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## Beyond Wireless *Carterfone*: The Need for Unbundling to Unlock Device Distribution

By Aaron T. Morris

### I. Introduction

The way we buy smartphones (or basic cell phones for those slightly behind the curve) is a curious twist in an electronics market otherwise fueled by a large number of independent retailers offering vast product lines.<sup>1</sup> For example, customers routinely buy laptops, wireless routers, fax machines, and even traditional telephones from large brick and mortar or online retailers.<sup>2</sup> Even though many of these devices require connectivity service—like broadband internet for laptops and wireless routers and wireline telephone service for fax machines and traditional telephone sets—customers buy these devices from retailers unaffiliated with broadband or telephone providers.<sup>3</sup> The purchase of these devices and the connectivity service that will be used in conjunction is usually a separate ordeal.<sup>4</sup>

Wireless devices, on the other hand, are sold in a much more restrictive manner.<sup>5</sup>

Almost every wireless device is sold in connection with connectivity service from a

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<sup>1</sup> See Marguerite Reardon, *Will Unlocked Cell Phones Free Consumers?*, CNet (Jan. 24, 2007), [http://news.cnet.com/Will-unlocked-cell-phones-free-consumers/2100-1039\\_3-615\\_2735.html](http://news.cnet.com/Will-unlocked-cell-phones-free-consumers/2100-1039_3-615_2735.html).

<sup>2</sup> See Reardon, *supra* note 1.

<sup>3</sup> See *id.*

<sup>4</sup> See *id.*

<sup>5</sup> See Rob Frieden, *Hold the Phone: Assessing the Rights of Wireless Handset Owners and Carriers*, 69 U. Pitt. L. Rev. 675, 687 (2008).

wireless carrier.<sup>6</sup> In fact, there are virtually no retailers unaffiliated with a carrier offering devices on a meaningful scale.<sup>7</sup> Moreover, because the wireless market is dominated by four national carriers, device sales are generally limited to four channels.<sup>8</sup>

This distribution structure grants substantial power over the device market to the national carriers and has allowed carriers to limit the number of devices available in the U.S. and stifle innovation in various ways.<sup>9</sup> This Note, in Part II, first explains the factors that allowed the national carriers to seize control over device distribution.<sup>10</sup> Part III then sheds light on the harmful practices that have developed as a result.<sup>11</sup> Part III also examines the FCC's 1968 *Carterfone* decision, which opened the traditional telephone lines to innovation and introduces the more recent call for *Carterfone*-type rules in the wireless.<sup>12</sup>

Part IV argues that the trend among wireless carriers toward open networks has displaced the need for *Carterfone*-type rules which centered around network attachment.<sup>13</sup> Rather, to fashion a regulatory structure that best promotes device innovation, the FCC should focus on opening independent distribution channels free from the influences of the national carriers.<sup>14</sup> Part IV argues that the best way to open these channels is to unbundle device and service contract sales.<sup>15</sup> Doing so will eliminate the biggest impediment to independent retailers—the pricing advantage carriers exercise by

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<sup>6</sup> See *Id.* Ninety-five percent of wireless devices in the U.S. are sold through a wireless carrier. See Reardon, *supra* note 1.

<sup>7</sup> See Frieden, *supra* note 5, at 687.

<sup>8</sup> See *infra* notes 28–51 and accompanying text.

<sup>9</sup> See *infra* notes 144–265 and accompanying text.

<sup>10</sup> See *infra* notes 28–51 and accompanying text.

<sup>11</sup> See *infra* notes 144–265 and accompanying text.

<sup>12</sup> See *infra* notes 249–265 and accompanying text.

<sup>13</sup> See *infra* notes 277–293 and accompanying text.

<sup>14</sup> See *infra* notes 294–345 and accompanying text.

<sup>15</sup> See *infra* notes 294–345 and accompanying text.

bundling below-cost devices with two-year service contracts.<sup>16</sup> Part IV then concludes by offering two pro-consumer benefits of unbundling, beyond facilitating device innovation, and argues that unbundling will neither prohibit carriers from selling devices nor lead to commoditization of the wireless industry.<sup>17</sup>

## II. Cornering Device Distribution: A Three Part Recipe

The United States wireless market, in three principal respects, has developed to discourage device sales by retailers unaffiliated with a wireless carrier.<sup>18</sup> First, the market is heavily consolidated with four national carriers controlling close to ninety percent of wireless customers.<sup>19</sup> Second, the carriers have built out their networks using diverse technical standards that are compatible only for interconnection purposes.<sup>20</sup> Third, bundling devices with service contracts is the industry standard and allows carriers to sell devices below retail prices and make up the loss throughout the contract term.<sup>21</sup>

The national carriers have firmly barricaded themselves between customers and device manufactures resulting in a device market where only five percent of devices are

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<sup>16</sup> See *infra* notes 294–345 and accompanying text.

<sup>17</sup> See *infra* notes 312–360 and accompanying text.

<sup>18</sup> See *infra* notes 28–102 and accompanying text.

<sup>19</sup> Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services, Fourteenth Report, 2010 WL 2020768, \*19 ¶ 30 (F.C.C. May 20, 2010) [hereinafter Fourteenth Annual Report]. At the time of writing, AT&T released its intent to acquire T-Mobile from Deutsche Telekom for thirty-nine billion dollars. See Andrew Ross Sorkin et al., *AT&T to Buy T-Mobile for \$39 Billion*, DealBook (Mar. 20, 2011), <http://dealbook.nytimes.com/2011/03/20/att-to-buy-t-mobile-usa-for-39-billion>. The acquisition, if approved by the Department of Justice and the FCC, would make AT&T the largest wireless carrier with approximately forty-two percent of wireless customers. See *id.* This further consolidation is keenly relevant to this Note, which focuses on role of the national carriers in the device market. See *infra* notes 28–51 and accompanying text. As discussed below, there are currently four channels for device distribution—a merger between AT&T and T-Mobile will reduce this number to three and will allocate even more power to even fewer hands. See *infra* notes 28–51 and accompanying text.

<sup>20</sup> See generally Neil Gandal, et al., *Standards in Wireless Telephone Networks*, 27 *Telecomm'n Policy* 325 (2003) available at <http://www.tau.ac.il/~gandal/telecomstandards.pdf>.

<sup>21</sup> Oren Bar-Gill & Rebecca Stone, *Mobile Misperceptions*, 23 *Harv. J.L. & Tech.* 49, 52 (2009).

sold through non-carrier retailers.<sup>22</sup> Control over a substantial piece of the device market held by each of the national carriers, technical complications arising from diverse technical standards, and pricing advantages gained by subsidizing devices with service contracts have frustrated the development of device distribution channels unaffiliated with a national carrier.<sup>23</sup>

Section A recounts the development and consolidation of the wireless market and explains how the national carriers are able use their market power to control the success of new devices.<sup>24</sup> Section B explains how the wireless industry employs various non-compatible standards that prevent device makers from easily marketing a single product to customers of multiple carriers.<sup>25</sup> Section C explains the wireless industry's practice of bundling device and service contract sales and how the resulting price advantages discourage non-carrier retailers from selling devices.<sup>26</sup> Section D then offers the plight of Google's recent flagship Android device as an example of the three factors at work leading to the device's early demise.<sup>27</sup>

#### **A. Market Power: The Rise of the Nationwide Carriers**

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<sup>22</sup> See Marguerite Reardon, *Unlocking the Unlocked Cell Phone Market*, CNet (July 2, 2009), [http://news.cnet.com/8301-1035\\_3-10277723-94.html?tag=mncol;2n](http://news.cnet.com/8301-1035_3-10277723-94.html?tag=mncol;2n). This Note focuses on carrier control over device distribution and the effect this control has on device innovation, availability and prices. See *infra* notes 144–360 and accompanying notes. It does not address the interesting and related question of whether the carriers' behavior in this regard has antitrust implications—specifically, whether bundling devices with service contracts qualifies as an illegal tying arrangement. See generally Mark DeFeo, *Unlocking the iPhone: How Antitrust Law Can Save Consumers from the Inadequacies of Copyright Law*, 49 B.C. L. Rev. 1037 (2008). At least one commenter has concluded that in a specific context (iPhone sales by AT&T), bundling a device with a service contract may be an illegal tying arrangement under Section 1 of the Sherman Antitrust Act. See generally *id.*

<sup>23</sup> See *infra* notes 28–102 and accompanying text.

<sup>24</sup> See *infra* notes 28–51 and accompanying text.

<sup>25</sup> See *infra* notes 52–75 and accompanying text.

<sup>26</sup> See *infra* notes 76–102 and accompanying text.

<sup>27</sup> See *infra* notes 103–143 and accompanying text.

Each of the four national carriers hold substantial market power in the market for wireless service which, coincidentally, also represents the market for wireless devices.<sup>28</sup> This control over the customer base results in drastic limitations on the available market for device makers where one or more carriers refuse to cooperate in supporting a particular device.<sup>29</sup> The FCC, in first licensing cellular service, envisioned a system of *regional* carriers that interconnected to create a nationwide network—today’s market structure, with four carriers touting nationwide networks and close to ninety percent combined market share, has created concerns not originally anticipated.<sup>30</sup>

In 1974, the FCC took the first steps in fashioning a regulatory environment for early cellular technology by allocating spectrum to one provider per geographic area.<sup>31</sup> Two developmental cellular systems were licensed—one operating in Chicago under a Bell subsidiary and one operated by American Radio Television Service in Washington D.C.<sup>32</sup> In the early 1980’s, the FCC split its original grant into two licenses creating a cellular duopoly—one local wireline carrier and one non-wireline carrier—in each geographic region.<sup>33</sup> By 1986, all the licenses had been handed out and wireless service grew rapidly from 91,000 subscribers in 1984 to over 1 million by 1987.<sup>34</sup>

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<sup>28</sup> See Fourteenth Annual Report, 2010 WL 2020768 at \*19 ¶ 30 tbl. 3 & chart 1.

<sup>29</sup> See *infra* notes 46–51 and accompanying text.

<sup>30</sup> See Fourteenth Annual Report, 2010 WL 2020768 at \*19 ¶ 30 tbl. 3 & chart 1; see generally An Inquiry Into the Use of the Bands 825–845 MHz and 870–890 MHz for Cellular Communications Systems; and Amendment of Parts 2 and 22 of the Commission’s Rules Relative to Cellular Communications Systems, Report and Order, 86 FCC 2d 469 (1981) [hereinafter Cellular Report and Order].

<sup>31</sup> See An Inquiry Relative to the Future Use of the Frequency Band 806-960 MHz; and Amendment of Parts 2, 18, 21, 73, 74, 89, 91, and 93 of the Rules Relative to the Operations in the Land Mobile Service Between 806 and 960 MHz, Second Report and Order, 46 FCC 2d 752, 756 ¶¶12–13 (1974).

<sup>32</sup> Cellular Report and Order, 86 FCC 2d at 473 ¶ 7.

<sup>33</sup> See Bar-Gill & Stone, *supra* note 21, at 61.

<sup>34</sup> See *id.*; Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, First Report, 10 FCC Rcd. 8844, 8874 (1995).

With growth threatening to outstrip capacity by the late 1980's, the FCC began to encourage the development of more efficient technology.<sup>35</sup> In 1994, the FCC allocated a large amount of spectrum for use with more efficient digital technology that opened the door to new uses, like data and text messages, as well as new competitors.<sup>36</sup> By 1996, cellular subscribership hit thirty-five million.<sup>37</sup> AT&T led the pack with approximately fourteen percent market share but several growing competitors were close behind—notably, Sprint PCS, a newcomer entering the market with a license from the 1994 allocation, led the market in terms of digital coverage.<sup>38</sup>

The late 1990's, however, marked a shift toward consolidation.<sup>39</sup> Though new competitors continued to emerge, large wireless companies, striving to establish nationwide footprints, began to buy market share by acquiring regional competitors.<sup>40</sup> In 2002, six nationwide competitors controlled roughly seventy-six percent of the wireless

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<sup>35</sup> Amendment of Parts 2 and 22 of the Commission's Rules to Permit Liberalization of Technology and Auxiliary Service Offerings in the Domestic Public Cellular Radio Telecommunications Service, Report and Order, 3 FCC Rcd. 7033, 7034 ¶¶ 7–10 (1988).

<sup>36</sup> *See Services*, 9 FCC Rcd. 4957, 4959–62 ¶¶ 1–16 (1994) [hereinafter 1994 PCS Order]. The digital technology referred to was Personal Communications Systems (PCS). *See id.* at 4959 ¶ 2. The FCC opened a proceeding in 1989 to address digital PCS which culminated in its 1994 PCS Order allocating a large amount of spectrum for auction to PCS providers. *See id.* at 4961 ¶10. The FCC sought to inject competition into the wireless market by allocating three large spectrum blocks and three smaller blocks for PCS in each geographical region in addition to the two cellular blocks created in the 1980's. *See id.* at 4960 ¶ 5, 4961 ¶ 12

<sup>37</sup> Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services, Second Report, 12 FCC Rcd. 11266, 11336 tbl. 2 (1997).

<sup>38</sup> *See id.* at 11333 chart 2.

<sup>39</sup> *See Bar-Gill & Stone, supra* note 21, at 61–62.

<sup>40</sup> *See id.*



market.<sup>41</sup> By 2006, the number shrunk to four with AT&T, Verizon Wireless, Sprint, and T-Mobile controlling roughly eighty-five percent of the market.<sup>42</sup>

In May of 2010, the FCC released its most recent annual report on wireless market competition in which it concluded that the wireless market had reached maturity with a ninety percent penetration rate and over 277 million wireless users.<sup>43</sup> Market share between the four national carriers had increased to almost ninety percent.<sup>44</sup> For the first time since 2002, the FCC did not explicitly find effective competition among wireless carriers.<sup>45</sup>

Such consolidation in wireless service means that the market for devices is divided into essentially four pieces, each controlled by a national carrier.<sup>46</sup> This structure would have less consequence if devices were interoperable on multiple carriers.<sup>47</sup> As discussed below, however, the development of diverse and incompatible technical standards, device locking, and restrictive device attachment policies has historically limited the prospects of marketing a device to all customers.<sup>48</sup>

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<sup>41</sup> See Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services, Seventh Report, 17 FCC Rcd. 12985, 12989–97, 13094 tbl. 4 (2002). The six national carriers controlled about ninety-eight million of the 128.5 million subscribers. *See id.* at 12989, 13094 tbl. 4.

<sup>42</sup> Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services, Twelfth Report, 23 FCC Rcd. 2241, 2356 tbl. A-1, 2362 tbl. A-4 (2008). The four national carriers controlled about 197 million of the 233 million subscribers. *See id.* at 2356 tbl. A-1, 2362 tbl. A-4. Partially facilitating consolidation was a change in the FCC's approach to the amount of spectrum an individual wireless provider could own. *See Bar-Gill & Stone, supra* note 21, at 62. The cap had originally limited the amount in each geographical area that a single provider could own, but in 2001, the FCC decided to abolish the cap completely facilitating several buy-outs within the industry throughout the 2000's. *See Id.*

<sup>43</sup> Fourteenth Annual Report, 2010 WL 2020768 at \*2 ¶ 4, \*4.

<sup>44</sup> *See Id.* at \*19 ¶ 30 tbl. 3, chart 1.

<sup>45</sup> John Poirier, *U.S. Fails to Describe Wireless Industry as Competitive*, Reuters (May 20, 2010), <http://www.reuters.com/article/idUSTRE64J4P820100520>.

<sup>46</sup> *See* Fourteenth Annual Report, 2010 WL 2020768 at \*18–19 ¶¶ 27, 30 (as mentioned above, a successful acquisition of T-Mobile by AT&T would mean that the number of device distribution channels would be reduced to three); *See supra* note 19 and accompanying text.

<sup>47</sup> *See* Reardon, *supra* note 1.

<sup>48</sup> *See infra* notes 52–75 and accompanying text.

Moreover, because carriers control the terms on which device makers may reach customers, device makers generally must negotiate with the carriers to obtain adoption on their networks.<sup>49</sup> Thus, device makers must choose some combination of the four available distribution channels when marketing a new device—the chosen combination (e.g. AT&T and T-Mobile but not Sprint or Verizon) will directly affect the size of the market available to the new device.<sup>50</sup> On the flip side, if no support is garnered from the carriers for a new device offering, as discussed below, virtually no alternative distribution channel exists.<sup>51</sup>

## **B. Employment of Diverse Technical Standards**

Consolidation in the wireless service market has divided the vast majority of customers into four groups.<sup>52</sup> This market structure alone, however, has not fractionized the device market any more than the market for desk lamps is fractionized between customers of different power companies.<sup>53</sup> In other words, the fractionized nature of the device market results not purely from the four-way oligopoly in wireless service, but rather from the employment of diverse and incompatible technical standards that generally restrict the use of devices across multiple carriers.<sup>54</sup>

In the early days of cellular, the FCC required cellular providers to implement a uniform technical standard—AMPS, a type of analog transmission—to ensure

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<sup>49</sup> See Reardon, *supra* note 1.

<sup>50</sup> See *id.*

<sup>51</sup> See *id.*; *infra* notes 153–172.

<sup>52</sup> See *supra* notes 46–51 and accompanying text.

<sup>53</sup> See *infra* notes 28–51 and accompanying text.

<sup>54</sup> See Reardon, *supra* note 1 (technical standards in regard to wireless devices refers to the type of technology used for the device to communicate with the tower). See generally Gandal, et al., *supra* note 20 (for a device to be able to communicate with a tower, the device and tower must employ the same technology—or in other words, the same technical standard); *id.*

compatibility between cellular systems.<sup>55</sup> The FCC originally envisioned cellular in the United States as a nationwide network of regional cellular systems operated by multiple providers.<sup>56</sup> Uniform standards allowed customers to use their devices on cellular networks other than their own—a capability referred to as “roaming.”<sup>57</sup>

In 1988, the FCC relaxed its standards to encourage the development of more efficient technology.<sup>58</sup> The FCC declined requests to adopt one advanced uniform standard because it predicted that regulation in a field advancing as quickly as cellular technology would impede development.<sup>59</sup> Wireless carriers quickly began to experiment with digital transmissions, leading to the development of four digital standards—CDMA, GSM, TDMA, and iDEN.<sup>60</sup> These standards are considered second generation (2G) improvements over first generation (1G) analog cellular.<sup>61</sup>

At the time, the FCC expected one standard to prevail as a universal standard but none did.<sup>62</sup> Wireless providers began, instead, to build out nationwide networks based on different digital standards.<sup>63</sup> Networks were compatible with other networks for interconnection purposes allowing customers on different networks to communicate.<sup>64</sup> They were not, however, interoperable meaning that devices built for one digital standard (for example, CDMA) could not work on networks implementing a different standard

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<sup>55</sup> *See id.* at 326.

<sup>56</sup> *See* Amendment of Parts 2 and 22 of the Commission's Rules to Permit Liberalization of Technology and Auxiliary Service Offerings in the Domestic Public Cellular Radio Telecommunications Service, Report and Order, 3 FCC Rcd. 7033, 7033 ¶ 3 (1988).

<sup>57</sup> *Id.*

<sup>58</sup> *See id.* at 7034 ¶¶ 8–10 (the FCC allowed wireless carriers to implement new advanced standards as long as compatibility in the old analog standard was maintained alongside).

<sup>59</sup> *Id.* at 7040 ¶ 52.

<sup>60</sup> *See* Gandal, et al., *supra* note 20, at 325.

<sup>61</sup> *See id.*

<sup>62</sup> *See* Amendment of the Commission's Rules to Establish New Personal Communications Services, 9 FCC Rcd. 4957, 5020–21 ¶¶ 160–62 (1994).

<sup>63</sup> *See* Gandal, et al., *supra* note 20, at 326–27.

<sup>64</sup> *See id.* at 326, 319.

(for example, GSM).<sup>65</sup> By 2005, after continued build out of digital networks and the conversion of old analog cellular systems, ninety seven percent of wireless customers were using one of the three major digital standards.<sup>66</sup> AT&T and T-Mobile implemented GSM while Verizon Wireless and Sprint chose CDMA.<sup>67</sup>

As third generation (3G) technologies emerged, the divide between the carriers remained as each continued to implement diverse standards.<sup>68</sup> All carriers have extensively developed their 3G networks with both major 3G standards achieving national coverage.<sup>69</sup>

The implementation of diverse technical standards has made it difficult for device makers and entrepreneurs to develop devices that can be marketed to all customers on all carriers.<sup>70</sup> Even among carriers implementing the same network technology, interoperability may require further carrier-specific accommodations.<sup>71</sup> Device makers

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<sup>65</sup> *See id.*

<sup>66</sup> Tenth Annual Report, 18 FCC Rcd. at 15950 ¶ 109 (2005). From the customer's perspective, digital service from PCS or upgraded cellular systems is identical thus, going forward, wireless service means digital cellular and PCS systems. *See id.* In 2002, the FCC decided to discontinue its analog compatibility requirement, freeing wireless carriers of the last remnants of universal standards. *See* Year 2000 Biennial Regulatory Review—Amendment of Part 22 of the Commission's Rules to Modify or Eliminate Outdated Rules Affecting The Cellular Radiotelephone Services and other Commercial Mobile Radio Services, Report and Order, 17 FCC Rcd. 18401, 18414 ¶ 22 (2002).

<sup>67</sup> Fourteenth Annual Report at \*41 ¶ 111.

<sup>68</sup> *Id.* at \*41–42 ¶ 108. The 2G CDMA carriers, Verizon and Sprint Nextel, employed 3G EV-DO technology, whereas the 2G GSM carriers, AT&T and T-Mobile, employed 3G WCDMA technology. *Id.*

<sup>69</sup> *See id.* at \*44 tbl. 13. EV-DO coverage is estimated at ninety-seven percent and WCDMA coverage is estimated at seventy-six percent and climbing to ninety-eight percent when including coverage from the 2.5G EDGE technology. *See id.*

<sup>70</sup> *See* Richard Wong, *In Mobile, Fragmentation is Forever. Deal with it.*, Tech Crunch (Mar. 4, 2010), <http://techcrunch.com/2010/03/04/mobile-fragmentation-forever>.

<sup>71</sup> *See* Definition of "Frequency Bands," Mobile Burn, <http://www.mobileburn.com/definition.jsp?term=frequency+band> (last visited Dec. 27, 2010). For example, in the U.S., T-Mobile and AT&T both employ GSM technology but operate on different bands. *Id.* T-Mobile uses the 1900MHz band while AT&T uses both the 1900MHz band and the 850MHz band. *Id.* Europe generally uses two different bands—900MHz and 1800Mhz. *Id.* Thus, a GSM phone may be compatible with some GSM carriers but not others. *Id.*

must either develop different versions of a device for each carrier or embark on the more complicated task of developing devices that are interoperable on multiple standards.<sup>72</sup>

It is unclear whether carriers will continue to employ diverse standards after the transition to fourth generation (4G) technology.<sup>73</sup> There appears to be a chance that all four national carriers will transition to the same standard—Long Term Evolution (LTE).<sup>74</sup> The development of a universal standard would significantly enhance the ability of device makers to market a single device to the entire market but, for the time being, the market remains divided down carrier lines.<sup>75</sup>

### C. Bundling Devices and Service: The Power of Subsidization

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<sup>72</sup> See Kevin Tofel, *5 Ways a Google Nexus Two Could Break Carrier Control*, GigaOM (Oct. 28, 2010), <http://gigaom.com/2010/10/28/google-nexus-two-break-carrier-control>. Some manufacturers have recently begun developing devices that operate on both CDMA and GSM networks but the endeavor is not mainstream. See *id.* Manufacturers have generally accepted marketing devices through single carriers only—many times locked exclusively to the carrier. See Tom Krazit, *Google's Mobile Hopes Go Beyond Nexus One*, CNet (Jan. 5, 2010), [http://news.cnet.com/8301-30684\\_3-10425935-265.html](http://news.cnet.com/8301-30684_3-10425935-265.html). Of the relatively few devices distributed independent of the carriers, almost all are designed to work on GSM networks because GSM technology better facilitates the use of unlocked devices than CDMA. See Reardon, *supra* note 22. This is because the SIM card feature of GSM phones allows for easy transfer between carriers on a single device. See Krazit *supra* note 71.

<sup>73</sup> See Fourteenth Annual Report, 2010 WL 2020768 at \*41 tbl. 11.

<sup>74</sup> See *id.* Verizon has deployed 4G Long Term Evolution (LTE) technology in select markets with national coverage expected by 2013. *Where is 4G LTE Available?*, Verizon, <http://network4g.verizonwireless.com/#/coverage> (last visited Nov. 28, 2010). Verizon 4G is beginning in thirty-eight markets with planned national coverage by 2013. *Id.* AT&T has announced that it also plans to begin building a 4G LTE network by 2011. *AT&T Selects LTE Equipment Suppliers*, AT&T (Feb. 10, 2010), <http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=30493>. T-Mobile is currently touting its HSPA+ extension to its 3G network as 4G (considered by many to actually be a 3.5G technology) but has indicated a future interest in building a 4G LTE network. See Richard Adhikari, *T-Mobile Takes Baby Steps Toward 4G*, TechNewsWorld (Mar. 25, 2010), <http://www.technewsworld.com/story/69619.html?wlc=1292787663>. Sprint Nextel, on the other hand, has partnered with Clearwire, a provider of 4G WiMAX technology, to resell 4G coverage. *4G WiMAX*, Sprint, [http://developer.sprint.com/site/global/home/4g/4g\\_wimax.jsp](http://developer.sprint.com/site/global/home/4g/4g_wimax.jsp) (last visited Nov. 22, 2010). Some analysts, however, point out that a 4G LTE network may still be in the cards for Sprint Nextel, keeping the door open for a uniform standard that is embraced by all four national carriers. *Could Sprint's 4G Ambitions Include LTE?*, Trefis (Nov. 22, 2010), <https://www.trefis.com/company?article=28000#>.

