

ONE WEB TO UNITE US ALL: BRIDGING THE DIGITAL DIVIDE ♦

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INTRODUCTION

Over the last twenty years, global sales of computers, mobile phones, and other electronic gadgets have skyrocketed, yet the power of these tools often fails to reach people who it would benefit most. Why? The Digital Divide. This three-word global challenge prevents students in rural America from utilizing interactive learning tools,¹ keeps parents in impoverished urban

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¹ *E.g.*,

SMART

TECHNOLOGIES,

communities from accessing critically important health information online, and hampers efforts of small business owners in Africa and Asia to grow their businesses through online resources.

Technology serves as an effective tool for millions of individuals to research and treat health conditions² and enhance their own education. In the developing world, technology allows doctors to train on cutting-edge healthcare techniques,³ students to “attend” lectures with the world’s best professors,⁴ and entrepreneurs to borrow valuable seed capital.⁵ In the face of ongoing human rights struggles, Information and Communications Technology (ICT), the “wide range of services, applications, and technologies, using various types of equipment and software,”⁶ has become an effective mechanism for people to assert basic needs and desires. ICT promises endless potential and, in the words of U.S. Secretary of State Hillary Clinton, has

become a great leveler [that should be used] to help lift people out of poverty and give them a freedom from want. . . . We want to put these tools in the hands of people who will use them to advance democracy and human rights, to fight climate change and epidemics, to build global support for . . . a world without nuclear weapons, to encourage sustainable economic development that lifts . . . people . . . up.⁷

http://vault.smarttech.com/videos/SB800/touch_gestures/?WT.ac=HPB1_sb800-touchGestureVideo_021511 (last visited Mar. 14, 2011) (demonstrating the Smartboard interactive whiteboard that can be integrated with computers and other technologies for educational purposes).

² See, e.g., Sonia Kolenikov-Jessop, *Do-It-Yourself Healthcare with Smartphones*, N.Y. TIMES, Feb. 28, 2011, <http://www.nytimes.com/2011/03/01/technology/01iht-srhealth01.html?src=me&ref=technology> (“Thanks to an array of small devices and applications for smartphones that gather vital health information and store it electronically, consumers can take a more active role in managing their own care.”).

³ See UPTODATE INC., 2009 ANNUAL REPORT 3-4 (2009), http://www.uptodate.com/docs/home/061609_community_report.pdf.

⁴ See YOUTUBE EDU, <http://www.youtube.com/edu> (last visited Mar. 1, 2011).

⁵ See KIVA, <http://www.kiva.org> (last visited Mar. 1, 2011).

⁶ *Communication from the Commission to the Council and the European Parliament: Information and Communication Technologies in Development: The Role of ICTs in EC Development Policy*, at 2, COM (2001) 770 final (Dec. 14, 2001), available at http://ec.europa.eu/development/icenter/repository/com2001_0770en01_en.pdf.

⁷ Secretary of State Hillary Clinton, Remarks on Internet Freedom (Jan. 21, 2010), <http://www.state.gov/secretary/rm/2010/01/135519.htm> [hereinafter Internet Freedom] (“There are 4 billion cell phones in use today. Many of them are in the hands of market vendors, rickshaw drivers, and others who’ve historically lacked access to education and opportunity.”); see also FEDERAL COMMUNICATIONS COMMISSION, CONNECTING AMERICA: THE NATIONAL BROADBAND PLAN XI (Mar. 17, 2010), available at <http://download.broadband.gov/plan/national-broadband-plan-executive-summary.pdf> [hereinafter BROADBAND PLAN] (“Broadband . . . information technology can improve [health] care and lower costs[,] . . . can provide teachers with tools that allow students to learn the same course material in half the time[,] . . . could increase energy independence and efficiency[,] . . . [a]nd . . . could improve emergency response and homeland security.”).

As the promise of technology has grown over the last decade, the Digital Divide has garnered the attention of academics, politicians, and industry moguls, and a nascent “access-to-technology” movement has formed. Opinion-makers debate whether the Digital Divide is a domestic challenge or an international crisis, whether the phrase encompasses all technology or is targeted towards specific telecommunications, and who shoulders the responsibility of promoting access-to-technology and knowledge. Philanthropic organizations have taken a leadership role in the effort to spread technology access both in America, where rural communities demonstrate a stark need, and internationally, where the most compelling stories tell how a weekly Internet connection in a small urban elementary school in Africa can truly be life changing. Philanthropic programs target these underserved communities and schools, showering them with computers, instructors, and other technologies.⁸ Despite the best intentions, challenges are inevitable as programs face financial instability, competition, and a demand that far outweighs supply. Nevertheless, photos of “success”—engaged youngsters crowded around a brightly colored laptop outside their clay home on the outskirts of Kathmandu, Nepal⁹—chronicle the huge impact the most basic resources can have on an entire community.

But startling statistics demonstrate the magnitude of the digital gap that crosses educational and geographic boundaries, and the extent of the barriers to closing the divide. While young children are the most compelling recipients of new technologies, lawyers, teachers, and activists in the developing world face the same challenges as the world’s most impoverished individuals who yearn for mobile phones, computers, and broadband Internet.

The disparity in access is hardly limited to computers, mobile phones, and broadband Internet. Access to all forms of technology poses a great challenge, just as similar disparities face other critical human rights issues. Progress in those areas provides useful lessons to hasten the spread of technology. Perhaps the best example comes from the public health gap that leaves millions of people in Southeast Asia and Africa dying of preventable and treatable diseases.¹⁰ The countless public and

⁸ *E.g.*, ONE LAPTOP PER CHILD, <http://laptop.org> (last visited Feb. 28, 2011) [hereinafter OLPC]; CLASSMATE PC, <http://www.classmatepc.com> (last visited Feb. 28, 2011).

⁹ *See* OLPC, *supra* note 8.

¹⁰ *See, e.g.*, World Summit on Sustainable Development, Aug. 26-Sept. 4, 2002, *Plan of Implementation of the World Summit on Sustainable Development*, ¶ 53-57, U.N. Doc. A/Conf.199/20 (2002) (citing the “urgent need to address the causes of ill health” and to “[s]trengthen the capacity of health-care systems to deliver basic health services to all . . . in conformity with human rights” and “[p]romote equitable and improved access to affordable and efficient health-care services, including prevention, at all levels of the

private efforts to raise awareness and funds¹¹ are beginning to have an impact.¹² Yet progress comes at a high financial and human cost, with funding issues, short-term, piecemeal solutions, unsustainable results,¹³ and competition for resources that shifts public attention away from lower-profile health challenges, some of which are responsible for more death than the higher-profile epidemics.¹⁴ The effort to promote public health, and the obstacles that movement faces, foreshadow current and future challenges spreading technology equitably around the world.

Policy makers, international institutions, and charitable organizations have begun to address these challenges, but tackling the Digital Divide requires a sustained commitment by these institutions, national governments, corporate actors, and non-governmental organizations (NGOs). The United Nations (UN), World Intellectual Property Organization (WIPO) and World Trade Organization (WTO) have taken initial steps by adopting policy statements and publicly declaring their commitment, but these institutions, and hundreds of NGOs, struggle to balance the growing demand for access with inadequate resources and the need to protect intellectual property.

This tension is particularly evident in the WTO's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS),

health system"). *See generally* *Access to Health Care*, U.C. ATLAS OF GLOBAL INEQUALITY, <http://ucatlas.ucsc.edu/access.php> (last visited Mar. 14, 2011) (providing an overview of disparities in access to health care globally). The HIV/AIDS crisis provides an instructive example. Since the crisis became a high-profile international priority more than two decades ago, international organizations have committed resources to fighting HIV/AIDS. The World Health Organization launched the Global Health Programme on AIDS in 1987. UNAIDS, STATUS OF THE GLOBAL HIV EPIDEMIC: 2008 REPORT ON THE GLOBAL AIDS EPIDEMIC 30 (2009) [hereinafter UNAIDS 2008], http://data.unaids.org/pub/GlobalReport/2008/jc1510_2008_global_report_pp29_62_en.pdf. Even with these efforts, HIV and AIDS continue to sweep across the globe, especially in the developing world. The number of individuals living with HIV increased from 28.6 million in 2001 to 33.3 million in 2009. UNAIDS, STATUS OF THE GLOBAL HIV EPIDEMIC: 2009 REPORT ON THE GLOBAL AIDS EPIDEMIC 21 (2011) [hereinafter UNAIDS 2009]. The number of people living with HIV in sub-Saharan Africa grew from approximately five million in 1990 to more than 20 million in 2007. *Id.* at 27.

¹¹ In the context of HIV/AIDS, international donors and governments committed \$15.9 billion in 2009 to the global response. "In most countries, the AIDS response is funded by a complex interplay of domestic public spending, multilateral and bilateral aid, private-sector and philanthropic support and individual out-of-pocket spending." UNAIDS 2009, *supra* note 10, at 146. Financial disbursements from the G8, the European Commission, and other governments ballooned from \$1.2 billion dollars in 2002 to \$7.7 billion in 2008. JENNIFER KATES, ERIC LEIF & CARLOS AVILA, FINANCING THE RESPONSE TO AIDS IN LOW- AND MIDDLE-INCOME COUNTRIES: INTERNATIONAL ASSISTANCE FROM THE G8, EUROPEAN COMMISSION AND OTHER DONOR GOVERNMENTS IN 2008 5 (Kaiser Family Foundation & UNAIDS 2009), http://data.unaids.org/pub/Presentation/2009/20090704_UNAIDS_KFF_G8_CHARTPACK_2009_en.pdf.

¹² New annual HIV infections dropped from 3 million in 2001 to 2.7 million in 2007. *See* UNAIDS 2009, *supra* note 10, at 32.

¹³ *See* Laurie Garrett, *The Challenge of Global Health*, 86 FOREIGN AFF. 14 (2007).

¹⁴ *See id.*

the comprehensive multilateral agreement laying down intellectual property standards and enforcement mechanisms.¹⁵ Although the TRIPS Agreement does recognize the special needs of the world's least developed nations in the preamble and Article 7,¹⁶ TRIPS does not actually provide a concrete solution to technology access issues but rather “addresses” the challenge by briefly stating that enforcement of intellectual property rights should not undercut development efforts.

In the nearly two decades since the TRIPS Agreement came into full effect, the escalating tension between protecting intellectual property and bridging the Digital Divide has undermined efforts to address access to technology on the international level. Merely six years after TRIPS was adopted, the UN Sub-Commission for the Protection and Promotion of Human Rights passed a resolution criticizing its effect, saying “the implementation of the TRIPS agreement does not adequately reflect the fundamental nature and indivisibility of all human rights . . . there are apparent conflicts between the intellectual property rights regime embodied in the TRIPS Agreement, on the one hand, and international human rights law, on the other.”¹⁷

Similarly, individual national governments have endorsed technology as a means to promote human rights, and a few nations, most recently France, have boldly proclaimed that access to “[t]he [I]nternet is a fundamental human right.”¹⁸ The French High Court pointed to a provision of the French Constitution guaranteeing its citizenry the right to “speak, write,

¹⁵ Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1993, Marrakesh Agreement Establishing the World Trade Organization, Annex IC, Legal Instruments — Results of the Uruguay Round, 33 I.L.M. 1125 (1994).

¹⁶ *Id.* at Preamble (“Recognizing also the special needs of the least-developed country Members in respect of maximum flexibility in the domestic implementation of laws and regulations in order to enable them to create a sound and viable technological base.”); *id.* at art. 7 (“The protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations.”).

¹⁷ *Human Rights as the Primary Objective of Trade, Investment and Financial Policy*, Sub-Commission on Human Rights Res. 2000/7, E/CN.4/Sub.2/2000/L.20 (Aug. 17, 2000) (instructing national governments and intergovernmental organizations to consider the primacy of human rights over economic rights, and requesting that during review and implementation of the TRIPS agreement, human rights implications are considered in a meaningful manner).

