between the monopoly price and the competitive-market price leads to a deadweight efficiency loss.<sup>61</sup> By tagging software with handsome licensing fees,<sup>62</sup> proprietary vendors narrow the potential market and exclude customers who would buy the software for marginal cost but not for the licensed price.<sup>63</sup>

Additionally, intellectual property protection impedes the research process, leading to wasteful duplication of efforts.<sup>64</sup> Research is a collaborative exercise where developers build on the ideas of colleagues and learn from past mistakes.<sup>65</sup> Like a free market economy,<sup>66</sup> the research process is most efficient in an environment without external intervention.<sup>67</sup> Freedom of information allows a resource's demand to dictate its relevancy.<sup>68</sup> Thus, the free flow of information provides researchers access to the most relevant prior work and facilitates the most productive use of that information by making it available for public use. Proprietary licenses impede this process by placing severe restrictions on the free movement of information.<sup>69</sup> This limits both the quantity and quality of available sources and prevents new practitioners from studying existing programs to learn the useful techniques and structure of computer programming.<sup>70</sup>

Before proprietary licenses became popular in the early 1980s,<sup>71</sup> software developers relied on and preferred a style of collaborative development.<sup>72</sup> Software development was evolutionary; when a program needed a new feature, a developer would modify the source code to include the desired functionality.<sup>73</sup> When a feature became

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60. *Id.*

61. *Id.*

62. Martin LaMonica, *Software Start-Ups Feel the Pinch*, CNET NEWS.COM, Jan. 12, 2006, [http://news.com.com/Software+start-ups+feel+the+pinch/2100-1012\\_3-6026171.html?tag=st.ref.goo](http://news.com.com/Software+start-ups+feel+the+pinch/2100-1012_3-6026171.html?tag=st.ref.goo) (last visited Jan. 23, 2006).

63. BAKER, *supra* note 57, at 3.

64. *Id.* at 8.

65. *Id.*

66. Free market economics is based on the principle that the value of a resource is determined by the balance of supply and demand. Murray N. Rothbard, *Free Market*, in THE CONCISE LIBRARY OF ECONOMICS, <http://www.econlib.org/library/Enc/FreeMarket.html> (last visited Jan. 23, 2006).

67. LUDWIG VON MISES, *ECONOMIC FREEDOM AND INTERVENTIONISM* (1980), available at <http://www.mises.org/efandi.asp> (last visited Jan. 23, 2006).

68. Rothbard, *supra* note 66.

69. Barr, *supra* note 33.

70. STALLMAN, *supra* note 26, at 126.

71. *Id.* at 15-16.

72. *Id.* at 126.

73. *Id.*

overbearing or semi-autonomous, it would be cannibalized to form the beginning of a new piece of software.<sup>74</sup> Proprietary license restrictions prevent the evolutionary process of software development because they conceal the source code or restrict its use.<sup>75</sup>

Proprietary vendors distribute software in an executable format.<sup>76</sup> Executable formats are nearly impossible to read or understand.<sup>77</sup> Hence, for decades computer scientists have used “high level” programming languages that are human-readable, providing a level of abstraction from the machine code.<sup>78</sup> The source code containing the high level language is what proprietary software vendors keep secret from users.<sup>79</sup> As a result, users who wish to customize or fix programs must reverse engineer<sup>80</sup> solutions or submit a request for an update from the software owners.<sup>81</sup> This wastes an extraordinary amount of resources and leaves users at the discretion of proprietary software vendors who often dismiss update requests as trivial.<sup>82</sup> The time developers waste replicating tasks already performed by existing programs could be “much more productively spent improving the original program or on other projects.”<sup>83</sup>

Moreover, companies often use their control over source code to take advantage of the computer user.<sup>84</sup> For example, Microsoft has designed versions of Windows to report the user’s software inventory back to the company.<sup>85</sup> While this may seem hardly malicious, consider the Kazaa file-sharing program that rents out the host computer to advertising partners<sup>86</sup> or Sony BMG’s use of embedded anti-piracy

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74. *Id.*

75. STALLMAN, *supra* note 26, at 126.

76. TAN TZE MENG, THE CASE FOR OPEN SOURCE, OSS VS. PROPRIETARY SOFTWARE 5 (2003), available at [http://opensource.mimos.my/foscon2003cd/paper/full\\_paper/tan\\_tze\\_meng.pdf](http://opensource.mimos.my/foscon2003cd/paper/full_paper/tan_tze_meng.pdf) (last visited Jan. 23, 2006).

77. *Id.* at 4.

78. *Id.*

79. *Id.* at 5.

80. In reality, reverse engineering is often not feasible because proprietary software licenses often prohibit the right of the user to reverse engineer the program. See Microsoft EULA, *supra* note 34. Thus, a user who wishes to implement new program functionality is often left with the task of reinventing the wheel—producing the same program through completely different means—which requires substantially more wasteful effort.

81. STALLMAN, *supra* note 26, at 125.

82. *Id.*

83. BAKER, *supra* note 57, at 9.

84. STALLMAN, *supra* note 26, at 115.

85. *Id.*

86. Kazaa is a software file sharing program which allows users to directly transfer files over a computer network without a central management system. Kazaa—The Guide, [http://www.kazaa.com/us/help/new\\_p2p.htm](http://www.kazaa.com/us/help/new_p2p.htm) (last visited Jan. 23, 2006). In order to run Kazaa, the user must accept and install third-party advertisement software. About

software in audio CDs.<sup>87</sup> Companies often employ this software without the user's informed consent, causing the buildup of excess software and exposing the host computer to exploitable security risks.<sup>88</sup> Even with detection, malicious software is often impossible to completely uninstall since the source code of the offending program is sealed by a proprietary vendor.<sup>89</sup>

The above policies motivated Stallman to create the GNU project and reject the underlying premise of proprietary licensing.<sup>90</sup> However, Stallman's free software vision could not be complete without a procedure to enforce free distribution within the software development community.<sup>91</sup>

Under the Berne Convention,<sup>92</sup> software is automatically copyrighted by the author when the software is fixed into a tangible medium.<sup>93</sup> In the context of computer software, this is usually when a developer begins writing the program's source code to a file.<sup>94</sup> Still, a copyright holder may abandon her exclusive right over a work by disclaimer.<sup>95</sup> Once the copyright has been disclaimed, the software is in the public domain and may be considered free software.<sup>96</sup>