<sup>75</sup> See *supra* notes 52–74 and accompanying text.

Finally, bundling is the third and most important factor contributing to the national carriers' control over device distribution.<sup>76</sup> By packaging device and service contract sales together, carriers gain the ability to sell devices below market price and make up the difference throughout the term of the service contract.<sup>77</sup> This pricing advantage, unavailable to device makers and independent retailers, has discouraged the development of device distribution channels unaffiliated with a national carrier.<sup>78</sup>

When the cellular industry was in its infancy, the FCC decided to implement “unbundling” rules developed in a series of wireline decisions referred to as the *Computer Inquiries*.<sup>79</sup> These rules prohibited packaging devices along with transmission services and were originally intended to prevent Bell from using its monopoly power over traditional telephone to unfairly compete in the telephone equipment markets.<sup>80</sup> The FCC's goal in applying unbundling rules to the cellular industry was to ensure that customers could choose any combination of device and wireless service without the carrier-imposed obstacles likely to develop if carriers and devices were allowed to intermingle.<sup>81</sup>

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<sup>76</sup> See *infra* notes 77–102 and accompanying text.

<sup>77</sup> See Tim Wu, *Wireless Carterfone*, 1 Int'l Journal of Commc'n, 389, 399 (2007) available at <http://ssrn.com/abstract=962027>.

<sup>78</sup> See *id.*

<sup>79</sup> Bundling of Cellular Customer Premises Equipment and Cellular Service, Report and Order, 7 FCC Rcd. 4028, 4028 ¶1 (1992) [hereinafter Cellular Bundling Order]. The Computer Inquiries were a series of proceedings which developed the regulatory structure for wireline carriers' foray into services beyond basic voice; See generally Amendment of Section 64.702 of the Commission's Rules & Regulations (Second Computer Inquiry), Final Decision, 77 FCC 2d. 384, xx (1980); The FCC was most concerned with wireline carriers using their control over the phone lines to dominate emerging markets dependent on transmission over the lines; *Id.* In response, the FCC developed a series of requirements which sought to encourage development but prevent anti-competitive behavior. *Id.*

<sup>80</sup> Cellular Bundling Order, 7 FCC Rcd. at 4028 ¶ 2.

<sup>81</sup> *Id.*

In 1992, however, the FCC changed its bundling policy to allow packaging devices with cellular service.<sup>82</sup> The FCC determined, at the time, that the largest impediment preventing customers from buying cellular service was the high cost of cellular devices.<sup>83</sup> Though the cellular subscriber base had grown to over eleven million, total market penetration was less than ten percent.<sup>84</sup> Bundling offered an opportunity to encourage growth by reaching customers who would otherwise be deterred from cellular by the upfront cost of buying a device.<sup>85</sup>

By bundling devices with cellular service, carriers were able to offer devices below cost and make up the loss in some other way—how exactly carriers would recoup their losses, however, eluded the FCC.<sup>86</sup> The FCC made two predictions in 1992, each of which proved incorrect: (1) carriers would not subsidize wireless devices by spreading the costs over wireless service contracts; and (2) exclusive agreements between wireless carriers and device manufacturers were unlikely to develop.<sup>87</sup>

At the time, “bundling” meant that retailers were passing part of their sales commission from a wireless carrier to the customer in the form of a rebate when the customer bought a device bundled with service.<sup>88</sup> The FCC recognized, however, that a different method of subsidization was slightly more concerning—subsidization through service revenues.<sup>89</sup> By incorporating the costs of offering devices below cost into the

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<sup>82</sup> *Id.* at 4028–29 ¶¶ 6–7; see George S. Ford et al., *Policy and Economic Exploration of Wireless Carterfone Regulation*, 25 Santa Clara Computer & High Tech. L.J. 647, 658 (2009).

<sup>83</sup> Cellular Bundling Order, 7 FCC Rcd. at 4030 ¶ 19; see Ford et al., *supra* note 82, at 658.

<sup>84</sup> First Annual Report, 10 FCC Rcd. at 8874 tbl. 1.

<sup>85</sup> Cellular Bundling Order, 7 FCC Rcd. at 4029 ¶ 7; see Ford et al., *supra* note 82, at 658.

<sup>86</sup> See Cellular Bundling Order, 7 FCC Rcd. at 4030–31 ¶¶ 13–24.

<sup>87</sup> See *id.* at 4030–31 ¶¶ 18, 25.

<sup>88</sup> See *id.* at 4031 ¶ 24.

<sup>89</sup> See *id.* at 4031 ¶¶ 22–24. Although, the rebate approach to device subsidization also carries similar concerns on a smaller scale. See *infra* note 324 and accompanying text.

price for wireless services, carriers could spread the costs of subsidizing device purchases over the rate base.<sup>90</sup>

The consequence of this type of subsidization was that customers interested in using devices not offered by the carrier would not derive the benefit of purchasing a below-cost device, but would pay the service rate that incorporated the costs of offering below-cost devices to other customers.<sup>91</sup> In effect, these customers would end up subsidizing the purchases of customers using carrier-offered devices.<sup>92</sup> Moreover, faced with paying the same rate as customers with subsidized devices, customers have no incentive to purchase unsubsidized devices sold by independent retailers.<sup>93</sup>

The FCC was skeptical that such a pricing scheme would develop, in part, because it could not see the advantages of this type of “cross-subsidization” in an industry that was not rate regulated.<sup>94</sup> Subsidizing device prices through service revenues, however, is now the industry standard and all carriers offer heavily discounted devices when purchased with a two year service contract.<sup>95</sup> Because carriers are able to offer devices for hundreds of dollars less than the market price, subsidizing device purchases gives carriers a significant advantage over independent retailers in the device market.<sup>96</sup>

Likewise, the FCC found the development of widespread exclusive arrangements between carriers and device manufacturers equally implausible and unlikely to cause

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<sup>90</sup> Wu, *supra* note 7786, at 399.

<sup>91</sup> See Cellular Bundling Order, 7 FCC Rcd. at 4031, n. 40.

<sup>92</sup> See *id.*

<sup>93</sup> See Rob Frieden, *Wireless Carterfone: A Long Overdue Policy Promoting Consumer Choice and Competition*, 4 (New Am. Found. Wireless Future Program, Working Paper No. 20, 2008), available at [http://www.newamerica.net/files/Wireless\\_Carterfone\\_Frieden.pdf](http://www.newamerica.net/files/Wireless_Carterfone_Frieden.pdf).

<sup>94</sup> See Cellular Bundling Order, 7 FCC Rcd. at 4031 ¶¶ 24–25.

<sup>95</sup> See Wu, *supra* note 77, at 399.

<sup>96</sup> See *id.*



significant harm to device manufactures or customers.<sup>97</sup> The FCC predicted that wireless carriers would lack interest in exclusive arrangements with device manufacturers and even if they were interested, the regional nature of cellular systems would prevent such arrangements from hindering device makers from marketing devices on a national scale.<sup>98</sup> To the contrary, exclusive arrangements between nationwide carriers and device manufacturers have become increasingly common—especially among the most popular devices—decreasing the availability of devices on a national scale.<sup>99</sup>

Underlying the FCC’s predictions was the assumption that the regional nature of cellular systems, and lack of individual market power, would prevent carriers from significantly affecting independent retailers of wireless devices.<sup>100</sup> The FCC failed to predict consolidation in the wireless market which would lead to four nationwide wireless providers—the top two of which controlling sixty percent of the market.<sup>101</sup> Offering devices at subsidized costs and arranging exclusive agreements with device manufacturers have helped the nationwide carriers to choke out nearly all device sales through non-carrier retailers.<sup>102</sup>

#### **D. Three Factors at Work: The Plight of the Nexus One**

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<sup>97</sup> Cellular Bundling Order, 7 FCC Rcd. at 4030 ¶ 18.

<sup>98</sup> *Id.*

<sup>99</sup> Maisie Ramsay, *Regional Carriers Ride Android Wave, But Exclusivity Deals Still Aggravate*, WIRELESS WEEK (Sept 1, 2010), <http://www.wirelessweek.com/Articles/2010/09/Regional-Carriers-Ride-Android-Wave,-But-Exclusivity-Deals-Still-Aggravate>. Nearly half of the sixty-seven smartphones introduced in 2008 and 2009 were launched exclusively through one of the national carriers, with the more popular devices more likely to draw an exclusive deal. See Fourteenth Annual Report, 2010 WL 2020768 at \*101 ¶ 317. For example, all five devices on CNet’s best of 2010 list are available only through one of the national carriers. Bonnie Cha, *Best Smartphones*, CNet, <http://reviews.cnet.com/best-smartphones> (last visited Nov. 23, 2010).

<sup>100</sup> See Cellular Bundling Order, 7 FCC Rcd. at 4030 ¶ 18.

<sup>101</sup> See Fourteenth Annual Report, 2010 WL 2020768 at \*19 ¶ 30.

<sup>102</sup> See Wu, *supra* note 77, at 398–99. Only five percent of devices are estimated to be sold by non-carrier retailers. See *id.*

Google's recent foray into the device market—the Nexus One—provides a concrete example of the difficulty of distributing a device independently of the national carriers.<sup>103</sup> The Nexus One debuted in January of 2010 but by July, Google deemed the experiment a failure and pulled the plug.<sup>104</sup> The much anticipated but short life of the Nexus One can be explained by considering the effect of the three factors discussed above.<sup>105</sup>

After the release of Google's Android mobile operating system, Google teamed with HTC, a device manufacturing company, to develop what it termed a “superphone.”<sup>106</sup> Intended to compete directly with the Apple iPhone and other high end competitors, the Nexus One introduced several innovative features paired with the latest version of Android and impressive hardware specs.<sup>107</sup>

What truly set the Nexus One apart, however, was Google's distribution strategy aimed at revolutionizing the way devices are sold in the U.S.<sup>108</sup> Google planned to sell its Nexus One through an independent website unlocked for use on all four national carriers.<sup>109</sup> In the short term, Google hoped to successfully distribute a device independent of the carriers with an open-source platform, open application store, and compatibility on any network.<sup>110</sup> In the long term, Google envisioned a fundamental

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<sup>103</sup> See *infra* notes 106–143 and accompanying text.

<sup>104</sup> See Tony Bradley, *Google Nexus One: Lessons Learned From the Failed Experiment*, PC WORLD (July 21, 2010), [http://www.pcworld.com/businesscenter/article/201594/google\\_nexus\\_one\\_lessons\\_learned\\_from\\_the\\_failed\\_experiment.html](http://www.pcworld.com/businesscenter/article/201594/google_nexus_one_lessons_learned_from_the_failed_experiment.html).

<sup>105</sup> See *infra* notes 27–101 and accompanying text.

<sup>106</sup> Mathew Honan, *Google Debuts Android-Powered Nexus One 'Superphone'*, WIRED (Jan. 5, 2010), <http://www.wired.com/gadgetlab/2010/01/google-debuts-android-powered-nexus-one-superphone>. Android is an operating system designed to run on a wide range of mobile devices manufactured by different device companies. See *id.*

<sup>107</sup> See *id.*

<sup>108</sup> See Krazit, *supra* note 72.

<sup>109</sup> See *id.*

<sup>110</sup> See *id.*

reversal in the device market where device makers are able to sell directly to customers who could then choose the best carrier to use with their device.<sup>111</sup>

At release, Google partnered with T-Mobile to offer a GSM version of the phone with two options: customers could buy the device unlocked for \$529 or subsidized and bundled with a two year T-Mobile service contract for \$179.<sup>112</sup> The unlocked version could be used with T-Mobile or other compatible GSM networks, but because T-Mobile uses different 3G bands than the other major GSM carrier, AT&T, the initial unlocked version of the Nexus One was essentially limited to T-Mobile or AT&T without 3G coverage.<sup>113</sup>

To reach the entire device market, Google embarked on developing versions of the Nexus One to match the standards used by the other three carriers.<sup>114</sup> In mid-March, Google released a new unlocked version of the device compatible with AT&T's network—including its 3G bands.<sup>115</sup> Shortly after, Google announced that Sprint was onboard and that a Sprint version of the Nexus One would soon be available.<sup>116</sup> Google indicated from the get-go that a Verizon version of the Nexus One was in the works and information from an inside source prompted predictions of a Verizon release by the end of March.<sup>117</sup>

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<sup>111</sup> *See id.*

<sup>112</sup> Paul Miller, *Google's Nexus One is Official*, ENDGADGET (Jan. 5, 2010), <http://www.engadget.com/2010/01/05/googles-nexus-one-is-official>.

<sup>113</sup> Stacey Higginbotham, *Why Your Nexus One Won't Work on AT&T 3G*, GIGAOM (Jan. 11, 2010), <http://gigaom.com/2010/01/11/att-nexus-one-3g>.

<sup>114</sup> *See e.g.* Bonnie Cha, *Nexus One Arrive for AT&T, Rogers Wireless*, CNET (Mar. 16, 2010), [http://www.cnet.com/8301-19736\\_1-20000541-251.html](http://www.cnet.com/8301-19736_1-20000541-251.html).

<sup>115</sup> *See id.*

<sup>116</sup> Bonnie Cha, *Nexus One Coming to Sprint*, CNET (Mar. 17, 2010), [http://www.cnet.com/8301-19736\\_1-20000646-251.html?tag=mncol;5n](http://www.cnet.com/8301-19736_1-20000646-251.html?tag=mncol;5n).

<sup>117</sup> *See Scott Webster, Verizon to Release Nexus One on March 23?, CNet (last visited Mar. 5, 2010), http://www.cnet.com/8301-19736\_1-10464269-251.html; Kent German, CDMA Nexus One Appears to Clear FCC, CNet (last visited Feb. 26, 2010), http://www.cnet.com/8301-19736\_1-10460600-251.html.*

By getting its foot in the door with T-Mobile, Google garnered cooperation from each national carrier—an achievement necessary to market a device in the U.S. on a meaningful scale.<sup>118</sup> The goal of distributing a single unlocked device (albeit through multiple versions) independent of the national carriers appeared achievable.<sup>119</sup> The wheels began to fall off, however, when Verizon announced, in April, that it was backing away from the Nexus One.<sup>120</sup> Sprint announced the same shortly after, spelling an end to the release of a CDMA compatible Nexus One.<sup>121</sup> Fueling the decision for both carriers was an interest in pushing other carrier-exclusive Android offerings.<sup>122</sup> With the loss of Verizon and Sprint, Google’s market for the Nexus One shrank by almost 150 million customers—what remained were the approximately 120 million customers of AT&T and T-Mobile.<sup>123</sup>

Even before the cancellation of a CDMA Nexus One, sales of the GSM versions were down in comparison to recent launches of comparable smartphones.<sup>124</sup> In the first seventy-four days after release, a mobile analytics firm estimated Nexus One sales to be approximately 135,000 units.<sup>125</sup> In the same time period, the very similar Motorola Droid

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<sup>118</sup> See *supra* notes 28–51, 115–117 and accompanying text.

<sup>119</sup> See *supra* notes 114–118 and accompanying text.

<sup>120</sup> See Tom Krazit, *Verizon, Vodafone Dent Google’s Nexus One Hopes*, CNET (last visited Apr. 26, 2010), [http://news.cnet.com/8301-30684\\_3-20003429-265.html?tag=mncol;4n](http://news.cnet.com/8301-30684_3-20003429-265.html?tag=mncol;4n).

<sup>121</sup> See John Herrman, *Sprint Won’t Sell Nexus One*, GIZMODO (last visited May 10, 2010), <http://gizmodo.com/5535436/sprint-wont-sell-the-nexus-one>.

<sup>122</sup> See *id.*

<sup>123</sup> See Fourteenth Annual Report, 2010 WL 2020768 at \*19 tbl. 3.

<sup>124</sup> See Jay Yarow, *The Nexus One is a Flop: 74 Days In, Just 135,000 Sold*, Business Insider (last visited Mar. 16, 2010), <http://www.businessinsider.com/the-nexus-one-is-a-flop-74-days-in-just-135000-sold-2010-3>.

<sup>125</sup> *Id.*

sold over 1 million units.<sup>126</sup> The Apple iPhone 3GS sold over 1 million units in its first week.<sup>127</sup>

On one hand, Google experienced hiccups in distributing a device for the first time with customer complaints centering around connectivity problems and poor technical support.<sup>128</sup> Confusion stemmed from a lack of communication between Google, HTC, and the carriers, resulting in what customers interpreted as the “run-around” while Google worked out the kinks its device.<sup>129</sup> But such problems are typical of first generation devices, especially among early adopters, and can hardly explain the Nexus One’s dismal sales performance in comparison to similar devices.<sup>130</sup>

The underlying failure of the Nexus One is better attributed to Google’s inability to overcome the three factors that led to carrier control in the first place—substantial market power held by each of the national carriers, technical complications arising from diverse technical standards, and price advantage gained by subsidizing devices bundled with service contracts.<sup>131</sup> Had Google been able to finagle cooperation with the four carriers (or partner with a larger national carrier than T-Mobile), the Nexus One may well have fared differently but the loss of Verizon and Sprint’s support drastically limited the market for the Nexus One.<sup>132</sup> In that vein, had Google been able to develop a cross-

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<sup>126</sup> *Id.*

<sup>127</sup> Arik Hesseldahl, *Confirmed: Apple Sold 1 Million iPhone 3GS Units*, Business Week (last visited June 22, 2009), [http://www.businessweek.com/technology/ByteOfTheApple/blog/archives/2009/06/confirmed\\_apple\\_sold\\_1\\_million\\_iphone\\_3g\\_s\\_units.html](http://www.businessweek.com/technology/ByteOfTheApple/blog/archives/2009/06/confirmed_apple_sold_1_million_iphone_3g_s_units.html).

<sup>128</sup> See Suzanne Choney, *Google Nexus One Buyers Frustrated About Help*, MSNBC (last visited Jan. 11, 2010), [http://www.msnbc.msn.com/id/34809252/ns/technology\\_and\\_science-tech\\_and\\_gadgets](http://www.msnbc.msn.com/id/34809252/ns/technology_and_science-tech_and_gadgets).

<sup>129</sup> *See id.*

<sup>130</sup> See Shane McGlaun, *Google Nexus One Early Adopters Report 3G Issues*, Daily Tech (last visited Jan. 12, 2010), <http://www.dailytech.com/Google+Nexus+One+Early+Adopters+Report+3G+Issues/article17375.htm>.

<sup>131</sup> *See infra* notes 132–143 and accompanying text.

<sup>132</sup> *See* Bradley, *supra* note 104.

platform device compatible with all four national carriers, the increased marketability may have leveraged all four carriers on board.<sup>133</sup>

Most importantly, however, Google failed to overcome the pricing advantages held by the national carriers marketing competing devices.<sup>134</sup> Of the three factors, pricing weighed the heaviest making the Nexus One a tough sell in a market characterized by cheap devices bundled with expensive service contracts.<sup>135</sup> Changing the consumer expectation in this regard proved to be an uphill battle.<sup>136</sup> For example, while the unlocked AT&T compatible Nexus One was priced at \$529, AT&T offered its iPhone 3GS bundled with a two year service contract for \$199.<sup>137</sup> Moreover, while T-Mobile offered no-contract plans at more favorable rates, AT&T did not.<sup>138</sup> Customers bringing their unsubsidized Nexus One to AT&T could purchase a SIM card with a month-to-month contract but were required to purchase the same smartphone data package required of the subsidized iPhone users.<sup>139</sup>

Google could have employed certain measures to soften the disadvantage, like subsidizing the device itself or negotiating with AT&T for more favorable no-contract rates.<sup>140</sup> The bind for Google was that its interests were divided between the success of its Nexus One and the larger success of Android on dozens of other devices offered

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<sup>133</sup> *See id.*

<sup>134</sup> *See* Kevin C. Tofel, *5 Ways a Google Nexus Two Could Break Carrier Control*, GigaOm (Oct. 28, 2010), <http://gigaom.com/2010/10/28/google-nexus-two-break-carrier-control>.

<sup>135</sup> *See* Victor Godinez, *Nexus One With 3G Now Available for AT&T, But It's a Terrible Deal*, PHYSORG.COM (Mar. 18, 2010), <http://www.physorg.com/news188152934.html>; *see also* Reardon, *supra* note 22.

<sup>136</sup> *See* Reardon, *supra* note 22.

<sup>137</sup> *See* Godinez, *supra* note 135; Reardon, *supra* note 22.

<sup>138</sup> *See* Godinez, *supra* note 135.

<sup>139</sup> *See id.*

<sup>140</sup> *See* Bradley, *supra* note 104; Tofel, *supra* note 134.

exclusively through the national carriers—devices that were potentially threatened by the Nexus One.<sup>141</sup>

It is hard to tell what success the Nexus One may have achieved had Google pursued a more aggressive strategy in marketing the device to customers of all carriers.<sup>142</sup> Nevertheless, the story of the Nexus One provides a concrete example of the difficulties associated with distributing a device independent of the national carriers even for a company as resource rich as Google.<sup>143</sup>

### III. Leverage of Distribution: Carrier Influence Over the Device Market

As a result of controlling the distribution of virtually all devices in the U.S., the national carriers exercise significant control over which devices come to market and, more importantly, which do not.<sup>144</sup> Moreover, carriers have exploited their role as “gatekeeper” to remove or cripple certain device functions, include unwanted bloatware on devices, and block or discourage the use of non-carrier devices.<sup>145</sup>

The state of the carrier-controlled device market has stirred some commenters to call for the application of rules, similar to those applied in the wireline context, that

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<sup>141</sup> See Tom Krazit, *Google Turns Nexus One Strategy Upside Down*, CNET (May 14, 2010), [http://news.cnet.com/8301-30684\\_3-20005015-265.html](http://news.cnet.com/8301-30684_3-20005015-265.html). On one hand, Google was a partner to the carriers and other device makers providing an innovative and open source mobile platform free of charge, but to the extent that it marketed the Nexus One, it threatened the way the national carriers do business and was in direct competition with other device makers. *See id.* Google’s hesitancy to bite the hand that feeds it, so to speak, may account for why it chose not to push the envelope too far in marketing the Nexus One. *See id.* Android creator, Andy Rubin, let on as much, at a conference for the mobile industry, when he characterized Google’s abandonment of the Nexus One as a decision to allocate its resources to their most efficient use—developing new Android features. *See* Owen Thomas, *Google’s Andy Rubin Explains the Nexus One Flop*, MOBILE BEAT (Dec. 6, 2010), <http://venturebeat.com/2010/12/06/andy-rubin-google-nexus-one>.

<sup>142</sup> *See* Bradley, *supra* note 104.

<sup>143</sup> *See supra* notes 103–142 and accompanying text.

<sup>144</sup> *See* Wu, *supra* note 77, at 399.

<sup>145</sup> *See id.* at 399–405. Bloatware refers to unwanted, carrier-specific applications included on devices that slow performance and, in some cases, cannot be removed. *See infra* notes 192–209 and accompanying text.

would shift the balance of power back toward device makers and customers.<sup>146</sup> The market has shown some improvement since the first calls for regulation.<sup>147</sup> Many features previously restricted are now widely available and carriers have trended toward opening their networks to non-carrier devices.<sup>148</sup> Nevertheless, significant evidence of harmful carrier interference in the device market remains.<sup>149</sup>

Sections A, B, and C examine the control of the national carriers over device offerings, restrictions carriers place on device functions, and bloatware carriers seek to include on devices.<sup>150</sup> Section D examines the historical limitations carriers imposed on the use of non-carrier devices and the modern trend toward open networks.<sup>151</sup> Finally, Section E explains the historical significance of *Carterfone* regulation and the rationale behind recent calls for application of the rules in wireless.<sup>152</sup>

#### **A. Carrier Control Over Device Offerings**

As part of controlling distribution, the national carriers, for the most part, decide which devices will be offered and which will not.<sup>153</sup> New devices that do not fit within a carrier's business plan—considering the other devices the carrier is marketing at the time—are sidelined.<sup>154</sup> This means that some devices will find a place on a national carrier's lineup and some will not.<sup>155</sup> Although the most innovative devices would seem

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<sup>146</sup> See generally, e.g., Frieden, *supra* note 93; Wu, *supra* note 77.

<sup>147</sup> See Bar-Gill & Stone, *supra* note 21, at 70–71.

<sup>148</sup> See *id.*

<sup>149</sup> See *infra* notes 153–248 and accompanying text.

<sup>150</sup> See *infra* notes 153–209 and accompanying text.

<sup>151</sup> See *infra* notes 210–248 and accompanying text.

<sup>152</sup> See *infra* notes 249–265 and accompanying text.

<sup>153</sup> See Wu, *supra* note 77, at 398–99.

<sup>154</sup> See *id.*

<sup>155</sup> See *id.*



to always find a place, this is not always the case.<sup>156</sup> When carriers decide which devices are best, rather than the market, the choices are not always based on innovation or price.<sup>157</sup>

Consider HTC's current line of smartphones.<sup>158</sup> HTC's U.S. website offers twenty unique devices—nineteen of which are available only through a wireless carrier.<sup>159</sup>

HTC's worldwide website, on the other hand, offers fourteen additional models unavailable in the U.S.<sup>160</sup> Although many of the U.S. offerings are excellent devices, some of the unavailable devices are also considered on the leading edge of smartphone technology and would likely find a market in the U.S. if available.<sup>161</sup>

No manufacturer's success in the U.S. has been more frustrated by the national carriers than the world's largest device maker, Nokia.<sup>162</sup> Only a fraction of Nokia's device line can be found on the shelves of a national carrier and, as a result, it has fallen far behind competitors in the smartphone market.<sup>163</sup> Much of Nokia's failure can be attributed to its stubborn strategy of independence.<sup>164</sup>

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<sup>156</sup> See Elizabeth Woyke, *Coolest Cell Phones You Can't Get in the U.S.*, FORBES ON MSNBC (Nov. 16, 2007), [http://www.msnbc.msn.com/id/21841160/ns/technology\\_and\\_science-tech\\_and\\_gadgets](http://www.msnbc.msn.com/id/21841160/ns/technology_and_science-tech_and_gadgets); Colin Gibbs, *Why Carriers Still Hold the Key to Handset Sales*, GIGAOM (July 3, 2010), <http://gigaom.com/2010/07/03/why-carriers-still-hold-the-key-to-handset-sales>.