¹⁸ Ian Sparks, *Internet Access is a Fundamental Human Right, Rules French Court*, DAILY MAIL, June 12, 2009, <http://www.dailymail.co.uk/news/worldnews/article-1192359/Internet-access-fundamental-human-right-rules-French-court.html#ixzz0WHzv2AVR>. See also CC decision no. 2009-580DC, June 10, 2009, J.O. (Fr.), available at http://www.conseil-constitutionnel.fr/conseil-constitutionnel/root/bank_mm/anglais/2009_580dc.pdf; Charles Bremner, *Top French Court Rips Heart Out of Sarkozy Internet Law*, TIMES ONLINE, June 11, 2009, http://technology.timesonline.co.uk/tol/news/tech_and_web/article6478542.ece.

and print with freedom.”¹⁹ The rights the French court referred to have long been enshrined in international agreements that guarantee the right to information and expression.²⁰ Despite initial conflicts following the French court’s decision, European Union (E.U.) lawmakers ultimately brokered a compromise that recognizes the Internet as a human right throughout Europe but simultaneously provides enhanced intellectual property protections.²¹

The balance the E.U. agreement seeks is both critical and elusive. By viewing these challenges as complementary rather than

¹⁹ Declaration of the Rights of Man and the Citizen 11 (1789) (“The free communication of ideas and opinions is one of the most precious of the rights of man. Every citizen may, accordingly, speak, write, and print with freedom, but shall be responsible for such abuses of this freedom as shall be defined by law.”); *see also* 1958 Const. Preamble (“The French people solemnly proclaim their attachment to the Rights of Man and the principles of national sovereignty as defined by the Declaration of 1789.”). The French Court’s declaration came in the context of overruling a law that allowed the government to disconnect the Internet service of repeat copyright infringers. *See generally* Nate Anderson, *French Court Savages “Three-Strikes” Law, Tosses It Out*, ARS TECHNICA, June 10, 2009, <http://arstechnica.com/tech-policy/news/2009/06/french-court-savages-3-strikes-law-tosses-it-out.ars>. In late 2009, Spain’s government proposed a similar anti-piracy measure that created a commission with the power to shut down websites. The legislation, which garnered international attention, does not subject individuals to internet cut-offs. *See generally* Eric Pfanner, *Spanish Anti-Piracy Measure Under Fire*, INT’L HERALD TRIBUNE, Dec. 4, 2009. Just months after the French decision, the Finnish government declared broadband Internet access to be a legal right and guaranteed citizens access beginning in July 2010. *See* Saeed Ahmed, *Fast Internet Access Becomes a Legal Right in Finland*, CNN DIGITAL BIZ, Oct. 15, 2009, <http://www.cnn.com/2009/TECH/10/15/finland.internet.rights>; Robin Wauters, *Applause for Finland: First Country to Make Broadband Access a Legal Right*, TECHCRUNCH, Oct. 14, 2009, <http://techcrunch.com/2009/10/14/applause-for-finland-first-country-to-make-broadband-access-a-legal-right>.

²⁰ *See* Universal Declaration of Human Rights, G.A. Res. 217A, at 19, U.N. GAOR, 3d Sess., 1st plen. Mtg., U.N. Doc. A/810 (Dec. 12, 1948) (providing the foundation for a universal right to expression through technology by saying “everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers”); The International Covenant on Civil and Political Rights, G.A. Res. 2200A (XXI), ¶ 19, U.N. Doc. A/6316 (1966) (guaranteeing “[e]veryone shall have the right to freedom of expression; this right shall include freedom to seek, receive and impart information and ideas of all kinds, regardless of frontiers, either orally, in writing or in print, in the form of art, or through any other media of his choice.”).

²¹ *See* Press Release, European Union, *Agreement on EU Telecoms Reform Paves Way for Stronger Consumer Rights, an Open Internet, a Single European Telecoms Market and High-Speed Internet Connections for All Citizens* (Nov. 5, 2009), <http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/09/491&format=HTML&aged=0&language=EN&guiLanguage=en> (citing Article 1(3)a of the new Framework Directive as “[m]easures taken by Member States regarding end-users’ access to or use of services and applications through electronic communications networks shall respect the fundamental rights and freedoms of natural persons Any of these measures regarding end-users’ access to or use of services and applications through electronic communications networks liable to restrict those fundamental rights or freedoms may only be imposed if they are appropriate, proportionate and necessary within a democratic society, and their implementation shall be subject to adequate procedural safeguards . . . including effective judicial protection and due process.”); Kevin J. O’Brien, *E.U. Leaders Bolster Internet Access Protection*, N.Y. TIMES, Nov. 5, 2009, <http://www.nytimes.com/2009/11/06/technology/internet/06net.html> (saying the agreement ensures judicial review of any decision to sever someone’s Internet access as a result of online piracy).

mutually exclusive, the international community—governments, NGOs, and technology companies—can protect intellectual property while effectively harnessing the power of ICT to advance human rights globally. Technology, utilized correctly, can improve the lives of individuals, the structure of communities, and the infrastructure of nations, but to do so effectively, the Digital Divide must be eliminated.

Part I of this Note lays out the challenge of the Digital Divide, both internationally and domestically. Part II provides an overview of systems currently in place, including initiatives of philanthropic organizations, national governments, inter-governmental organizations, international institutions, and industry leaders. Part III describes the shortcomings of the current efforts, including the inherent instability in philanthropic initiatives, competition and inefficiencies in current proposals, and the need to balance protecting intellectual property with ensuring access. Finally, Part IV lays out a proposed international coordinating agency.

I. THE CHALLENGE

A. *Defining the Digital Divide*

The Digital Divide, one of the most-discussed topics of information technology law and policy since the late 20th century, originally referred to the gap between those who had access to computers and those who did not. Since the Digital Divide began garnering significant attention, the meaning of the term has shifted to describe the gap between people who do and do not have access to the Internet and, more recently, to inequalities in access to information technology more generally.²² A 2008 report to Congress defined the term succinctly as characterizing “a gap between ‘information haves and have-nots.’”²³ Both internationally and domestically, the Digital Divide has come to

²² See LEADERSHIP CONFERENCE EDUCATION FUND, LEADERSHIP CONFERENCE ON CIVIL RIGHTS, FROM DIGITAL DISCONNECT TO DIGITAL EMPOWERMENT: BUILDING A MORE EQUITABLE SOCIETY THROUGH LEADERSHIP, INVESTMENT, AND COLLABORATION I (2001), <http://www.civilrights.org/publications/digital-disconnect/finalreport.pdf> (defining Digital Divide as the “inequality between those with access to Information Age tools and the skills to use them and those without”); ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT, UNDERSTANDING THE DIGITAL DIVIDE 5 (2001), <http://www.oecd.org/dataoecd/38/57/1888451.pdf> (defining Digital Divide as the “gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both to their opportunities to access information and communication technologies (ICTs) and to their use of the Internet for a wide variety of activities”).

²³ LENNARD G. KRUGER & ANGELE A. GILROY, BROADBAND INTERNET ACCESS AND THE DIGITAL DIVIDE: FEDERAL ASSISTANCE PROGRAMS, CRS REPORT ORDER CODE RL30719 Summary (2008) <http://www.nationalaglawcenter.org/assets/crs/RL30719.pdf>.

symbolize the gap between people who have access to ICT—Internet, broadband, mobile phones, and even land-lines—and those who do not.

The origin of the term is traced to U.S. President Bill Clinton who, through a series of reports,²⁴ speeches,²⁵ and initiatives,²⁶ shed light on the composition of society’s “information disadvantaged” and the importance of equalizing technology access throughout the United States “in a society where individuals’ economic and social well-being increasingly depends on their ability to access, accumulate, and assimilate information.”²⁷ By the year 2000, international institutions began to adopt policies that espoused a commitment to bridging the global Digital Divide.²⁸

B. *The Global Challenge*

While technology use is increasing dramatically,²⁹ a void still

²⁴ See generally NAT’L TELECOMM. AND INFO. ADMIN., FALLING THROUGH THE NET: A SURVEY OF THE ‘HAVE NOTS’ IN RURAL AND URBAN AMERICA (1995), <http://www.ntia.doc.gov/ntiahome/fallingthru.html> (examining factors such as age, race, and geographic location and its impact on an individual’s access to technology but not using the term Digital Divide in the first report in a three part series) [hereinafter FALLING 1995]; NAT’L TELECOMM. AND INFO. ADMIN., FALLING THROUGH THE NET II: NEW DATA ON THE DIGITAL DIVIDE (1998), <http://www.ntia.doc.gov/ntiahome/net2/falling.html> (surveying trends in phone and computer usage across America and aiming to provide a statistical basis to assist policy makers in achieving the Clinton administration’s “Connecting All Americans” goal); NAT’L TELECOMM. AND INFO. ADMIN., FALLING THROUGH THE NET: DEFINING THE DIGITAL DIVIDE (1999), <http://www.ntia.doc.gov/ntiahome/ftn99/ftn.pdf> (examining the disparity in access to technology in American households and declaring that the digital divide is “one of America’s leading economic and civil rights issues”).

²⁵ See generally President William Jefferson Clinton, State of the Union Address (Jan. 23, 1996), <http://clinton2.nara.gov/WH/New/other/sotu.html> (declaring a national priority to provide internet access in every classroom and library in the United States by 2000); President William Jefferson Clinton, Commencement Address at the Mass. Inst. of Tech. (June 5, 1998), <http://www.techlawjournal.com/agencies/slc/80605clin.htm> (discussing the role of race and socio-economics in America’s Digital Divide and the opportunities presented by the information age).

²⁶ See generally Press Release, The White House, The Clinton-Gore Administration: A National Call to Action to Close the Digital Divide (Apr. 4, 2000), <http://clinton4.nara.gov/WH/New/html/20000404.html> (outlining the administration’s initiatives to address the Digital Divide); Andy Carvin & Ceder Pruitt, *The New Digital Divide Network*, CMTY. TECH. REV. (Winter 2004-05), <http://www.comtechreview.org/winter-2004-2005/000277.html> (discussing Pres. Clinton’s role in launching the Digital Divide Network).

²⁷ FALLING 1995, *supra* note 24.

²⁸ See generally Group of Eight [G8], *Okinawa Charter on Global Information Society*, ¶ 18 (July 22, 2000) (announcing creation of the G8’s Digital Opportunity Taskforce, or dot force, to track global digital efforts and promote broader international access); G.A. Res. 55/2 ¶ 20, U.N. Doc. A/RES/55/2 (Sept. 8, 2000) (including a commitment to ensure that “technologies, especially information and communication technologies . . . are available to all” in the UN Millennium Declaration).

²⁹ See, e.g., *World Internet Usage Statistics News and World Population Stats*, INTERNET WORLD STATISTICS, <http://www.internetworldstats.com/stats.htm> (stating that the number of “Internet users” worldwide grew 444% between 2000 and 2010); U.N. MILLENNIUM DEVELOPMENT GOALS REPORT 2010 72 (2010), <http://www.un.org/millenniumgoals/> (follow “Reports” tab, then follow “2010” hyperlink) (stating that global Internet use nearly doubled between 2003 and 2008) [hereinafter MDG].

exists, especially in the world's most impoverished regions. The most ubiquitous ICT, mobile phone technology, now boasts 4.6 billion subscribers, which equals about sixty-seven subscriptions per 100 people worldwide.³⁰ Growth in mobile technology is strongest in the developing world where, by the end of 2009, "mobile penetration had passed the 50 per cent [sic] mark."³¹ Yet access to the Internet lags behind, and the statistics are startling: more than sixty-eight percent of people in the developed world are internet users, compared to less than fifteen percent in the developing world.³² The divide along regional lines is even more dramatic: in 2007, forty-three percent of Americans, forty-four percent of Europeans, and fifty-three percent of people living in Oceania had Internet access. For the same period in Africa, only five percent of people had the same privilege.³³ Similarly, access to newer technologies, such as broadband, increases much more quickly in developed countries than in the developing world.³⁴ Various factors, including the prohibitive cost of ICT for the lowest income bracket and the lack of awareness of the benefits technology can provide, contribute to the significant disparity.³⁵

But mobile phone statistics demonstrate the thirst for technology in the developing world. In 2007, sixty-four percent of mobile plans belonged to subscribers in the developing world, compared to forty-four percent in 2002.³⁶ Mobile phones provide an outlet for communication, information gathering, money transferring, and entrepreneurial efforts. In the absence of widespread Internet access and even more limited access to

³⁰ See MDG, *supra* note 29, at 71. The number of subscriptions does not necessarily translate to the number of people with mobile phone access, since multiple mobile phone subscriptions is not uncommon in parts of the world.

³¹ *Id.* See also Randy Spence & Matthew Smith, *A Dialogue on ICTs, Human Development, Growth, and Poverty Reduction*, PUBLIUS PROJECT, Sept. 21, 2009, http://publius.cc/dialogue_icts_human_development_growth_and_poverty_reduction/091109 ("[V]ery poor people spend surprisingly large fractions of disposable income on mobile phone use Research shows that poor people, like others, value communication highly for social, economic, and other benefits. Increasingly, [supply exists], through low-price business and non-profit activity, as well as public support in infrastructure, policy and regulation, universal access schemes, and investment in the full range of public and social e-services.").