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Ad-Supported Kazaa, [http://www.kazaa.com/us/help/faq/howis\\_kazaa\\_free.htm](http://www.kazaa.com/us/help/faq/howis_kazaa_free.htm) (last visited Jan. 23, 2006). This advertisement software "pops-up" advertisements based on the users web browsing habits. *Id.* To stop the advertisements the user must uninstall the advertisement software and Kazaa. *Id.*

87. On November 21, 2005, the Electronic Frontier Foundation ("EFF") filed a complaint against Sony BMG alleging the company included uninstalleable copy-protection software on over twenty million audio CDs that installs without the user's knowledge or consent and silently runs in the background preventing unauthorized ripping and copying of Sony BMG CDs. Sony Complaint, [http://www.eff.org/IP/DRM/Sony-BMG/sony\\_complaint.pdf](http://www.eff.org/IP/DRM/Sony-BMG/sony_complaint.pdf) (last visited Jan. 9, 2006) [hereinafter Sony Complaint]. EFF alleges this software exposes the user's computer to various security risks and silently transfers personal information to a central server including a unique code that identifies the album currently playing, HTTP header information identifying the current user's operating system and web browser, and the user's IP address. *Id.* ¶ 26, 32, 45. On Jan. 6, 2006, a U.S. District Court gave preliminary approval to a settlement arising from EFF's complaint. *Judge Grants Preliminary Approval for Sony BMG CD Settlement*, EFF BREAKING NEWS, Jan. 19, 2006, [http://www.eff.org/news/archives/2006\\_01.php#004302](http://www.eff.org/news/archives/2006_01.php#004302) (last visited Jan. 23, 2006).

88. Bob Sullivan, *Federal Spyware Crackdown Continues but Relief for Consumers May Be Slow in Coming*, MSNBC, Oct. 12, 2004, <http://msnbc.msn.com/id/6228258/> (last visited Jan. 23, 2006).

89. STALLMAN, *supra* note 26, at 115.

90. *See generally id.* at 115-26.

91. *Id.* at 89.

92. Berne Convention for the Protection of Literary and Artistic Works, Sept. 6, 1886, S. Treaty Doc. No 99-27, 1161 U.N.T.S. 3 (as revised at Paris on July 24, 1971 and amended in 1979) [hereinafter Berne Convention].

93. Berne Convention, *supra* note 92, at art. 5(2).

94. LEGAL ASPECTS OF FSD, *supra* note 37, at 5.

95. *Id.* at 6.

96. *Id.*

The practice of copyright disclaimer is the simplest method of free software distribution,<sup>97</sup> but software in the public domain is left unprotected.<sup>98</sup> Since software in the public domain is not copyrighted, “any nontrivial modification made to the work is fully copyrightable.”<sup>99</sup> Thus, although software released in the public domain is initially free, subsequent developers may choose to re-license modified versions.<sup>100</sup> Without a mechanism for legal enforcement, the free software community would dissolve because participants would lose any incentive to contribute back to the community.<sup>101</sup> Thus, Stallman devised a way to protect free software—through “copyleft”<sup>102</sup> licensing.<sup>103</sup>

## 2. Licensing Schemes

In 1984, Stallman distributed a copyright disclaimed program to a proprietary vendor who in turn extended and improved the software.<sup>104</sup> After the vendor refused to allow Stallman access to the modified program’s source code, he created the first copyleft license: the GNU General Public License (“GPL”).<sup>105</sup>

Today, the GPL is one of many free software and open source licenses,<sup>106</sup> but it is still by far the most popular in the free software community.<sup>107</sup> The most widely adopted version (version 2) of the GPL was promulgated by Stallman in 1991.<sup>108</sup> After significant community input and numerous drafts, the next generation GPL (version 3) was released June 29, 2007.<sup>109</sup> While the release of GPL version 3 is highly

97. STALLMAN, *supra* note 26, at 89.

98. *Id.*

99. LEGAL ASPECTS OF FSD, *supra* note 37, at 7.

100. *Id.*

101. *Id.*

102. Copyleft licenses use copyright law to ensure that every person who receives a copy of a work, can use, modify, and also redistribute the work. STALLMAN, *supra* note 26, at 89-90.

103. *Id.* at 89.

104. Richard M. Stallman, Address to the Int’l Lisp Conference: My Lisp Experiences and the Development of GNU Emacs (Oct. 28, 2002).

105. *Id.*

106. The Open Source Initiative has approved over fifty open source licenses. Open Source Initiative—Licensing, <http://www.opensource.org/licenses/> (last visited Jan. 23, 2006). Other popular open source licenses include: Berkley Source Distribution License, GNU Lesser GPL, Mozilla Public License, and Sun’s Common Development and Distribution License.

107. *GPL v3 Gets Nearer: “The World’s Most Popular Free Software License” Is Being Updated*, LINUXWORLD MAG., Jan. 20, 2006, <http://linux.sys-con.com/read/172405.htm> (last visited Jan. 23, 2006).

108. LEGAL ASPECTS OF FSD, *supra* note 37, at 93.

109. Stephen Shankland, *GPL3 First Public Draft Due Early 2006*, ZDNET NEWS, Aug. 9, 2005, [http://news.zdnet.com/2100-3513\\_22-5826016.html](http://news.zdnet.com/2100-3513_22-5826016.html) (last visited Jan. 23, 2005); see GNU General Public License—Version 3 (2007), available at

significant to the open source community, its provisions have not been widely adopted as of the publication of this comment. Therefore, the discussion will be limited to the relevant portions of GPL version 2.

a. The GNU General Public License

The GPL is a self-propagating, irrevocable software license that expressly protects the fundamental freedoms of free software.<sup>110</sup> Its purpose is “to guarantee [the] freedom to share and change Free Software.”<sup>111</sup> The license governs only the protections afforded by traditional copyright law, copying, distribution, and modification, but it does not restrict the user’s ability to execute a program licensed under the GPL.<sup>112</sup>

The GPL permits distribution of verbatim copies of a program’s source code in any medium.<sup>113</sup> It allows the licensee to charge “for the physical act of transferring a copy” but not an actual license fee.<sup>114</sup> Because copyright law grants copyright holders the exclusive right to create “derivative works based upon the copyrighted work,”<sup>115</sup> the GPL only restricts a licensee’s right to copy and distribute derivative works of software licensed under the GPL.<sup>116</sup> Thus, if a licensee modifies a program licensed under the GPL and creates a derivative work, that licensee may only copy and distribute the modified version under the terms of the license.<sup>117</sup> Any program that is not a derivative work is not

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<http://www.gnu.org/licenses/gpl.txt> (last visited July 2, 2007).