<sup>157</sup> See Gibbs, *supra* note 156.

<sup>158</sup> See U.S. Product Descriptions, HTC, <http://www.htc.com/us/products#/?view=1-0&sort=0&filters=0-0-0> (last visited Dec. 26, 2010).

<sup>159</sup> See *id.*

<sup>160</sup> See Worldwide Product Descriptions, HTC, <http://www.htc.com/www/product.aspx> (last visited Dec. 26, 2010).

<sup>161</sup> See, e.g., Vlad Savov, *HTC 7 Mozart and 7 Trophy Set Out to Conquer the WP7 World, 7 Pro Coming to Sprint Next Year*, ENGADGET (Oct. 11, 2010), <http://www.engadget.com/2010/10/11/htc-7-mozart-and-7-trophy-set-out-to-conquer-the-wp7-world-7-pr> (For example, in October of 2010, HTC released three very innovative devices equipped with the new Windows Phone 7 operating system—the HTC 7 Trophy, HTC 7 Mozart, and HD7. See *id.* Only the HD7 made it to a U.S. carrier exclusively through T-Mobile. See *id.*).

<sup>162</sup> See Paul Boutin, *Why Can't Nokia Sell Phones to Americans?*, Venture Beat (Feb. 15, 2010), <http://venturebeat.com/2010/02/15/why-cant-nokia-sell-phones-to-americans>.

<sup>163</sup> See Colin Gibbs, *Nokia's U.S. Disappearing Act Continues*, GigaOm (Oct. 15, 2010), <http://gigaom.com/2009/10/15/nokias-u-s-disappearing-act-continues>.

<sup>164</sup> See Boutin, *supra* note 162.

After agreeing to carry a device, carriers prefer to include their own services like games, music applications, or application stores and to restrict certain unwanted device features.<sup>165</sup> Nokia simply refused to make the concessions necessary to get along with the U.S. carriers and as a result, carriers chose not to offer the vast majority of Nokia devices.<sup>166</sup>

For instance, Nokia sought to further its own application store and entertainment services in direct competition with services offered by the national carriers.<sup>167</sup> Moreover, while companies like HTC had no problem producing phones entitled the T-Mobile G2, Nokia sought to keep its name on its devices and refused to brand a device for an individual carrier.<sup>168</sup> Further complicating its relationship with the U.S. carriers, Nokia sought to produce phones that could be used on any carrier and resisted arrangements that locked its devices to a single carrier.<sup>169</sup>

Without support from a national carrier, Nokia's phones are not on the shelves where the lion's share of device sales are taking place, and Nokia has had limited success distributing devices through independent channels.<sup>170</sup> Not surprisingly, U.S. sales have been dismal.<sup>171</sup> What has troubled Nokia is what drives other manufacturers to only offer devices in the U.S. after receiving support from a national carrier—marketing a device

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<sup>165</sup> See *id.*; Christopher Lawton, *Nokia Bets on Phone Software*, Wall St. J., Nov. 17, 2010, at B8. Carrier behavior in this regard is discussed further in Sections B and C below. See *infra* notes 182–238 and accompanying text.

<sup>166</sup> See Boutin, *supra* note 162.

<sup>167</sup> See *id.*

<sup>168</sup> See U.S. Product Descriptions, *supra* note 162; Boutin, *supra* note 162.

<sup>169</sup> See Boutin, *supra* note 162.

<sup>170</sup> See Gibbs, *supra* note 163.

<sup>171</sup> See *id.*

independent of the national carriers is technically difficult and most importantly, means no carrier subsidization of price.<sup>172</sup>

## **B. Device Function Restrictions**

The national carriers also leverage their position between device makers and customers to mandate crippling or disabling of certain device features that are potentially harmful to either the network or the carriers' business models.<sup>173</sup> As devices evolved from voice only to include more advanced features, carriers impeded development in various ways.<sup>174</sup>

Early proponents of open access in the wireless context pointed to features like WiFi and Bluetooth as examples of carriers impeding the development of technology favorable to customers.<sup>175</sup> When WiFi capable devices first emerged, carriers often disabled the feature in an attempt to protect their mobile voice and data service from free VoIP and data transfers that customers could achieve with a WiFi connection.<sup>176</sup> Likewise, Bluetooth also provided a way around the carriers' data service by allowing customers to easily transfer files to and from their devices for free.<sup>177</sup> Carriers regularly limited Bluetooth capability to connections with headsets while other types of connectivity, like file transfers between devices or with a computer or printer, were disabled.<sup>178</sup> Verizon, in one instance, explained its decision to disable full Bluetooth capabilities as a necessary step to prevent customers from easily transferring downloaded

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<sup>172</sup> See Reardon, *supra* note 1.

<sup>173</sup> Wu, *supra* note 77, at 401–03.

<sup>174</sup> *Id.* at 401–05.

<sup>175</sup> See e.g., Frieden, *supra* note 93, at 4; Wu, *supra* note 77, at 401–04.

<sup>176</sup> See Wu, *supra* note 77, at 404.

<sup>177</sup> See *id.*

<sup>178</sup> See e.g., Wilson Rothman, *iPhone Bluetooth Does Nothing But Calls*, *Gizmodo* (July 1, 2007), <http://gizmodo.com/274068/iphone-bluetooth-does-nothing-but-calls>.

games and applications to other devices while in another, Verizon cited security concerns.<sup>179</sup> Neither explanation is particularly compelling.<sup>180</sup> The other national carriers were also known to disable Bluetooth functions in the same manner.<sup>181</sup>

Fortunately, the device market has shown improvement since the early days of advanced features and many features once crippled or disabled are now widely available with full functionality.<sup>182</sup> Nearly half of the devices in use today are WiFi enabled and the percentage is expected to grow to ninety percent by 2014.<sup>183</sup> Moreover, AT&T has gone as far as to allow mobile VoIP applications not only over WiFi but on its 3G network.<sup>184</sup> In addition, many devices now also tout full Bluetooth functionality.<sup>185</sup> What becomes evident, however, after examining the development of now established technologies is that a “lag” between invention and mainstream availability of a technology is created by carrier interference in the device market.<sup>186</sup>

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<sup>179</sup> Wu *supra* note 77, at 404.

<sup>180</sup> *See id.*

<sup>181</sup> *Id.* Part of what spurred the carriers’ policies in regard to Bluetooth and WiFi was the development of devices equipped with digital cameras. *See id.* at 402. Customers now, more so than ever before, had something of value trapped on their devices and demanded a way to move photos from their device to a PC to e-mail or print. *See id.* While device makers were developing easy ways to transfer photos, the national carriers went to work developing photo sharing services intended to turn photo transfers into a revenue source. *See id.* The photo sharing services generally required an account upgrade, usually associated with a monthly and per use fee, and allowed customers to access their photos on a carrier developed website. *See* Wu, *supra* note 77, at 402–404. Carriers were successful, in many cases, in pressuring device makers to limit photo transfer to the carrier’s service only—crippling or disabling WiFi and Bluetooth functions on devices fell within the carriers’ plans to promote their proprietary photo sharing services. *See id.*

<sup>182</sup> *See infra* note 183–186 and accompanying text.

<sup>183</sup> *Wi-Fi: A Must-Have for New Cell Phones*, MOBILE DEV & DESIGN (Apr. 17, 2009, 10:05 AM), [http://mobiledevdesign.com/standards\\_regulations/wifi-cell-phones-0417](http://mobiledevdesign.com/standards_regulations/wifi-cell-phones-0417).

<sup>184</sup> Charlie Sorrel, *AT&T Allows VoIP Over 3G for iPhone*, WIRED (Oct. 7, 2009, 4:34 AM), <http://www.wired.com/gadgetlab/2009/10/att-allows-voip-over-3g-for-iphone>.

<sup>185</sup> *See e.g.* Android Bluetooth Functionality, Android Developers, <http://developer.android.com/guide/topics/wireless/bluetooth.html> (last visited Dec. 28, 2010). Recently, device makers rather than carriers have been behind decisions to cripple Bluetooth functionality. *See e.g.* John Mahoney, *First Android Release Will Have iPhone-Style Crippled Bluetooth, No Google Talk*, Gizmodo (Aug. 26, 2008), <http://gizmodo.com/5042093/first-android-release-will-have-iphone+style-crippled-bluetooth-no-google-talk>. Devices using Android’s first release did not include full Bluetooth functionality because Google had yet to fully complete development. *Id.*

<sup>186</sup> *See supra* notes 173–185 and accompanying text.

Though technologies like WiFi and Bluetooth have now achieved mainstream availability, carriers continue to interfere with the development of new technologies, slowing the rate at which these technologies will become generally available.<sup>187</sup> For example, consider the Samsung Galaxy S.<sup>188</sup> T-Mobile first adopted the phone in June of 2010 renaming it the Vibrant and AT&T followed suite shortly after renaming it the Captivate.<sup>189</sup> Both carriers stripped the front-facing camera for video calling and AT&T removed the flash for the rear camera.<sup>190</sup> This push-back against cutting-edge features by the carriers ultimately works to slow the rate at which innovation arrives in the market place.<sup>191</sup>

### C. Carrier Add-ons: Bloatware

In addition to interfering with the development of features favorable to customers, carriers also mandate the inclusion of unwanted, carrier-specific applications on devices.<sup>192</sup> Even before the smartphone, carriers routinely included their own music, messaging and other applications on traditional handsets along with trial versions of applications by other developers.<sup>193</sup> Such unrequested software and applications pre-installed on new devices are often referred to as “bloatware.”<sup>194</sup> Bloatware began in the

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<sup>187</sup> See *infra* notes 188–191 and accompanying text.

<sup>188</sup> See, e.g., Jason Mick, *Samsung Epic 4G, the Fastest Android Smartphone, Hits Sprint*, DAILY TECH (Aug. 12, 2010), <http://www.dailytech.com/Samsung+Epic+4G+the+Fastest+Android+Smartphone+Hits+Sprint/article19327.htm>.

<sup>189</sup> *Id.*

<sup>190</sup> *Id.* Verizon also adopted the device renaming it the Fascinate and followed T-Mobile and AT&T by stripping the front-facing camera. *Id.* Sprint was the only carrier to adopt the device with full functionality. *See id.*

<sup>191</sup> See *supra* notes 173-190 and accompanying text (explaining that this type of interference with innovation is, in fact, typical of incumbents in communications industries); see generally, Tim Wu, *THE MASTER SWITCH: THE RISE AND FALL OF INFORMATION EMPIRES* (2010).

<sup>192</sup> See Wu, *supra* note 77, at 401.

<sup>193</sup> See Priya Ganapati, *Bloatware Creeps Into Android Phones*, WIRED (July 21, 2010), <http://www.wired.com/gadgetlab/2010/07/bloatware-android-phones>.

<sup>194</sup> *See id.*

computer industry when new computers were sold bundled with dozens of pre-installed software—mainly trial-versions of anti-virus software, games, or internet service from providers like AOL.<sup>195</sup> The problem with bloatware, in the computer and mobile industries, is that the software is generally unwanted by customers, takes up memory and slows performance.<sup>196</sup>

Though some models are better than others, smartphones continue to ship with unwanted, pre-installed bloatware.<sup>197</sup> What software and applications make it onto the final version of a device is the result of a battle between the device maker and the carrier.<sup>198</sup> Device makers prefer to leave application decisions to the customer by offering all applications in an app store.<sup>199</sup> Carriers, on the other hand, see bloatware as a significant revenue source—as the application market becomes more crowded, many companies are willing to pay carriers to have their application shipped on-board new devices.<sup>200</sup> Because carriers control virtually all device distribution, they have the final say on what applications will be included.<sup>201</sup>

Bloatware is particularly harmful to customers in the smartphone context because smartphones generally have less memory and computing power than their PC counterparts.<sup>202</sup> Despite this concern, carriers often make bloatware very difficult, or

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<sup>195</sup> *See id.*

<sup>196</sup> *See id.*

<sup>197</sup> *See id.*

<sup>198</sup> *See id.*; Mark Milian, “Junkware” Comes Standard on Verizon, T-Mobile Smartphones, L.A. TIMES TECH. BLOG (July 15, 2010, 5:24 PM), <http://latimesblogs.latimes.com/technology/2010/07/android-junkware.html>.

<sup>199</sup> *See* Ganapati, *supra* note 193 (explaining that an app store is itself an application included on a device that allows users to browse, search for, and download other applications).

<sup>200</sup> *See id.*

<sup>201</sup> *See* Milian, *supra* note 198.

<sup>202</sup> *See* Ganapati, *supra* note 193.

impossible, to delete.<sup>203</sup> T-Mobile's recently launched Samsung Vibrant includes a number of pre-installed applications including trial versions of Mobi TV and GoGo inflight internet.<sup>204</sup> Also included is Amazon's Kindle app, Slacker Radio, and the movie Avatar.<sup>205</sup> Some of the applications can be deleted, but some—including Avatar—are permanently installed.<sup>206</sup> Verizon's Motorola Droid X shipped with pre-installed applications as well including a Blockbuster app and a demo version of a racing game by Electronic Arts—neither of which can be removed.<sup>207</sup> Sprint also packed in a number of pre-installed apps on its flagship Evo 4G including Sprint's own Nascar, football, and TV apps.<sup>208</sup> Though these applications, at least to the extent that they are removable, are not deal-breakers per se, bloatware stands as another example of the willingness of national carriers to sacrifice the best interests of customers to pursue new revenue sources.<sup>209</sup>

#### **D. Limitations on Non-Carrier Devices**

Sections A, B, and C examined certain interferences with device innovation available to carriers as a result of controlling the distribution of devices.<sup>210</sup> This sections turns to certain limitations on the utility of devices that carriers historically have imposed: discriminatory network attachment policies and device locking.<sup>211</sup> Early

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<sup>203</sup> Milian, *supra* note 198.

<sup>204</sup> *Id.*

<sup>205</sup> *Id.*

<sup>206</sup> *Id.*

<sup>207</sup> *Id.*

<sup>208</sup> Ganapati, *supra* note 193. A notable exception is the iPhone. *See* Milian, *supra* note 198. Apple has managed to resist the inclusion of bloatware in large part because of its control over the device's operating system and app store as well as its role in offering distribution and technical support through its own stores. *See* Jason Hiner, *The Dirty Little Secret About Google Android*, Tech Republic (Aug. 23, 2010), <http://www.techrepublic.com/blog/hiner/the-dirty-little-secret-about-google-android/5855>. In contrast, Google's open-source operating system, Android, has opened the door wider to bloatware because it is, by nature, easily modified to suit the needs of device makers and carriers. *See id.*

<sup>209</sup> *See supra* notes 192–208 and accompanying text.

<sup>210</sup> *See supra* notes 153–209 and accompanying text.

<sup>211</sup> *See infra* notes 214–248 and accompanying text.

proponents of open access in the wireless context pointed to carrier behavior in this regard as evidence of the need for open access rules.<sup>212</sup> The state of the market, however, is much improved and carriers have generally changed their policies to support interoperability between carriers where technically possible.<sup>213</sup>

### 1. Discrimination Among Devices: Approved Phones Only

The national carriers were once much less flexible in their policies regarding the devices that could connect to their networks and the use of devices they sold.<sup>214</sup> In its Cellular Bundling Order, the FCC justified allowing device and service contract bundling, in part, because of the classification of wireless service as a common carrier.<sup>215</sup> The FCC predicted that the nondiscriminatory access requirements imposed by Title II of the Communications Act would ensure that customers always retained the ability to connect their preferred devices to any network.<sup>216</sup> The FCC eventually chose to take a “Title II light” approach to wireless by forbearing to enforce certain Title II requirements—most importantly, the FCC does not regulate rates in the wireless industry.<sup>217</sup> The fundamental Title II requirements, however, including rules requiring carriers to provide nondiscriminatory access to their services, remain applicable to wireless.<sup>218</sup>

Even so, the FCC’s deregulatory mantra regarding wireless seemed to give wireless carriers more leeway than wireline carriers.<sup>219</sup> As a result, carriers pushed the

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<sup>212</sup> See, e.g., Frieden, *supra* note 93, at 4; Wu, *supra* note 77, at 399–400.

<sup>213</sup> See *infra* notes 224–239 and accompanying text.

<sup>214</sup> See Wu, *supra* note 77, at 399–401.

<sup>215</sup> See *In The Matter Of Bundling of Cellular Customer Premises Equipment and Cellular Service, Report and Order*, 7 FCC Rcd. 4028, 4030 ¶ 18 (1992) [hereinafter *Cellular Bundling Order*].

<sup>216</sup> See *id.*

<sup>217</sup> See Frieden, *supra* note 93, at 5–6.

<sup>218</sup> See *id.*

<sup>219</sup> See *id.*



limits of Title II by enacting discriminatory device policies.<sup>220</sup> Until 2007, Verizon enforced a policy of “approved devices only” and allowed only devices sold through Verizon to connect to its network.<sup>221</sup> Sprint, on the other hand, allowed non-Sprint devices to connect but discouraged customers to do so and refused to provide technical support.<sup>222</sup> AT&T also allowed customers to bring non-AT&T devices to the network but was not always forthcoming to customers about the option.<sup>223</sup>

All national carriers, however, have changed their policies to better support open access for non-carrier devices.<sup>224</sup> In 2007, Verizon announced its “any app, any device” policy allowing customers to bring any compatible device to the Verizon network.<sup>225</sup> Verizon released the technical standards for its network to developers and initiated a program to test devices for compatibility and approve any acceptable device.<sup>226</sup> Shortly after, AT&T publicly reminded customers that it supports the use of any compatible device under contract or no-contract plans.<sup>227</sup> Sprint also touts an Open Device Initiative through which it approves non-Sprint devices for use on its network and, in 2009, announced the approval of its 300th compatible device.<sup>228</sup> Sprint and T-Mobile are both

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<sup>220</sup> *See id.*

<sup>221</sup> *See Wu, supra note 77, at 399–400; Sascha Segan, Verizon Explains New Open Device Policy, PC MAG (Mar. 29, 2008), <http://www.pcmag.com/article2/0,2817,2277399,00.asp>.*

<sup>222</sup> *See Wu, supra note 77, at 399–400.*

<sup>223</sup> *See Leslie Cauley, AT&T Flings Cellphone Network Wide Open, USA TODAY (Dec. 5, 2007), [http://www.usatoday.com/tech/wireless/phones/2007-12-05-att\\_N.htm](http://www.usatoday.com/tech/wireless/phones/2007-12-05-att_N.htm).*

<sup>224</sup> *See infra notes 225–229 and accompanying text.*

<sup>225</sup> *See Verizon Wireless to Introduce “Any Apps, Any Device” Option for Customers in 2008, VERIZON WIRELESS (Nov. 27, 2007), <http://news.vzw.com/news/2007/11/pr2007-11-27.html>.*

<sup>226</sup> *See id.*

<sup>227</sup> *See Cauley, supra note 223.*

<sup>228</sup> *See Sprint Certifies 300th Embedded Device On the Now Network, SPRINT (July 23, 2009), [http://sprint.tekgroupweb.com/article\\_display.cfm?article\\_id=1182#\\_\\_highlight&id16=open%2Bdevice%2Binitiative](http://sprint.tekgroupweb.com/article_display.cfm?article_id=1182#__highlight&id16=open%2Bdevice%2Binitiative).*

members of the Open Handset Alliance—the organization behind the development of Android that was formed to promote innovation through open platform principles.<sup>229</sup>

In 2008, the FCC auctioned off a portion of “beachfront” 700MHz spectrum block recaptured from analog television after the transition to digital television (DTV).<sup>230</sup> A coalition of open access proponents, including Google, petitioned the FCC to attach open platform and application rules to the commercial portion of the 700MHz auction.<sup>231</sup> The rules would grant customers the right to use any device, content, application, or service on a non-discriminatory basis.<sup>232</sup> Proponents argued that open access rules were needed because carriers enforced discriminatory policies in regard to non-carrier devices, crippled certain device functions, like WiFi, and restricted certain applications, like VoIP.<sup>233</sup>

The FCC agreed, finding evidence of harmful carrier restrictions in regard to devices, applications, and web content, and decided to apply open access rules to encourage innovation in the next generation of wireless.<sup>234</sup> The FCC decided not to apply open access rules to the entire 700MHz auction but rather only to a portion of the upper 700MHz band labeled the “C-Block.”<sup>235</sup> The rules required the C-Block winner to allow customers, device makers, and application developers to use and develop devices and

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<sup>229</sup> See generally *Members*, OPEN HANDSET ALLIANCE,

[http://www.openhandsetalliance.com/oha\\_members.html](http://www.openhandsetalliance.com/oha_members.html) (last visited Dec. 30, 2010).

<sup>230</sup> See generally *Service Rules for the 698-746, 747-762 and 777-792 MHz Bands, Second Report & Order*, 22 FCC Rcd. 15289 (2007) [hereinafter *700MHz Service Rules*] (the FCC and others in the wireless industry have described the 700 MHz spectrum block as beachfront property because of its superior transmission characteristics). See Om Malik, *700 MHz Explained in 10 Steps*, GIGAOM (Mar. 14, 2007), <http://gigaom.com/2007/03/14/700mhz-explained> (building a wireless network in the 700 MHz portion of the spectrum is cheaper than in other portions because signal can travel further and better penetrates obstacles like walls). See *id.*

<sup>231</sup> See *700MHz Service Rules*, 22 FCC Rcd. at 15358 ¶ 189.

<sup>232</sup> *Id.*

<sup>233</sup> See *Id.* at 15358–59 ¶¶ 190–91.

<sup>234</sup> *Id.* at 15362–63 ¶¶ 198–201.

<sup>235</sup> *Id.* at 15363–64 ¶¶ 202–03.

applications of their choosing as long as the device or application does not harm the network.<sup>236</sup> The C-Block winner, subject to reasonable network management, must not block or degrade the ability of customers to download and utilize applications of their choosing.<sup>237</sup>

Verizon won the C-Block auction, as well as other portions of the 700 MHz spectrum, and announced that it planned to use the spectrum to build a nationwide 4G LTE network.<sup>238</sup> It also launched the Open Development Initiative intended to encourage device and application innovations by clearly laying out the certification process to approve the use of any CDMA or LTE device and application on the Verizon network.<sup>239</sup>

## 2. Device Locking

All four national carriers lock the devices they sell for use only on their own network.<sup>240</sup> Early proponents of open access in the wireless context pointed to SIM card locking by the GSM carriers—AT&T and T-Mobile—as evidence of carriers impeding the use of devices on multiple networks.<sup>241</sup> SIM card locking meant that GSM phones, which could usually be transferred between networks by swapping the device’s SIM card, could only be used with one carrier’s SIM.<sup>242</sup> The CDMA carriers also engaged in device locking, although by using slightly different technology.<sup>243</sup>

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<sup>236</sup> 700 MHz Service Rules, 22 FCC Rcd. at 15365 ¶ 206.

<sup>237</sup> *Id.*

<sup>238</sup> Jim Gerace, Verizon Wireless Says Spectrum Additions from FCC’s Auction 73 Will Further Company’s Broadband Strategy, VERIZON (Mar. 4, 2008) <http://news.vzw.com/news/2008/04/pr2008-04-04.html>.

<sup>239</sup> *See Id.*; *see generally Verizon Open Development*, VERIZON, <http://opennetwork.verizonwireless.com/Default.aspx> (last visited Dec. 30, 2010).

<sup>240</sup> *See* John Haubenreich, Note, *The iPhone and the DMCA: Locking the Hands of Consumers*, 61 VAND. L. REV. 1507, 1508 (2008).

<sup>241</sup> *See* Wu, *supra* note 77, at 400–01.

<sup>242</sup> *Id.*

<sup>243</sup> *See Id.* at 399–400.

Device locking emerged alongside lock-in clauses in contracts to ensure that customers would remain with a carrier for a long enough period of time for the carrier to recoup its losses from offering a subsidized device.<sup>244</sup> AT&T and T-Mobile, however, will unlock devices for customers after a certain period of time after purchase.<sup>245</sup> Verizon and Sprint do not have unlocking policies but allow their phones to be unlocked by other carriers at the completion of a customer's contract.<sup>246</sup>

It is worth reiterating that even if a device is unlocked, it may or may not be compatible for use on other carriers.<sup>247</sup> The use of diverse technical standards by each carrier means that even after being unlocked, most devices are limited to certain carriers.<sup>248</sup>

#### **E. What Carterfone Meant for Wireline Telephony and the Call for Open Network Attachment Policies in Wireless**

The condition of the carrier-controlled device market has stirred some open access proponents to call for rules in wireless that would shift the balance of power back toward device manufacturers and customers.<sup>249</sup> These commenters believe that the

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<sup>244</sup> See Haubenreich, *supra* note 240, at 1508; see also Bar-Gill & Stone, *supra* note 21, at 75.

<sup>245</sup> *T-Mobile Unlocking Policy*, T-Mobile, <http://support.t-mobile.com/doc/tm51885.xml> (last visited Dec. 31, 2010). (AT&T will unlock devices after ninety days as long as the customer's account is in good standing. T-Mobile will unlock devices upon request after 40 days of service. iPhone Unlocking Policy, AT&T, [http://www.wireless.att.com/answer-center/main.jsp?t=solutionTab&ft=&ps=solutionPanels&locale=&\\_dyncharset=UTF-8&solutionId=KB82027](http://www.wireless.att.com/answer-center/main.jsp?t=solutionTab&ft=&ps=solutionPanels&locale=&_dyncharset=UTF-8&solutionId=KB82027) (last visited Dec. 31, 2010). (The exception to the rule is the iPhone, which AT&T will not unlock upon request.)