³² See MDG, *supra* note 29, at 72; see also INT'L TELECOMM. UNION, MEASURING THE INFORMATION SOCIETY: THE ICT DEVELOPMENT INDEX 5 (2009), http://www.itu.int/ITU-D/ict/publications/idi/2009/material/IDI2009_w5.pdf (citing 2007 statistics that fifty-five of every 100 people in the developed world are Internet users but only thirteen people for every 100 in the developing world).

³³ See INT'L TELECOMM. UNION, *supra* note 32, at 5.

³⁴ *Id.* (saying that 19.4 % of people in the developed world could access fixed broadband and fifteen mobile broadband by the end of 2007, compared to 2.4% and 0.9% respectively in the developing world).

³⁵ See Human Rights and Equal Opportunity Commission of Australia, *Accessibility of Electronic Commerce and New Service and Information Technologies for Older Australians and People with Disability* § 3 (Mar. 31, 2000), http://www.hreoc.gov.au/disability_rights/inquiries/ecom/ecomrep.htm.

³⁶ See INT'L TELECOMM. UNION, *supra* note 32, at 4.

broadband and high speed Web, mobile phone applications have opened up new possibilities for rural communities.³⁷

Adoption rates for new technologies are also telling: Sub-Saharan African countries traditionally lag behind the rest of the world—twenty-four years behind the average country for adopting steam and motor ships, thirty years for the telegraph, and ten years for the telephone.³⁸ Lags in adoption rates for more recent technologies have declined overall, and Sub-Saharan African countries only lag one to two years behind the average country in adopting new technologies.³⁹

C. *The Domestic Disparity*

Even in America, where the gap may be marginally less striking, hundreds of thousands of people in inner cities, Native American reservations, and impoverished rural areas, have limited access to ICT. Further, race and ethnicity continue to play a significant role in determining access. According to 2009 statistics from the U.S. Department of Commerce, National Telecommunications and Information Administration, more than seventy-three percent of white households and just over eighty percent of Asian households have Internet access at home. But the number is significantly lower among other ethnic groups: Only fifty-four percent of black households and fifty-two percent of Hispanic households, the lowest percentage of any ethnic group, have Internet access at home.⁴⁰ While the gap remains significant, access among those underrepresented groups has improved since the last survey in 2003.⁴¹ The divide can be similarly tracked along

³⁷ See Sarah Arnquist, *In Rural Africa, a Fertile Market for Mobile Phones*, N.Y. TIMES, Oct. 6, 2009, at D4; see also MDG, *supra* note 29, at 71 (“Mobile technology is also increasingly being used for non-voice applications, including text messaging, m-banking and disaster management, and its role as a development tool is widely recognized.”). *But c.f.* Carla Thomaz, *Africa Closes the Digital Divide*, ENG’G NEWS (May 1, 2009), <http://www.engineeringnews.co.za/article/closing-the-digital-divide-2009-05-01> (saying that the level of computer use and literacy in Africa is comparatively low, although businesses and consumers have begun adopting ICTs, usage has skyrocketed, and growth is expected to continue so long as countries can provide sufficient bandwidth); see also Clotilde Fonseca, *Deepening Understanding and Addressing Key Challenges*, PUBLIUS PROJECT (Sept. 21, 2009), http://publius.cc/dialogue_icts_human_development_growth_and_poverty_reduction_deepening_understanding_and_addressing_key_challenges (arguing that access to technology is not sufficient to promote job production, economic growth, and access to knowledge but rather users must be capable of using technologies productively).

³⁸ See Diego A. Comin & Bart Hobijn, *An Exploration of Technology Diffusion* 23 (Working Paper No. 08-093, 2008), available at <http://www.hbs.edu/research/pdf/08-093.pdf>.

³⁹ See *id.* at 46 (citing a one year lag for PCs, two years for cell phones, and two years for the Internet).

⁴⁰ See U.S. CENSUS BUREAU, STATISTICAL ABSTRACT OF THE UNITED STATES: 2011, *Household Internet Usage In and Outside of the Home, by Selected Characteristics: 2009* (2011) [hereinafter 2011 STATISTICAL ABSTRACT], <http://www.census.gov/compendia/statab/2011/tables/11s1154.pdf>.

⁴¹ See U.S. CENSUS BUREAU, CURRENT POPULATION SURVEY, *Table 1A: Presence of a Computer*

income lines, which generally follow the racial divide statistics.⁴² In addition, the twelve-point gap between the fifty-two percent of rural households with in-home Internet access and the sixty-four percent of urban households has also garnered attention in the last few years.⁴³

II. THE CURRENT PROGRAMS

Through a variety of initiatives ranging from training programs to international agreements, major players—intergovernmental agencies, national institutions, foundations, NGOs, and technology companies—have invested billions of dollars and countless hours into eliminating the Digital Divide. Despite programmatic disparities, all of the projects share major themes of advancing technology in rural communities and the developing world, maintaining intellectual property protections, and capitalizing on philanthropic interest.

A. *Philanthropic Efforts*

Shortly after the Digital Divide entered America's national conscience in the 1990s, foundations and nonprofit organizations launched initiatives to address the gap. In an early effort, Bill and Melinda Gates launched "The Gates Library Foundation" in 1997⁴⁴ with the objective to "bridge the digital divide" by ensuring that if a person could "get to a public library in the United States, [he] can access the Internet."⁴⁵ In its 1998 annual report, the Bill &

and the Internet for Households, by Selected Characteristics (Oct. 2003), <http://www.census.gov/population/socdemo/computer/2003/tab01A.xls> (providing 2003 statistics on Internet availability in households: 66.7% in Asian households, 59.9% in white, non-Hispanic households, thirty-six percent in black households, and thirty-six percent in Hispanic households).

⁴² Unsurprisingly, higher income individuals tend to have the greatest access to Internet at home. 2011 STATISTICAL ABSTRACT, *supra* note 40 (stating that less than forty-seven percent of households earning a family income between \$15,000 and \$24,999 have Internet at home, while more than ninety-five percent of families earning more than \$100,000 have Internet at home); *see also* ROBERT W. FAIRLIE, ARE WE REALLY A NATION ONLINE? ETHNIC AND RACIAL DISPARITIES IN ACCESS TO TECHNOLOGY AND THEIR CONSEQUENCES 24 (Sept. 20, 2005), *available at* <http://www.civilrights.org/publications/nation-online/digitaldivide.pdf> (stating that eighty to ninety percent of households earning more than \$60,000 a year, the highest income bracket tracked, have Internet access, regardless of race, but race plays a more significant role in households earning less than \$10,000 a year, where only thirty percent of white, less than 20 percent of Latino, and approximately fifteen percent of black households have Internet access).

⁴³ *See* ECONOMIC RESEARCH SERVICE, U.S. DEP'T OF AGRIC. ECON. RES. SERV., ECONOMIC INFORMATION BULLETIN NO. 47, RURAL BROADBAND AT A GLANCE: 2009 EDITION (Feb. 2009), *available at* <http://www.ers.usda.gov/Publications/EIB47/EIB47.pdf> (saying that, in 2007, six percent less individuals in rural America are Internet users as compared to those in urban areas).

⁴⁴ BILL & MELINDA GATES FOUNDATION, TIMELINE 7 (2010), <http://www.gatesfoundation.org/about/Documents/BMGFTimeline.pdf>.

⁴⁵ *Id.* More than a decade after the Gates Library Foundation launched, advocating for broad internet access in libraries remains a Gates Foundation priority. *See* Matthew Lasar,

Melinda Gates Foundations⁴⁶ addressed its goals, saying “[i]n early 1997, it became clear to us that we wanted to focus even more closely on helping to close the ‘digital divide.’”⁴⁷

In more than a decade since the initial Gates Foundation investment, bridging the gap in access to technology has become a priority for multi-issue charities⁴⁸ and technology and media organizations.⁴⁹ Dozens, if not hundreds, of organizations aimed at promoting access have sprung up around the world.⁵⁰

B. National Government Programs

Twenty-first-century American politicians focus on bridging the Digital Divide by promoting universal access to broadband Internet. Both Presidents George W. Bush and Barack Obama have endorsed the principles originally outlined by President Clinton in the 1990s.⁵¹ At the end of his first term, President Bush set the goal of ensuring that “broadband technology is available in

Bill Gates Fund: Libraries Need More Cash for Broadband, ARS TECHNICA, Dec. 14, 2009, <http://arstechnica.com/tech-policy/news/2009/12/bill-gates-fund-libraries-need-more-cash-for-broadband> (saying the Foundation increased spending for high-speed Internet upgrades in public libraries and schools, which was “[n]o big surprise . . . Microsoft’s general focus . . . is that broadband resources should go to ‘anchor institutions’—libraries, schools, and hospitals.”).

⁴⁶ The Gates Library Foundation joined the original foundation, the William H. Gates Foundation, in 1997. The Bill & Melinda Gates Foundations encompassed both bodies. By its 1999 annual report, the Bill & Melinda Gates Foundation had absorbed both subsets.

⁴⁷ BILL & MELINDA GATES FOUNDATIONS, 1998 ANNUAL REPORTS 3 (1998), <http://www.gatesfoundation.org/NR/Public/Media/AnnualReports/annualreport99/gatesfoundation98ar.pdf>.

⁴⁸ See, e.g., *Equity of Access*, AMERICAN LIBRARY ASSOCIATION, <http://www.ala.org/ala/issuesadvocacy/access/equityofaccess> (last visited Mar. 1, 2011) (listing the Digital Divide as a priority under “Equity of Access”); *Internet Access/Digital Divide*, LEADERSHIP CONFERENCE ON CIVIL RIGHTS, <http://www.civilrights.org/media/internet> (last visited Mar. 1, 2011); *Information Program*, OPEN SOCIETY INSTITUTE, <http://www.soros.org/initiatives/information> (last visited Mar. 1, 2011) (listing “Access to Knowledge,” “Civil Society Communication,” and “Open Information Policy” as focus areas and including the goal to “broaden communications access in the most disadvantaged countries and to protect the freedom to communicate in the digital environment”); *Wireless Future Program*, NEW AMERICA FOUND., <http://wirelessfuture.newamerica.net> (last visited Mar. 1, 2011) (including a goal “to promote universal, affordable and ubiquitous broadband and improve the public’s access to critical wireless communication technologies”).

⁴⁹ See generally *The Issues*, MEDIA AND DEMOCRACY COALITION, <http://www.media-democracy.net/issues> (last visited Mar. 1, 2011) (citing a commitment “to guarantee that everyone can access an open, affordable, and fast Internet, including support for policy that would bridge the digital divide and would promote rather than prohibit public efforts to create such networks”); Nate Anderson, *Big Cable to Offer Half-Price Net Connections to Poor Kids*, ARS TECHNICA, Dec. 2, 2009, <http://arstechnica.com/tech-policy/news/2009/12/big-cable-to-offer-half-price-net-connections-to-poor-kids> (outlining a 2009 cable-industry program aimed at bridging the Digital Divide by granting students who qualify for the National School Lunch Program access to a subsidized computer, two years of discounted broadband, and free computer classes and tech support).

⁵⁰ See generally DIGITAL DIVIDE DATA, <http://www.digitaldividedata.org> (last visited Mar. 1, 2011); ONE ECONOMY CORP., <http://www.one-economy.com> (last visited Mar. 1, 2011).

⁵¹ See *supra* notes 24-27 and accompanying text.

every corner of America by the year 2007.”⁵² Similarly, President Obama embraced technology throughout his campaign, transition, and in the early days of the administration in the context of reforming education, overhauling health care, and reviving the economy.⁵³

In the wake of the 2008 economic downturn, Congress adopted the American Recovery and Reinvestment Act, Obama-administration-supported legislation aimed at achieving economic recovery.⁵⁴ The statute provided significant funding and regulatory measures to make national broadband a reality, and included a mandate to the Federal Communications Commission (FCC) to develop a National Broadband Plan that “seek[s] to ensure that all people of the United States have access to broadband capability.”⁵⁵ The FCC developed a plan that lays out broad goals for integrating broadband into public life, including providing fast access for all Americans and ensuring reliable access for anchor institutions and emergency responders.⁵⁶ The National Broadband Plan, delivered to Congress on March 17, 2010,⁵⁷ provides a host of recommendations for achieving those goals directed at the FCC itself, other federal agencies, Congress, the

⁵² President George W. Bush, High Tech Improving Economy, Health Care, Education (June 24, 2004), <http://georgewbush-whitehouse.archives.gov/news/releases/2004/06/20040624-7.html>.