110. STALLMAN, *supra* note 26, at 89-90.

111. GNU General Public License—Version 2, pmb1. (1991), *available at* <http://www.gnu.org/licenses/old-licenses/gpl-2.0.txt> (last visited July 2, 2007) [hereinafter GPL v.2].

112. *Id.* § 0.

113. *Id.* § 1.

114. *Id.* §§ 1, 2(b).

115. 17 U.S.C. § 106(2) (2000). A derivative work is “a work based upon one or more preexisting works, such as a translation, musical arrangement, dramatization, fictionalization, motion picture version, sound recording, art reproduction, abridgement, condensation, or any other form in which a work may be recast, transformed or adapted. A work consisting of editorial revisions, annotations, elaborations or other modifications which, as a whole, represent an original work of authorship, is a derivative work.” 17 U.S.C. § 101 (2000). The definition of a derivative work in the software context is quite muddy. There are three competing tests among the divided circuits. *See* Computer Assocs. Int’l, Inc. v. Altai, Inc., 982 F.2d 693 (2d Cir. 1992) (applying a three-part abstraction, filtration, and comparison test); Apple Computer, Inc. v. Microsoft Corp., 35 F.3d 1435 (9th Cir. 1994) (adopting the analytic dissection test to determine whether a program is a derivative work); Lotus Dev. Corp. v. Borland Int’l, Inc., 49 F.3d 807 (1st Cir. 1995) (adopting a standard where a “method of operation” cannot determine whether a program is a derivative work).

116. GPL, *supra* note 111, §§ 2-3.

117. *Id.* § 2(b).

included under the terms of the GPL.<sup>118</sup> Therefore, a software vendor may distribute her proprietary software bundled alongside software licensed under the GPL with no restriction on her proprietary license.<sup>119</sup>

Generally, a program in executable format constitutes a derivative work of the source code because executable object code is merely a systematic translation of human-readable source code to machine-readable object code.<sup>120</sup> Thus, the GPL also restricts a licensee's distribution of binary executables.<sup>121</sup> The GPL allows for the generation of binaries, but also ensures transferees receive access to the binary's source code.<sup>122</sup> In order to distribute the program in an executable format, a licensee must accompany the distribution with (1) "the complete machine-readable source code,"<sup>123</sup> (2) "a written offer . . . to give any third party . . . a complete machine readable copy of the corresponding source code,"<sup>124</sup> or (3) in the case of a non-commercial distributor, an offer and information received from the previous licensee.<sup>125</sup>

Users of software licensed under the GPL are not required to accept its terms.<sup>126</sup> Acceptance is only required to copy, modify, or distribute the software.<sup>127</sup> If, for any reason, a licensee copies, modifies, sublicenses, or distributes the program in violation of the GPL's terms, then that licensee loses all rights under the GPL.<sup>128</sup>

Since Stallman's release of GPL version 2 in 1991,<sup>129</sup> countless others have developed competing free software licenses.<sup>130</sup> The GPL, however, has continued to serve as the industry standard of the free software community through its maintenance and enforcement of free software practices and commitment to the social and political goals of the free software movement.<sup>131</sup> Thus, the GPL serves as the definitive manifestation of the free software ideal and an essential tool for free

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118. *Id.* § 2.

119. *Id.*

120. See 17 U.S.C. § 101. See also TRIPs, *supra* note 1, at art. 10 (providing copyright protection for software without regard to its form).

121. GPL, *supra* note 111, § 3.

122. *Id.*

123. *Id.* § 3(a).

124. *Id.* § 3(b).

125. *Id.* § 3(c).

126. GPL, *supra* note 111, § 5.

127. *Id.* § 5.

128. *Id.* § 4.

129. See *generally id.*

130. See Open Source Initiative—Licensing, *supra* note 106. (approving over 50 open source licenses).

131. Eben Moglen & Richard Stallman, *GPL Version 3: Background to Adoption*, FREE SOFTWARE FOUND., June 9, 2005, <http://www.fsf.org/news/gpl3.html/> (last visited Jan. 23, 2006).

software distribution.

While GPL version 2 has achieved global use through its minimal implementation of the Berne Convention's requirements, its developers were largely concerned with its application under U.S. law.<sup>132</sup> GPL version 3 intends to ease the "arbitrary trajectory" of free software across international borders, transforming the license into a universal copyright instrument.<sup>133</sup>

More now than ever, developing countries have a viable option for implementing free software into government infrastructures, but what interests drive them to such an underground alternative? The next section will briefly highlight the development and current status of the international intellectual property system and explain the difficulties that arise for developing countries in a harmonized intellectual property world.

#### *B. The Development and Current Status of the International Intellectual Property System*

The World Intellectual Property Organization ("WIPO") was established in 1970 as the successor to the United International Bureaux for the Protection of Intellectual Property, which administered the Paris Convention for the Protection of Industrial Property and the Berne Convention for the Protection of Literary and Artistic Works.<sup>134</sup> In 1974, WIPO joined the United Nations as a specialized agency in charge of administering intellectual property matters.<sup>135</sup> Currently, WIPO continues to administer the Paris and Berne Conventions as well as twenty-one other international intellectual property treaties among its 183 Member States.<sup>136</sup>

Functionally, WIPO serves to increase general intellectual property awareness by encouraging creators to obtain protection and generating public respect for intellectual property rights and assets.<sup>137</sup> Additionally, the organization seeks to develop a responsive legal framework for protection that facilitates innovation and creation and embraces emerging technologies and national policy objectives.<sup>138</sup> WIPO enhances the accessibility and affordability of international protection systems by

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132. *Id.*

133. *Id.*

134. WIPO—General Information, [http://www.wipo.int/about-wipo/en/gib.htm#P15\\_2065](http://www.wipo.int/about-wipo/en/gib.htm#P15_2065) (last visited Jan. 23, 2006).

135. *Id.*

136. *Id.*

137. Medium-Term Plan for WIPO Program Activities, <http://www.wipo.int/about-wipo/en/dgo/pub487.htm#strategic> (last visited Jan. 23, 2006).