<sup>246</sup> Telephone Interview with Customer Service Representative, Verizon Wireless (Feb. 18, 2010); Telephone Interview with Customer Service Representative, Sprint (Feb. 18, 2010). (Although, neither Verizon nor Sprint seemed keen on the idea of unlocking its devices. Sprint's customer service representative went as far as to say that she believed the practice to be "technically illegal." It is worth noting that not all devices are even capable of being unlocked and used on other networks, so these rules are only applicable as far as unlocking is technically possible.) See *supra* notes 52-75 and accompanying text. (It is worth noting that not all devices are even capable of being unlocked and used on other networks, so these rules are only applicable as far as unlocking is technically possible.)

<sup>247</sup> See *supra* notes 70-71 and accompanying text.

<sup>248</sup> See *supra* notes 71-72 and accompanying text.

<sup>249</sup> See generally Frieden, *supra* note 93; Wu, *supra* note 77.

wireline network attachment rules developed by the FCC throughout the 1960's and 1970's—collectively referred to as the *Carterfone* rules—should be applied in the wireless context.<sup>250</sup>

The *Carterfone* rules stand for the proposition that customers have the right to use the telephone network for any beneficial and non-harmful purpose and have the right to attach any non-harmful, compatible device to the network.<sup>251</sup> To set the stage, the decision was issued while Bell remained the monopoly provider of traditional telephone service in the U.S. and controlled all aspects of its network.<sup>252</sup> Before the *Carterfone* rules, Bell prohibited the use of any non-Bell device on the telephone network.<sup>253</sup> Following the D.C. Circuit's 1956 decision, *Hush-a-Phone v. United States*, in which the court stated that customers should have freedom to use the telephone network in ways that are beneficial but not harmful, the FCC began to put into place basic network attachment rules.<sup>254</sup> In its 1968 decision, *Use of the Carterfone Device in Message Toll Telephone Service*, the FCC struck down Bell's device attachment policy as “unduly discriminatory,” rejecting Bell's argument that full control was necessary for the health of the network.<sup>255</sup>

The *Carterfone* decision established the customers' right to attach non-harmful devices to the telephone network and is widely credited for opening the door to innovations such as the fax machine, message machine, and dial-up modem.<sup>256</sup> Two

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<sup>250</sup> See generally *Id.*

<sup>251</sup> See Wu, *supra* note 77, at 397.

<sup>252</sup> See *Id.* at 395–97.

<sup>253</sup> See *Id.* at 395. Bell argued that it restricted the use of non-Bell devices to maintain its network in working order. See *id.* at 397.

<sup>254</sup> 238 F.2d 266, 268–69 (D.C. Cir 1956); See Wu, *supra* note 77, at 395-97.

<sup>255</sup> In the Matter of USE OF THE CARTERFONE DEVICE IN MESSAGE TOLL TELEPHONE SERVICE, 13 F.C.C.2d 420 (1968); see Wu, *supra* note 77, at 397.

<sup>256</sup> Wu, *supra* note 77, at 397.

decades later, in 2007, Professor Tim Wu authored an article drawing attention to the discriminatory device attachment policies enforced by some wireless carriers as well as carrier crippling of certain device features, discriminatory network management by some carriers in wireless broadband, and the fragmented and generally unsuccessful wireless application market.<sup>257</sup>

To “liberate device innovation,” Professor Wu recommended the application of *Carterfone*-type rules in wireless.<sup>258</sup> The rules would require carriers to allow customers to attach any non-harmful, compatible device to the wireless network and would prohibit locking devices to a single carrier.<sup>259</sup> Professor Wu further advocated for basic wireless net neutrality,<sup>260</sup> mandatory disclosure by the carriers regarding any carrier-imposed limitations or restrictions on device functions or applications, and for the industry to develop a standardized application platform to encourage innovation in wireless applications.<sup>261</sup>

Opponents of wireless *Carterfone* rules, on the other hand, have generally pointed to the competitive nature of the wireless industry to explain why further regulation in

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<sup>257</sup> See *Id.* at 389–90.

<sup>258</sup> See *Id.* at 391.

<sup>259</sup> See *Id.*

<sup>260</sup> See *Id.* Professor Wu’s wireless net neutrality proposal called for a prohibition on blocking or degrading customers’ access to non-harmful, legal content. See Wu, *supra* note 77, at 391. This Note does not address the complicated subject of wireless net neutrality nor needs to. See Frieden, *supra* note 5, at 719. Advocates of both sides are guilty of causing the debate over open device attachment rules to become enmeshed with the ongoing, but separate, war over network management rules for cable, DSL, and wireless networks. See *id.* This Note analyzes the state of the device market and makes policy recommendations to facilitate device and application innovation—these recommendations remain valid regardless of the FCC’s eventual stance on wireless net neutrality. See *id.*

<sup>261</sup> See Wu, *supra* note 77, at 391. See Adam Clay, *Unlocking the Wireless Safe: Opening Up the Wireless World for Consumers*, 61 Fed. Comm. L.J. 715, 716 (2009) (the FCC has never officially ruled on Skype’s petition, but it may have been the catalyst behind the industries shift toward open device attachment and the FCC’s adoption of open network rules in its 700 MHz auction). See generally, *e.g.*, Frieden, *supra* note 93 (similarly Professor Rob Frieden points out that the FCC continues to rely on *Carterfone* principles in other areas, like cable box regulation, such as in 2007 when Skype, an internet voice over internet protocol (VoIP) provider, filed a petition with the FCC advocating for wireless rules allowing customers to connect any device or use any application on the wireless network).

wireless is inappropriate.<sup>262</sup> These commenters note that *Carterfone* regulation was introduced at a time when Bell was a (1) monopolist; (2) vertically integrated into nearly all stages of its industry; and (3) regulated at nearly every level of business.<sup>263</sup> They argue that the wireless industry, in comparison, is a competitive oligopoly, carriers do not produce any wireless devices, and the industry is not rate regulated.<sup>264</sup> They further argue that the application of *Carterfone* rules in wireless is anti-consumer because it would spell an end to the subsidized device model carriers currently employ resulting in higher, unsubsidized device prices with no corresponding decrease in the price for wireless service.<sup>265</sup>

#### IV. Beyond Wireless *Carterfone*: A New Focus on Independent Distribution

Improvements in the wireless market warrant reconsideration of the wireless *Carterfone* movement.<sup>266</sup> The industry's trend toward open networks, in large part, has displaced the need for *Carterfone*-type network attachment rules in wireless.<sup>267</sup>

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<sup>262</sup> See generally Ford et al., *supra* note 82; Thomas Hazlett, *Wireless Carterfone: An Economic Analysis* (Info. Econ. Project, George Mason University Working Paper, 2007), available at <http://www.arlingtoneconomics.com/studies/wireless-carterphone.pdf>; Marius Schwartz & Federico Mini, *Hanging Up on Carterfone: The Economic Case Against Regulation in Mobile Wireless*, (Working Paper, 2007), available at: [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=984240](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=984240). (It is worth noting that at least Professors Hazlett and Schwartz were commissioned by Verizon and AT&T, respectively, to author their *Carterfone* articles.).

<sup>263</sup> See Ford et al., *supra* note 82, at 653.

<sup>264</sup> See *Id.* at 653–56 (most importantly, these commenters point to the lack of rate regulation in wireless markets). See *id.* at 654–55 (the FCC was concerned, at the time of *Carterfone*, that Bell would unfairly use its monopoly phone service to cross-subsidize its device production arm by transferring device production costs to its rate-regulated business, thus Bell could artificially lower the device prices to discourage competition in the device market; however, due to cost-based rate regulation, any costs Bell dumped into voice service could be recovered by seeking rate increases from regulators).

<sup>265</sup> See Ford et al., *supra* note 82, at 668–72.

<sup>266</sup> See *supra* notes 214–239 and accompanying text.

<sup>267</sup> See *supra* notes 214–239 and accompanying text (it is worth noting that one motivation for the industry's shift toward open networks may have been avoiding FCC regulation). See Interview Robert Frieden, Law Professor, Penn State University, (Jan. 7, 2011) [hereinafter Frieden Interview] (some commenters argue that despite the FCC's "Title II-lite" approach to regulation of the wireless industry, the FCC has never agreed to forebear from enforcing the core common carrier obligations of Title II which probably prohibit the type of restrictive attachment policies implemented by the carriers throughout the

Moreover, consolidation in mobile operating systems and a trend toward open platforms has drastically improved the mobile application market.<sup>268</sup> Despite these improvements, however, the device market remains characterized by harmful carrier practices begging the conclusion that *Carterfone*-type attachment rules alone would never have been enough to “liberate device innovation.”<sup>269</sup>

To develop a regulatory policy that promotes the highest level of innovation, the FCC must address the root of the carriers’ influence in the device market—their death grip on device distribution.<sup>270</sup> Opening up distribution channels independent of the national carriers is the key to creating a market structure that is truly open to innovation.<sup>271</sup> Keeping these channels closed is the pricing advantage carriers currently wield by subsidizing device purchases with service contracts.<sup>272</sup> Unbundling device and service contract sales will: (1) inject additional device models into the market by creating distribution channels for devices not selected by a national carrier; (2) eliminate harmful carrier interference in the device market that creates lag time between invention of a technology and mainstream availability; (3) focus device price competition on the real price of a device; and (4) focus competition between wireless carriers on network quality and price of service.<sup>273</sup>

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2000’s; however, the FCC has been relatively friendly to the wireless industry in enforcing Title II, but carriers may have sought to avoid attention in this regard by moving away from their questionable approach to network attachment). *See, e.g., Frieden, supra* note 93, at 5–6 (wireless carriers, just as much as cable and DSL providers, are very interested in disassociating with Title II and the regulatory burdens that come with a Title II classification).

<sup>268</sup> *See infra* notes 284–287 and accompanying text.

<sup>269</sup> *See infra* notes 288–293 and accompanying text.

<sup>270</sup> *See infra* notes 294–311 and accompanying text.

<sup>271</sup> *See supra* notes 280–293 and accompanying text.

<sup>272</sup> *See infra* notes 294–311 and accompanying text.

<sup>273</sup> *See infra* notes 294–345 and accompanying text.



Section A argues that the industry's trend toward open network principles has displaced the need for *Carterfone*-type rules in wireless.<sup>274</sup> Section B explains why independent distribution channels are the key to promoting the highest level of device innovation and why unbundling device and service contract sales is needed to achieve this goal.<sup>275</sup> Finally, Section C argues that unbundling will not prohibit carriers from competing over device sales but rather will only require carriers to compete on a level playing field with other retailers.<sup>276</sup>

#### **A. The Industry's Trend Toward Open Networks Has Displaced the Need for *Carterfone*-type Rules but Harmful Carrier Practices Remain**

The wireless *Carterfone* movement, in terms of network attachment, has become moot.<sup>277</sup> AT&T and T-Mobile continue to be the most open of the national carriers and allow any compatible devices on their networks.<sup>278</sup> Verizon and Sprint now tout open device attachment policies, as well, and have initiated programs to test and approve any proposed compatible device.<sup>279</sup> Moreover, all four carriers appear to have improved their stances in regard to device locking, allowing customers to use devices on other networks if compatible.<sup>280</sup>

Beyond the industry's own initiative, the FCC has signaled its support for open device principles by imposing open network rules on the winner of its 700MHz auction.<sup>281</sup> Although Verizon, the big winner of the 700MHz auction, has only recently rolled out the 4G LTE network it built with the new spectrum, it appears to have

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<sup>274</sup> See *infra* notes 277–293 and accompanying text.

<sup>275</sup> See *infra* notes 294–345 and accompanying text.

<sup>276</sup> See *infra* notes 346–360 and accompanying text.

<sup>277</sup> See *infra* notes 278–293 and accompanying text.

<sup>278</sup> See *supra* notes 214–239 and accompanying text.

<sup>279</sup> See *supra* notes 214–239 and accompanying text.

<sup>280</sup> See *supra* notes 240–248 and accompanying text.

<sup>281</sup> See *supra* notes 230–239 and accompanying text.

embraced the FCC’s open network directive.<sup>282</sup> Either way, the nation’s largest carrier—and previously the carrier with the most restrictive device attachment policy—is now bound by enforceable *Carterfone*-type rules in regard to the most important part of its network.<sup>283</sup>

The market has also remedied ills in the mobile application market voiced by Professor Wu and other proponents of wireless *Carterfone*.<sup>284</sup> Professor Wu described the mobile application market in 2007 as a “tarpit of misery, pain and destruction” and advocated for a standardized platform to facilitate development.<sup>285</sup> Now, approximately eighty five percent of smartphones run one of three platforms.<sup>286</sup> All three platforms are open to independent developers and sell tens of thousands of third-party apps in a multi-billion dollar marketplace.<sup>287</sup>

Despite the clear trend toward open network principles, harmful carrier interference in the device market can still be found.<sup>288</sup> Carriers continue to “pick winners” in the device market by deciding which devices will be successfully marketed in the U.S. and which will not.<sup>289</sup> Carriers also continue to restrict the development of

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<sup>282</sup> See *supra* notes 230–239 and accompanying text.

<sup>283</sup> See *supra* notes 230–239 and accompanying text.

<sup>284</sup> See *infra* notes 285–287 and accompanying notes.

<sup>285</sup> See Wu, *supra* note 77, at 390.

<sup>286</sup> See *comScore Reports November 2010 U.S. Mobile Subscriber Market Share*, comScore (Jan. 6, 2011), [http://comscore.com/Press\\_Events/Press\\_Releases/2011/1/comScore\\_Reports\\_November\\_2010\\_U.S.\\_Mobile\\_Subscriber\\_Market\\_Share](http://comscore.com/Press_Events/Press_Releases/2011/1/comScore_Reports_November_2010_U.S._Mobile_Subscriber_Market_Share). (At the end of 2010, RIM’s Blackberry OS led the pack followed closely by Google’s Android and Apple’s iPhone OS).

<sup>287</sup> See Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions With Respect Mobile Wireless, Including Commercial Mobile Services, Fourteenth Report, 2010 WL 2020768, \*102–04 ¶¶ 318–22 (F.C.C. May 20, 2010) [hereinafter Fourteenth Annual Report]. Revenue for application sales is expected to grow from almost two billion in 2009 to fifteen billion by 2013. Robin Wauters, *Global Smartphone App Download Market Could Reach \$15 Billion by 2013*, Tech Crunch (Mar. 5, 2010), <http://techcrunch.com/2010/03/05/global-smartphone-app-download-market-could-reach-15-billion-by-2013-report>.

<sup>288</sup> See *supra* notes 153–209 and accompanying text.

<sup>289</sup> See *supra* notes 153–172 and accompanying text.

new device technology resulting in lag time between invention of a technology and mainstream availability and, inversely, continue to mandate the inclusion of unwanted bloatware on devices.<sup>290</sup> The power to influence the device market in all three respects derives from the difficulty—evidenced by the Nexus One and Nokia’s recent troubles—of marketing a device independent of the national carriers.<sup>291</sup>

The persisting barriers to device innovation, despite the market’s movement toward open network principles, illustrate the shortcomings of *Carterfone*-type rules alone in fostering device innovation.<sup>292</sup> To best promote innovation in devices, the focus must shift from interoperability (network attachment, device locking) to developing independent distribution channels for devices to get into the market.<sup>293</sup>

### **B. Opening Independent Distribution Channels: The Key to Promoting the Highest Level of Device Innovation**

Opening up distribution channels independent of the national carriers is the key to creating a market structure that is truly open to innovation.<sup>294</sup> New independent channels will result in an increase in the number of available device models in the U.S. and unhindered development of new technologies.<sup>295</sup> Keeping these channels closed is the pricing advantage carriers currently wield by subsidizing device purchases with service contracts.<sup>296</sup>

The FCC realized as early as its 1992 bundling decision that allowing carriers to bundle devices and service contracts would destroy the incentive to buy a non-carrier

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<sup>290</sup> See *supra* notes 173–209 and accompanying text.

<sup>291</sup> See *supra* notes 28–143, 162–172 and accompanying text.

<sup>292</sup> See *supra* notes 277–291 and accompanying text.

<sup>293</sup> See *supra* notes 294–345 and accompanying text.

<sup>294</sup> See generally Wu, *supra* note 77.

<sup>295</sup> See *supra* notes 153–209 and accompanying text.

<sup>296</sup> See Reardon, *supra* note 22.

device.<sup>297</sup> It failed to predict, however, that the bundling regime would allow carriers to position themselves as gatekeeper between the device market and customers.<sup>298</sup>

The fundamental mistake, perhaps, was the FCC's inability to relate unbundling rules in the context of then monopoly telephone carrier, Bell, to the wireless industry.<sup>299</sup> The FCC was familiar with the concept of subsidizing device prices with service rates from its dealings with Bell—it had long been concerned that Bell would artificially lower its device prices to force out competitors by hiding its losses in its rate regulated business.<sup>300</sup> Because the wireless industry was not a monopoly, and was not cost-based rate regulated, the FCC reasoned that wireless carriers lacked the guaranteed return from customers that Bell could count on in its captive rate base, and thus could not depend on recovering the costs of subsidizing devices by raising service rates.<sup>301</sup> In other words, customers could purchase a discounted device and transfer to a competitor before their service revenues accounted for the carrier's loss.<sup>302</sup> Limits on device interoperability, as discussed above, and the development of early termination fees (ETFs) quickly solved this problem for carriers.<sup>303</sup>

The FCC, however, not only misunderstood how the carriers planned on subsidizing devices with service rates but also why the carriers had interest in the first

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<sup>297</sup> See Bundling of Cellular Customer Premises Equipment and Cellular Service, Report and Order, 7 FCC Rcd. 4028, 4031 ¶ 24, 4035 n.40 (1992) [hereinafter Cellular Bundling Order]. Commissioner Duggan, at the time, was concerned enough to dissent in part to the FCC's decision to allow bundling of devices and service. See *id.* at 4036. Commissioner Duggan noted that the consequences of bundling devices and service contracts was twofold: first, customers not buying devices would subsidize customers buying bundled device with a rebate and second, that customers would be discouraged from buying an unbundled device.

<sup>298</sup> See *supra* notes 153–248 and accompanying text.

<sup>299</sup> See *infra* note 300–307 and accompanying text.

<sup>300</sup> See Ford et al., *supra* note 82, at 653.

<sup>301</sup> See Cellular Bundling Order, 7 FCC Rcd. at 4031 ¶ 24.

<sup>302</sup> See *id.*

<sup>303</sup> See Frieden, *supra* note 93, at 3–4. Early termination fees are penalties assessed against customers who wish to leave a wireless carrier before the end of their contract term.

place.<sup>304</sup> Wireless carriers never sought to dominate *production* of devices—a point lost on *Carterfone* opponents, as well, who argue that the lack of vertical integration in the wireless industry justifies carrier-centric device policies.<sup>305</sup> Rather, carriers wanted to win control over *distribution* and the grab bag of prizes that came with it, including control over device offerings, device features, and discriminatory network attachment rules.<sup>306</sup> The subsidized device model allows carriers to lower device prices below competitive levels forcing out independent distributors not device makers.<sup>307</sup>

The recent trend toward open network principles has resulted in carriers giving back some advantages earned through controlling distribution—discriminatory network attachment rules and control over applications, to some extent—but carriers continue to take full advantage of their other winnings including control over device offerings and features.<sup>308</sup> An FCC unbundling rule will spell an end to the subsidized device model opening pathways from device makers to customers free from the influences of the national carriers.<sup>309</sup> The result will be an increase in the number of available device models in the U.S. and unhindered development of new technologies.<sup>310</sup> Such a market structure will rightfully return control over innovation to the innovators and away from carriers.<sup>311</sup>

## 1. Unbundling Will Lower Real Device Prices Immediately and Over Time

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<sup>304</sup> See *infra* notes 306–311 and accompanying notes.

<sup>305</sup> See Ford et al., *supra* note 82, at 654–72 (arguing that carriers are not rate regulated, vertically integrated monopolies attempting to subsidize prices in an unregulated market (devices) to force out competitors by dumping costs into a regulated market (service)).

<sup>306</sup> See *supra* notes 144–265 and accompanying text.

<sup>307</sup> See Frieden, *supra* note 93, at 3–4. It is worth noting that to round out this advantage, neither national carrier offers discounted service rates to customers seeking to use non-carrier devices. *See id.*

<sup>308</sup> See *supra* notes 288–307 and accompanying text.

<sup>309</sup> See Reardon, *supra* note 22.

<sup>310</sup> See *supra* notes 153–172 and accompanying text.

<sup>311</sup> See Clay, *supra* note 261, at 726–27.

An increase in the number of available devices coupled with refocusing of competitive forces will cause prices to fall in the long term under an unbundled regime.<sup>312</sup> Moreover, even immediately, the market price for devices will most likely fall below the non-contract price currently offered by carriers.<sup>313</sup>

*Carterfone* opponents argue that ending the subsidized device model will raise device prices with no corresponding decrease in the cost of wireless service.<sup>314</sup> This conclusion is difficult to accept.<sup>315</sup> In the long term, three factors suggest that prices will fall.<sup>316</sup> First, opening independent channels for distribution will inject additional device models into the market.<sup>317</sup> Second, unbundling will focus competitive forces on the real price of devices, straight from the device maker.<sup>318</sup> Smartphone prices already face downward pressure and device makers are beginning to target lower price-point markets.<sup>319</sup> Unbundling will ensure that this downward pressure is felt principally by device makers, not carriers, resulting in a downward trend in real prices and not simply more carrier subsidization.<sup>320</sup> Finally, as discussed in Section two below, unbundling will refocus competitive forces between carriers on price of service and quality of network and away from device lines leading to lower service rates.<sup>321</sup>

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<sup>312</sup> *See id.*

<sup>313</sup> *See infra* notes 322–35 and accompanying text.

<sup>314</sup> *See e.g.* Ford et al., *supra* note 82, at 668–72. Ford and his co-authors have put together a complex economic model intended to prove the same. *See id.*

<sup>315</sup> *See infra* notes 316–321 and accompanying text.

<sup>316</sup> *See infra* notes 317–321 and accompanying text.

<sup>317</sup> *See* Clay, *supra* note 261, at 726–27.

<sup>318</sup> *See infra* notes 319–320 and accompanying text.

<sup>319</sup> *See* Christopher Lawton, *Phone Makers Shift Focus*, Wall St. J., Dec. 14, 2010, at B9.

<sup>320</sup> *See Id.* Even Apple is moving down market with its iPhone and is planning to release a cheaper iPhone version at half the price of the iPhone 4. Yukari Iwatani Kane and Ethan Smith, *Less-Pricey iPhone in the Works*, Wall St. J., (Feb. 14, 2011), [http://online.wsj.com/article/SB10001424052748704657104576142262842435544.html?mod=rss\\_Technology](http://online.wsj.com/article/SB10001424052748704657104576142262842435544.html?mod=rss_Technology).

<sup>321</sup> *See infra* notes 336–345 and accompanying text.

Moreover, even in the short term, prices appear likely to fall below the artificially high no-contract price carriers currently offer.<sup>322</sup> The subsidized model is based on the appeal of a low bundled price, subsidized by the carrier, in comparison to a much higher no-contract price.<sup>323</sup> Carriers have an incentive to keep no-contract prices high—otherwise, the incentive to choose the subsidized price bundled with a service contract breaks down.<sup>324</sup> Because virtually no other channels for device distribution exist, we cannot tell what the market price for a particular device would be in an open market only what the no-contract price is offered by the carrier.<sup>325</sup>

The most plausible prediction is that the market price of a particular device falls somewhere between the carrier’s subsidized price and the no-contract price.<sup>326</sup> This price will represent the real price of a device—determined by competitive forces—with no strings attached.<sup>327</sup> Anecdotal evidence supports this conclusion.<sup>328</sup>

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<sup>322</sup> See Frieden Interview, *supra* note 267. Admittedly, in the short term, prices will not fall as low as the carriers’ subsidized prices and thus, unbundling will work to the disadvantage of some market participants. See *infra* notes 323–335 and accompanying text. Principally, low-income customers that appreciate the “buy now, pay later” nature of the current system may have difficulty acquiring the latest and most technically advanced devices. See *infra* notes 323–335 and accompanying text. Moreover, unbundling may come as a bitter pill for many customers, even those without affordability issues, in a market generally unaccustomed to paying market price for devices. See Reardon, *supra* note 22. The principle contention of this Note, however, is that unbundling is vital as an innovation policy, and that the innovative benefits of a decentralized market structure outweigh any harms caused by movement northwest on the device demand curve. See *infra* notes 361–69 and accompanying text. It may be instructive to consider that, in the wake of the Bell divestiture, customers experienced inflated prices and other short-term complications that took a while to correct. See Wu, *supra* note 191, at 195. But, as Professor Wu notes, “when the innovation pent up by the Bell system came out, it was not a trickle but a tidal wave, in computing, telephony, networking, and everything else that has defined the information economy of the last thirty years.” *Id.*

<sup>323</sup> See Wu, *supra* note 77, at 398–99; see generally Bar-Gill & Stone, *supra* note 21 (explaining how consumer error in choosing wireless plans allows carriers to profit from contract plans more than pay per-use plans).

<sup>324</sup> See Wu, *supra* note 77, at 398–99.

<sup>325</sup> Frieden Interview, *supra* note 267. Professor Frieden has extensive experience in the telecommunications arena and believes that no-contract device prices are artificially inflated and that the open market price for a particular device lies somewhere between the no-contract price and the subsidized price. See *id.*

<sup>326</sup> See *id.*

<sup>327</sup> See *id.*

<sup>328</sup> See *infra* notes 329–35 and accompanying text.