⁵³ See generally President Barack Obama, State of the Union Address (Jan. 25, 2011), <http://www.whitehouse.gov/the-press-office/2011/01/25/remarks-president-state-union-address> (“Within the next five years, we’ll make it possible for businesses to deploy the next generation of high-speed wireless coverage to [ninety-eight] percent of all Americans. [This is] about connecting every part of America to the digital age. It’s about a rural community in Iowa or Alabama where farmers and small business owners will be able to sell their products all over the world. It’s about a firefighter who can download the design of a burning building onto a handheld device; a student who can take classes with a digital textbook; or a patient who can have face-to-face video chats with her doctor.”).

⁵⁴ American Recovery and Reinvestment Act of 2009, 47 U.S.C. § 1305 (2009) (declaring that the purposes of the Broadband Technology Opportunities Program, cited in Sec. 6001(b), include providing broadband access to underserved areas and funding organizations that outreach to low-income, unemployed, aged, and otherwise vulnerable populations).

⁵⁵ *Id.*; BROADBAND PLAN, *supra* note 7, at Introduction.

⁵⁶ See BROADBAND PLAN, *supra* note 755, at Executive Summary, Goal Nos. 4-5.

⁵⁷ NATIONAL BROADBAND PLAN PROGRESS REPORT, <http://www.broadband.gov/plan/broadband-progress-report.html> (last visited Mar. 2, 2011). Following release of the National Broadband Plan, called for in the Recovery Act, President Obama commended the plan, saying “America today is on the verge of a broadband-driven Internet era that will unleash innovation, create new jobs and industries, provide consumers with new powerful sources of information, enhance American safety and security, and connect communities in ways that strengthen our democracy.” Press Release, The White House, Statement from the President on the National Broadband Plan (Mar. 16, 2010), <http://www.whitehouse.gov/the-press-office/statement-president-national-broadband-plan>. But see Edward Wyatt, *Court Favors Comcast in FCC “Net Neutrality” Ruling*, N.Y. TIMES, Apr. 7, 2010, at A1 (suggesting the court’s decision in *Comcast Corp. v. F.C.C.*, No. 08-1286658, 2010 WL 08-1291 (D.C. Cir. Apr. 6, 2010) could “raise obstacles to the Obama administration’s effort to increase Americans’ access to high-speed Internet networks” and undermine the F.C.C.’s authority to shift funds in order to provide Internet access in rural areas).

Executive Branch, and state and local officials. Rather than laying out an explicit roadmap for broadband, the plan “describes actions government should take to encourage more private innovation and investment.”⁵⁸ In February 2011, the National Telecommunications and Information Administration (NTIA) and the FCC launched a comprehensive “National Broadband Map” that details areas where broadband is available and identifies future growth areas.⁵⁹ The map aims to “be a valuable tool as [the United States works] to bridge the technological divide, expand economic opportunities, and leverage the power of broadband to address many of the nation’s most pressing challenges.”⁶⁰ Other national efforts to improve infrastructure are also underway, most notably reforming the Universal Service Fund (USF)⁶¹ to ensure that it can continue its historic role of bringing new technologies to rural areas by modernizing USF to support broadband networks, ensure fiscal responsibility, demand accountability, and enact market-driven and incentive-based policies.⁶² Other state and community-based programs have significantly improved access to technology for rural and lower-income Americans.⁶³

⁵⁸ BROADBAND PLAN, *supra* note 7, at Introduction (dividing the plan’s recommended policies and actions into three categories: fostering innovation and competition; redirecting government-influenced assets to spur investment; and including and optimizing the use of broadband to help achieve national priorities).

⁵⁹ NATIONAL BROADBAND MAP, <http://blog.broadband.gov/?entryId=1278226> (last visited Mar. 2, 2011).

⁶⁰ *Id.* Ironically, in the days after the map was released, multiple visitors to the website commented that the page itself contained too much information, making it nearly impossible to load on computers not connected to high-speed broadband. *Id.*

⁶¹ *Universal Service Fund*, UNIVERSAL SERVICE ADMINISTRATIVE COMPANY, <http://www.usac.org/about/universal-service> (last visited Mar. 1, 2011) (describing the Universal Service Fund as a federal institution created in 1997 to improve access to telecommunications and explaining the Fund’s four components targeting high cost of telecommunications, low income consumers, rural health care, and schools and libraries).

⁶² See Press Release, Federal Communications Commission, FCC Proposes Modernizing and Streamlining Universal Service (Feb. 8, 2011), http://www.fcc.gov/Daily_Releases/Daily_Business/2011/db0208/DOC-304522A1.pdf;

see also Matthew Lasar, *Universal Service Fund: Now with Less Incompetence*, ARS TECHNICA, Apr. 2, 2010, <http://arstechnica.com/telecom/news/2010/04/universal-service-fund-now-with-less-incompetence.ars> (“[T]he Universal Service Fund could become a huge engine for the expansion of broadband in the United States.”); Marguerite Reardon, *FCC to Delay National Broadband Report*, CNET NEWS, Jan. 7, 2010, http://news.cnet.com/8301-30686_3-10429084-266.html (“The task force estimates it will cost between \$20 billion and \$350 billion to build new infrastructure and to develop new programs for spreading broadband throughout the country. The bulk of this cost will likely be paid by private industry. But the government must develop policies to encourage new investment.”); see also *Where We Live: Closing the Digital Divide*, Connecticut Public Radio (July 8, 2009), <http://www.cpbn.org/program/where-we-live/episode/wwl-closing-digital-divide> (“[W]e need an intervention [on the magnitude of the Universal Service Fund] to make sure that no one gets left offline. . . . It’s a lot easier than it was to bring rural electrification or to build our interstate highway system or to provide universal free primary education. . . . Our current setup is a tremendous barrier [to spreading broadband access], not that what’s being done is necessarily bad, but what’s being prevented has been horrendous.”).

⁶³ For example, there is widespread approval of Community Wireless Networks that adopt public-private partnership and allow anyone with a computer to access a wireless signal, sometimes at discounted rates or free of charge. See Press Release, Association for the

Although the United States has also integrated promotion of technology access into its foreign policy,⁶⁴ America is not the global leader in providing universal access.⁶⁵ Since the early days of broadband, South Korea invested in infrastructure to connect government facilities and public institutions, and committed to the goal of high-speed Internet in all homes.⁶⁶ While some countries have focused on increasing Internet access generally, other efforts to bridge the Digital Divide cut across all sectors of ICT and take various forms of private efforts, public initiatives, and public-private partnerships.⁶⁷ In Portugal, the government promised to deliver 500,000 specifically designed personal computers to students in primary and secondary schools through its Magellan Initiative,⁶⁸ and then partnered with Microsoft to launch a software “learning suite” and ultimately provide both

Advancement of Science, Community Wireless Networks Could Have “Transformative” Impact, Experts Say (June 5, 2008), <http://www.aaas.org/news/releases/2008/0605wireless.shtml>. Eighteen states have erected significant barriers to community high-speed internet networks, including outright bans in Nebraska, Missouri, Arkansas, and Texas, and *de facto* bans in Pennsylvania, Virginia, and Nevada. See MUNICIPAL NETWORKS & COMMUNITY BROADBAND, COMMUNITY BROADBAND PREEMPTION MAP, <http://www.muninetworks.org/content/community-broadband-preemption-map> (last visited Mar. 2, 2011). The NTIA also launched the State Broadband Data and Development Program that specifically aims to integrate broadband and ICT into state and local economies to promote economic development, energy efficiency, quality education, and comprehensive healthcare. STATE BROADBAND DATA & DEVELOPMENT PROGRAM, <http://www2.ntia.doc.gov/SBDD> (last visited Mar. 2, 2011).

⁶⁴ See, e.g., Internet Freedom, *supra* note 7 (describing the U.S. government’s office to coordinate foreign policy in cyberspace and saying that as the government works with “private sector and foreign governments to deploy the tools of 21st century statecraft, we have to remember our shared responsibility”); Secretary of State Hillary Clinton, Internet Rights and Wrongs: Choices & Challenges in a Networked World (Feb. 15, 2011), <http://www.state.gov/secretary/rm/2011/02/156619.htm> (stating that Internet policy—strengthening cyber security, promoting online innovation, building technological capacity in developing countries, championing open and interoperable Internet standards, and enhancing international cooperation to respond to cyber threats—is a “foreign policy priority for us, one that will only increase in importance in the coming years”); Christina Bellantoni, *State Department Technology Adviser: ‘Connectedness’ is Key in Efforts Abroad*, TALKING POINTS MEMO (Dec. 8, 2009 12:44 PM), <http://tpmdc.talkingpointsmemo.com/2009/12/state-department-technology-adviser-connectedness-is-key-in-efforts-abroad.php> (discussing the U.S. State Department’s role in spreading social networking around the world and promoting other technologies, including mobile banking).

⁶⁵ See Chiehyu Li & James Losey, *100 Megabits or Bust!*, NEW AMERICA FOUNDATION, Sept. 16, 2009, http://www.newamerica.net/publications/policy/100_megabits_or_bust (citing Taiwan, Japan, and South Korea as the earliest adopters of national broadband plans, and extracting lessons from six countries with comprehensive plans for universal access).

⁶⁶ See John Borland & Michael Kanellos, *South Korea Leads the Way*, CNET NEWS, July 28, 2004, http://news.cnet.com/South-Korea-leads-the-way/2009-1034_3-5261393.html; Mark McDonald, *Home Internet May Get Even Faster in South Korea*, N.Y. TIMES, Feb. 22, 2011, at B3.

⁶⁷ See generally *supra* note 19 and accompanying text.

⁶⁸ See Austin Modine, *Intel Feeds Portuguese 500,000 Classmate Laptops*, THE REGISTER, July 30, 2008, http://www.theregister.co.uk/2008/07/30/intel_classmate_pc_deal_portugal; Ryan Paul, *Portugal’s 500K Classmate PC Order a Nail in OLPC Coffin*, ARS TECHNICA, July 30, 2008, <http://arstechnica.com/hardware/news/2008/07/portugals-500k-classmate-pc-order-a-nail-in-olpc-coffin>.

hardware and software in one low-cost, mobile package.⁶⁹ Venezuela considered the Portugal program as a model for future development.⁷⁰

Brazil's comprehensive approach to improving access to technology in the nation's most impoverished areas also served as a model for other countries.⁷¹ Beginning in 2003, Brazilian President Luiz Inácio Lula da Silva embraced the free software movement for government purposes as a vehicle to improve access to technology without bankrupting the national treasury.⁷² The country also launched PC Conectado, a project that utilizes open-source software to allow low-income Brazilians to purchase their first home computers.⁷³ The program is having a dramatic impact, reshaping business opportunities and community institutions.⁷⁴ The Brazilian government also runs thousands of Telecentros, free public computer labs that rely on open-source software, across the country. The government uses the Telecentros to host training

⁶⁹ See David Nagel, *Microsoft Launches Learning Suite for Magellan Initiative*, THE JOURNAL, Oct. 13, 2008, <http://thejournal.com/articles/2008/10/13/microsoft-launches-learning-suite-for-magellan-initiative.aspx>; Fact Sheet:Magellan Initiative, MICROSOFT (Mar. 2009), <http://download.microsoft.com/download/C/F/B/CFB807DD-D37B-4658-9A56-14D779A80347/Magellan%20Project%20Backgrounder.docx>.

⁷⁰ See Reuters, *Classmate PC Derivative Rolls Out in Portugal*, PC Magazine, Sept. 23, 2008, <http://www.pcmag.com/article2/0,2817,2330972,00.asp>.

⁷¹ See Isabela Fernandes, *Cuba Will Be the First to Formally Replicate Brazil's Free Software Model*, Free Software in Latin America (Mar. 5, 2009 12:12 PM), <http://news.northxsouth.com/2009/03/05/cuba-first-country-replicate-brazil-model> (describing Cuba as the first country to receive implementation assistance as a result of Brazil's Software Público, a program created through the Collaborative Network for Free and open Software Latin American and Carib, an initiative of the United Nations Development Program and Federal University of Minas Gerais in Brazil).

⁷² See *Day to Day: Brazil Switches from Microsoft to 'Open Source' Software*, National Public Radio (Sept. 15, 2004), <http://www.npr.org/templates/story/story.php?storyId=3919175> (quoting Ricardo Bimbo, who runs the government's alternative software program, as saying Brazil cannot afford Windows, and that the use of open-source software saves the government two billion dollars a year in licenses and royalties); see also Todd Benson, *Brazil: Free Software's Biggest and Best Friend*, N.Y. TIMES, Mar. 29, 2005, at C1 (saying Brazilian government offices switched from Microsoft to open-source software for official purposes and required companies receiving government funds to offer open-source licenses).