138. *Id.*



assisting developing countries in creating the infrastructure necessary to support intellectual property protection. Finally, WIPO also maintains monitoring systems that evaluate the current status of the organization's efforts.<sup>139</sup>

The development of TRIPs began with the negotiations at the Uruguay Round of the General Agreement on Tariffs and Trade ("GATT") in 1986.<sup>140</sup> The GATT forum provided the United States with greater leverage in negotiations as compared to WIPO, where the United States had been frustrated by a large number of opposed developing countries utilizing the WIPO one-state-one-vote policy.<sup>141</sup> GATT negotiations, on the other hand, operated on the principle of consensus where the United States could achieve substantial advantage over developing countries because of its market size.<sup>142</sup>

Ultimately, TRIPs emerged from the Uruguay Round as a powerful feature of the Marrakesh Agreement Establishing the World Trade Organization,<sup>143</sup> establishing a compromise between developed and developing countries.<sup>144</sup> In exchange for ceding stronger intellectual property protections and flexible foreign market investment regulations,<sup>145</sup> "less developed countries obtained . . . lower tariffs on textiles and agriculture and protection against unilateral sanctions imposed by . . . developed countries via the [TRIPs] mandatory settlement process."<sup>146</sup> Through TRIPs, the WTO could harmonize the applicability of current intellectual property agreements, provide adequate standards and appropriate enforcement procedures concerning trade-related intellectual property rights, and provide effective dispute settlement procedures.<sup>147</sup>

Currently, WIPO and the WTO are the two principal organizations that share authority over international intellectual property lawmaking. Actual boundaries between the competencies of the WTO and WIPO are

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139. *Id.*

140. General Agreement on Tariffs and Trade, Ministerial Declaration on the Uruguay Round of Multilateral Trade Negotiations, Sept. 20, 1986, 25 I.L.M. 1623, 1626 (1986).

141. JOHN BRAITHWAITE & PETER DRAHOS, *GLOBAL BUSINESS REGULATION* 566 (2000); Convention Establishing the World Intellectual Property Organization, July 14, 1967, 21 U.S.T. 1749, 1154 U.N.T.S. 437 (as amended on Sept. 28, 1979).

142. Richard H. Steinberg, *Trade-Environment Negotiations in the EU, NAFTA, and WTO: Regional Trajectories of Rule Development*, 91 AM. J. INT'L L. 231, 232 (1997).

143. Marrakesh Agreement Establishing the World Trade Organization, Apr. 15, 1994, 108 Stat. 4809, 1867 U.N.T.S. 154.

144. Yu, *supra* note 3, at 385.

145. *Id.*

146. *Id.*; see TRIPs, *supra* note 1, at art. 66(2) (providing the technology transfer end of the TRIPs bargain).

147. TRIPs, *supra* note 1, at pmb1.

not definite, but a division of power has emerged based on functional lines.<sup>148</sup> While WIPO manages existing international agreements, assists developing countries with compliance, and studies new forms of protection, the WTO focuses on intellectual property lawmaking through the implementation and enforcement of international agreements and the supervision of dispute settlement mechanisms.<sup>149</sup>

### 1. Legal Obligations for Member States of WIPO and WTO Relating to Software

The TRIPs minimum standards for copyright protection are largely imported from the Berne Convention,<sup>150</sup> however, select provisions from the Paris and Rome Conventions also apply.<sup>151</sup> TRIPs provides computer software with the same copyright protection as other literary works under the Berne Convention, whether in source code or binary form.<sup>152</sup> Similarly, WIPO affords a computer program protection, regardless of its mode or form of expression, identical to literary works under Article 2 of the Berne Convention.<sup>153</sup>

Under the Berne Convention, authors possess the “exclusive right [to] authoriz[e] reproduction of [their literary and artistic] works, in any manner or form.”<sup>154</sup> Literary works are afforded protection automatically upon the work’s creation and are not subject to any formal registration with the national government.<sup>155</sup> Protection lasts at least an additional fifty years after the death of the author and may last longer depending on the country’s preference.<sup>156</sup>

TRIPs also adopted from the Berne Convention certain limited exceptions to copyright protection.<sup>157</sup> Member States may limit the exercise of the copyright holder’s exclusive rights in “special cases which do not conflict with a normal exploitation of the work and do not unreasonably prejudice the legitimate interests of the rights holder.”<sup>158</sup>

In addition to its expansion of international copyright law, TRIPs

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148. Helfer, *supra* note 5, at 25 n.104.

149. *Id.* at 25.

150. TRIPs, *supra* note 1, at art. 9.

151. *Id.* at arts. 14, 15.

152. *Id.* at art. 10.

153. World Intellectual Property Organization: Copyright Treaty art. 4., Dec. 20, 1996, 36 I.L.M. 65, 69 [hereinafter WCT].

154. Berne Convention, *supra* note 92, at art. 9(1).

155. *Id.* at art. 5(2).

156. *Id.* at arts. 7(1), 7(6). *See also* TRIPs, *supra* note 1, at art. 12 (providing a term of 50 years from the date of publication or making when the term is calculated based on the life of a natural person).

157. TRIPs, *supra* note 1, at art. 13.

158. *Id.* at art. 13; Berne Convention, *supra* note 92, at art. 9(2).

widened the scope of patentable subject matter to incorporate all types of technologies “provided that [the invention is] new, involve[s] an inventive step and [is] capable of industrial application.”<sup>159</sup> Patentability is enjoyed “without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced.”<sup>160</sup> This standard completely disposes of the threshold inquiry in traditional U.S. patent law requiring an invention to fall into one of four categories: “process, machine, manufacture, or composition of matter”<sup>161</sup> and instead jumps to an analysis of the invention’s novelty, utility, and obviousness.

TRIPs also provides several exceptions to the general rule of patentability.<sup>162</sup> First, a Member State may exclude an invention which it finds necessary to protect *ordre public* or morality, “including to protect human, animal or plant life or health or to avoid serious prejudice to the environment.”<sup>163</sup> Additionally, Members may exclude qualified methods for the treatment of humans or animals and certain organisms and biological processes.<sup>164</sup> Further, as clarified by a Declaration on TRIPs and Public Health adopted at Doha,<sup>165</sup> Members always have “the right to grant compulsory licenses and the freedom to determine the grounds upon which such licenses are granted,”<sup>166</sup> as provided by TRIPs under Article 31.<sup>167</sup>

## 2. The Impact of TRIPs on Developing Countries

TRIPs became generally effective on January 1, 1995, one year after the creation of the WTO.<sup>168</sup> TRIPs extended the obligation to enforce its standards “to the entire WTO membership, including many developing states whose previous commitment to intellectual property was nonexistent or at best equivocal.”<sup>169</sup> Unlike WIPO and previous

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159. TRIPs, *supra* note 1, at art. 27(1).