Consider a rare example of a device sold by a carrier and an independent distributor side-by-side.<sup>329</sup> Wal-Mart, in partnership with T-Mobile, has recently entered the wireless service arena, on a limited basis, and is offering low cost, no-contract plans targeted to families.<sup>330</sup> Because no contract is required, Wal-Mart's phones are sold unsubsidized.<sup>331</sup> Wal-Mart's plan offers a relatively small choice of phones at the moment, one of which—the Motorola Cliq XT—is also available through T-Mobile.<sup>332</sup> Wal-Mart sells the Motorola Cliq XT for \$249 unsubsidized with no contract.<sup>333</sup> T-Mobile sells the device for \$89 bundled with a two year contract and with no contract for \$330.<sup>334</sup> This example of pricing disparity is most likely a plausible predictor of how prices will move in the event that independent distributors gain enough market share to rival the national carriers.<sup>335</sup>

## **2. Unbundling Will Heighten Competition Between Carriers Over Network Quality and Price of Service**

Beyond the device market, unbundling will refocus competition in the wireless market leading to pro-consumer improvements.<sup>336</sup> Carriers currently compete over three factors: device offerings; network quality and upgrades; and price of service.<sup>337</sup> Carriers formulate competitive strategies with varying emphasis on each.<sup>338</sup> Accordingly, a

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<sup>329</sup> See *infra* notes 330–35 and accompanying text.

<sup>330</sup> Joe Albanesi, *Wal-Mart, T-Mobile Launch Unlimited Wireless Family Plan*, PC MAG (Sept. 13, 2010), <http://www.pcmag.com/article2/0,2817,2369081,00.asp>. Wal-Mart also sells post-paid and pre-paid plans and phones offered by other carriers, but its own Family Mobile plan is a post-paid, no-contract service in partnership with T-Mobile. See *id.*

<sup>331</sup> See Liane Cassavoy, *Wal-Mart's Mobile Service: Do the Numbers Add Up?*, PC World (Sept. 14, 2010), [http://www.pcworld.com/article/205439/walmarts\\_mobile\\_service\\_do\\_the\\_numbers\\_add\\_up.html](http://www.pcworld.com/article/205439/walmarts_mobile_service_do_the_numbers_add_up.html).

<sup>332</sup> See *id.*

<sup>333</sup> See *id.*

<sup>334</sup> See *id.*

<sup>335</sup> See *supra* notes 326–334 and accompanying notes.

<sup>336</sup> See Clay, *supra* note 261, at 726–27.

<sup>337</sup> 927 F. 2d at 1204.

<sup>338</sup> *Id.* (citing *Oka v. Youssefeyeh*, 849 F. 2d 581, 583 (Fed. Cir. 1988); *OTA Report at 71*).



superior line of exclusive devices can make up for weaknesses in network quality or attractive pricing packages.<sup>339</sup>

AT&T, for example, recently received the lowest rating for network quality by Consumer Reports.<sup>340</sup> AT&T's network problems are by no means a new development and customers have long complained of poor call quality.<sup>341</sup> Nevertheless, boasting the largest line of smartphones and arguably, the market's most sought after device, Apple's iPhone, AT&T has continued to gain market share.<sup>342</sup>

Increasing the availability of devices through non-carrier channels will deemphasize the importance of a carrier's device line.<sup>343</sup> Customers will benefit from a wireless market that better focuses competitive pressure on carriers to improve network quality and adjust prices rather than compensate by procuring exclusive contracts with device makers for the hottest devices.<sup>344</sup> Moreover, with greater emphasis on network quality and technology, carriers can be expected to allocate resources once dedicated to procuring and marketing devices toward infrastructure upgrades.<sup>345</sup>

### **C. Unbundling Will Not Preclude Carriers from Selling Devices or Negotiating Exclusive Arrangements**

Unbundling device and service contract sales will not require carriers to stop selling devices—it will only require carriers to move away from subsidizing device prices

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<sup>339</sup> See *infra* notes 340–342 and accompanying text.

<sup>340</sup> *Consumer Reports Cell-Service Ratings: AT&T is the Worst Carrier*, Consumer Reports (Dec. 6, 2010), <http://blogs.consumerreports.org/electronics/2010/12/consumer-reports-cell-phone-survey-att-worst.html>.

<sup>341</sup> See e.g. Jason Mick, *Study Finds AT&T Last in Dropped Calls, Satisfaction; AT&T Disputes Results*, Daily Tech (May 5, 2010), <http://www.dailytech.com/UPDATE+2+Study+Finds+ATT+Last+in+Dropped+Calls+Satisfaction+ATT+Disputes+Results/article18305.htm>.

<sup>342</sup> See *id.*

<sup>343</sup> See generally *id.*

<sup>344</sup> See generally *id.*

<sup>345</sup> See generally *id.*

with service revenues.<sup>346</sup> As some carriers have argued, customers may prefer a “one-stop-shop” for devices and service.<sup>347</sup> If this is the case, these customers will continue to shop for devices with their carrier.<sup>348</sup> Unbundling will simply require carriers to compete for device sales on a level playing field.<sup>349</sup>

Moreover, unbundling will not prohibit exclusive device arrangements between carriers and device makers.<sup>350</sup> Some commenters have argued that device makers, in fact, prefer these relationships for a number of reasons.<sup>351</sup> If this is the case, some device makers will continue to enter into exclusive agreements with carriers.<sup>352</sup> Unbundling, however, will open the door to device makers that wish to distribute their products independently through their own retailers, big box stores, or on the internet.<sup>353</sup>

Neither will unbundling absolutely lead to commoditization of wireless service, but rather it will force carriers to find new innovative ways to differentiate.<sup>354</sup> Carriers will still be able to differentiate through device lines, but will compete for device sales on a level playing field with other retailers.<sup>355</sup> This increased competition will encourage carriers to shift focus toward other competitive factors like network quality and price of service.<sup>356</sup> By no means will carriers, however, be limited to differentiating themselves

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<sup>346</sup> See Clay, *supra* note 261, at 726.

<sup>347</sup> See *id.*

<sup>348</sup> See *id.*

<sup>349</sup> See *supra* notes 294–345 and accompanying text.

<sup>350</sup> See *infra* notes 351–60 and accompanying text.

<sup>351</sup> See generally Robert Hahn & Hal J. Singer, *Why the iPhone Won't Last Forever and What the Government Should Do to Promote its Successor*, 8 J. TELECOMM. & HIGH TECH. L. 313 (2010) (arguing that device makers prefer to negotiate exclusive arrangements because carriers provide marketing assistance and shoulder part of the risk of launching a new device). See [source] at 168–86.

<sup>352</sup> See generally *id.*

<sup>353</sup> See *supra* notes 277–293 and accompanying text.

<sup>354</sup> Ford et al., *supra* note 82, at 664–65.

<sup>355</sup> See *supra* notes 277–293 and accompanying text.

<sup>356</sup> See *supra* notes 336–345 and accompanying text.

only by their networks.<sup>357</sup> Carriers have long been afraid of becoming “dumb pipes” and are already branching out into new applications and services that will provide revenue sources in addition to wireless service.<sup>358</sup> For example, AT&T and Verizon are developing cloud based services allowing customers to transfer photos and other files to and from the cloud and their devices.<sup>359</sup> Thus, another benefit of equalizing the carriers’ pricing advantages in device sales will be a more concentrated focus on innovation in the services carriers provide to customers.<sup>360</sup>

## V. Conclusion

The U.S. wireless market is dominated by four national carriers who manage to, in large part, control the development and distribution of wireless devices. Until a viable distribution channel, free from the influences of the national carriers, is allowed to connect device makers and customers, device offerings and innovation will be restrained. The key to opening independent distribution channels is neutralizing the pricing advantage carriers gain by offering below-cost devices packaged with a two year service contract.

Unbundling is, principally, an innovation policy, but will also have pro-consumer effects by focusing competitive forces on the real price of devices and focusing competition between the carriers on network quality and price of service. Moreover,

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<sup>357</sup> See Darcy Travlos, *How Wireless Carriers Can Recapture the Market*, FORBES (Nov. 22, 2010), <http://www.forbes.com/2010/11/22/wireless-smartphone-carriers-verizon-intelligent-investing.html>.

<sup>358</sup> See *id.*

<sup>359</sup> See *id.* The cloud refers to cloud computing, which is a way for customers to access files and personal information online without storing the data on a particular device, see Rivka Tadjer, *What is Cloud Computing?*, PC MAG (Nov. 18, 2010), <http://www.pcmag.com/article2/0,2817,2372163,00.asp>. The cloud stores data, like calendar dates, music, and documents and is accessible by any device—like a public computer, a personal laptop, or a wireless device—eliminating the need to have data stored physically on a single device, see *id.*

<sup>360</sup> See *id.*

unbundling will not prohibit carriers from selling devices or competing for exclusive arrangements, but rather, will only position carriers on a level playing field with other device retailers.

Though this Note argues that *Carterfone* need not be implemented in wireless, the decision, and its essential role in fostering ground-breaking innovation in the communications systems at the time, should by no means be forgotten. *Carterfone*'s most relevant legacy today, however, may be its underlying message—that the need for innovation policy, by nature, is not always justified by something that can be tangibly identified in the present, but rather is derived from the belief that where the doorway is unrestricted, the market will deliver improvements on the status quo previously unimagined. If the history of communications teaches us anything, it is that when the doorway is manned by an incumbent with a vested interest in the status quo, only non-threatening innovation gains entry.<sup>361</sup> An unbundling policy for wireless device sales will ensure unrestricted channels to customers for even the most industry changing advances in communications.

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<sup>361</sup> See Wu, *supra* note 191, at 146 (“the conditions facing entrepreneurs determine how much innovation happens.”).

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### **Google, Westlaw, LexisNexis and Open Access: How the Demand for Free Legal Research Will Change the Legal Profession**

By David Hall

#### **I. Introduction**

The purpose of this paper is to explore how free legal databases will challenge the premium pay sites of Westlaw and LexisNexis in the field of legal research. Two reasons stand out for why this issue is so relevant today. The first is the increasing reluctance of those in the legal community to pay high costs for their research. This is particularly important as the country snakes through a recession. Secondly, are the improvements free sites have made to their databases, increasing the legal works available on their sites exponentially over the past years. And if those two reasons are not strong enough, then you can also add the resentment of the general public who are closed off to many statutes, law, and cases because they do not subscribe to the pay services.

The second section of the article looks at the current state of legal research. Presently, Westlaw and Lexis dominate the legal research market, forcing many practitioners to pay for their research. The section will discuss the growing disinterest many in the legal field and the general public have with paying a subscription cost to look up a local statute. This is followed by the third section, an examination of the current call for open access. Open access as a movement counts many people, organizations, and universities, all with the goal of making scholarly works available to all. In response to

the “Wexis” domination, many in the legal community have answered the call for open access and have been working to make the law freely available. The battleground that will determine the future of research will naturally be the internet and electronic databases. The fourth section focuses on Google’s new legal search engine, Google Scholar. While there have been many free sites to come and go over the years none has had the potential of Scholar. The free research source has become a champion for those in the open access movement. Since its launch countless people in the legal field have offered opinions on its current form and its future as a viable research entity. Its potential to succeed and the possible drawbacks and negatives of the site will be examined. Fifth is the history of Westlaw and Lexis. In order to understand legal research’s future, we must know its past. More specifically, an investigation of how the two companies came to control legal research. Finally, the article looks at alternatives to West and Lexis. Besides Google Scholar, there are other sites that can further open access in legal research.

## **II. Current State of Legal Research**

Open access to the law is a legitimate and worthy cause because the law should be free to all citizens, as it is their law to begin with. Currently, this is not the case. The duopoly of Westlaw and LexisNexis controls legal research by use of their for-pay databases. By charging a fee, they have essentially wiped out the possibility that the public will be able to view case law. Such lack of transparency in the legal process only serves to foster distrust and resentment from a public that can too often feel ostracized from the legal world. While the internet does provide access to some cases and statutes, the vast majority of law is tucked away in the electronic vaults of Westlaw and LexisNexis. Currently, the two company’s control 90% of the legal publishing business

in the U.S.<sup>362</sup> This control has allowed the companies to charge at will. These prices are charged on an individual basis, often with no consistency between similar parties, and at a price scale that is kept secret from consumers.

The effect of this system has made a large profit for these companies, and citizens are forced to pay for law that is rightfully theirs. “If you want to cite these decisions in a legal brief, or include these decisions in an electronic database, you will probably have to traverse this vendor’s copyright.”<sup>363</sup> These copyrights have met with at least some resistance over the years. The courts have opened room for competitors by refusing to interpret Westlaw’s copyright as anything more than their indexing and pagination. The law is still free. The difficulty is in creating a database that can rival the maturity of Westlaw and Lexis. The two companies have been at this for a long time and their service includes nearly every case, order, statute, and law review article in existence. In other words, a free site will require time to be able to compete. Moreover, the legal community has adopted West as the standard, if for no other reason than it and Lexis are the only reliable resources. In a profession built on current law and precedent, reliability is a big deal.

Open access would allow rivals to compete with the duopoly. Recently, Google has branched out into legal research with Google Scholar. While free research sites have come and gone none of them had the advantage of Google’s resources. While the site offers cases and journal articles it does not offer statutes or codes. Westlaw and Lexis are still supreme in this area as they offer everything from restatements to state statutes to Black’s Law Dictionary. Still, the potential is there and few would bet against Google.

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<sup>362</sup> Olufunmilayo B. Arewa, *Open Access in A Closed Universe: Lexis, Westlaw, Law Schools, and the Legal Information Market*, 10 Lewis & Clark L. Rev. 797, 825 (2006).

<sup>363</sup> Gary Wolf, *Who Owns the Law?*, WIRED (2004), [Wired.com/wired/archive/2.05the.law\\_pr.html](http://Wired.com/wired/archive/2.05the.law_pr.html)

The call for open access has also been heard in universities. A handful of law libraries, such as Duke, have begun to make their journal articles available electronically. Likewise, universities such as Kansas have taken active measures to ensure that the output of their academic departments is available for all. While the impact of easily accessible scholarly journals won't matter much to the public, free case law will. Such library initiatives are an important first step to making this a reality.

This has been part of the growing electronic information age that includes the Kindle and iPhones which allow a lawyer to download law within seconds. What these services have in common with Westlaw is that a fee is paid for a service. Where the difference arises is in the price. Westlaw pricing is so intricate that a user can easily burn through money because of an inefficient search. This is due to the West price system which charges by transaction and not by a flat monthly fee, much to the ire of many modern users.

Still, for all their success, West and Lexis have struggled to keep up with the times and have been slow to react to customers' evolving expectations with electronic research. A large part of their reluctance to change was due to their position as a firmly entrenched duopoly. This control dates back to the print world. It then continued in disc form on computers. They then made a presence on the internet and have received large profits ever since. Today, however the internet has grown beyond the control of any two companies. It is much easier to contribute information to a site or database, and competitors to West and Lexis have begun to do so.

#### **A. Reaction of Legal Community to Google Scholar**



On November 16, 2009 Google Scholar launched its legal database. Scholar had already been a search engine for scholarly literature across numerous disciplines and received positive reviews for its ease of use and catalogue. That such a system would now be used for free legal research caused an instant commotion in the legal research world. Almost immediately after the launch a swarm of newspaper articles, blogs and law sites raced to write their opinions on the newcomer in the legal field. The reviews were mostly positive, and have continued to be now over a two years after its launch. This is no real surprise as the price tag of free, means that there is no harm in using the site. Still, its launch is bigger than just another search engine on the web. It has become symbolic of a greater movement, one for free legal research and open access to court decisions.

One proponent of the site was Bob Berring, a professor at Cal Berkley law school. Berring has spent the last several years incorporating free research, such as Cornell's Legal Information Institute (LII) into his legal research classes. He refers to the free sites as "heroes" and "pioneers."<sup>364</sup> Furthermore, he questions Westlaw and Lexis' ability to survive into the 21<sup>st</sup> century as they are currently operating.<sup>365</sup> Simply put, web users expect to research for free.

In their launch statement Google tapped into the overwhelming desire for free research that users have become customary to. "We think this addition to Google Scholar will empower the average citizen by helping everyone learn more about the laws that

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<sup>364</sup> Bob Berring, *Free Law Kerfuffle*, SLAW (Nov. 3 2009), <http://www.slw.ca/2009/11/03/free-law-kerfuffle/>

<sup>365</sup> *Id.*

govern us all.”<sup>366</sup> By offering free legal research Google Scholar has launched the first serious assault against the Westlaw/Lexis duopoly. For legal practitioners and citizens alike, this movement promises to become the first time that a no-cost, comprehensive, efficient tool is at their disposal for their legal needs.

While many are optimistic of the potential of Google, this optimism is still cautious. In regards to the overall impact that Google Scholar will have on legal research one attorney blog states, “In the short term, the answer is most likely, little to none. However, over time, Google will put both these services [Westlaw and LexisNexis] into “differentiate or die” mode.”<sup>367</sup>

One such reason for caution is that the site still lacks the comprehensive search capabilities of Westlaw, which includes, well, *everything*. Ironically, this all-inclusive nature of Westlaw has been one of the reasons cited by users as a problem with the site. Users have referred to the sites interface as clumsy and difficult, and the Boolean search has been a pain for many. While Scholar debut form is still far behind West and Lexis, the technology is still young, and as it grows it should become more mature. “While the initial “pitch” is giving access to the law to lay people, Google will undoubtedly begin to incorporate many of the other key components of performing legal research (citations, shepardizing, cross-referencing, etc.).”<sup>368</sup> It also has the benefit of learning from the others mistakes. The Google track record is one of the primary reasons why it can

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<sup>366</sup> Anurag Acharya, *Finding the Laws that Govern Us*, Google, Nov. 16 2009, <http://googleblog.blogspot.com/2009/11/finding-laws-that-govern-us.html>

<sup>367</sup> AttorneySync, *Future Headline: Google Kills Lexis and Westlaw*. *Lawyer marketing blog*. November 18, 2009, <http://lawyermarketing.attorneysync.com/blog/2009/11/future-headline-google-kills-lexis-and-westlaw/>

<sup>368</sup> *Id.*

succeed where other such sites have failed. “As Google has proven in the past, they are really good at search.”<sup>369</sup>

What they may not be so good at however, is citations. As many in the legal field know, a case can become worthless very quickly if it is overruled, or is declined to follow. This causes reliability issues, as there is no big red flag to warn the user that the case is no longer good law. Kimberly Gold of SEO Specialists, a consulting firm focusing on web research, commented on the usability of the site:

Google Scholar includes a “How cited” feature that lists citing references, including excerpts from those citing references. However, the citing references are not classified; they are not displayed as positive or negative and it is not stated whether the citing references followed or declined to follow the original case. Lawyers need to be able to verify whether a researched case is still good law and will have to go beyond Google Scholar for this purpose.<sup>370</sup>

Additionally, the search cannot be narrowed within specific federal districts.

Instead the entire federal record comes up after the search is entered. Westlaw to, often frustrates users in their need to find documents quickly. Paul Ohm, an Associate Professor of Law at the University of Colorado Law School, commented on the current limitations of the sites:

Google needs to talk to a few more law firm associates to understand the ways that searching for a case is not like searching the web. Westlaw similarly needs to talk to more law professors, because their new product is geared almost entirely toward law firm practice, and it does not work well for other kinds of legal research.<sup>371</sup>

What Scholar will ultimately have to decide is whether it wants to revolutionize legal research or not. If it chooses to do so, it would only have to draw even with West and

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<sup>369</sup> *Id.*

<sup>370</sup> Kimberly Gold, *Google Scholar: Better Than Lexis-Nexis and Westlaw*, Midtown SEO Specialist, Nov. 18 2009, <http://www.seo-ny.com/news/google-scholar-better-than-lexisnexis-and-westlaw/>.

<sup>371</sup> Paul Ohm, *The Future of Legal Research, Part One*, PRAWFSBLAWG, March 30, 2010, <http://prawfsblawg.blogs.com/prawfsblawg/2010/03/the-future-of-legal-research-part-one.html>.

Lexis in terms of capability. If it does that, and that would take some time, then few would pay for a site such as Westlaw when there is a free site that is legitimately as good. If Scholar decides not to grow, it will still be a useful function but certainly not the reliable source of Westlaw and Lexis. Instead it would continue on as a quick research tool for lay people interested in a particular legal worry, more in line with the Wikipedia's of the world than the Westlaw's. Still, no matter what it decides, the potential of Google Scholar is undeniable. As Paul Ohm puts it, "I remember the first time I used Google, feeling like the company had developed secret technology which could read my mind. I've never had that feeling using Westlaw."<sup>372</sup>

### **III. Open Access**

For those who are sick of paying to subscribe to Westlaw and LexisNexis they have found a home with the open access movement. This is a movement that believes in the ability to freely acquire information for use in both legal and scholarly pursuits. In 2005, Paul George, director of the University of Pennsylvania Law School Library further defined the goal as "the electronic publication of scholarly work that is available for free without copyright constraints other than attribution."<sup>373</sup> Such a system does not believe in the barriers that are set up when a database charges a fee. In sum, it is the ancient Greek model where ideas belong to everyone and are freely discussed and read by anyone with an interest; the learning always trumps the commerce.

#### **A. Application in Law**

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<sup>372</sup> *Id.*

<sup>373</sup> Paul George, *Members' Briefing: The Future Gate to Scholarly Legal Information*, AALL Spectrum, April 6, 2005, [http://www.aallnet.org/products/pub\\_sp0504/pub\\_sp0504\\_MB.pdf](http://www.aallnet.org/products/pub_sp0504/pub_sp0504_MB.pdf)

Open access applies to both case law and secondary sources, as both are scholarly pursuits. For this section, secondary sources, particularly law journals will be explored. The role of journals is important because the tools used to implement electronic databases of such works are essentially the same database as Westlaw or even Google Scholar. Because the copyright issues are not as relevant, journals have been effective in creating free research databases. While the movement to add journals electronically is gaining momentum throughout law libraries, Westlaw and Lexis still dominate, as their catalogues are immense. They have been wise to do this, as by incorporating secondary sources into their database Westlaw gains credibility in the legal community, as articles are easily retrievable. Open access instead demands that these sources operate in a free capacity. Naturally, the web is the best method for providing such access. This idea, despite its apparent obviousness of convenience has nonetheless been slow to take off.

The reason for the slow start is in the nature of the journals themselves. Law journals are school subsidized and student run.<sup>374</sup> Since students receive no compensation for their efforts, overhead remains low. This is in opposite to the science fields, where journals are costly to run and subscriptions costs are high. Thus, in the legal world the cry for free information has not been as loud, as a school journal comes nowhere near the cost of a medical journal.<sup>375</sup>

In an effort to highlight the importance of free legal access, the Lewis & Clark Law School hosted its 2006 spring symposium, titled “Open Access Publishing and the

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<sup>374</sup> *Id.*

<sup>375</sup> *Id.*

Future of Legal Scholarship.”<sup>376</sup> The Symposium focused on law libraries unique potential to become the repositories of such freely available information. The goal is to allow electronic copies to be available through library or journal specific websites. Metadata tags would be placed on each work so that retrieval is as efficient and sound as possible. This plan also serves the policy goal of a more “green friendly” environment by reducing the amount of paper wasted on often unread journal articles.<sup>377</sup>

The second issue confronting electronic journals is one of cost effectiveness. “Journal editors, however, fear the loss of royalties from commercial vendors and cancelled subscriptions. Law school administrators are concerned that electronic publication will increase costs and decrease the already insufficient revenue of the law review.”<sup>378</sup> Duke Law School disagrees. The school’s library has maintained electronic filings of their primary journals for the past seven years.<sup>379</sup> This includes the *Duke Law and Technology Review* which is entirely electronic.<sup>380</sup> All journals are freely open to the public.<sup>381</sup> Administrators state that such economic fears have not come true.<sup>382</sup> Also, the trend is not limited to Duke. The *Directory of Open Access Journals* lists 30 open access journals in law; of which six are published at Duke Law School.<sup>383</sup>

While they may be the most prestigious, Duke Law isn’t the only group opening its arms to open access. Organizations such as The Scholarly Publishing and Academic

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<sup>376</sup> Paul L Boley Law Library, *Open Access Legal Scholarship*, LEwis & Clark Law School (Feb. 27, 2012), [http://lawlib.lclark.edu/research/open\\_access/](http://lawlib.lclark.edu/research/open_access/)

<sup>377</sup> *Id.*

<sup>378</sup> George, *supra* note 12.

<sup>379</sup> *Id.*

<sup>380</sup> *Id.*

<sup>381</sup> *Id.*

<sup>382</sup> George, *supra* note 12.

<sup>383</sup> *Id.*

Resources Coalition (SPARC) was developed by the Association of Research Libraries to address “dysfunctions in the scholarly publishing system,” which includes supporting and promoting open access.<sup>384</sup> A substantial number of universities are members.

One such school is Kansas University, which has recently become the first public university to implement an open access policy for scholarly work. With ScholarWorks, the university publishes all their research online.<sup>385</sup> Currently, the sciences are the largest feeders to the program. Over time, however, the group is confident that legal articles will increase as well.