⁷³ See Ericco Guizzo, *In Brazil, It's PC to the People*, IEEE SPECTRUM, June 2005, <http://www.spectrum.ieee.org/computing/hardware/in-brazil-its-pcs-to-the-people> (describing the discrepancy in perspectives on open source software between Brazilian President Luiz Inácio Lula da Silva and Microsoft co-founder Bill Gates, as well as citing the PC Conectado goal to sell 1 million low-cost computers in 2005); see also Benson, *supra* note 72 (explaining the role of tax incentives and installment plans in the PC Conectado program); Admin, *Open Source vs. Microsoft: In Brazil, It's No Contest*, INFO. WEEK, Mar. 25, 2005, <http://www.informationweek.com> (search "PC Conectado") (illustrating the potential for PC Conectado to reach 10 million households).

⁷⁴ See Ronaldo Lemos & Paula Martini, *LAN Houses: A New Wave of Digital Inclusion in Brazil*, PUBLIUS PROJECT, Sept. 21, 2009, http://publius.cc/lan_houses_new_wave_digital_inclusion_brazil/091509 (describing private houses that offer internet access as a "side effect" of the program, which led to "an entrepreneurship fever, in which small-time entrepreneurs would buy a handful of computers, and open a shop for people to play games. Soon, they would contract a broadband connection, and resell it through their computers, in both cases charging by the hour").

programs for employees and any community members.⁷⁵ The government-organized Public Software initiative provides a catalog of free software developed by the government and companies in the private sector.⁷⁶

Brazil has also adopted the public-private model to offer a variety of software programs and training initiatives at low or no cost. Beginning in 2004, the government, in partnership with Microsoft, trained 11,000 school managers in São Paulo and 35,000 in nine Brazilian states through the Information and Communication Technology (ICT) Leadership Training Program.⁷⁷ In 2008, São Paulo announced an alliance with Microsoft to promote public education and information technology by offering enhanced technologies to students and teachers.⁷⁸ The program also included a distance learning component and free computer training for the labor market.⁷⁹ Microsoft offered its low-cost Windows “Starter Edition” in Brazil beginning in 2005.⁸⁰

C. *International Solutions*

International institutions began developing international solutions to the Digital Divide in 2003, when world leaders met in Geneva for the first phase of the World Summit on the Information Society (WSIS).⁸¹ The underlying theme of the entire summit was that any development of an information society must conform to a human rights framework and comply with standards laid down in the UN Charter and the Universal Declaration of Human Rights.⁸² The Declaration of Principles adopted at the

⁷⁵ See Isabela Fernandes, *Brazil is Aggressively Expanding their Telecentro Program, Community Free Software Workshops, and Technology Education*, Free Software in Latin America (May 18, 2009 4:03 PM), <http://news.northxsouth.com/2009/05/18/brazil-is-aggressively-expanding-their-telecentro-program-community-free-software-workshops-and-technology-education> (citing 3,514 attendees at a Belém, Pará training).

⁷⁶ See Isabela Fernandes, *Public Software: A Model for Latin America*, Free Software in Latin America (Aug. 7, 2009 10:37 AM) <http://news.northxsouth.com/2009/08/07/public-software-a-model-for-latin-america>.

⁷⁷ See MICROSOFT, CASE STUDY: USING TECHNOLOGY TO IMPROVE SCHOOL MANAGEMENT IN BRAZIL'S SCHOOLS (July 2006), http://www.microsoft.com/education/pil/RR_southAmerica.aspx (Follow the link for “Pontifical Catholic University of São Paulo (ICT Skills in Teaching and Learning).

⁷⁸ See Newsroom, *Microsoft Offers Free Computer Training and Email to 5.5 Million Brazilians*, BRAZZIL MAGAZINE, Oct. 16, 2008, <http://brazzilmag.com> (search “Microsoft Offers” and select first result).

⁷⁹ See *id.*

⁸⁰ See Ina Fried, *Microsoft to Expand Low-Cost Windows to Brazil*, CNET, Apr. 12, 2005, http://news.cnet.com/Microsoft-to-expand-low-cost-windows-to-Brazil/2100-1016_3-5663025.html (Brazil joined Malaysia, Indonesia, Thailand, India, and Russia where Microsoft Windows Starter Edition was either already available or planning was underway to make it available).

⁸¹ World Summit on the Information Society, Dec. 12, 2003, *Declaration of Principles*, WSIS-03 [hereinafter *WSIS Declaration*].

⁸² See Rikke Frank Jorgensen, *Information and Communication Technologies as Human Rights*

conference paid homage to the theme by calling for “concrete international approaches”⁸³ and reaffirming the significant role ICT plays in eradicating poverty and promoting sustainable development, but also laid out another key commitment of the parties—to protect intellectual property.⁸⁴

Three years later, the WSIS portrayed a desperate picture at a meeting in Tunis: “We recognize that access to information . . . contributes significantly to strengthening economic, social and cultural development This process can be enhanced by removing barriers to universal, ubiquitous, equitable and affordable access . . . particularly those that hinder the full achievement of the economic, social and cultural development of . . . developing countries.”⁸⁵

One of the “concrete international approaches” endorsed in 2003 was the creation of an “international voluntary ‘Digital Solidarity Fund,’” known as the Global Digital Solidarity Fund (GDSF), aimed at addressing the Digital Divide.⁸⁶ While the GDSF utilizes public-private investments and seeks to capitalize on the philanthropic interest,⁸⁷ the fund does not provide a sustainable or broad-reaching mechanism.

Similarly, the World Intellectual Property Organization (WIPO) has sought to protect intellectual property while developing sustainable solutions to access disparities through its work.⁸⁸ Although the organization’s Development Agenda addresses both goals throughout, the two issues are most directly connected in the final recommendation “[t]o approach intellectual property enforcement in the context of broader societal interests and development concerns.”⁸⁹ Since its founding, the Development Agenda has spawned various projects aimed at the dual goals through its aptly named Committee on Development and Intellectual Property.⁹⁰

Enablers, Open Society Institute EU Map, June 1, 2004, http://www.soros.org/resources/articles_publications/articles/human-rights-information-technology-20040601/human-rights-information-technology-20040601.pdf.

⁸³ WSIS Declaration, *supra* note 81, at ¶ 61.

⁸⁴ *Id.* at ¶ 42-43.

⁸⁵ World Summit on the Information Society, Nov. 18, 2005, *Tunis Commitment*, ¶ 10, WSIS-05.

⁸⁶ WSIS Declaration, *supra* note 81, at ¶ 61.

⁸⁷ See *The 1% Principle*, GLOBAL DIGITAL SOLIDARITY FUND, <http://www.dsfn.org/cms/content/view/39/73/lang.en> (last visited Mar. 8, 2011).

⁸⁸ World Intellectual Property Organization (WIPO), Advisory Committee on Enforcement, Draft Conclusions by the Chair, WIPO/ACE/5/11, ¶4 (Nov. 4, 2009), <http://www.ip-watch.org/weblog/wp-content/uploads/2009/11/ace-nov09-chairs-draft-conclusions.pdf> [hereinafter WIPO].

⁸⁹ WIPO, *The 45 Adopted Recommendations under the WIPO Development Agenda*, ¶ 45 (2007), <http://www.wipo.int/ip-development/en/agenda/recommendations.html> [hereinafter *Recommendations*]; see also *infra* Part IV.B: Benefits & Incentives.

⁹⁰ See generally WIPO, *Overview of the Development Agenda*, <http://www.wipo.int/ip-development/en/agenda/overview.html> (last visited Mar. 3, 2011).

The United Nations and other inter-governmental and regional organizations have prioritized eliminating the Digital Divide,⁹¹ and have come together around other technology policy issues.⁹² On a grassroots level, countless communities develop strategies to address the Digital Divide, but the programs are largely unsustainable and ultimately fade. More than a decade ago, volunteer outreach initiatives, modeled on the U.S. Peace Corps program, began deploying “high-tech volunteers” to the developing world, but by 2010 the U.S. State Department’s Global Technology Corps was defunct.⁹³

D. Market-Driven Industry Initiatives

Private industry leaders in the technology sector have launched targeted initiatives aimed at bridging the Digital Divide. Among its philanthropic programs,⁹⁴ Microsoft has launched a number of initiatives the company claims promote access to technology, including DreamSpark, a program aimed at advancing the technical, design, math, science, and engineering skills of high school and university students, and BizSpark, a suite of tools designed to help startup companies.⁹⁵

Hewlett-Packard (HP), the only major technology company to formally partner with the GDSF,⁹⁶ has been influential in efforts

⁹¹ See, e.g., Committee on Development Information, Science and Technology, <http://www.uneca.org/codist> (last visited March. 8, 2011) (stating the goal to “formulate policies and strategies to address Africa’s development challenges and determine priorities to be reflected in the work programme of the ICT, Science and Technology Division of [the Economic Commission for Africa]”).

⁹² See *Frequently Asked Questions*, GLOBAL NETWORK INITIATIVE, <http://www.globalnetworkinitiative.org/faq> (last visited Mar. 3, 2011).

⁹³ See Shaila Dewan, *Geeks, Proud of the Name, Start a Volunteer Corps*, N.Y. TIMES, Oct. 19, 2005, at G7 (describing early high-tech volunteer efforts including privately funded initiatives GeekCorps and Net Corps America, U.N. programs, and the State Department’s Global Technology Corps—no longer in existence in 2010).

⁹⁴ See discussion *supra* Part II.A: Philanthropic Efforts.

⁹⁵ See Press Release, Microsoft Corp., *Microsoft Helps Prepare Global Workforce with Skills to Promote Economic Development* (Mar. 26, 2009), <http://www.microsoft.com/presspass/press/2009/mar09/03-26GLFDay2PR.mspx>. Some critics claim Microsoft’s efforts to increase technology access are actually aimed at solidifying the company’s customer base in the developing world. See generally, Benson, *supra* note 72 (“For this program to be viable, it has to be with free software,” said Sérgio Amadeu, president of Brazil’s National Institute of Information Technology, the agency that oversees the government’s technology initiatives. “We’re not going to spend taxpayers’ money on a program so that Microsoft can further consolidate its monopoly. It’s the government’s responsibility to ensure that there is competition, and that means giving alternative software platforms a chance to prosper.”); Free Software in Latin America, *supra* note 75 (“Meanwhile, in the United States, Microsoft continues to bribe politicians into ignoring free software, we have sub-quality public technology education for students, absolutely no technology education available for the community-at-large except what unfunded user groups can provide”); *Day to Day: Brazil Switches from Microsoft to ‘Open Source’ Software*, *supra* note 72 (“[T]he government’s chief of software gave an interview in which he accused Microsoft of using the tactics of a drug pusher. The way he sees it the company’s offer to donate Windows to poor communities is just a ploy to hook them on Microsoft products.”).

⁹⁶ See *Our Partners*, GLOBAL DIGITAL SOLIDARITY FUND, <http://www.ds-f>

to expand access to technology, appearing before the UN⁹⁷ and other international institutions. HP also made a multi-year, multi-million dollar investment of products, services, and consulting in targeted “Digital Villages” where it aims to integrate and promote technology in local communities.⁹⁸

Since its inception in 1998, Internet-giant Google has promoted its “do no evil” tagline and repeatedly discussed making information more accessible to all people. The Google corporate philosophy “ten points” includes a commitment to “facilitate access to information for the entire world, and in every language.”⁹⁹ Google’s charitable arm, the Google Foundation, endorses improved access to information as a tool to promote citizen engagement and address education and health.¹⁰⁰ Google has also partnered with non-profit organizations to provide free wireless broadband access to low-income students and their families in Washington, D.C.¹⁰¹ and developed a plan to build ultra-high speed broadband networks in targeted communities to “help make Internet access better, and faster for everyone.”¹⁰² Civil rights leaders have touted one of Google’s most recent and most

fsn.org/cms/content/view/20/54/lang.en (last visited Mar. 3, 2011).

⁹⁷ See News Release, Hewlett-Packard, HP Showcases Efforts to Bridge ‘Digital Divide’ at UN Summit (Jan.–Mar. 2004), http://www.hpl.hp.com/news/2004/jan-mar/UN_Summit.html?jumpid=reg_R1002_USEN.