160. *Id.* at art. 27(1).

161. 35 U.S.C. § 101 (2000).

162. *See* TRIPs, *supra* note 1, at arts. 8(1), 27, 31.

163. *Id.* at art. 27(2).

164. *Id.* at arts. 27(3)(a), 27(3)(b).

165. World Trade Organization, Ministerial Declaration on the TRIPs Agreement and Public Health of 14 November 2001, WT/MIN(01)/DEC/2, 41 I.L.M. 755 (2002).

166. *Id.*

167. *See* TRIPs, *supra* note 1, at art. 31 (allowing Members to permit unauthorized use of patented inventions “in the case of a national emergency or other circumstances of extreme urgency”).

168. *Id.* at art. 65(1).

169. Helfer, *supra* note 5, at 23; *see also* Carlos M. Correa, *Intellectual Property Rights and the Use of Compulsory Licenses: Options for Developing Countries 1* (South Centre, Working Paper No. 5, Oct. 1999), available at <http://www.southcentre.org/publications/workingpapers/wp05.pdf> (last visited July 2, 2007) (“[I]n most developing countries mechanisms aiming at controlling restrictive business practices or the misuse of

international agreements governing intellectual property, “TRIPs could not be shirked through partial implementation”<sup>170</sup> and “promised meaningful enforcement rights within national legal systems.”<sup>171</sup> Additionally, TRIPs adopted GATT’s powerful dispute settlement system, providing the WTO with the power to sanction treaty violations.<sup>172</sup>

In light of these strict enforcement procedures and the “economic, financial and administrative”<sup>173</sup> difficulties developing countries would encounter in the complete overhaul of their intellectual property systems, TRIPs granted the developing and least-developed Member States additional time to become compliant with its provisions.<sup>174</sup> However, as the transition periods have approached and expired,<sup>175</sup> additional problems have surfaced for developing countries other than the mere administrative costs predicted by the WTO.<sup>176</sup>

Today’s “knowledge-based” economy is no longer driven by the agricultural and manufacturing industries, but instead by intellectual property in the form of information technology.<sup>177</sup> Thus, developing countries have lost their end of the TRIPs bargain because “gains . . . in the areas of agriculture and textiles will not make up for the losses”<sup>178</sup> sustained from stronger intellectual property protections.<sup>179</sup> Further, as

intellectual property rights are weak or non-existent.”) [hereinafter *Options for Developing Countries*].

170. Helfer, *supra* note 5, at 23.

171. *Id.* at 23. See TRIPs, *supra* note 1, at art. 41(1) (“Members shall ensure that enforcement procedures . . . are available under their law so as to permit effective action against any act of infringement of intellectual property rights covered by this Agreement . . .”). See, e.g., 19 U.S.C. § 2411 (2000) (allowing the U.S. Trade Authority to “suspend, withdraw, or prevent the application of, benefits of trade agreement concessions to carry out a trade agreement with [any] foreign country” whose act or policy “violates, or is inconsistent with, the provisions of . . . any trade agreement”).

172. TRIPs, *supra* note 1, at art. 64(1).

173. *Id.* at art. 66(1).

174. See *id.* at arts. 65(2), 66(1) (offering developing countries an additional four year transition period and least-developed countries an additional ten years to become compliant).

175. The last transition period was due to expire on January 1, 2006. *Id.* at art. 66.

176. This is not to say that administrative problems have not surfaced. Indeed, the transition periods provided by TRIPs have proved unrealistic for even some developed countries, and much more so for most developing countries. See *Poorest Countries Given More Time to Apply Intellectual Property Rules*, WORLD TRADE ORG., Nov. 29, 2005, [http://www.wto.org/english/news\\_e/pres05\\_e/pr424\\_e.htm](http://www.wto.org/english/news_e/pres05_e/pr424_e.htm) (last visited Jan. 23, 2006) (discussing the seven and a half year transition period extension granted to least-developed countries).

177. Yu, *supra* note 3, at 385.

178. *Id.* at 385-86.

179. *Id.* But see *id.* at 396 (explaining that some “[d]eveloping countries such as the Dominican Republic view the inclusion of stronger [intellectual property] protection as a costless choice” favoring increased trade or development aid).

Peter Yu explains, the underlying assumptions of TRIPs may be fundamentally incompatible with developing country concerns:

As many scholars have demonstrated both empirically and theoretically, the presumption that stronger protection will benefit less developed countries or that a universal regime will maximize global welfare is questionable. Equally doubtful is the assumption that the existing international intellectual property regime strikes the appropriate balance between incentives to future production, the free flow of information, and the preservation of the public domain in the interest of potential future creators.<sup>180</sup>

Additionally, the very nature of the TRIPs dispute settlement procedure has left developing countries in an impotent position:

Developing countries, as weaker partners, are at a double disadvantage. If a developing country balks at a panel or Appellate Body ruling in [favor] of a developed country complainant, it has to face sanctions and pressures by a more powerful country from the North. If, on the other hand, the latter balks at a [judgment] in [favor] of a developing country complainant, a developing country is hardly in a position to mobilize and exert the necessary pressure to force compliance or to retaliate.<sup>181</sup>

The suspicion arising from developing countries' inherent weak position is compounded by the uncertainty created from the lack of WTO precedent relating to dispute settlement proceedings.<sup>182</sup> This void requires developing countries to implement TRIPs standards without guidance on how to safely work within the treaty's boundaries.<sup>183</sup>

Most of the opposition raised by developing countries concerns their interest in maintaining technological development.<sup>184</sup> Developing countries fear the strong protections of TRIPs will impair their access to technology, thereby curbing their ability to "encourage innovation and creativity"<sup>185</sup> while decreasing their competitiveness in the marketplace and their ability "to promote public interest goals such as health,

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180. *Id.* at 390-91 (footnote and internal quotations omitted).

181. SOUTH CENTRE, ISSUES REGARDING THE REVIEW OF THE WTO DISPUTE SETTLEMENT MECHANISM 34 (South Centre, Working Paper No. 1, Feb. 1999), available at <http://www.southcentre.org/publications/workingpapers/wp01.pdf> (last visited July 2, 2007).

182. CALESTOUS JUMA, INTELLECTUAL PROPERTY RIGHTS AND GLOBALIZATION: IMPLICATIONS FOR DEVELOPING COUNTRIES 6 (1999), <http://www2.cid.harvard.edu/cidbiotech/dp/discuss4.PDF> (last visited Jan. 23, 2006).