Ada Emmett, associate librarian for scholarly communication said “Last year, the department had just over 3,000 of its documents downloaded from the repository. So far this year, more than 13,000 have been downloaded. The downloads have been made in more than a dozen countries including the United States, United Kingdom, China, Mexico, Russia and Brazil.”<sup>386</sup> Such interconnectedness allows ideas to be shared across vast distances at the click of a button. While the sciences currently outpace the legal world in open access, the growth potential is unlimited. “There’s been a significant amount of increase in our activity here at the Center for Digital Scholarship. This department is showing the open access movement can make a transformational difference in the accessibility of the scholarship authored at KU and funded by the citizens of Kansas.”<sup>387</sup>

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<sup>384</sup> Scholarly Publishing and Academic Resources Commission, (Jan. 9, 2011), <http://www.arl.org/sparc/about/index.shtml>. (last visited Jan. 2011)

<sup>385</sup> University of Kansas, (Nov. 15, 2010), <http://oread.ku.edu/~oread/2010/november/15/stories/access.shtml>

<sup>386</sup> *Id.*

<sup>387</sup> University of Kansas, (Nov. 15, 2010), <http://oread.ku.edu/~oread/2010/november/15/stories/access.shtml>

Paul George and the Open Access Task Force's goal in 2005 was to increase the availability of scholarly work. Institutions like Kansas and Duke have helped to make this a reality. Still, it is a crawl first, walk second operation. Many of the objectives the task force list have been implemented, albeit to varying degrees of success. One such entity is Google Scholar. While the site is currently a "poor man's" Lexis, it has the potential to become the electronic repository that Paul George was speaking of.

#### **IV. Google Scholar**

As mentioned previously in this article, there is no better spokesman for open access than Google. The company is so involved with internet searching that it has become a verb. While schools are making electronic journals more prevalent, Google Scholar is the site offering a comprehensive database. While there have been many sites that have or still operate free databases, none has been able to make a lasting impact, and certainly none has been able to threaten the dominance of the giants Westlaw and Lexis-Nexis. However, with failure often comes reward, this being in the form of Scholar. The company's statement is that Google Scholar provides a simple way to broadly search for scholarly literature. From one place, you can search across many disciplines and sources: articles, theses, books, abstracts and court opinions, from academic publishers, professional societies, online repositories, universities and other web sites.<sup>388</sup> "Google Scholar helps you find relevant work across the world of scholarly research."<sup>389</sup> Google further carries on the theme of open access. This is a natural position for a company built

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<sup>388</sup> ABOUT GOOGLE SCHOLAR, <http://scholar.google.com/intl/en/scholar/about.html> (last visited Jan. 9, 2011).

<sup>389</sup> *Id.*



on free research. Google's statement regarding the need for open access is that "for average citizens, however, it can be difficult to find or even read these landmark opinions. We think that's a problem: Laws that you don't know about, you can't follow — or make effective arguments to change."<sup>390</sup>

While there is optimism about its capabilities, there are still relevant questions that are waiting to be addressed. These questions include whether it will always be free and will the legal community feel comfortable using it? Also, law schools are active pushers of Westlaw and Lexis, and subject students to mandatory sessions in learning how to use the sites; will they be as open to introducing students to alternative programs? For some, Google Scholar is no more than another Wikipedia; a quick and easy reference tool, but not one that would ever be used for proper reference. As of now, Google cannot offer any concrete answers to these important questions. Currently the legal community, like the free search engine itself, can offer only predictions. What is on Google's side is that in a recession, price is a big concern.

Tech writer and blogger John Blossom offers his take on Scholar's future:

The threat that Google Scholar's new legal content represents to established publishers, though, is the exposure of a huge body of public documents to applications builders and content services. None of these really add up to a significant challenge to either LexisNexis or Thomson West in the short run, but they will tend to hold down their margins as they lose some market share and lose leverage at the negotiating table at contract time.<sup>391</sup>

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<sup>390</sup> Acharya, *supra* note 5.

<sup>391</sup> John Blossom, *Google Scholar Takes on Legal Content: Are Enterprise Scholars Threatened?* Content blogger (Nov. 30, 2009), <http://contentblogger.shore.com/2009/11/google-scholar-takes-on-legal-content.html> (last visited Jan. 2011)

In an article titled, “Google Does Evil to Lexis-Nexis and Westlaw?” [Abovethelaw.com](http://abovethelaw.com) questioned a spokesman from Westlaw about Google’s shoot across the bow of the mighty West/Lex duopoly. He responded:

“We believe that court decisions, statutes and related legal information should be accessible to the public, and Google joins existing sites such as FindLaw, the Legal Information Institute at Cornell University Law School and scores of others that offer this information free of charge. These sites are useful for general reference or backgrounding on a particular case or legal issue. But it’s important to distinguish between a free case and a West case, and between a free repository of case law and a purpose-built research tool built expressly for legal professionals. Our customers rely on us for very specialized and accurate information and legal insight, and use Westlaw to find exactly the right answers on very specific points of law. We provide the breadth of information and technology tools to help quickly zero in on specific cases and the facts embedded within them. We provide the context, expert analysis from our attorney-editors and links to supporting materials to help users find the right answers, faster. And, Westlaw includes workflow tools so that our customers can use this information as part of their client work stream.”<sup>392</sup>

LexisNexis offered similar sentiments:

“Free case law is not new to the Internet and is included on some of our own sites like lexisONE, LexisWeb and lawyers.com. However, our legal customers generally require more than raw, unfiltered content to inform their business decisions. They look to LexisNexis to find needles in the ever-growing information haystack, not the haystack itself. Not only do we provide the most complete portfolio of public and proprietary legal content, but LexisNexis enables legal professionals to conduct their research more efficiently, effectively, and with the assurance of accuracy. The LexisNexis legal research service provides critical analysis and commentary such as Mathew Bender, citation analysis like Shepard’s, deep online linkages built over time to relevant content, and unique functionality such as pinpoint searching by topic or by complex legal phrases. Our goal is to deliver relevant, reliable results that enable our customers to make informed decisions faster.”<sup>393</sup>

While those at West and Lexis may not be overly worried about Google Scholar, they still must concede that free is a very alluring price tag for research. It is also a price

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<sup>392</sup> Elie Mystal, *Google Does Evil to LexisNexis and Westlaw?*, Above the Law (Nov. 24, 2009 3:10 PM), <http://abovethelaw.com/2009/11/google-does-evil-to-lexisnexis-and-westlaw/>.

<sup>393</sup> Mystal, *supra* note 31.

that the two companies cannot match. Nor would they want to. Their pay services have allowed the companies increasing growth and profitability over the years.

They have also been wise not to price themselves out of their own market. By allowing a staggered pay plan they allow access for both the largest firms, as well as the solo practitioner. “A single lawyer might pay about \$100 a month for a limited version, while large law firms will pay millions of dollars for unlimited access. Westlaw and LexisNexis each bring in more than \$1 billion a year for their respective parent companies, Thomson Reuters and Reed Elsevier.”<sup>394</sup>

## V. The Rise of Westlaw and Lexis

Just how powerful are Westlaw and Lexis? An article from Paul Lomio of Stanford Law School illustrates the duopoly’s influence on the legal world:

“On December 21, 2009 Judge A. Howard Matz, of the United States District Court for the Central District of California, issued a 7-page order in the case of POM Wonderful LLC v. Welch Foods, Inc. This opinion includes, among other things, a discussion of standing under the California Unfair Competition Act and the California False Advertising Act. At the end of the document, the judge writes: “This Order is not intended for publication or for inclusion in the databases of Westlaw or Lexis.”<sup>395</sup>

Judges have the right not to publish their opinions. However, a third party does have the right to publish the opinion. This is often what West and other services do. The influence of Westlaw is so strong that judges, who do not want their opinions published, now make statements on the record imploring the research giants not to include their

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<sup>394</sup> Ashlee Vance, *Legal Sites Plan Revamps as Rivals Undercut Price*, N.Y. Times, Jan. 24, 2010, available at [http://www.nytimes.com/2010/01/25/technology/25westlaw.html?\\_r=1](http://www.nytimes.com/2010/01/25/technology/25westlaw.html?_r=1).

<sup>395</sup> Paul Lomio, *Judge Says Keep This Opinion Out of Westlaw and Lexis*, Legal Research Plus, March 9, 2010, available at <http://legalresearchplus.com/2010/03/page/2/>.

decisions. What began as a novel way to compartmentalize legal work, has now grown into an entity whose effects and influence are felt on the bench.

Westlaw came to this position of power due to the governments outsourcing of case reporting. While the government is active in cataloging printed works, such as in the Library of Congress, they have not felt the need to do the same with legal works.

Moreover, they have been reticent to get involved in the electronic format, and are yet to take a stand in the open access debate. Instead the government is content to outsource legal publications and decisions. Westlaw has been the beneficiary of this outsourcing. While it was perhaps not economical for the government to get involved in printing the countless volumes required for law this is not so in the electronic age. Before the rise of the internet it made sense for a private company to do the work, and no one would argue that printing is a lot of work. Today though with the ease of electronic scanning the overhead for these cases is no longer so daunting. Many advocates of open access favor a local government or bar associations' involvement in the scanning. This is a sensible solution as local bars already provide legal forms and other paper work.

Unfortunately, the damage has already been done. West deserves credit for their foresight that legal recording could be such a large moneymaker. Writer Gary Wolf traced West's history and reports the following:

“The text of United States law has been a profitable commodity for West since the end of the last century, when the company began collecting court decisions and reproducing them in a useful, well-arranged format. Many courts came to depend upon West, along with other private companies, to provide them with the authoritative text of the law. Over the last decade, paper databases have begun to be overshadowed by electronic databases, but one of the things the court system has inherited from the old regime of paper-based publishing is this dependence on private enterprise to manage the dissemination of the law. Even government

agencies such as the US Department of Justice purchase access to case law in a not-so-open market.”<sup>396</sup>

In order to understand the importance of open access in legal research the question of why legal research is so important must be addressed. The need for a comprehensive legal authority is because of *stare decisis*. Thus the need to accurately cite to past cases is paramount in interpreting our law. This is why legal research is so important. “Not coincidentally, the legal curriculum...used the same categories of law as the West digest system, which has had important implications for how law students and lawyers categorize and think about the law.”<sup>397</sup> Thus, the West system is so ingrained in legal consciousness that it would be inconceivable to cast it aside.

This is also why other systems have had difficulty breaking the West/Lexis stranglehold. Simply put, they are not as trusted. “The need for accuracy is closely connected to the nature of law and legal practice. Concerns about accuracy and authenticity are major issues potentially confronting new entrants into the market for legal services.”<sup>398</sup> This is Westlaw’s greatest ally. Their cases are properly cited and can be traced through decades of legal history and in astounding number of decisions and opinions. Furthermore, it is the accepted standard. In a profession that demands rules and consistency, Westlaw provides both.

So, then how has Westlaw been able to thwart its competitors over the years? During its beginnings in the electronic world, Westlaw was unopposed by all except for Lexis (which still had to pay a price to use Westlaw notation). The reason was that opposing companies feared copyright infringement. The *Bender* case represented the first

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<sup>396</sup> Wolf, *supra* note 2.

<sup>397</sup> Arewa, *supra* note 1, at 815.

<sup>398</sup> *Id.* at 803.

crack in the Westlaw armor and was the de facto birth of the free access movement. That case concerned alleged copyright infringement by Matthew Bender's legal site HyperLaw. Prior to *Bender*, West's copyright was nearly invincible. However, Bender was able to capitalize on the fact that previous court decision merely protected West's unique headnotes and pagination system and did not provide the company with a monopoly over printing cases.

Two cases set the stage for Bender's argument that Westlaw did not have a copyright on printing judicial decisions. The first in 1834 was *Wheaton v. Peters*. In that case the Supreme Court established that written court opinions were not protectable by copyright. Court reporters did however hold copyrights in their headnotes.<sup>399</sup>

Second, was *West Publ'g v. Mead Data Cent, inc.*, in 1986. That case specifically targeted West's arrangement of the cases. This, the court found was protected. "We concur in the district courts conclusion that Wests arrangement is copyrightable aspect of its compilation of cases, that the pagination of West's volumes reflects and expresses wests arrangement, and that MDC's intended use of West's page numbers infringes West's copyright in the arrangement."<sup>400</sup>

While *Mead Data* held that West had certain protections, the court in *Matthew Bender v. West*, decided the copyright issue along the lines of *Wheaton*. The court held West's star pagination is not protectable by copyright. "Works of the federal government are not subject to copyright protection; the text of judicial decisions may therefore be copied at will."<sup>401</sup>

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<sup>399</sup> Arewa, *supra* note 1, at 813.

<sup>400</sup> *Id.* at endnote 173.

<sup>401</sup> *Matthew Bender & Co., v. West Pub. Co.*, 158 F. 3d 674, 679 (F.2d 1998).

West's argument was that their assembling of the material, plus their indexing was all included under their copyright. Specifically they stated:

(i)Rearrangement of information specifying the parties, court, and date of decision; (ii) addition of certain information concerning counsel; (iii) annotation to reflect subsequent procedural developments such as amendments and denials of rehearing; and (iv) editing of parallel and alternate citations to cases cited in the opinions in order to redact ephemeral and obscure citations and to add standard permanent citations (including West reporters).<sup>402</sup>

To this, HyperLaw argued that West's only copyrightable possessions were its headnotes and key numbers.<sup>403</sup> While the court ultimately sided with Bender, They did state however, that a compilation could be copyrightable. "The Copyright Act defines "compilation" as "a work formed by the collection and assembling of preexisting materials or of data that are selected, coordinated, or arranged in such a way that the resulting work as a whole constitutes an original work of authorship."<sup>404</sup>

Still, the court was not convinced that West's overall performance constituted a compilation. Essentially, they concluded that their job was more akin to cut and paste than anything else. The court stated that a "creative spark" was missing in West. The definition of creative spark was whether, "industry conventions or other external factors so dictate selection that any person composing a compilation of the type at issue would necessarily select the same categories of information."<sup>405</sup>

The lasting impression of the case was how the court interpretation left the door wide open for alternative sites to provide the same opinions and decisions as West. "One way of saying that West's "choices" are obvious and typical is that a competitor would have difficulty creating a useful case report without using many of the same citations.

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<sup>402</sup> *Id.* at 677.

<sup>403</sup> *Matthew Bender & Co.*, 158 F. 3d 674, 680.

<sup>404</sup> *Id.* at 679 citing 17 U.S.C. § 101 (2010).

<sup>405</sup> *Id.* at 682.

Affording these decisions copyright protection could give West an effective monopoly over the commercial publication of case reports (at least those containing supplemental citations).<sup>406</sup> The ramifications of the decision was that West is no longer the only player in the game. Other companies can use court information to offer online legal publishing. Although Matthew Bender's Hyperlaw is not a free site, this nonetheless set the stage for Google and others to begin using the West model to offer free legal access.

#### **A. Consumer Access**

Here, the focus is on how West impacts the consumer. Specifically its application in the legal community. Westlaw developed how we think and process the law. While they certainly deserve credit for this, such early success has allowed them ample pull with judges and attorneys alike. The rise of free access and more importantly, the rise of a stronger voice for those who oppose a pay-to-play system, offers a chance to take away some of this power and return it to the people.

Consumer access goes hand in hand with open access. The "consumer" of legal information is one of three types of people. First, the attorney. Since a comprehensive legal database is essential to any practicing attorney the potential to retrieve legal information free of charge is an intriguing option. This is particularly so with smaller practices. While large firms can shift the burden of cost to their clients, who are often entities such as corporations, smaller firms and solo practitioners cannot afford such luxury. They are simply unable to pass cost to clients of DWI, personal injury, etc.. This forces practices without Westlaw to a disadvantage in legal research and perpetuates the notion that the legal world is run by the "haves" at the expense of the "have-nots"

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<sup>406</sup> *Matthew Bender & Co., 158 F. 3d at 688.*



Second, law school users are an important consumer. Somewhere during the first or second week of classes Westlaw and Lexis-Nexis will descend upon 1L's offering free access and a variety of goodies and reward points. Law schools whole heartedly support this system as they receive a kick back from the companies. Students are given "free" access during law school, once they graduate as Westlaw addicts however they are forced to pay. And for those new hires whose firms offer the service to their associates, rest assured the money comes out of the associate's salary. This should come as no surprise, and is in fact a smart business model, if not slightly unethical. Similar scams have been going on for years with print, as casebooks are revised every year or so, usually with only a little reworking of the material. One should not fault Westlaw or Lexis for these practices. They are in the profit business. This is why open access is such an important concept. It offers the opportunity to break away from these practices.

Lastly, is the general public. While historic cases such as *Roe v. Wade* can easily be found online, lesser known cases are not. This hurts transparency between the bench and the people. The idea of law for the people, by the people takes a serious hit when the people have to pay to read their own law.

## **VI. Alternatives to Westlaw and Lexis**

Clearly there is a market for free legal research. Google Scholar is not the only system that is vying to take away some of Westlaw and Lexis control. Other alternative services include: Bloomberg Law; Loislaw.com; VersusLaw; Quicklaw America; National Law Library; RegScanLaw (formerly EastLaw); LawProbe.com; and fastcase.com.

West and Lexis also have increased competition in pay services. The biggest being Bloomberg News. Bloomberg's initial attempt B-Law was offered in 2004 but suffered from a limited access as it was only available in their propriety terminals.<sup>407</sup> During the ensuing years Bloomberg went back to the shop. After years of secretive testing in law schools and firms the new Bloomberg Law was offered with none of the previous access problems.<sup>408</sup> "It can be accessed from any PC, and its citation analysis summaries and strength-of-authority indicators "graphically display the treatment of your case and allow you to easily see the extent to which subsequent courts have analyzed your case".<sup>409</sup>

Those at the large firms are impressed with the results. Nancy Rine, director of library services at Fried, Frank, Harris, Shriver & Jacobson in New York City, "gives Bloomberg Law high marks for ease of use because it is menu-driven. 'It starts with what do you want to do—find a person, a case, a docket, news.'"<sup>410</sup>

Those at smaller firms also recognize the advantages of the site. "Searches can be done in natural language and results are relevant, says Ryan McKeen, an East Hartford, Conn., attorney who is beta testing Bloomberg Law. As a practitioner at a smaller, general practice firm, he thinks the Bloomberg product is better-suited for those on Wall Street but still gives it high marks for ease of use and content."<sup>411</sup> In similar fashion to

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<sup>407</sup> Jill Schachner Chanen, *Exclusive: Inside the New Westlaw, Lexis & Bloomberg Platforms*, ABA Journal (Jan. 24, 2010), [http://www.abajournal.com/news/article/exclusive\\_inside\\_the\\_new\\_westlaw\\_lexis\\_bloomberg\\_platforms/](http://www.abajournal.com/news/article/exclusive_inside_the_new_westlaw_lexis_bloomberg_platforms/) (last visited Jan. 2011).

<sup>408</sup> *Id.*

<sup>409</sup> *Id.*

<sup>410</sup> *Id.*

<sup>411</sup> Chanen, *supra* note 49

Google Scholar, what Bloomberg fails in is in providing adequate secondary source material.

Fastcase is also a newer pay service. Their site states that:  
Fastcase provides the law exactly as it comes from courts, legislatures, and agencies, without the extraordinary overhead that characterizes traditional legal research and its editorial gloss. We communicate that overhead savings directly to our subscribers, with prices that are an average of 80 percent less than comparable subscriptions on traditional services.<sup>412</sup>

While Fastcase may have affordability on its side, it lacks the history of West and Lexis. Many legal practitioners are willing to pay the extra amount for the known commodity. This is why Bloomberg is so interesting. They are a news giant and have the same name pedigree as Google. Its success however, would not be a positive for the open access community as it would mean another pay site hoarding the law. At best, its competition could bring down the cost of West until Google Scholar can meet the same level of the pay sites.

#### **A. Westlaw Next and New Lexis**

Perhaps in recognition of the many who responded favorably to Google Scholars interface, Westlaw Next unveiled an eerily similar front page. For years many have begrudged the clumsy and antiquated interface and search functions of West and Lexis. The companies worked hard to come up with a change that would reflect the current search functions of Google, Yahoo and others. “The project [westlaw next] started in 2004 and gradually took its shape from two goals: (1) present content without choosing a database and (2) improve the search engine to expose the relevant law identified in search text.”<sup>413</sup>

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<sup>412</sup> Fastcase, Jan. 9, 2011, <http://www.fastcase.com/whatisfastcase/> (last visited Jan. 9, 2011)

<sup>413</sup> Doherty, Sean, Westlaw, LexisNexis Debut Revamped Research Tools at Legal Tech New York, Feb. 1, 2010, <http://www.law.com/jsp/lawtechnologynews/PubArticleLTN.jsp?id=1202439886599>

The revamped site was a necessity as younger users, who grew up with sites like Yahoo and Google had expectations that Westlaw simply was not meeting. Mike Dahn, vice president for product development was a key figure in creating the new site. He stated that the “company interviewed lawyers and tracked the ways in which they used the service. It analyzed data on how lawyers did searches and even used eye-tracking systems to understand what parts of a Web site drew the lawyers’ attention.”<sup>414</sup>

In the aptly titled *Google-izing Legal Research* the American Bar Association noted the performance change that West was initiating. “The search engine, like Google, has artificial intelligence that will help pull more relevant results.”<sup>415</sup> A preview of WestlawNext also reveals it no longer requires users to learn the structure of its underlying databases. Instead, it allows users to enter a simple search term in natural language. As of late December 2010, the company was debating whether to eliminate Boolean searches from the new platform or keep them as an option.

Lexis has also been active in retooling their site. For example, the new Lexis platform will include productivity tools to help lawyers evaluate the likelihood of winning a case, the cost of winning, and the potential value to both lawyer and client. The company says its new platform also will pull information from some of its other product lines, including the Martindale-Hubbell lawyer directory, to help lawyers learn as much as possible about every participant in a trial or deal. “We have the content and the tools to do it,” says Michael Walsh, president and CEO for U.S. legal markets at LexisNexis.<sup>416</sup> Not everyone is impressed with the new sites though. Many see the changes as

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<sup>414</sup> Vance, *supra* note 35

<sup>415</sup> Chanen, *supra* note 45.

<sup>416</sup> *Id.*

improvements, but improvements have not been made in the important category of price. As Don Cruse, a Texas attorney and writer of the Supreme Court of Texas blog said, “You can get a pretty good percentage of the results you get out of Westlaw or Lexis by using the free tools.”<sup>417</sup>

Google, meanwhile, hold fast to their statement that they are not trying to compete with the likes of West, LexisNexis, Bloomberg, Fastcase or any other commercial legal research company, says lawyer Rick Klau, a project manager at Google who helped build the Scholar database. “There is no attempt to slay anyone here,” Klau says. “Google’s mission is to organize the world’s information and make it useful. This was a collection of content that was not accessible and well-organized.”<sup>418</sup> He says Google Scholar was designed to make the information accessible for ordinary citizens.<sup>419</sup> The company has no current plans to do more with the information than what is already available. “You are always very conscious of what Google is doing because the company has immense resources available,” says Warwick of Thomson Reuters.<sup>420</sup>

## VII. Conclusion

As the internet matures and becomes more complex, legal research should follow. As of today only two companies control legal research. For a field as diverse and important as the law this is not healthy. If pay databases are to continue there needs to at least be more competitors. That the choices are only limited to two sites goes against the ideals of competition that the market demands. To combat this, Bloomberg law could be

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<sup>417</sup> Vance, *supra* note 33.

<sup>418</sup> Chanen, *supra* note 46.

<sup>419</sup> *Id.*

<sup>420</sup> *Id.*

effective in driving costs down as the two major powers, Westlaw and LexisNexis have to take a third party into account when they set their prices.

Still, the best alternative appears to be free legal databases. The general public has become used to searching the internet for free. In other disciplines, like medicine, sites are available for users to research and learn. The majority of these sites and databases are free. Even legal matters such as printing forms and documents are free to the public. Yet, something as crucial as case law remains locked behind the walls of Westlaw and Lexis.

Much like Bloomberg has the potential to challenge West and Lexis in for-pay research, Google Scholar could take it one step further by revolutionizing the way cases are found and studied. While it is true that certain cases are available with simple searches, the vast majority are not. Statues cannot be found unless one has some degree of expertise to find the exact match. To the credit of the pay sites they have taken the effort to scan and list these cases on their sites. Still, case law belongs to the American people. The idea that our laws can be bought and sold goes against the very notions of freedom that this country was founded upon.

There is no quick fix to be sure. Google Scholar is a site full of potential, but that is all. As of today the site does not offer the multitude of options that the duopoly can. An attorney risks much by not subscribing to a pay site, as there can be no guarantees that Google Scholar, or one of the other free sites can offer the right law when needed. The future of open access is still bright though. Google has rarely failed at any of their ventures and there is no reason to think they would come up short now. This track record of success, coupled with the market demands for free law and improved science foreshadow a very different legal field. Technology forces the world to evolve; with an

ever expanding internet and the calls of the open access movement, legal research will be forced to evolve as well.

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## Organ Donation, Therapeutic Cloning, and Laws of the States

By Lauren Neal

### I. Introduction

Organ donation has become a serious problem in the United States. With the continued advancement in science and technology people expect a solution to their problems, and with the exponential growth in medical advancements over the last century people anticipate a cure to their ailments. However, even with medical advancements people still suffer from heart disease, lung disease, diabetes, liver and kidney disease, etc. People severely suffering from these types of diseases need replacement organs, and the technology to replace these organs exists, but the demand for organs far outreaches the supply available. Hundreds of people are put on different donor lists everyday, and many expire before their number reaches the top of the list.

There are different prospective solutions to this organ supply problem. Some say to make organ donation a market by allowing people to buy and sell organs. Others say change the selection system. Still others say the best solution is education, and that enlightening people about donation will increase the number of living donors. And then there are others who say the best solution is yet to come through medical advancements, especially in the field of therapeutic cloning. Basically, this argument is if therapeutic



cloning can be mastered then it would become possible to manufacture organs, thus allowing the abandonment of the organ donation system all together.

Therapeutic cloning would allow a production of organs that would satisfy the public demand, and organs created would exactly match the recipient erasing the fear of organ rejection. Therapeutic cloning does seem like the best solution, but it is also an impractical solution. First, no one is close to perfecting organ cloning. However, even when therapeutic cloning of organs is perfected is still might not be a viable solution in the United States. The reason therapeutic cloning would be difficult to implement in the United States is because of the laws against cloning that exist in the United States. To date there are no federal laws banning cloning, however fifteen states have there own laws that prohibit cloning in some capacity. These laws against cloning would create a significant problem if therapeutic cloning for organ transplantation became possible. So, while one day therapeutic cloning could be the solution for organ shortages it might not be easily adopted in the United States.