⁹⁸ News Release, Hewlett-Packard, HP Pioneers New Approach to Social Venture Philanthropy (Feb. 14, 2001), <http://www.hp.com/hpinfo/newsroom/press/2001/010214a.html> (describing one of the “Digital Villages” initiatives as connecting seventeen Native American tribes in Southern California with wireless access. HP has also invested in seemingly unrelated initiatives, such as microfinance programs. Unlike Microsoft, HP has publicly admitted that it hopes its grants will enable recipients to become HP consumers. See Susan E. Reed, *Technology Companies Take Hope in Charity*, N.Y. TIMES, Mar. 23, 2003, at Sec. 3, 5 (“We certainly have sales opportunities within the microfinance industry, but the other motivation is to really catalyze more economic development in these areas, which just grows markets in general.”) (quoting Debra L. Dunn, the senior HP executive in charge of philanthropy).

⁹⁹ *Our Philosophy*, GOOGLE CORP., <http://www.google.com/corporate/tenthings.html> (last visited Mar. 8, 2011).

¹⁰⁰ See *Inform and Empower to Improve Public Services*, GOOGLE.ORG, <http://www.google.org/inform.html> (last visited Mar. 8, 2011) (“We will use multiple modes of communication (such as media, mobile, e-kiosks and other technologies) to allow a broader range of people to access information and we will seek innovate methods for disseminating information.”).

¹⁰¹ See Mike Panetta, *Google and Other Companies to Give DC’s Low-Income Families Free Wireless Broadband*, Dec. 9, 2009, <http://www.mikepanetta.com/2009/12/google-and-other-companies-to-give-dc%E2%80%99s-low-income-families-free-wireless-broadband>.

¹⁰² *Google Fiber for Communities: Project Overview*, GOOGLE, <http://www.google.com/appserve/fiberrfi/public/overview> (last visited Mar. 8, 2011) (saying universal, ultra high-speed Internet access will make it possible to “sit[] in a rural health clinic, streaming three dimensional medical imaging over the web [o]r collaborat[e] with classmates around the world while watching live 3D video of a university lecture”). See also Nate Anderson, *Google Fiber Losers, Unite! (and then Build Your Own Network)*, ARS TECHNICA, Apr. 6, 2010, <http://arstechnica.com/tech-policy/news/2010/04/google-fiber-losers-unite-and-then-build-your-own-network.ars> (suggesting that communities band together to share best practices on building high-speed broadband networks).

controversial initiatives, Google Books, for its potential impact on underserved communities, including bolstering public libraries and providing low-income individuals with access to hundreds of books that would be otherwise unavailable.¹⁰³

III. THE PROBLEMS

Despite widespread efforts to improve access and craft solutions to the Digital Divide, systemic problems, including the disparate nature of the programs and funding instability, hinder existing initiatives and threaten their long-term success.

A. Cost

Although technology prices drop each year, the cost disparity of certain ICTs between the developed world, especially the United States, and the developing world is still extreme.¹⁰⁴ The high cost of basic technologies ensures that they are out of reach for most low-income individuals, resulting in limited access and a widespread, cyclical problem. In China, even though Microsoft, acknowledging the gap between cost and income, agreed to slash prices, most software is still priced beyond an affordable level for average people.¹⁰⁵

¹⁰³ See Tom Krazit, *Advocates: Google Books can Bridge Digital Divide*, CNET, Sept. 3, 2009, http://news.cnet.com/8301-30684_3-10344818-265.html; Posting of Johanna Shelton to Google Public Policy Blog, <http://googlepublicpolicy.blogspot.com/2009/07/civil-rights-leaders-call-for-equal.html> (July 31, 2009). But see Posting of Jef Pearlman to Public Knowledge Policy Blog, <http://www.publicknowledge.org/node/2631> (Sept. 10, 2009) (“We want online access to all books for everyone. . . . But access through a single party is not true access.”).

¹⁰⁴ According to a 2007 World Bank report, certain technologies cost as much as forty times more in parts of Eastern and Southern Africa as in the United States. Regional Communications Infrastructure Program, *Program Appraisal Document*, 10, Report No. 38890 – AFR (Mar. 5, 2007), http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2007/06/13/000112742_20070613104352/Rendered/PDF/388900v10IDA1R20071005511.pdf (“[Eastern and Southern Africa] currently relies mostly on expensive and poor quality satellite infrastructure with costs amongst the highest in the world: international wholesale bandwidth prices are 20 to 40 times higher than those in the United States, international calls are on average 10 to 20 times that of other developing countries and dial-up Internet monthly access prices range from 1 to 10 times the monthly GNI per capita in 14 [of the region’s] countries.”); see also Press Release, World Bank, World Bank Approves US \$151 Million to Extend Affordable Communications Services to Malawi, Mozambique and Tanzania (June 25, 2009), <http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:22228055~pagePK:64257043~piPK:437376~theSitePK:4607,00.html> (“Despite considerable development in the information and communication technology (ICT) sector in Africa over the last ten years, the region has the world’s lowest telephone and Internet user penetration and highest costs.”).

¹⁰⁵ See Reuters, *Software Pirates in China Beat Microsoft to the Punch*, N.Y. TIMES, Oct. 19, 2009 (“‘The big issue that is driving piracy in China today is price,’ said Matthew Cheung, an analyst at the research firm Gartner. ‘If you’re trying to sell a program that costs 2,000 yuan to a student living on 400 yuan a month, that’s simply not going to work out for most consumers.’ In a nod to such pressures, Microsoft cut the price of its Office 2007 Home and Student Edition to 199 yuan last year from 699 yuan.”).

B. Piracy and Intellectual Property Violations

Pirated software and other intellectual property violations cause billions of dollars in losses,¹⁰⁶ result in unemployment, and undermine the value of independent creation throughout the United States and around the world,¹⁰⁷ particularly throughout the developing world. According to a recent report by the Business Software Alliance, forty-one percent of personal computers around the world contain pirated or unlicensed software,¹⁰⁸ but the study shows that piracy rates are generally highest in less developed regions of the world.¹⁰⁹

The high cost of ICT puts certain technologies out of reach for many low income individuals in developed nations and the majority of the population the developing world. Without affordable access options, people face a choice between foregoing the technology altogether or accessing the technology, but in violation of intellectual property rights. As a result, piracy is rampant, despite efforts to make technologies more affordable for average people.¹¹⁰ After intellectual property violations became a source of tension between China and its trading partners, the national government began cracking down on piracy.¹¹¹ But while government enforcement and software makers' price cuts have reduced piracy rates in China, most technology is still out of reach for the majority of the population, and the nation is still among the worst violators of intellectual property rights.¹¹²

C. Structural Issues

In the last decade, NGOs, governments, foundations, and international institutions have proposed thousands of projects aimed at bridging the gap in digital literacy. Unfortunately, the broad range of interests led to piecemeal proposals and, without a

¹⁰⁶ See BUS. SOFTWARE ASSOC., SIXTH ANNUAL BSA-IDC GLOBAL SOFTWARE 08 PIRACY STUDY 7 (2009), <http://global.bsa.org/globalpiracy2008/studies/globalpiracy2008.pdf> (saying pirated software caused losses of more than \$50 billion in 2008).

¹⁰⁷ See, e.g., BUS. SOFTWARE ASSOC., PIRACY REDUCTION IMPACT STUDY (2008-2011), http://www.bsa.org/upload/idc-findings_summary.pdf; SIXTH ANNUAL BSA-IDC GLOBAL SOFTWARE 08 PIRACY STUDY, *supra* note 106, at 8.

¹⁰⁸ *Id.* at 5.

¹⁰⁹ *Id.* (citing statistics from the Sixth Annual BSA-IDC Global Software Piracy Study that tracked piracy rates in the less developed regions of Asia-Pacific (61%), Central/Eastern Europe (66%), Latin America (65%), and Middle East/Africa (59%) at rates of nearly double of rates in Western Europe (33%) and the European Union (35%). North America had the lowest rate of pirated software in the world at (21%).

¹¹⁰ See Reuters, *supra* note 105 (citing Microsoft's decision to cut prices for student and basic versions of software in order to improve affordability).

¹¹¹ See *id.* ("Violation of intellectual property rights has been a sore spot in China's relations with its major trading partners, even as it has cracked down on rampant piracy of everything from Gucci bags to software.")

¹¹² See BUS. SOFTWARE ASSOC., *supra* note 106, at 5 (listing China's 2008 piracy rate at 80%).

governing body to coordinate initiatives, some have floundered completely while others duplicate existing efforts.

The WIPO Development Agenda Recommendations¹¹³ has provided some guidelines and structure, but progress has largely focused on advancing principles, and international agreements have led to limited advances in delivering technologies to the developing world. WIPO's public-private partnership, the GDSF, could potentially provide a significant financial base, but limited incentives for companies to participate lead to relatively few corporate partners, who are far outnumbered by NGOs.¹¹⁴ Since the GDSF's structure does not distinguish between corporate and public interest partners, the institution is not able to capitalize on each organizations' strengths or effectively utilize its most effective resources. The incentives for national governments to join the GDSF are similarly weak, and since the institution's inception in 2005, only one country, Senegal, has taken steps to officially become a partner.¹¹⁵

D. *Philanthropic Instability*

Despite significant attention, stable funding remains a challenge. Although some public funding initiatives do provide significant resources to promote technological access for traditionally underserved communities in the United States¹¹⁶ and abroad, many projects are entirely supported by private funds, making them susceptible to shifting priorities and economic influences. Major American foundations¹¹⁷ have provided millions of dollars to technology initiatives domestically¹¹⁸ and abroad,¹¹⁹ while technology foundations have launched a series of initiatives

¹¹³ *Recommendations, supra* note 89.

¹¹⁴ GLOBAL DIGITAL SOLIDARITY FUND, *supra* note 96.

¹¹⁵ See Amadou Top, *Voluntary Contribution to the Digital Solidarity Fund: Better Late than Never...*, GLOBAL DIGITAL SOLIDARITY FUND, <http://www.dsfsn.org/cms/content/view/321/lang,en>.

¹¹⁶ See American Recovery and Reinvestment Act of 2009, 47 U.S.C. § 1305 (2009).

¹¹⁷ See *Libraries, BILL & MELINDA GATES FOUND.*, <http://www.gatesfoundation.org/topics/Pages/libraries.aspx> (last visited Mar. 8, 2011) (saying the Gates Foundation Libraries initiative provides funding for internet access domestically and overseas, and describing the internet as a tool that "enables people to participate more fully in . . . their communities and make meaningful contributions to society"); see also MICROSOFT, CASE STUDIES, <http://www.microsoft.com/casestudies> (last visited Mar. 8, 2011) (describing corporate social responsibility and philanthropic models).

¹¹⁸ See Press Release, AT&T, AT&T Provides Ivy Tech with Nearly \$40,000 to Increase Technology Access for Low-Income Students (Sept. 25, 2007), <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=24429> (announcing funding of a computer lab in a low-income area in Indiana).

¹¹⁹ See Blog Post, google.org blog, Google SMS to serve needs of poor in Uganda (June 29, 2009) <http://blog.google.org/2009/06/google-sms-to-serve-needs-of-poor-in.html> (launching a collaboration between Google, MTN Uganda, and the Grameen Foundation to provide mobile applications to address the needs of vulnerable populations throughout Uganda).

aimed at improving access. The United Nations Foundation, in partnership with a host of technology organizations and foundations, has launched a comprehensive mobile technology initiative aimed at providing tools to improve health data, connect humanitarian efforts, and develop a basic communications infrastructure.¹²⁰

Although major foundations provide a somewhat stable funding source, charitable gifts generally have fallen dramatically during the global economic downturn. Following record levels of charitable giving in America in 2007, two-thirds of charities saw a decline in giving and total contributions dropped by two percent in 2008,¹²¹ the most drastic decline in charitable giving in more than a half-century.¹²² International organizations saw a similar trend with donors, although a smaller percentage, forty-eight percent, reported a decrease in donations than the previous year.¹²³

Other concerns plague the philanthropic system. In a society with twenty-four-hour news cycles and global networks, individual interests and priorities shift without warning, making long-term planning challenging and undermining any confidence an organization might have in its budget.¹²⁴ In response to unpredictable giving and financial instability, organizations are forced to cut back on programs, reassess priorities, and expend more resources on fundraising.¹²⁵

E. *Competition, Not Collaboration*

Competition has also hindered efforts to promote increased access to technology, the most prominent example being the

¹²⁰ *Mobile Technology*, UNITED NATIONS FOUND., <http://www.unfoundation.org/our-solutions/mobile-technology> (last visited Mar. 8, 2011).

¹²¹ See Press Release, Giving USA Found., U.S. Charitable Giving Estimated to be \$307.65 billion in 2008 (June 10, 2009), http://www.givingusa.org/press_releases/gusa/GivingReaches300billion.pdf; see also Tom Watkins, *Charities see donations drop as need spikes*, CNNMONEY (Feb. 13, 2009), http://money.cnn.com/2009/02/13/news/economy/charity_donations/?postversion=2009021311 (noting lower charitable giving but an increase in volunteer rates).