183. *Id.*

184. *Id.*

185. World Summit on the Info. Soc'y, Declaration of Principles, WSIS Doc. WSIS-03/GENEVA/DOC/4-E ¶ 42 (Dec. 12, 2003), available at [http://www.itu.int/dms\\_pub/itu-s/md/03/wsis/doc/S03-WSIS-DOC-0004!!MSW-E.doc](http://www.itu.int/dms_pub/itu-s/md/03/wsis/doc/S03-WSIS-DOC-0004!!MSW-E.doc) (last visited Jan. 23, 2006).

nutrition and environmental conservation.”<sup>186</sup> At the same time, developing countries desire to protect their intellectual property interest in “traditional knowledge, innovations and practices relevant to the conservation of biological diversity,”<sup>187</sup> which they insist is open to exploitation and misappropriation under current TRIPs standards.<sup>188</sup>

Developed countries have exacerbated developing country concerns by pushing “TRIPs-plus” bilateral agreements, increasing the TRIPs standards, and obligating developing countries to implement provisions before the expiration of transition periods.<sup>189</sup> Further, developed countries have failed to fulfill their end of the TRIPs bargain through the reduction of tariffs and subsidies in the agricultural and textile markets.<sup>190</sup> At best, these developments cause developing countries to worry that the public interest exceptions of TRIPs are being eroded.<sup>191</sup> At worst, they predicate the perception that TRIPs was a coerced agreement.<sup>192</sup>

### III. Open Source as a Viable Alternative for Developing Countries

Despite past successes defending issues in the WIPO forum and the apparent rights-for-trade-benefits compromise accomplished by TRIPs, developing countries have realized the agreement cannot

guarantee that [they] will develop a more effective intellectual property system or the political values needed to sustain the system during the transitional period. There is also no guarantee that the benefits deriving from the transitional arrangement would compensate for the economic and cultural losses caused by the implementation of [TRIPs]. Even worse, as many less developed countries are concerned, the transitional provisions do not prevent

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186. JUMA, *supra* note 182, at 2.

187. The United Nations Convention on Biological Diversity, June 5, 1992, 1760 U.N.T.S. 143, 31 I.L.M. 818, pmbl., available at <http://www.biodiv.org/doc/legal/cbd-en.pdf> (last visited Jan. 21, 2006) [hereinafter The Convention on Biological Diversity].

188. Council for Trade-Related Aspects of Intellectual Property Rights, *The Relationship Between the TRIPS Agreement and the Convention on Biological Diversity and the Protection of Traditional Knowledge*, ¶ 1, IP/C/W/459 (Nov. 18, 2005) [hereinafter Developing Country Submission]. Specifically, developing countries advocate the adoption of a mandatory disclosure requirement obligating patent applicants to “disclose the source and country of origin of the biological resource and of the traditional knowledge used in the invention,” U.S. Submission, *supra* note 12, ¶ 2, “evidence of prior informed consent through approval of authorities under the relevant national regime,” *id.*, and “evidence of fair and equitable benefit-sharing under the relevant national regime,” *id.*

189. Helfer, *supra* note 5, at 24.

190. Yu, *supra* note 3, at 386-87.

191. JUMA, *supra* note 182, at 7.

192. Helfer, *supra* note 5, at 24.

their more powerful trading partners . . . from imposing unilateral sanctions on them.<sup>193</sup>

Reacting to these post-TRIPs tensions and the inherent coerciveness of the TRIPs negotiations and settlement procedures,<sup>194</sup> developing governments have sought alternative methods to advance their underrepresented economic and cultural concerns.<sup>195</sup>

A. *Options for Developing Countries to Promote Policy Considerations*

In the wake of TRIPs, developing countries have used measures both inside and outside of the TRIPs framework to advance their public interest goals and bridge the growing technological gap between developed and developing countries.<sup>196</sup> With assistance from various nongovernmental organizations and, to a lesser extent, intergovernmental organizations, developing countries have promoted public policy considerations via both hard and soft lawmaking initiatives in policy areas which TRIPs failed to address specifically.<sup>197</sup> While this strategy has proved to be successful in the introduction of nascent issues into international fora,<sup>198</sup> it still leaves newly established “counterregime norms”<sup>199</sup> open to potential bastardization by developed countries during the TRIPs negotiating process.<sup>200</sup>

Instead of working under the threat of marginalization,<sup>201</sup> some

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193. Peter K. Yu, *Toward a Nonzero-Sum Approach to Resolving Global Intellectual Property Disputes: What We Can Learn from Mediators Business Strategists, and International Relations Theorists*, 70 U. CIN. L. REV. 569, 640 (2002).

194. *Id.* at 580.

195. See generally Helfer, *supra* note 5 (discussing attempts by developing countries to introduce new intellectual property norms in alternative fora).

196. See Correa, *supra* note 169 (discussing the use of compulsory licenses by developing countries as a viable option within the TRIPs framework); See Yu, *supra* note 3 (describing the potential for working outside the traditional international regime through soft law and abandonment).

197. See Helfer, *supra* note 5, at 27 (discussing hard and soft lawmaking in biodiversity, plant genetic resources for food and agriculture, public health, and human rights).

198. *Id.* at 53.

199. *Id.* at 63.

200. See Yu, *supra* note 3, at 385 (describing TRIPs as coercive, imperialistic, and one-sided); Declan Butler, *Business Backlash Kills off Software Meeting*, NATURE, Aug. 28, 2003 (discussing WIPO meeting addressing potential inclusion of open and collaborative projects its future deliberations thwarted by trade and consumer groups and government representatives). *But see* Helfer, *supra* note 5, at 63 (discussing several cases where developing countries “have used different ‘entry points’ in the WTO and WIPO to leverage proposals into the two organizations that they had helped to create in other international regimes”).