## **II. Organ Donation**

Organ transplantation is a fairly recent medical advancement. For example, the first successful kidney transplant was performed in 1954. The first successful liver transplant was performed in 1967. The first successful heart transplant was performed a year later. The first successful single lung transplant was performed in 1983, and the first successful living adult to adult liver transplant in 1998.<sup>421</sup>

With this ability to successfully transplant organs there became a need to regulate who received what organs, and in 1984 the National Organ Transplant Act (“NOTA”)

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<sup>421</sup> United Network for Organ Sharing History, <http://www.unos.org/donation/index.php?topic=history> (last visited January 4, 2011).

was passed.<sup>422</sup> NOTA outlined numerous issues related to organ transplantation and donation. It required the creation of an Organ Procurement and Transplantation Network (“OPTN”), which was to be run by a non-profit private organization under federal contract.<sup>423</sup> In 1986, the United Network for Organ Sharing (“UNOS”) was awarded the first OPTN contract by the U.S. Department of Health and Human Services, and has remained the only organization to operate the OPTN.<sup>424</sup>

Other issues outlined by the NOTA included, allowing the Secretary of the U.S. Department of Health and Human Services to evaluate the long term effects organ donation had on living donors.<sup>425</sup> This was important because the first successful single lung transplant was performed only a year prior, and other transplants were yet to be performed successfully. Therefore, it was impossible to tell when this act was passed what the long-term effects of donation would be on living donors. The NOTA was also very specific in prohibiting the purchasing of organs.<sup>426</sup> Then in March of 2000, the U.S. Department of Health and Human Services implemented a “Final Rule,” which outlined the structure and operations of the OPTN.<sup>427</sup>

As of December 31, 2010, the United States wait list for organ procurement was over 110,000.<sup>428</sup> Specifically, for all organ donations the list stands at 119,461, and the

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<sup>422</sup> *Id.*

<sup>423</sup> 42 U.S.C. § 273(b).

<sup>424</sup> United Network for Organ Sharing History, *supra* note 1.

<sup>425</sup> 42 U.S.C. § 273a.

<sup>426</sup> 42 U.S.C. § 274e.

<sup>427</sup> United Network for Organ Sharing History, *supra* note 1.

<sup>428</sup> U.S. Department of Health & Human Services, *Organ Procurement and Transplantation Network*, <http://optn.transplant.hrsa.gov/latestData/rptData.asp> (last visited Jan. 4, 2011).

lists are broken down by organ as follows: kidney at 93,455, liver at 16,896, pancreas at 1,434, kidney and pancreas at 2,294, heart at 3,232, lung at 1,811, heart and lung at 74, and intestine at 265.<sup>429</sup> Yet, while it is possible to effectively perform transplants and put people on waiting list, the demand for organs far outreaches the supply.

For example, 2001 was the first year where donations from living donors exceeded the number of deceased donors.<sup>430</sup> There were 6,528 living donors compared to the 6,081 deceased donors.<sup>431</sup> The total number of donations in 2001 was 12,609, which fell far short of the hundred thousand people patiently waiting their turn on the list. In the last decade, the number of donors has remained about the same. The number of donations received from January to October of 2010 was 12,081 donors.<sup>432</sup> This lack of a supply concerning organs in comparison to the demand is a serious problem.

### **III. Kidney Transplants**

The kidney transplant list is by far the largest. It dwarfs all the other waiting lists combined. One of the diseases that causes this staggering kidney transplant list is Chronic Kidney Disease (“CKD”), which when allowed to progress can lead to kidney failure and the need for a kidney transplant.<sup>433</sup> Twenty-six million adults in the United

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<sup>429</sup> *Id.*

<sup>430</sup> United Network for Organ Sharing History, *supra* note 1.

<sup>431</sup> *Id.*

<sup>432</sup> U.S. Department of Health & Human Services, *supra* note 8.

<sup>433</sup> National Kidney Foundation, *Chronic Kidney Disease*, <http://www.kidney.org/kidneyDisease/ckd/index.cfm> (last visited Jan. 4, 2011).

States have CKD<sup>434</sup>, which makes it understandable why over 90,000 people are on the kidney waiting list.

A major cause of CKD is: glomerulonephritis, which damages the kidney's filtering system, and is the third leading type of kidney disease.<sup>435</sup> In addition to glomerulonephritis, there are also inherited diseases like polycystic kidney disease and malformations that happen during a baby's development that cause CKD.<sup>436</sup> Next, there are diseases that affect the immune system like lupus, and obstruction problems like kidney stones.<sup>437</sup> However, the leading cause of CKD is diabetes and high blood pressure, and about one third of people with diabetes eventually develop CKD.<sup>438</sup>

Diabetes is the leading cause of kidney failure in the United States, and about forty five percent of people who start treatment for kidney failure do so as a result of their diabetes.<sup>439</sup> When a person reaches end stage kidney failure, that means they have lost about eight-five percent of their kidney function, they are likely on the kidney transplant waiting list, and they started dialysis.<sup>440</sup> Dialysis performs similar to healthy kidneys by trying to keep the body balanced by removing waste, keeping safe levels of chemicals,

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<sup>434</sup> *Id.*

<sup>435</sup> *Id.*

<sup>436</sup> National Kidney Foundation, *supra* note 13.

<sup>437</sup> *Id.*

<sup>438</sup> National Kidney Foundation, *Diabetes and Chronic Kidney Disease*, <http://www.kidney.org/kidneydisease/diabetesckd/index.cfm> (last visited January 4, 2011).

<sup>439</sup> *Id.*

<sup>440</sup> National Kidney Foundation, *Dialysis*, <http://www.kidney.org/atoz/content/dialysisinfo.cfm> (last visited January 4, 2011).

and controlling blood pressure.<sup>441</sup> It is likely that people can stay on dialysis an extremely long time if necessary, however it can be uncomfortable and very expensive.<sup>442</sup> It may be a good thing that the largest waiting list is for kidney transplants since there is temporary solution with dialysis, however, it is not an ideal solution, and with the wait list so long for many people it ceases to be temporary.

There are two types of kidney transplants, transplants that come from living donors, and transplants that come from non-living donors.<sup>443</sup> A living donation can be from anyone who wishes to donate and is a match; often that donor is a member of the recipients immediate or extended family.<sup>444</sup> The most critical post operation complication for the recipient is rejection. A person's immune system fights off foreign matter, and the body may see the transplanted organ as foreign.<sup>445</sup> In order to prevent the body from rejecting the organ most recipients take three types of medication.<sup>446</sup>

When it comes to living donation a person can live with one kidney. In fact, one person out of every seven hundred and fifty people is born with only one kidney.<sup>447</sup> The difference between having a single kidney and a pair of kidneys is that a single kidney

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<sup>441</sup> *Id.*

<sup>442</sup> *Id.*

<sup>443</sup> National Kidney Foundation, *Kidney Transplant*, <http://www.kidney.org/atoz/content/kidneytransnewlease.cfm> (last visited January 4, 2011).

<sup>444</sup> *Id.*

<sup>445</sup> *Id.*

<sup>446</sup> *Id.*

<sup>447</sup> *Living with One Kidney*, National Kidney Foundation <http://www.kidney.org/atoz/content/onekidney.cfm> (last visited January 4, 2011).

grows faster and larger, and is therefore more susceptible to injury.<sup>448</sup> Often a person with one kidney is encouraged to avoid any heavy contact sports.<sup>449</sup> It would seem that getting a kidney would be the easiest organ to receive because a living donor could donate with limited risks, but that is not actually the case as the need for kidneys far exceeds any other organs being sought.

#### **IV. Liver Transplant**

Similar to a kidney transplant a diseased liver is removed, and it is replaced with a health liver from a donor. Liver donors are usually deceased, but a living donor is also a possibility with liver transplantation.<sup>450</sup> A liver transplant is necessary when a person reaches end-stage liver failure, and there are two ways liver failure can occur. First, there is acute liver failure, which occurs rapidly within a couple of weeks.<sup>451</sup> There is also chronic liver failure, which happens slowly over a matter of months or years.<sup>452</sup>

Many things including, biliary duct atresia, cystic fibrosis, early-stage liver cancer, hemochromatosis, liver cirrhosis, primary biliary cirrhosis, primary sclerosing cholangitis, and Wilson's disease can cause liver failure.<sup>453</sup> In the event that a person is getting a liver from a deceased donor, the recipient can be called to the hospital at any time when a liver becomes available, and will under go a surgery for up to twelve

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<sup>448</sup> *Id.*

<sup>449</sup> *Id.*

<sup>450</sup> Mayo Clinic, *Liver Transplant: Definition*, <http://www.mayoclinic.com/health/liver-transplant/MY00349> (last visited January 4, 2011).

<sup>451</sup> *Liver Transplant: Why It's Done*, Mayo Clinic, <http://www.mayoclinic.com/health/liver-transplant/MY00349/DSECTION=why-its-done> (last visited January 5, 2011).

<sup>452</sup> *Id.*

<sup>453</sup> *Id.*

hours.<sup>454</sup> If the person is receiving a liver from a living donor then the doctor first works on the donor to remove a portion of their liver to be transplanted into the recipient.<sup>455</sup> After getting a liver transplant a recipient has a seventy two percent chance of living for at least five years, and that increases to seventy eight percent if the transplant comes from a living donor.<sup>456</sup> The survival rate increases for a donation from a living donor because a recipient usually does not have to wait as long for the organ.<sup>457</sup>

## V. Heart Transplant

The first successful heart transplant was done in 1968<sup>458</sup>, and there has been remarkable progress made since, as now a heart transplant is a viable option for people with end-stage heart failure.<sup>459</sup> Similar to any other organ donation the organs are matched using a computer network called UNnetSM, which is run by UNOS, and it links all hospitals and organ procurement organizations.<sup>460</sup> The main factors used to generate a match are blood type, geographic factors - meaning how far apart the recipient and donor are, and the degree of medical urgency.<sup>461</sup> With a heart transplant a doctor actually removes the patient's heart and replaces it with a donor heart by sewing together the

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<sup>454</sup> *Liver Transplant: What You Can Expect*, MAYO CLINIC <http://www.mayoclinic.com/health/liver-transplant/MY00349/DSECTION=what-you-can-expect> (last visited Jan. 5, 2011).

<sup>455</sup> *Id.*

<sup>456</sup> *Liver Transplant: Results*, Mayo Clinic, <http://www.mayoclinic.com/health/liver-transplant/MY00349/DSECTION=results> (last visited Jan. 5, 2010).

<sup>457</sup> *Id.*

<sup>458</sup> United Network for Organ Sharing History, *supra* note 1.

<sup>459</sup> Healthy Transplant, *Before Transplant: Heart*, [http://www.healthytransplant.com/the\\_basics/pre\\_heart.aspx](http://www.healthytransplant.com/the_basics/pre_heart.aspx) (last visited January 5, 2011).

<sup>460</sup> *Id.*

<sup>461</sup> *Id.*

patients and donors vena cavae, aorta, pulmonary artery, and left atrium.<sup>462</sup> People who receive a heart transplant often are able to return to a high quality of life, and in the United States survival rates following a successful surgery are ninety percent after one year and seventy four percent after five years.<sup>463</sup>

## VI. Lung Transplant

A lung transplant replaces a failing lung with a healthy lung, and the transplanted lung usually comes from a non-living donor.<sup>464</sup> In a rare number of cases a lung transplant can come from a living donor.<sup>465</sup> In the case of a living lung donation, if a child is receiving the donated lung then a section of an adult lung is used, and if the recipient is an adult two donors are needed.<sup>466</sup> Types of conditions that can lead to a damaged lung function include: chronic obstructive pulmonary disease, scarring of the lungs, cystic fibrosis, sarcoidosis with advanced fibrosis, and pulmonary hypertension.<sup>467</sup> Only about fifty percent of people who undergo a lung transplant are alive after five years.<sup>468</sup>

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<sup>462</sup> *Heart Transplant*, American Heart Association, [http://www.heart.org/HEARTORG/Conditions/CongenitalHeartDefects/CareTreatmentforCongenitalHeartDefects/Heart-Transplant\\_UCM\\_307731\\_Article.jsp](http://www.heart.org/HEARTORG/Conditions/CongenitalHeartDefects/CareTreatmentforCongenitalHeartDefects/Heart-Transplant_UCM_307731_Article.jsp) (last visited January 5, 2011).

<sup>463</sup> *Heart Transplant: Results*, Mayo Clinic, <http://www.mayoclinic.com/health/heart-transplant/MY00361/DSECTION=results> (last visited January 5, 2011).

<sup>464</sup> *Supra*, note 30.

<sup>465</sup> *Id.*

<sup>466</sup> *Id.*

<sup>467</sup> Mayo Clinic, *Lung Transplant: Why It's Done*, <http://www.mayoclinic.com/health/lung-transplant/MY00106/DSECTION=why-its-done> (last visited January 5, 2011).

<sup>468</sup> Mayo Clinic, *Lung Transplant: Results*, <http://www.mayoclinic.com/health/lung-transplant/MY00106/DSECTION=results> (last visited January 5, 2011).



## **VII. Multiple Transplants**

In addition to people waiting on one list for a transplant, there are also a number of people who are on multiple lists such as people needing a heart and lung transplant, or the kidney and pancreas. In addition to the lists for multiple organs there are also lists for people needing pancreas transplants and intestine transplants. The pancreas is the organ that lies behind the lower part of the stomach.

## **VIII. Religious Viewpoints**

At the present, most religions support and promote organ donation, in many faiths it is seen as an act of charity that promotes love and giving.<sup>469</sup> If and when therapeutic cloning makes possible the creation of organs the religious perspective concerning organ transplantation might change. However, with regard to the current process of organ transplantation there is almost universal assent in favor of organ donation by the religious community, and a majority encourage living donations.

### **A. Catholic Church**

The Catholic Churches position regarding organ donation was summed up most simply by Pope John Paul II when he said, “The Gospel of life is to be celebrated above all in daily living, which should be filled with self-giving love for others . . . Over and above such outstanding moments, there is an everyday heroism, made up of gestures of sharing, big or small, which build up an authentic culture of life. A particularly praiseworthy example of such gestures is the donation of organs, performed in an

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<sup>469</sup> U.S. Department of Health and Human Services, *OrganDonor.Gov: Religious Views on Donation*, [http://organdonor.gov/donation/religious\\_views.htm](http://organdonor.gov/donation/religious_views.htm) (last visited on January 5, 2011).

ethically acceptable manner, with a view to offering a chance of health and even of life itself to the sick who sometimes have no other hope.”<sup>470</sup>

Since the time of Pope Pius XII in the 1950s the Catholic Church has explicitly stated that both inter vivos transplants (from living donors) and postmortem transplants are lawful and not prohibited by the church.<sup>471</sup> However, for a living donation and transplant to remain lawful according to the Church three requirements must be met. First, informed consent must be given by the donor, second “the physical and psychological risks incurred by the donor must be proportionate to the good sought for the recipient. The donor must be aware of these risks and the proportionate good,” and third “to destroy the healthy functioning or intrinsic beauty of one’s body, even to delay death of another, is morally wrong.”<sup>472</sup> The Catholic Church encourages the sacrifice of an organ for the sake of another as long as the donor’s body integrity is not damaged.<sup>473</sup> According to the Church, this law of fraternal charity is important because without it transplants from living donors could lead to euthanasia.<sup>474</sup>

With regard to donations from the deceased, the Catholic Church’s concern revolves around the definition of death. The Church forbids death to be caused by organ donation, and therefore requires three conditions to be met in order for the Church to

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<sup>470</sup> Catholic Education Resource Center, *Play It Again Organ Donation*, [http://www.catholiceducation.org/articles/medical\\_ethics/me0019.html](http://www.catholiceducation.org/articles/medical_ethics/me0019.html) (last visited January 5, 2011).

<sup>471</sup> *Id.*

<sup>472</sup> *Id.*

<sup>473</sup> *Id.*

<sup>474</sup> Catholic Education Resource Center, *supra* note 50.

condone the postmortem donation.<sup>475</sup> The conditions are as follows: first “the donor must be verifiably and legitimately dead,” second “proper, informed consent must have been given by the deceased donor with verification from a trustworthy source . . . [or] consent of next of kin is admissible, provided that the deceased would not have opposed it,” and third “the remains of the donor must be treated with the same respect consistent with what was until death, and will be again, a temple of the Holy Spirit.”<sup>476</sup> The Church reiterated its opinion at the United States Catholic Bishops’ Conference in 1977 when it stated,

The transplantation of organs from living donors is morally permissible when the anticipated benefit to the recipient is proportionate to the harm done to the donor, provided that the loss of such organ(s) does not deprive the donor of life itself nor of the functional integrity of his body. Postmortem examinations must not begin until death is morally certain. Vital organs, that is, organs necessary to sustain life, may not be removed until death has taken place. The determination of the time of death must be made in accordance with responsible and commonly accepted scientific criteria. In accordance with current medical practice, to prevent any conflict of interest, the dying patient's doctor or doctors should ordinarily be distinct from the transplant team.<sup>477</sup>

The Catholic Church’s position is important to remember when it comes to the eventual progress of cloning organs, as that will solve the problem of the extensive wait lists, but the Church view will likely not be favorable on the process used to clone the organs.

## **B. Judaism**

All of the main branches of Judaism (Orthodox, Conservative, Reform, and Reconstructionist) support and encourage organ donation both from living and deceased

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<sup>475</sup> Catholic Education Resource Center, *supra* note 50.

<sup>476</sup> Catholic Education Resource Center, *supra* note 50.

<sup>477</sup> Catholic Education Resource Center, *supra* note 50; Ethical and Religious Directives for Catholic Health Facilities (NCCB, 1971), nos. 30-31.

donors.<sup>478</sup> However, the Jewish faith has concerns about the treatment of the human body. For example, with regard to a living donor there is the issue of the donor possibly endangering ones self, and with regard to a postmortem donation there are many Jewish laws to consider, including “deriving benefit from a cadaver, mutilating a dead body, and delaying burial.”<sup>479</sup> Yet, all of these rules and considerations are over written by the concept of pikuach nefesh, which is the Jewish obligation to save and protect human life.<sup>480</sup>

Like the Catholic Church, the critical issue within the Jewish faith for organ donation is the defining of the moment of death. The Conservative and Reform movements have defined death as the stopping of brain activity since the late 1960s, and in the early 1990s the Orthodox movement endorsed that definition of death, but the ultra-Orthodox add to brain death that the heart must also stop beating for thirty seconds.<sup>481</sup> Recently, the Jewish faith has moved beyond simply approving of organ donation and is now actively encouraging it; but not many people of Jewish faith offer postmortem donation because of the misconception about the faiths position, and many Jewish institutions are now trying to correct the misconception.<sup>482</sup>

### C. Other Religious Viewpoints

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<sup>478</sup> U.S. Department of Health and Human Services, *supra* note 49.

<sup>479</sup> My Jewish Learning, *Jewish Views on Organ Donation*, [http://www.myjewishlearning.com/beliefs/Issues/Bioethics/Organ\\_Donation.shtml](http://www.myjewishlearning.com/beliefs/Issues/Bioethics/Organ_Donation.shtml) (last visited January 6, 2011).

<sup>480</sup> *Id.*

<sup>481</sup> *Id.*

<sup>482</sup> *Id.*

In 1988, the Southern Baptist Convention adopted a resolution that allows physicians to request organ donation where it is appropriate, and as a general principle they encourage people to volunteer to be organ donors as a sign of compassion to those who are suffering.<sup>483</sup> The Greek Orthodox Church is not opposed to organ donation so long as the donation is used to better human life, meaning the donation is used for transplantation or for research to improve treatment methods and prevent disease.<sup>484</sup> In contrast, Gypsies oppose donation because they believe the soul retains a physical shape and therefore it is essential for the body to remain intact.<sup>485</sup> Lastly, both Islam and the Church of Jesus Christ of Latter-Day Saints permit donation in the principle of it saving another human life.<sup>486</sup>

#### **IX. The Uniform Anatomical Gift Act**

The Uniform Anatomical Gift Act (“Act”) governs over donations for transplantation and the gifting of one’s body for medical research. This Act was made to harmonize the state laws regarding bodily donation, and the National Conference of Commissioners on Uniform State Laws drafted the Act.<sup>487</sup> Basically, the Act outlines in what ways bodily gifts may be given. Some of the major statements made in the Act include: that if the wishes of the individual are unclear a spouse or close relative may give permission to make a gift, also the Act limits the liability of health care providers if

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<sup>483</sup> U.S. Department of Health and Human Services, *supra* note 49.

<sup>484</sup> *Id.*

<sup>485</sup> *Id.*

<sup>486</sup> *Id.*

<sup>487</sup> Uniform Law Comm’n, *Anatomical Gift Act (2006)*, (last visited Mar. 8, 2012), [http://www.nccusl.org/Act.aspx?title=Anatomical Gift Act \(2006\)](http://www.nccusl.org/Act.aspx?title=Anatomical%20Gift%20Act%20(2006)).

they were acting in good faith with regards to what they believed was a gift, and lastly the Act prohibits the trafficking in human organs for profit.<sup>488</sup>

The states that have enacted the Act include: Alabama, Alaska, Arizona, Arkansas, California, Colorado, District of Columbia, Georgia, Hawaii, Idaho, Indiana, Iowa, Kansas, Maine, Michigan, Minnesota, Mississippi, Missouri, Montana, Nevada, New Jersey, New Mexico, North Dakota, North Carolina, Ohio, Oklahoma, Oregon, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, Washington, West Virginia, and Wyoming.<sup>489</sup> A number of states enacted the Revised Uniform Anatomical Gift Act in 2010: Connecticut, Kentucky, Louisiana, Maryland, Nebraska, New Hampshire, New York, and Vermont.<sup>490</sup> Some prominent states that have not adopted the act are: Illinois, Massachusetts, Pennsylvania, and Florida.<sup>491</sup>

In addition to having been adopted by the vast majority of states the Act also has many endorsements, including those from: American Academy of Ophthalmology, American Association of Tissue Banks, American Medical Association, American Society of Cataract and Refractive Surgery, Association of Organ Procurement Organization, The Cornea Society, Eye Bank Association of America, national Kidney Foundation, and United Network for Organ Sharing.<sup>492</sup>

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<sup>488</sup> Uniform Law Comm'n, *Anatomical Gift Act (2006) Summary*, (last visited Mar. 8, 2012), [http://www.nccusl.org/ActSummary.aspx?title=Anatomical Gift Act \(2006\)](http://www.nccusl.org/ActSummary.aspx?title=Anatomical%20Gift%20Act%20(2006)).

<sup>489</sup> Uniform Law Comm'n, *supra* note 67.

<sup>490</sup> *Id.*

<sup>491</sup> *Id.*

<sup>492</sup> The National Conference of Commissioners on Uniform State Laws, *Endorsements*, <http://www.anatomicalgiftact.org/DesktopDefault.aspx?tabindex=5&tabid=68> (last visited January 6, 2011).

## X. Organ Donation and The Black Market

With the small number of organs available compared to the large and ever growing waiting lists there is a growing concern about how to increase the supply to accommodate the demands. There have been many solutions posed to help increase the number of donations including finding a better volunteer system like an “opt out”, where unless you have specifically refused to donate in writing you are a donor. While the world struggles to find a better system, an illegal market has sprung up to fulfill the demand, thus creating a black market for organs.

Many people have heard the urban legend where a man wakes up in a hotel bathtub filled with ice, and there is a note on top of the phone that reads, “call 911.” The reality is a little different. In many cases, the organ black market exploits the poor. They sell their organs for a pittance, but there is an increasing number of organ thefts and murder to obtain organs, again mostly against the poor. Remember, it is the rich who can afford to purchase organs, which establishes transplant tourism for the wealthy. Also, this black market produces an inequality amongst those waiting on the lists, and that inequality is based upon ones personal bank account. In a lot of cases the wealthy that break the law and purchase an organ live while those who continue to wait do not.

In February 2008, *Time Magazine* did an article on the black market for organs in India. The article talked about an organ transplant ring that had been busted for taking kidney’s from poor Indian laborers and selling them in foreign markets.<sup>493</sup> In some cases, the kidney’s were taken against the wishes of the donor and they were paid as little as a

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<sup>493</sup> Manish Swarup, *India’s Black Market Organ Scandal*, TIME (Feb 1, 2008), available at <http://www.time.com/time/world/article/0,8599,1709006,00.html>.

\$1000 for the organ, and then the kidney's were sold for \$37,500.<sup>494</sup> The article goes on to say that this ring illegally transplanted at least 500 organs, and the police believe that at least 30 of the donors died as a result of the operation.<sup>495</sup>

In January 2004, National Geographic did an article on the illegal trafficking of human organs.<sup>496</sup> The article explained the police in Brazil and South Africa broke a human kidney trafficking ring in December 2003.<sup>497</sup> People in destitute neighborhoods in Brazil were sent to South Africa for transplant surgery, and the recipients of those organs paid as much as \$100,000.<sup>498</sup> The article goes on to talk about "Kidney Village" an extremely poor neighborhood in India that received its nickname because of how many of its residences have illegally sold one of their kidneys.<sup>499</sup> Many of the people in the village said they sold their kidney for \$800, which is the equivalent of a year's salary.<sup>500</sup> National Geographic finishes the article by promoting UNOS purpose for getting compassionate donations not compensated ones.<sup>501</sup> But there are not enough compassionate donations, and because of the demand the poor are being exploited. Why not promote a solution of legalizing the organ trade market?

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<sup>494</sup> *Id.*

<sup>495</sup> Manish Swarup, *supra* note 73.