¹²² See Paula Wasley, *Charitable Donations Fell by Nearly 6% in 2008, the Sharpest Drop in 53 Years*, THE CHRONICLE OF PHILANTHROPY, June 9, 2009, available at <http://philanthropy.com/news/updates/index.php?id=8510>.

¹²³ See THE MANAGEMENT CENTRE, =MC GLOBAL FUNDRAISING CONFIDENCE REPORT 14 (2009), http://www.managementcentre.co.uk/knowledge_base_get.php/287/mc_global_fundraising_confidence_report_2009.pdf.

¹²⁴ See *All Things Considered: Natural Disasters' Impact on Fundraising*, National Public Radio (Oct. 11, 2005), available at <http://www.npr.org/templates/story/story.php?storyId=4954653&ps=rs> (discussing a drop in charitable giving to non-relief organizations after Hurricanes Katrina and Rita, as donors redirected their giving to relief efforts).

¹²⁵ See *How Different Types of Charitable Causes are Fairing in the Downturn*, 21 *Chronicle of Philanthropy*, No. 17, 33 (June 18, 2009).

tension between two high profile efforts to deliver laptops to children in the developing world: One Laptop Per Child (OLPC) and Intel's Classmate PC. When OLPC launched, with not-for-profit status in 2006, it aimed to connect partners in the effort "to empower the children of developing countries to learn by providing one connected laptop to every school-age child."¹²⁶ But when Intel launched its for-profit version of a low-cost laptop designed "to connect people to a world of opportunity by driving adoption of technology in education,"¹²⁷ OLPC founder Nicholas Negroponte felt Intel's effort undermined the OLPC mission. Negroponte said Intel should be "ashamed of itself," and accused the company of trying to drive OLPC out of the market and hurting his mission to deliver millions of laptops to children in the developing world.¹²⁸

Intel denied the accusations, said it was simply trying to achieve its own similar mission, and said it saw opportunities for collaboration.¹²⁹ Intel went on to join OLPC, while Negroponte continued to press for the end of sales of the Classmate PC.¹³⁰ But within six months, Intel resigned its seat on the OLPC Board.¹³¹ Intel went on to secure a contract with the government of Portugal, a development that was touted in the media as "a nail in OLPC['s] coffin."¹³² Although the competitors have occasionally discussed partnership, the relationship has been largely defined by conflict.¹³³ Rather than build on each other's successes, both organizations, and children in the developing world, have been denied potential benefits.

Beyond the high profile OLPC-Classmate PC example, other philanthropic efforts result in competition between NGOs and corporate philanthropic programs. Even in the absence of direct competition, certain technology programs effectively undermine each other rather than integrate to capitalize on shared resources. Independent education-related tools offer some promise to integrate technology into the classroom,¹³⁴ but without an effective

¹²⁶ OLPC, *supra* note 8.

¹²⁷ *Vision*, CLASSMATE PC, <http://www.classmatepc.com/vision> (last visited Mar. 8, 2011).

¹²⁸ '\$100 Laptop' Sparks War of Words, BBC, May 21, 2007, <http://news.bbc.co.uk/2/hi/technology/6675833.stm>.

¹²⁹ See Lucy Sherriff, *Negroponte Slams Intel over OLPC Competition*, THE REGISTER, May 21, 2007, http://www.theregister.co.uk/2007/05/21/olpc_vs_intel.

¹³⁰ See Modine, *supra* note 68.

¹³¹ See John Oates, *Intel Walks Out of OLPC Project*, THE REGISTER, Jan. 4, 2008, http://www.theregister.co.uk/2008/01/04/olpc_loses_intel.

¹³² Paul, *supra* note 68.

¹³³ See Andy Carvin, *On Order: Half a Million Classmate PCs to Portugal*, PBS TEACHERS, Aug. 1, 2008, http://www.pbs.org/teachers/learning.now/2008/08/on_order_half_a_million_classm.html.

¹³⁴ See, e.g., SMART TECHNOLOGIES, *supra* note 1; LIVESCRIBE, <http://www.livescribe.com> (last visited Mar. 3, 2011).

collaboration strategy, the individual programs cannot meet their full potential.

IV. THE SOLUTION: THE TECHNOLOGY ACCESS FUND

While a host of valuable programs have launched over the last decade aimed at providing broader access to technology, none alone are sufficient. Problems persist, namely the piecemeal character of most potential solutions; the propensity for inefficiency and competition rather than collaboration among actors and solutions; the unsustainable nature of most funding and programmatic options; and the persistent need to protect intellectual property rights and lack of an effective mechanism to do so. The challenge posed by the Digital Divide requires an international solution. An international fund that provides significant participation incentives for non-governmental organizations, technology companies, and governments would provide a venue for collaboration and an oversight mechanism to allow effective advancement of human rights in a framework that protects intellectual property.

The Technology Access Fund (“the Fund”) would adopt a comprehensive model similar to one proposed to address the need for broader access to affordable healthcare and pharmaceuticals.¹³⁵ Like the Health Impact Fund, the Technology Access Fund would employ many of the principles behind venture philanthropy¹³⁶—requiring recipients to provide measurable returns, focusing on long-term commitments to ensure stability, and providing holistic, not just financial, support—as a means to address financial instability, competition, and inefficiency, while protecting intellectual property and improving access and accountability.¹³⁷ The Fund’s purpose, strategy, and structure are discussed in detail below.

A. Membership

The Fund would be governed by “Articles of Agreement” (Articles), drafted at inception and endorsed by all members. Stakeholders from four sectors would comprise the membership of the Fund: non-governmental organizations and international

¹³⁵ See AIDAN HOLLIS & THOMAS POGGE, *THE HEALTH IMPACT FUND: MAKING NEW MEDICINES ACCESSIBLE FOR ALL* (Incentives for Global Health, 2008), available at http://www.yale.edu/macmillan/igh/hif_book.pdf.

¹³⁶ See *High-Engagement Philanthropy: A Bridge to a More Effective Social Sector*, VENTURE PHILANTHROPY PARTNERS (2004), <http://www.vppartners.org/learning/reports/report2004/report2004.pdf>.

¹³⁷ See Fonseca, *supra* note 37 (citing “the need for more holistic policy and implementation approaches” as a critical challenge that must be addressed before digital technologies can meet their potential).

institutions with relevant knowledge, technology companies, technology-producing countries concerned with protecting intellectual property, and countries lacking sufficient technology access that could benefit from the work of the Fund.¹³⁸ The Fund would bridge sectors and bring stakeholders to the same forum.

Membership requirements for the fund would vary by sector, but all members would be required to commit to serve at least a five year term to ensure continued financial viability.¹³⁹ Membership would be subject to renewal following each term. Further, members would agree to resolve conflicts through the Fund's dispute resolution system. Alleged violations of the TRIPS Agreement¹⁴⁰ or other trade rules would be referred to the World Trade Organization (WTO), where rulings are made by a panel and then endorsed or rejected by the WTO's full membership.¹⁴¹ Conflicts on issues unrelated to trade agreements would be settled by the Fund's internal tribunal, with opportunities to appeal in the international arbitration system.

Under the Articles of Agreement, technology companies and non-governmental organizations would be required to pledge low percentages of their annual operating costs to the Fund as annual membership dues.¹⁴² Technology companies would also be required to provide a certain value in production, either through straight donations or subsidized products and services, over the course of their membership. In addition to their membership dues, non-governmental organizations would be required to provide a certain amount of expertise, through in-kind services such as training and research, over the course of their membership.

The Articles would lay out different standards for country membership, which would be measured through the financial contribution of a low percentage of the gross national income,¹⁴³

¹³⁸ Some countries, including the United States, may fall into multiple categories, as countries concerned with the protection of intellectual property and countries that stand to benefit from increased access.

¹³⁹ Cf. Hollis & Pogge, *supra* note 135, at 43 (proposing a twelve year commitment to the Health Access Fund "so that potential innovators have advance notice with regard to the funds that will be available"). In the event that a member became unable to fulfill its membership commitments, it would be subject to sanctions by the WTO.

¹⁴⁰ See Agreement on Trade-Related Aspects of Intellectual Property Rights, *supra* note 15.

¹⁴¹ *Understanding the WTO: Settling Disputes*, WTO, http://www.wto.org/english/thewto_e/whatis_e/tif_e/disp1_e.htm (last visited Mar. 8, 2011). The procedures were adopted during the same session as the language of the TRIPS Agreement as part of the Uruguay Round in 1994. See *Understanding on Rules and Procedures Governing the Settlement of Disputes*, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 2, Legal Instruments — Results of the Uruguay Round, 33 I.L.M. 1125 (1994).

¹⁴² If a company or non-governmental organization declared bankruptcy or became otherwise insolvent by its own national standards, the membership would become void but the institution would be exempt from other penalties.

¹⁴³ Utilizing gross national income (GNI) ensures that contributions are proportionate to

as well as non-monetary commitments. The non-monetary commitments would include adopting a certification process to guarantee that local program recipients require technology assistance and were not just attempting to circumvent higher market prices, and adopting a mechanism to ensure companies that participated in Technology Access Fund projects were able to receive tax deductions for the value of their contributions.¹⁴⁴ By joining the Fund, member countries would commit to abide by international intellectual property standards contained in the TRIPS Agreement¹⁴⁵ and in bilateral and multi-lateral agreements, including those with non-members.

The Articles of Agreement would also provide a mechanism to ensure stability and prevent members from violating commitments. Companies and organizations that violate the Articles would not only lose membership benefits but would face tax consequences or fines in their home countries.¹⁴⁶ Further, the Fund would formally recommend to other international intergovernmental institutions that violating organizations lose any preferred status.¹⁴⁷

Various mechanisms to ensure countries' compliance with dues and other membership duties have been analyzed in the international contexts. Membership responsibilities in the United Nations, including payment of dues, are enforceable by potential of loss of membership benefits and possible sanctions. The United Nations Charter grants the governing body the right to deny a country a vote in the General Assembly in response to delinquent payment of dues.¹⁴⁸ Similarly, The U.N. Security Council has the power to impose economic, diplomatic, or military sanctions in the event it identifies a threat to the peace, breach of the peace, or act of aggression.¹⁴⁹ The United States, along with other member countries, is bound by treaty to pay dues

a nation's ability to pay and fluctuate with the nation's economy. See Hollis & Pogge, *supra* note 135, at 43.

¹⁴⁴ Where a country does not have a comparable tax regime, such nation would be expected to provide companies with benefits equivalent to those granted to companies providing charitable contributions.

¹⁴⁵ See Agreement on Trade-Related Aspects of Intellectual Property Rights, *supra* note 15.

¹⁴⁶ Financial penalties are only applicable if the home country is a member of the Fund. See also *supra* note 142.

¹⁴⁷ For example, the United Nations grants nongovernmental organizations consultative status. See United Nations NGO Branch, <http://esango.un.org/paperless/Web?page=static&content=intro> (last visited Mar. 8, 2011).

¹⁴⁸ U.N. Charter art. 19 ("A Member of the United Nations which is in arrears in the payment of its financial contributions to the Organization shall have no vote in the General Assembly if the amount of its arrears equals or exceeds the amount of the contributions due from it for the preceding two full years. The General Assembly may, nevertheless, permit such a Member to vote if it is satisfied that the failure to pay is due to conditions beyond the control of the Member.").

¹⁴⁹ See U.N. Charter arts. 39, 41.

to the United Nations.¹⁵⁰ Other international rules are “self-enforcing” because “all the actors recognize that it is in their self-interest to comply if they want other actors to comply.”¹⁵¹ Still others adopt “procedures that allow pressure to be brought against governments that do not comply with recognized standards of conduct. Noteworthy in this regard are the ‘mobilization of shame’ and the application of pressure. Several important multilateral treaties . . . require states . . . to report on their compliance.”¹⁵² Other potential mechanisms include “positive compliance” strategies where agencies supply supplemental technical assistance or advice to member countries that lack the necessary resources.¹⁵³ The governing documents of the International Monetary Fund (IMF) and the World Bank include provisions that allow the governing bodies to withhold benefits or suspend membership of delinquent member countries.¹⁵⁴ The recent decision by the Department of Commerce, on behalf of the U.S. government, to enter into an “Affirmation of Commitments” with the Internet Corporation for Assigned Names and Numbers (“ICANN”) provides one example of a commitment without any potential for sanctions or financial consequences.¹⁵⁵

The Technology Access Fund will pull from each relevant enforcement mechanism to develop a comprehensive structure. Like the IMF and the World Bank, the Fund offers “valuable benefits” and can “exert some leverage” by withholding benefits from delinquent members.¹⁵⁶ Similarly to the UN system, members who violate the Articles will be ineligible to vote in proceedings of the full membership or any sub-body. A two-thirds vote of the Executive Committee¹⁵⁷ can waive these restrictions.