201. See Steinberg, *supra* note 142, at 232 (“[R]icher countries tend to be more

developing countries have explored more permanent options to diversify intellectual property law through practices wholly outside the international intellectual property regime.<sup>202</sup> Developing countries may learn from the contractual techniques employed by corporations which “improve on, supplement or enhance the protection provided by [intellectual property] law.”<sup>203</sup> Many corporate rights holders use “mass market contracts, including shrinkwrap and clickwrap licenses”<sup>204</sup> that are “more restrictive than the default rules of copyright, [and bar] users from engaging in acts that would otherwise be permitted under exceptions and limitations to rights.”<sup>205</sup> Developing countries could adapt this practice as a mechanism to control intellectual property in a way that encourages their policy directives while working outside the influence of developed countries.<sup>206</sup>

### *B. An Open Solution: Strategies for Developing Countries*

News of governments specifically endorsing open source is no longer “the exception rather than the rule.”<sup>207</sup> Initiatives to mandate the use of open source in government are active in Argentina, Brazil, Bulgaria, Chile, Colombia, France, Italy, Peru, and Venezuela.<sup>208</sup> Other governments including Bahrain, Belgium, China, Costa Rica, France, Germany, Iceland, Israel, Italy, Malaysia, Poland, Portugal, Philippines, and South Africa have declared a policy of preference for open source software.<sup>209</sup>

Leading experts have matured in their recognition of the global impact of open source as “not only a useful and significant tool . . . but clearly [holding] the potential to help democratization and help find solutions to the most pressing problems faced by the populations of

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powerful in trade negotiations than poorer countries” and “[use] their power to exert . . . pressure on international trade . . . rules, coercing poorer countries into accepting [the richer countries’ agenda].”).

202. Yu, *supra* note 3, at 406.

203. Shira Perlmutter, *Convergence and the Future of Copyright*, 24 COLUM.-VLA J.L. & ARTS 163, 170 (2001).

204. Yu, *supra* note 3, at 406.

205. Perlmutter, *supra* note 203, at 170.

206. See Yu, *supra* note 3, at 408.

207. Catalin Cosovanu, *Piracy, Price Discrimination, and Development: The Software Sector in Eastern Europe and Other Emerging Markets*, 31 AIPLA Q.J. 165, 229 (2003); see Robin Bloor, *The Government Open Source Dynamic*, IT-ANALYSIS.COM, Jan. 7, 2005, <http://www.it-analysis.com/technology/content.php?cid=7668> (last visited July 2, 2007) (“There is currently a remarkable amount of proposed legislation world wide that mandates the use of Open Source in government.”).

208. Bloor, *supra* note 207.

209. *Id.*



developing countries.”<sup>210</sup> As one advocate puts it, “[I]t is not just software, it is an economic *knowledge production model*, it is a social change tool, an adaptation [sic] and survival tool for digital revolution and knowledge societies.”<sup>211</sup> The growing appreciation for global open source solutions emerges not only in words, but is reflected in projects, such as GPL version 3, which facilitate the incorporation of open source into the existing legal structures of developing countries,<sup>212</sup> and coordinated international events, which educate these countries about the advantages of open source.<sup>213</sup>

Through these growing developments, emerging countries seeking to create their own norms, principles, and procedures in intellectual property protection should find a potential solution involving several coordinating steps. First, developing countries should embrace the ideas of Richard Stallman. In the same way Stallman hijacked copyright licensing to “copyleft” his works to ensure the security of free software, developing countries should use license agreements to advance public policy concerns.

For example, consider the interest of developing countries in protecting the cultural and intellectual heritage of their indigenous peoples.<sup>214</sup> Advocates of indigenous rights fear that unprotected access to indigenous knowledge and materials might “lead to biopiracy that could jeopardize the heritage and culture of indigenous communities—or worse, threaten the very survival of these communities.”<sup>215</sup> While developing countries continue to bargain for specific protections from TRIPs,<sup>216</sup> they should encourage indigenous communities to adopt

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210. Frederick Noronha, *Developing Countries Gain from Free/Open-Source Software*, LINUX JOURNAL, May 20, 2003, <http://www.linuxjournal.com/article/6884> (last visited Jan. 23, 2006).

211. Arturo Martinez, *Open Source, A Development Option*, in PROCEEDINGS OF THE FIRST INTERNATIONAL CONFERENCE ON OPEN SOURCE SYSTEMS (2005), available at <http://oss2005.case.unibz.it/Papers/48.pdf> (last visited Jan. 23, 2006).

212. Eben Moglen & Richard M. Stallman, *GPL Version 3: Background to Adoption*, June 9, 2005, FREE SOFTWARE FOUND., <http://www.fsf.org/news/gpl3.html/> (last visited Jan. 23, 2006).

213. See OSS 2005—The First International Conference on Open Source Systems, <http://oss2005.case.unibz.it/> (last visited Jan. 23, 2006); GUADEC 2005—GNOME User and Developer European Conference, <http://2005.guadec.org/> (last visited Jan. 23, 2006); see also O’Reilly Radar, [http://radar.oreilly.com/archives/2005/12/venezuela\\_open\\_source.html](http://radar.oreilly.com/archives/2005/12/venezuela_open_source.html) (Dec. 6, 2005) (mentioning the Third Worldwide Free Knowledge Forum in Venezuela in 2005).

214. World Intellectual Property Organization, *Indigenous People, Cultural Heritage and Intellectual Property*, Leaflet No. 14, <http://www.ohchr.org/english/about/publications/docs/indileaflet12.doc> (last visited Jan. 19, 2006).

215. Peter K. Yu, *Intellectual Property and the Information Ecosystem*, 2005 MICH. ST. L. REV. 1, 9-10 (2005).

216. Developing Country Submission, *supra* note 188.

licensing schemes similar to that of the GPL—schemes which would facilitate the communal aspects of indigenous culture, but prohibit or regulate commercial exploitation.<sup>217</sup>

The development of a licensing system outside of the WTO forum would allow indigenous communities to directly regulate the conduct of commercial actors.<sup>218</sup> Through such a system, indigenous communities could ensure commercial actors have prior informed consent of the community before exploiting indigenous knowledge or materials.<sup>219</sup> Additionally, a licensing system could be used to achieve equitable benefit sharing between indigenous communities and commercial actors.<sup>220</sup> Indigenous communities could not only use licenses to control monetary compensation, but to monitor and control how the relevant traditional knowledge or material is being used commercially.<sup>221</sup> Most importantly, a licensing system could serve as a protected international forum for developing countries to advance these norms, principles, and values through international commercial course of dealing.

Though licensing schemes will provide indigenous communities direct control over traditional knowledge and material, there may be concern over whether such private regulation is practically enforceable against international actors.<sup>222</sup> It is true that licenses may contain “choice of forum, choice of law, or international arbitration provisions relevant to cross-boundary dispute or enforcement issues,”<sup>223</sup> however, there is no guarantee a chosen forum will enforce foreign obligations not expressly regulated by that forum’s law.<sup>224</sup> Even if not fully enforceable, a license system would be a viable method of adjusting international norms while

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217. Regulation might be a variant of that suggested by the Bonn Guidelines. *See* Access and Benefit Sharing as Related to Genetic Resources, Decision VI/24, in Report of the Sixth Meeting of the Conference of the Parties to the Convention on Biological Diversity, U.N. Environment Programme, Conference of the Parties to the Convention on Biological Diversity, at 262, U.N. Doc. UNEP/CBD/COP/6/20 (May 27, 2002), <http://www.biodiv.org/doc/publications/cbd-bonn-gdls-en.pdf> (last visited Jan. 23, 2006) (providing national strategies for countries interested in implementing the access benefit-sharing of the Convention on Biological Diversity).

218. *See* U.S. Submission, *supra* note 12, ¶ 18 (advocating the benefits of the development of national laws outside of the international patent system to “achieve objectives of obtaining appropriate access and benefit-sharing” of traditional knowledge and folklore).

219. *Id.* ¶ 19.

220. *Id.* ¶ 20.

221. *Id.*

222. *See* Developing Country Submission, *supra* note 188, ¶ 4 (noting difficulty in enforcing foreign contractual obligations for acts not prohibited in country where it is to be enforced).

223. Council for Trade-Related Aspects of Intellectual Property Rights, *Article 27.3(B), Relationship Between the TRIPS Agreement and the CBD, and the Protection of Traditional Knowledge and Folklore*, ¶ 16, IP/C/W/449 (June 10, 2005).

224. Developing Country Submission, *supra* note 188, ¶ 4.

developing countries work for specific enforceable protections through TRIPs.<sup>225</sup>

At the same time, developing countries should embrace open and collaborative research communities,<sup>226</sup> similar to the open source software community, as “part of a broader knowledge optimization strategy”<sup>227</sup> to attract foreign investment and build a domain of public knowledge.<sup>228</sup> Such communities are growing in popularity, especially in the biomedical field, and not only produce usable and reliable data,<sup>229</sup> but attract follow-up projects allowing “a more coordinated and comprehensive attack on large, complex problems than does traditional [research].”<sup>230</sup>

Additionally, developing countries should expand the public domain by patent mining and providing useful ideas to local research and development companies.<sup>231</sup> After the TRIPs extended transition period expires, such use will require a license and be relegated to noncommercial research, but, whenever possible, developing countries should employ compulsory licensing to facilitate access to information and knowledge.

Finally, developing countries should continue to push mandates to employ open source software in government institutions. This solution will not only be cost effective,<sup>232</sup> but could instigate the nation’s software industry.<sup>233</sup> Further, because of its unique customizable nature, open source systems facilitate public access to information by accommodating any language.<sup>234</sup> Developing countries may also find open source

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225. Developed countries equate restrictions ensuring the protection of indigenous knowledge and material to those which ensure safety and efficacy, environmental protection, and domestic or national security. U.S. Submission, *supra* note 12, ¶ 7. Thus, developed countries see the protection of indigenous knowledge and material not as a TRIPs issue, but as a national policy choice. *Id.*

226. See generally ARTI K. RAI, OPEN AND COLLABORATIVE RESEARCH: A NEW MODEL FOR BIOMEDICINE, in INTELLECTUAL PROPERTY RIGHTS IN FRONTIER INDUSTRIES 131 (Robert W. Hahn ed., 2005).

227. David J. Gervais, *Intellectual Property, Trade & Development: The State of Play*, 74 FORDHAM L. REV. 505, 530 (2005).

228. *Id.* at 530.

229. Rai, *supra* note 226, at 3.

230. *Id.*

231. Gervais, *supra* note 227, at 534.

232. See Marson, *supra* note 23 (“Buying Windows XP and Office XP on Amazon.com in the US is equal to almost 3 months of GDP per capita in South Africa and over 16 months of GDP per capita in Vietnam. This is equivalent to charging a single-user license fee in the US of \$7,541 and \$48,011 respectively.”).

233. *Id.*

234. See *id.* (comparing an OpenOffice project to implement all 11 South African languages with Microsoft Office, which accommodates one South African language—English).

software attractive because of its independent and transparent nature.<sup>235</sup> Many countries fear that proprietary software developers write backdoors into software allowing unauthorized access to secure government systems.<sup>236</sup> Whether this fear is rational or not,<sup>237</sup> developing countries find comfort in systems running open source software where the source code may be scoured for bugs.

These methods do not aim to be complete strategy for survival post-TRIPs,<sup>238</sup> but rather to present the most independent and autonomous strategies for developing countries while they continue to push underrepresented agendas in the difficult international negotiating processes.

#### IV. Conclusion

Developing countries may breathe easier now that the WTO has extended TRIPs transition periods for compliance with its minimum standards. This development does not, however, change the fact that time will eventually run out for developing countries. Now is the time to be inspired by revolutionary projects such as the open source movement and to implement inventive strategies that may help ease the burdens created by TRIPs. As negotiations continue at the WTO for a legitimate revised TRIPs agreement,<sup>239</sup> one that would embrace the norms, principles, and rules of the entire WTO membership, developing countries should use existing legal tools, such as private license agreements, to protect their volatile intellectual assets from unwanted exploitation and advance their own standards of protection on a commercial level creating customary practices which may in turn work to evolve the international norms of protection.

As developing countries continue the struggle against the oppression of more developed countries,<sup>240</sup> they must remember that “[w]hen people speak of ideas that revolutionize [sic] society, they do

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235. *Id.*

236. *Id.*

237. Eva Golinger, *The Adaptable U.S. Intervention Machine in Venezuela*, LABORNET, Nov. 2004, <http://www.labornet.org/news/0305/venez.htm> (last visited Jan. 23, 2006) (describing Venezuelan incident where a U.S. corporation “altered access codes and programming, making it impossible” for the state-owned oil company “to run computers, machines and refinery equipment”).

238. See Gervais, *supra* note 227, at 530 (providing additional recommendations for developing countries).

239. WTO—Doha Declaration Explained, [http://www.wto.org/english/tratop\\_e/dda\\_e/dohaexplained\\_e.htm](http://www.wto.org/english/tratop_e/dda_e/dohaexplained_e.htm) (last visited Jan. 23, 2006).

240. EBEN MOGLEN, *THE DOTCOMMUNIST MANIFESTO I* (2003).

but express the fact, that *within the old society, the elements of a new one have been created*, and that the dissolution of the old ideas keeps even pace with the dissolution of the old conditions of existence.”<sup>241</sup>

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241. *Id.* at 7 (emphasis added).