¹⁵⁰ See U.N. Charter art. 17, para. 2 (“The expenses of the Organization shall be borne by the Members as apportioned by the General Assembly.”).

¹⁵¹ Frederic L. Kirgis, Jr., *Enforcing International Law*, ASIL Insights, Jan. 1996, <http://www.asil.org/insight1.cfm>.

¹⁵² *Id.*

¹⁵³ *Id.*

¹⁵⁴ See Articles of Agreement of the International Monetary Fund art. XXVI, sec. 2(a); International Bank for Reconstruction and Development Articles of Agreement art. 6, sec. 2-3; see also Kirgis, *supra* note 151 (“[I]f the agency has . . . valuable benefits to distribute . . . , and has the discretion to withhold . . . benefits from uncooperative members, a potentially effective enforcement mechanism is available. The International Monetary Fund and the World Bank are the obvious cases . . . , but other organizations upon which states depend . . . can [also] exert leverage over members’ conduct.”).

¹⁵⁵ The Affirmation of Commitments was a final step in transitioning ICANN from a U.S.-led institution to an independent nonprofit agency, and was endorsed by the Department of Commerce and ICANN to take the place of temporary agreements. The Affirmation restated the U.S. government’s commitment to continued involvement in ICANN’s governance. See Affirmation of Commitments, United States Department of Commerce-Internet Corporation for Assigned Names and Numbers, Sept. 30, 2009, <http://www.icann.org/en/announcements/announcement-30sep09-en.htm>.

¹⁵⁶ See Kirgis, *supra* note 151.

¹⁵⁷ See *infra* Part IV.C: Fund Structure.

Finally, in cases of extreme delinquency, the Fund membership can vote to recommend that individual members voluntarily incorporate sanctions into unrelated bilateral and multi-lateral agreements with the offending country.

B. *Benefits and Incentives*

The Technology Access Fund model would have a number of specific advantages for underserved populations, intellectual property right holders, and the broader community. The Fund would allow underserved populations to access technology that was previously beyond reach and would be a valuable investment for developing nations. Developed nations would also stand to gain by protecting their national interests and the rights of companies headquartered in their borders. Companies seeking to protect their intellectual property rights would receive the benefits of an international organization committed to enforcing those rights, access to an exclusive tribunal, and the potential to impose sanctions or other penalties on violators of intellectual property rights. Companies who join the Fund would be eligible for otherwise unavailable program contracts and financial awards,¹⁵⁸ as well as tax incentives from their home governments.¹⁵⁹ Tangentially, those companies would also be serving as socially responsible members of the corporate community.

The Fund would build on the work of developing nations at WIPO's Advisory Committee on Enforcement meeting in November of 2009, where the developing nations put forth an agenda and promoted discussion of enforcement within the framework of development. The meeting focused in part on the WIPO Development Agenda,¹⁶⁰ which includes Recommendation 45:

[T]o approach intellectual property enforcement in the context of broader societal interests and especially development-oriented concerns, with a view that 'the protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations,' in accordance with Article 7 of the TRIPS

¹⁵⁸ See *infra* Part IV.E: Technology Development and Prizes.

¹⁵⁹ See *supra* note 144 and accompanying text.

¹⁶⁰ See Kaitlin Mara & William New, *IP Enforcement Work at WIPO Gets Boost from Developing Nations*, Intellectual Property Watch, Nov. 6, 2009, <http://www.ip-watch.org/weblog/2009/11/06/ip-enforcement-work-at-wipo-gets-boost-from-developing-nations>; see also WIPO, *supra* note 88 and accompanying text.

Agreement.¹⁶¹

By providing opportunities for companies to collaborate rather than compete and promoting holistic efforts over piecemeal solutions, the Fund would effectuate the type of intellectual property protection envisioned by the WIP Development Agenda.

C. *Fund Structure*

The Technology Access Fund governance would be distributed between the Executive Committee and a number of subsidiary committees, including portfolio projects (technology development, prize), intellectual property protection (certification), conflict resolution, and membership (new members, standards). Each committee would be composed of members from no less than fifteen percent of any given sector, and be led by a chair, elected on a staggered basis, serving a term of five years. The Executive Committee would be composed of the chair of each committee, one member of each sector elected at large to serve a two-year term, and select members of the Technology Access Fund staff.

D. *Portfolio*

In countries where the Digital Divide presents an ongoing problem, the member country itself would identify projects and programs that would benefit from the Technology Access Fund. These initiatives could range from government developed programs, such as bringing broadband internet to all elementary schools, to NGO projects to address an identified need, such as opening a major public computer lab in one of the world's largest slums, or even proposals supported by individuals, such as providing mobile phones to a segment of the population. The national government would maintain discretion to decide whether the initiative would be pitched to the Technology Access Fund committee.

Once a program had been vetted by the originating country, the country would apply, on behalf of the program, to the Portfolio Committee, charged with determining which projects warrant investment. The committee would evaluate the project to determine whether the technology already exists to fulfill the project's goals or if new technologies would need to be developed. In the vast majority of cases, technologies would already exist to address the need – developing computer labs or bringing broadband to schools. In those cases, the Committee would

¹⁶¹ *Recommendations, supra* note 89.

evaluate the projects based on a set of standards including demonstrated need, viability of the project, long-term sustainability, potential for broad impact, and cost per additional individual accessing the targeted technology. After evaluating those standards, projects would be adopted based on a majority vote of the committee.¹⁶²

Once adopted, a project would be shepherded through the rest of the process by a project team, consisting of a representative team, designating by the originating country and including at least one government representative, and a management team from the Technology Access Fund, including a staff member and a committee member. The project team would develop a three-year “business plan” for the project, including measures of accountability and returns on investment. In conjunction with the technology development subcommittee, the project team would identify technological tools already in existence. The group would reach out to relevant companies for bids to complete the project, and award contracts, with priority given to bids from Fund members at the discretion of the project team. The final plan would be subject to approval by a majority of the committee and, after three years, would be automatically renewable for an additional three years upon the approval of a majority of the committee. The project team would be responsible for monitoring day-to-day operations, ensuring advancement of the project, and reporting back to the committee on a periodic basis.

E. *Technology Development and Prizes*

In cases where the technology does not already exist, the Portfolio Committee would refer the project to its Subcommittee on Technology Development to determine whether developing the necessary technology would be feasible. The subcommittee would be empowered to put out a Request for Proposals (RFPs) to Technology Access Fund member companies to bid on a particular contract and submit proposals for addressing a specific technological need. The development subcommittee would also monitor different existing technologies and look for opportunities for collaboration between member companies. In instances where collaboration between member companies may yield effective and efficient results, the subcommittee would develop an individualized plan to connect the companies and allow for collaboration while protecting the trade secrets of each company. The development subcommittee would be responsible for

¹⁶² The Executive Committee would have the power to overturn a Portfolio Committee decision by a two-thirds majority, but the Portfolio Committee could override the decision with the support of three-quarters of its members.

evaluating each bid for practicality, cost effectiveness, efficiency, and ability to meet the needs identified in the RFP. Upon determining that a bid would make the project feasible, the Portfolio Committee would employ the standard procedures for evaluating the project. If the project was approved,¹⁶³ the development subcommittee would grant the contract to the winning bidder and monitor development of the product, in tandem with a project team.

If developing the necessary technology requires significant investment, the Portfolio Committee would refer the project to its Subcommittee on Prizes. In limited cases where the foundation technology does not already exist,¹⁶⁴ the Subcommittee on Prizes would develop criteria and allow Fund member companies to compete to develop the most responsive technologies. Using the prize model long relied on to achieve technological accomplishment,¹⁶⁵ the subcommittee would encourage collaboration by offering prizes to promote technological innovation in a fashion that effectively addresses the needs of the underserved. The winning team or company would receive prize money and would be guaranteed the contract. Following the development of the technology and the initial three-year term of the project, patents for prize-winning technologies would enter a patent pool,¹⁶⁶ with joint rights between the winning company and the Fund. The Fund would be free to license the technology to other members of the Fund for Fund-related initiatives.

F. *Protecting Intellectual Property*

The Intellectual Property Protection Committee would exist solely to ensure that projects endorsed by the Fund respected intellectual property and that all projects incorporated necessary protections and standards. The Committee would seek to ensure that recipients of Technology Access Fund efforts were actually

¹⁶³ Even in the event that new technologies are not approved in the context of a particular project, the research and development exerted in preparation will benefit future initiatives. See Hollis & Pogge, *supra* note 135, at 7.

¹⁶⁴ Delivering internet to regions without stable electricity or developing mobile phones that could be produced and distributed at a price for the lowest income segment of society might be examples of such foundation technologies.

¹⁶⁵ See Eric A. Taub & Leora Broydo Vestel, *A Bright Idea*, N.Y. TIMES, Sept. 25, 2009, at B1 (“[I]t could be worth millions in government prize money—and more in government contracts—to the first company that figures out how to [makeover the highly inefficient 60-watt bulb.]”); Google Lunar XPrize, GOOGLE, <http://www.googlelunarxprize.org/> (last visited Mar. 8, 2011) (“The Google Lunar X PRIZE is a \$30 million competition for the first privately funded team to send a robot to the moon, travel 500 meters and transmit video, images and data back to the Earth.”).

¹⁶⁶ See Press Release, United States Patent and Trademark Office, USTPO Issues White Paper on Patent Pooling (Jan. 19, 2001), <http://www.uspto.gov/news/pr/2001/01-06.jsp> (describing a patent pool as “an agreement between two or more patent owners to license one or more of their patents to one another or third parties”).

organizations or communities in need of the capital and not fraudulent parties seeking low-cost access to intellectual property. In order to make these assurances, the Committee would rely on a Subcommittee on Certification to use a Certification Mark¹⁶⁷ system to designate a recipient as “Seeking Technology Access” (STA) certified based on the ability to meet certain standards. The subcommittee would both certify potential recipients who are being considered and review proactive applications.¹⁶⁸ Members of the Subcommittee would be prohibited from reviewing applications from their own country.¹⁶⁹ These certifications would be valid for five years, renewable after a cursory review by the Subcommittee.

The Intellectual Property Committee would also be responsible for monitoring all projects and ensuring that all members complied with relevant organizational standards and international agreements,¹⁷⁰ as set forth by the Membership Committee. Any violations would be referred to the Conflict Resolution Committee that would maintain a tribunal especially to deal with such situations, as well as the Membership Committee.¹⁷¹

CONCLUSION

Since the late Twentieth Century, the Digital Divide has become one of the most high-profile challenges on the global stage and deep-seated interest from technology providers, human rights activists, education interest groups, policymakers, and countless other sectors of society, has led to sustained investment. Incremental success in individual communities demonstrates the potential for significant global advances. While the billions of dollars already invested has made some impact, the gap in technology access continues to grow. As technology becomes

¹⁶⁷ See WIPO, *Certification Marks*, http://www.wipo.int/sme/en/ip_business/collective_marks/certification_marks.htm (last visited Mar. 6, 2011).

¹⁶⁸ Once designated as STA certified, an applicant would be given a plaque to hang on physical sites and, if applicable, would have access to electronic images of the STA trademark to use on letterhead and promotional materials. See generally, U.S. Green Building Council, *LEED Plaque Guidelines*, <https://www.usgbc.org/ShowFile.aspx?DocumentID=2120>; U.S. Green Building Council, *USGBC Trademark Policy*, <http://www.usgbc.org/ShowFile.aspx?DocumentID=3885>.

¹⁶⁹ For example, a Canadian NGO would not be able to review the application of a Canadian school.

¹⁷⁰ See *supra* Part IV.A: Membership (saying that all members must commit to abiding by the intellectual property standards in all relevant international documents, including the TRIPS Agreement).

¹⁷¹ Enforcement of TRIPS may provide a strong incentive for companies to join the Fund and develop additional technologies. See Hollis & Pogge, *supra* note 135, at 53-54, 66 (describing potential future benefits for low-income individuals of strengthened intellectual property protections and saying the authors believe that [intellectual property rights, as asserted by the Health Impact Fund] would serve important human ends better than any feasible alternative).

more advanced, it will also become more ubiquitous, and what was once the high-tech option will become merely a baseline. Rather than an inadequate or infrequent program, progress requires a comprehensive solution that can incorporate elements from already existing projects, tap into the commitment of organizations and individuals, and build upon early advances to create long-term, systemic change.

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