<sup>496</sup> Brain Handwerk, *Organ Shortage Fuels Illicit Trade in Human Parts*, NATIONAL GEOGRAPHIC (Jan. 16, 2004), available at [http://news.nationalgeographic.com/news/2004/01/0116\\_040116\\_EXPLorgantraffic.html](http://news.nationalgeographic.com/news/2004/01/0116_040116_EXPLorgantraffic.html).

<sup>497</sup> *Id.*

<sup>498</sup> *Id.*

<sup>499</sup> *Id.*

<sup>500</sup> *Id.*

<sup>501</sup> Brain Handwerk, *supra* note 76.



In January 2009, *Newsweek* wrote an expose on organ trafficking and that it is a growing problem in the United States. This article states that despite the numerous campaigns to volunteer, the postmortem donation numbers have remained consistent for the past fifteen years at somewhere between 5,000 and 8,000.<sup>502</sup> While that number has not changed the numbers in need of organs has greatly increased due to improved surgeries and better diagnosis abilities. These two factors have combined and now the World Health Organization estimates that one fifth of the kidney transplants worldwide come from the black market every year.<sup>503</sup>

The *Newsweek* article references an anthropologist who has spent the past ten years studying the organ market, Nancy Scheper-Hughes. Scheper-Hughes states that her biggest challenge has been getting people to believe there is a problem.<sup>504</sup> She said people are too quick to believe that organ-trafficking rings and body snatching are myths. She had seen first hand a newspaper in Africa advertising the selling of body parts, and brokers on the street with \$100s hoping to entice and recruit sellers.<sup>505</sup> This ever-increasing demand for organs that far outreaches the volunteered supply creates a huge problem not just for the people that die on the waiting list, but also for the people who are exploited by the criminals who see an opportunity for wealth. Imagine now that a possible solution to both these problems was coming, but it would be difficult to implement because of the state laws that stood in the way.

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<sup>502</sup> Jeneen Interlandi, *Not Just Urban Legend*, NEWSWEEK, Jan. 10, 2009, available at <http://www.newsweek.com/2009/01/09/not-just-urban-legend.html>.

<sup>503</sup> *Id.*

<sup>504</sup> *Id.*

<sup>505</sup> *Id.*

## XI. Cloning

When most people think of cloning they think of the sheep “Dolly” that was created by scientists at the Roslin Institute in 1997. In reality, there are three different types of cloning: DNA cloning, reproductive cloning, and therapeutic cloning.<sup>506</sup> DNA cloning is a common practice in biology labs and has been practiced since the 1790s; it consists of “the transfer of a DNA fragment of interest from one organism to a self-replicating genetic element such as a bacterial plasmid. The DNA of interest can then be propagated in a foreign host cell.”<sup>507</sup>

Reproductive Cloning is what most people think of when they envision cloning. Reproductive cloning is used to create an animal that has the same DNA as another animal, i.e. Dolly.<sup>508</sup> One process used for reproductive cloning is called somatic cell nuclear transfer (SCNT), in this process “scientists transfer genetic material from the nucleus of a donor adult cell to an egg whose nucleus, and thus its genetic material, has been removed. The reconstructed egg containing the DNA from a donor cell must be treated with chemicals or electric current in order to stimulate cell division. Once the cloned embryo reaches a suitable stage, it is transferred to the uterus of a female host where it continues to develop until birth.”<sup>509</sup>

The last type of cloning is called therapeutic cloning, and this type of cloning does not seek to create human beings, but rather uses stem cells to study human

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<sup>506</sup> U.S. Department of Energy Genome Program's Biological and Environmental Research Information System, Cloning Fact Sheet, HUMAN GENOME PROJECT INFORMATION, [http://www.ornl.gov/sci/techresources/Human\\_Genome/elsi/cloning.shtml](http://www.ornl.gov/sci/techresources/Human_Genome/elsi/cloning.shtml) (last visited January 7, 2011).

<sup>507</sup> *Id.*

<sup>508</sup> *Id.*

<sup>509</sup> *Id.*

development and to try to treat disease.<sup>510</sup> Stem cells are extremely important because scientist can use them to generate almost any specialized human cell. In therapeutic cloning an egg that has divided for five days is taken and the stem cells are extracted out of it, this process destroy the egg, which raises a lot of ethical and religious concerns.<sup>511</sup> However, many believe that stem cells will eventually be able to serve as replacement cells, and could possible treat diseases such as Alzheimer's, cancer, Parkinson's, and potential be used to clone organs for transplants.<sup>512</sup>

## **XII. Therapeutic Cloning and Organ Transplants**

It is a belief and hope of scientists that therapeutic cloning will one day be used to create organs for transplant. "To do this, DNA would be extracted from the person in need of a transplant and inserted into an enucleated egg. After the egg containing the patient's DNA starts to divide, embryonic stem cells that can be transformed into any type of tissue would be harvested. The stem cells would be used to generate an organ or tissue that is a genetic match to the recipient."<sup>513</sup> The two great advantages of being able to clone genetically matching organs are: one the risk of rejection would disappear, and two the need of organ donation would become much smaller and maybe even manageable.<sup>514</sup>

With all that said much needs to happen before it is physically possible to clone organs, and that includes making more advanced and effective technology involving the

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<sup>510</sup> *Id.*

<sup>511</sup> **HUMAN GENOME PROJECT INFORMATION**, *supra* note 86.

<sup>512</sup> *Id.*

<sup>513</sup> *Id.*

<sup>514</sup> *Id.*

creation of human embryos, and the ability to harvest stem cells.<sup>515</sup> Also, a technology to produce organs from stem cells still needs to be produced.<sup>516</sup> However, just because the technology does not exist yet does not mean it will never be possible. In 2001, it was reported that scientists cloned the first human embryos and in 2002 they reported transplanting a kidney-like organ into a cow.<sup>517</sup>

Cloning comes with many ethical issues attached mostly related to the use of stem cells, and that embryos have to be destroyed. Those moral issues will continue to challenge the process of therapeutic cloning and the creation of organs, but this paper will now address the issues therapeutic cloning will face with regard to laws. Even if the technological advancements necessary are made, the cloning abilities may not be implemental in the United States because of the laws that exist against cloning.

### **XIII. Laws and Cloning**

Concerning the federal government of the United States of American there are no statute against cloning. However, there were two serious attempts to pass legislation first in the 1997-98 session and then again in 2001. One month after the Roslin Institute cloned Dolly, President Clinton issued an executive order prohibiting human cloning that was funded with federal money, however this order in no way effects private research.<sup>518</sup>

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<sup>515</sup> *Id.*

<sup>516</sup> Human Genome Project Information, *supra* note 86.

<sup>517</sup> Human Genome Project Information, *supra* note 86.

<sup>518</sup> Center for Genetics and Society, *US Federal Policies: Failure to Pass Federal Cloning Legislation*, <http://www.geneticsandsociety.org/article.php?id=305> (last visited January 8, 2011).

During the 1997-98 Congressional Session, a bill was introduced by Senators Kennedy and Feinstein to ban human reproductive cloning.<sup>519</sup> A competing bill was introduced by Senators Bond, Frist and Lott, which would ban reproductive cloning and “the creation of clonal embryos.”<sup>520</sup> One week after the introduction, filibuster blocked the Bond-Frist-Lott bill, and following the filibuster no one tried to secure passage for the Feinstein-Kennedy bill.<sup>521</sup>

In late 2000 and early 2001, some scientists announced their interest in trying to clone human beings, and as a result the legislature started to try to secure a ban on human cloning. However, there was a difference of opinion between the parties. The Republicans wanting to ban reproductive cloning and cloning research, while the Democrats only wanted to ban reproductive cloning.<sup>522</sup> The House passed one of the bills introduced, but a conservative added a companion bill and a vote was never taken in the Senate.<sup>523</sup>

#### **XIV. United Nations**

In 2005, the United Nations adopted a Declaration on Human Cloning that asked for “all measures necessary to prohibit all forms of human cloning inasmuch as they are incompatible with human dignity and the protection of human life.”<sup>524</sup> The Declaration

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<sup>519</sup> *Id.*

<sup>520</sup> *Id.*

<sup>521</sup> Center for Genetics and Society, *supra* note 98.

<sup>522</sup> *Id.*

<sup>523</sup> *Id.*

<sup>524</sup> Press Release, Fifty-Ninth General Assembly, General Assembly Adopts United Nations Declaration on Human Cloning by Vote of 84-34-37, U.N. Press Release GA/10333 (Aug. 3, 2005).

was adopted at a vote of 84(yes)-34(no)-37(abstain), but the declaration is non-binding.<sup>525</sup> The resistance against the Declaration came because some countries felt that by saying “protection of human life” meant a total ban on cloning; basically the United Nations missed an opportunity to prohibit reproductive cloning.<sup>526</sup>

## **XV. The States**

In the United States fifteen individual states have statutes pertaining to human cloning. In the event therapeutic cloning ever becomes possible these fifteen states might have a problem implementing such advancement. However, with regard to these state statutes it is important to remember that they must hold up to any Constitutional questions that could arise.

The California legislature was the first state to restrict actions pertaining to cloning in 1997; they created laws that prohibit reproductive cloning while still permitting cloning research.<sup>527</sup> Arizona passed a law that bans the use of public funds in reproductive or therapeutic cloning.<sup>528</sup> Arkansas completely prohibits therapeutic and reproductive cloning making a violation of the statute a Class C felony and requiring a fine not less than \$250,000 or twice the amount of monetary gain, whichever is greater.<sup>529</sup>

Connecticut like California prohibits reproductive cloning but allows cloning research, and in the statute a violation is punishable by a \$100,000 fine and/or ten years

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<sup>525</sup> *Id.*

<sup>526</sup> *Id.*

<sup>527</sup> National Conference of State Legislatures, *Human Cloning Laws*, <http://www.ncsl.org/IssuesResearch/Health/HumanCloningLaws/tabid/14284/Default.aspx> (last visited January 8, 2011).

<sup>528</sup> *Id.*

<sup>529</sup> *Id.*

in prison.<sup>530</sup> Indiana passed a statute prohibiting reproductive and therapeutic cloning, the statute specifies that public funds may not be used for any type of cloning, and it prohibits the sale of human ovum, zygote, embryo or fetus.<sup>531</sup> Iowa goes even further in its statute by prohibiting cloning for any purpose, and making the punishment for such a violation a Class C felony.<sup>532</sup>

Both Maryland and Massachusetts prohibit reproductive cloning, but do not prohibit therapeutic cloning, and a violation of either states statue could result in a prison term and/or fine.<sup>533</sup> Michigan prohibits cloning for any purpose, and like Missouri bans the use of state funds for human cloning research, while New Jersey allows cloning research but prohibits reproductive cloning at a fine up to \$50,000.<sup>534</sup>

North and South Dakota prohibit reproductive and therapeutic cloning; and they prohibit the transfer or receipt of the product or human cloning or an oocyte, human embryo, human fetus, or human somatic cell.<sup>535</sup> Rhode Island and Virginia both prohibit reproductive cloning, and it is unclear whether Virginia also prohibits therapeutic cloning.<sup>536</sup>

## **XVI. Conclusion**

Organ donation is a serious issue in the United States. With tremendous medical advancements over the past fifty years more people are likely to survive an organ

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<sup>530</sup> *Id.*

<sup>531</sup> *Id.*

<sup>532</sup> National Conference of State Legislatures, *supra* note 107.

<sup>533</sup> *Id.*

<sup>534</sup> *Id.*

<sup>535</sup> *Id.*

<sup>536</sup> *Id.*

transplant. This has led to ever-growing waiting list for organs, while the number of donations has remained stagnant over the last fifteen years. Such a discrepancy in the supply of organs compared to the demand has prompted much debate about a possible solution, and caused a black market in organs that exploits the poor.

Therapeutic cloning could one day be the solution to the organ shortage. Scientists understand the way to engineer organs for people, but at the present they lack the technology. When the technology becomes available organs could be create that were a genetic match to the recipient eliminating the exorbitant waiting lists, and the fear of organ rejection.

However, even when this technology becomes possible its implementation will face a significant problem in numerous states because of statutes that prohibit types of cloning. Specifically, Arkansas, Indiana, Iowa, Michigan, North Dakota, South Dakota, and likely Virginia prohibit the exact type of cloning that would be necessary to engineer organs. There is an interesting road ahead related to the legal issues surrounding organ transplantation and therapeutic cloning. Only time will tell what becomes of these state laws, what Constitutional issues will arise, and how the Supreme Court will deal with it all.

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## *Hydrogen Futures: Toward a Sustainable Energy System*

By: Seth Dunn

**Citation:** Seth Dunn, *Hydrogen Futures: Toward a Sustainable Energy System* (Worldwatch Institute, 2001).

**Reviewed by:** Hyung Mo Yoon<sup>537</sup>

**Relevant Legal and Academic Areas:** Technology; Law; Literature

**Summary:** Dunn introduces the ongoing efforts of different nations to use hydrogen to reduce their dependence on petroleum import. He reasons nations' renewed interests in hydrogen are mainly due to the advent of technological advances as well as the resolution for the environmental risk posed by current dependence on the petroleum use.

### Chapter 1: Introduction

Dunn opens the introduction with the depiction of ongoing efforts by different nations to reduce their dependence on oil. For instance, the congress of the State of Hawaii had established a legislative committee to reduce Hawaii's dependence on oil, which accounts for 88 percent of its energy and is mainly imported from Asia and Alaska.<sup>538</sup> Meanwhile, the leaders Vanuatu nation, a small South Pacific island, had similar vision. Recognizing that the nation has abundant geothermal and solar energy,

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<sup>537</sup> Syracuse University College of Law, Juris Doctorate Candidate 2012, Syracuse Science & Technology Law Reporter Associate Editor 2010-2011

<sup>538</sup> Seth Dunn, *Hydrogen Futures: Toward a Sustainable Energy System* 5 (Worldwatch Institute, 2001).

which can be used to make hydrogen, Vanuatu sought to to conduct a feasibility study for developing a hydrogen-based renewable energy economy to build a nation that is totally independent of petroleum import.<sup>539</sup> Moreover, Iceland, which heavily depended on oil imports, announced its intention to become the world's first hydrogen society as early as 1993.<sup>540</sup> With successful completion of its bold project, Iceland hopes to become a "Kuwait of the North," exporting hydrogen to Europe and other countries.<sup>541</sup>

Dunn gives out the first explanation for nations' renewed interest in building hydrogen-run economy as the technological advances and the advent of greater competition in the energy industry.<sup>542</sup> In addition, the increased interest in hydrogen stems as the counter measures to the issues of energy security, air pollution, and climate change.<sup>543</sup>

Dunn sees that the transition to hydrogen will not only bring enormous commercial implication but also the geopolitical implication. As the use of coal enabled the rise of Great Britain in the eighteenth century and the use of oil laid the foundation for the United States' economic prosperity in the twentieth century, Dunn argues that the countries harnessing "hydrogen as aggressively as the United States tapped the oil a century ago" will eventually seize the tomorrow's "prize."<sup>544</sup> He adds that "easy access

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<sup>539</sup> Dunn, *supra* note 2

<sup>540</sup> *Id.* at 6.

<sup>541</sup> *Id.*

<sup>542</sup> *Id.* at 7.

<sup>543</sup> *Id.*

<sup>544</sup> Dunn, *supra* note 2, at 8

to the plentiful hydrogen could . . . possibly transform today’s importers into tomorrow’s exporters.”<sup>545</sup>

Despite these potential benefits, hydrogen has not yet emerged into the surface because of the energy policies of governments and businesses; for instance, U.S. energy policy still maintains its emphasis on expanding fossil fuel production with annual subsidies to traditional energy sources amounting to \$300 billion.<sup>546</sup> Dunn adds that “people are largely misguided with the false belief that building hydrogen infrastructure would incur cost of hundreds of billions of dollars to build, far more than a system based on traditional energy source,” and such misconception caused the industry to continue to invest in deriving hydrogen from petroleum-based energy source.<sup>547</sup> He argues such incremental path taken by the government and the industry- to increasingly relying on the dirtier, less secure fossil fuels as a bridge to the new energy system— represents a wrong turn financially and environmentally.<sup>548</sup> He concludes the chapter with the emphasis on government role: that government role is essential to pave the road to hydrogen transition.<sup>549</sup> Without drastic shift in energy and environmental policies, the hydrogen economy is unlikely to emerge in the near future.<sup>550</sup>

## **Chapter 2: Gases Rising**

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<sup>545</sup> *Id.*

<sup>546</sup> Dunn, *supra* note 2, at 8.

<sup>547</sup> *Id.* at 11.

<sup>548</sup> *Id.*

<sup>549</sup> *Id.*

<sup>550</sup> *Id.* Dunn, *supra* note 2, at 12

Review of historical transition of energy system experienced from 1800s and his forecast of evolution of future energy system.

Dunn introduces the chapter with the careful review of energy history. The world shifted from the reliance on wood to liquids to gas fuels throughout the past last several centuries.<sup>551</sup> By 1900 the advantages of an energy system based on fluids, rather than solids, began to emerge. This shift created problems and opportunities: for coal, with its weight and volume, and for oil, with a higher energy density and an ability to flow.<sup>552</sup> But nowadays, the liquid faces another competitor—a gas. While the distribution of oil is cumbersome and is unevenly clustered throughout the globe, natural gas is extensive that for oil and can be efficiently distributed through a network of pipes.<sup>553</sup>

Dunn introduces the chemical transition called “decarbonization.”<sup>554</sup> As the mankind moved towards more sophisticated energy source, the number of hydrogen molecule in relation to carbon has increased successively.<sup>555</sup> For instance, from wood to coal to oil to natural gas, the ratio of hydrogen (H) to carbon (C) in the molecule of each successive source has increased.<sup>556</sup> The ratio is between 1 to 3 and 1 to 10 for wood; 1 to 2 for coal; 2 to 1 for oil; and 4 to 1 for natural gas.<sup>557</sup> Between 1860 and 1990, the H-C

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<sup>551</sup> *Id.*

<sup>552</sup> Dunn, *supra* note 2, at 14

<sup>553</sup> *Id.* at 15.

<sup>554</sup> *Id.*

<sup>555</sup> *Id.* at 14.

<sup>556</sup> *Id.*

<sup>557</sup> Dunn, *supra* note 2, at 15

ratio rose sixfold.<sup>558</sup> Dunn concludes that a next logical fuel in such historical progression is hydrogen.<sup>559</sup>

Dunn argues that the pace at which hydrogen will emerge depends on the growing energy needs, local pressures on conventional resources, and the continuing quest for more available fuels.<sup>560</sup> He discusses that the factor that will most likely determine the pace in which the world is shifting towards hydrogen research is whether we will run out of cheap, available oil.<sup>561</sup> The urban air pollution will be another important factor for the hydrogen transition. Dunn states that “particulate pollution contributes to 500,000 premature deaths annually.”<sup>562</sup> In addition, hydrogen transition will be pushed by environmental issues, such as the risk of climate change.<sup>563</sup> He points out that the higher atmospheric levels of greenhouse gases contributes in raising global surface temperatures and the increased global surface temperatures brings about the unprecedented climate change in the form of a greater frequency of floods and droughts.<sup>564</sup> Yet the level at which climate is stabilized will depend on the investments made now.<sup>565</sup>

### **Chapter 3: Feedstock Today, Fuel Tomorrow**

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<sup>558</sup> *Id.*

<sup>559</sup> *Id.*

<sup>560</sup> *Id.* at 20-21.

<sup>561</sup> Dunn, *supra* note 2, at 20-21

<sup>562</sup> *Id.* at 22.

<sup>563</sup> Dunn, *supra* note 2, at 22.

<sup>564</sup> *Id.* at 25.

<sup>565</sup> Dunn, *supra* note 1, at 26.

At present, approximately 400 billion cubic meters of hydrogen are produced worldwide each year, with about one fifth of this total coming from the United States.<sup>566</sup> The most common way to produce hydrogen at present is the process called the steam methane reforming.<sup>567</sup> It involves the heating of methane to derive the hydrogen atoms, releasing carbon dioxide as a byproduct.<sup>568</sup> According to U.S. National Renewable Energy Laboratory (NREL), catalytic steam reforming of natural gas yields great harm to the environment by emitting carbon dioxide as a byproduct.<sup>569</sup> Coal can also be reformed to produce hydrogen, through gasification but this process similarly releases carbon into the air.<sup>570</sup> Hydrogen can be extracted from a number of different conventional resources, such as oil, gasoline, and methanol through reforming process called oxidation but they all emit more carbon dioxide than steam methane reforming.<sup>571</sup>

The most promising long-term method of deriving hydrogen is electrolysis, which uses electricity to split water into hydrogen and oxygen atoms.<sup>572</sup> While this process is expensive due to its heavy use of the electricity, the electrolysis from renewable energy source, such as solar, geothermal and wind power may achieve a very clean hydrogen

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<sup>566</sup> *Id.* at 28.

<sup>567</sup> *Id.*

<sup>568</sup> *Id.* at 29.

<sup>569</sup> *Id.* at 30.

<sup>570</sup> Dunn, *supra* note 1, at 30.

<sup>571</sup> Dunn, *supra* note 1, at 30-31.

<sup>572</sup> *Id.* at 31.

cycle.<sup>573</sup> It also represents a potentially “enormous source of hydrogen.”<sup>574</sup> The electrolysis process from renewable energy would require significant increase in the rate of installing new plants, but if such becomes reality, it is projected that hydrogen-fueled vehicles nearly replace the U.S. car fleet run by petroleum by 2050.<sup>575</sup>

To become a major energy carrier, the technologies that store and transport the hydrogen also need to be developed. While there are a number of storage technologies that addresses such issue, the choice will largely depend on several different factors including amount to be stored, the forms of energy available, and other economic considerations.

#### **Chapter 4: Engines of Change**

The ultimate goal to the hydrogen energy system is to use and apply the hydrogen energy in internal combustion engines, conventional combustion turbines, and fuel cells.<sup>576</sup> There are different types of fuel cell, each named according to the electrolyte that is used in the system. Among them, the molten carbonate fuel cell (MCFC) is being pursued by several U.S. and Japanese companies, including Energy Fuel Cell and MC Power Corporation.<sup>577</sup> In addition, 40 companies, including Siemens and McDermott, are investing in developing the solid-oxide fuel cell(SOFC).<sup>578</sup> Another type of fuel cell,

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<sup>573</sup> *Id.* at 32.

<sup>574</sup> *Id.*

<sup>575</sup> *Id.* at 34.

<sup>576</sup> Dunn, *supra* note 1, at 39.

<sup>577</sup> Dunn, *supra* note 2, at 41.

<sup>578</sup> *Id.*

Alkaline fuel cell - the type used in the Apollo program, is being developed for commercial applications.<sup>579</sup>

The fuel cell that garners the most attention is the proton exchange membrane (PEM). This cell's membrane acts as an electrolyte through which protons pass, bonding with oxygen to form water and thus creating electrical current.<sup>580</sup> In one commercial experiment, PEM cells have experienced significant reductions in the cost of producing electrolytes.<sup>581</sup>

While the use of fuel cells appears to reduce local air pollutants, their production also has the environmental impacts. In fact, the platinum group metals (PGMs), which is used as catalyst, emit the greenhouse gas, sulfur, and nitrogen emissions.<sup>582</sup> However, industry experts point to different options to improve its ecological impacts of fuel cells.<sup>583</sup>

The introduction of hydrogen into car fleets also brings some technical, environmental, and economic challenges. Among them is the difficulty in integrating small, inexpensive, and efficient fuel cells into the vehicles.<sup>584</sup> Another challenge exists in developing an infrastructure for producing and delivering hydrogen.<sup>585</sup> This is the

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<sup>579</sup> *Id.*

<sup>580</sup> *Id.*

<sup>581</sup> Dunn, *supra* note 2, at 41.

<sup>582</sup> *Id.* at 42.

<sup>583</sup> *Id.*

<sup>584</sup> *Id.* at 44.

<sup>585</sup> Dunn, *supra* note 2, at 44.



most significant and environmentally challenging issue in terms of transitioning into hydrogen energy system.<sup>586</sup>

### **Chapter 5: The Fuel Choice Question**

As fuel cells face commercialization, transport and energy companies are debating over which type of vehicle to mass produce and over the type of fuel to provide through pipelines.<sup>587</sup> These options include onboard gasoline and methanol reformers, the direct onboard storage, and the use of compressed gaseous and liquid hydrogen.<sup>588</sup>

Each fuel has advantages and drawbacks. Methanol, for instance, is the easiest of the liquids to reform on board, but it raises health/safety issues, and the industry liability concerns, as it is a classified toxin.<sup>589</sup> Gasoline, on the other hand, is more difficult to reform than methanol because of the high temperatures needed for the reformation process.<sup>590</sup> However, it can be supported with existing infrastructures and is familiar to end-users.<sup>591</sup>

Dunn introduces “well-to-wheels” assessments that is used compare the ecological benefits that each different types of hydrogen fuel cell brings.<sup>592</sup> “Well-to-wheels” evaluations examine the environmental impacts associated with the use of a fuel

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<sup>586</sup> *Id.*

<sup>587</sup> *Id.* at 45.

<sup>588</sup> *Id.*

<sup>589</sup> Dunn, *supra* note 2, at 46.

<sup>590</sup> *Id.* at 46-47.

<sup>591</sup> *Id.* at 47.

<sup>592</sup> *Id.*

through each stage, from production to delivery to use.<sup>593</sup> While different trade groups each came out with results promoting their particular fuel, Dunn impliedly concludes that direct hydrogen using renewable energy source would best reduce both greenhouse gas emissions over other onboard reformers using gasoline or methanol.

### **Chapter 6: Greening the Infrastructure**

The huge cost associated with building the hydrogen infrastructure has led experts to view the use of hydrogen for a vehicle as an impossible obstacle.<sup>594</sup> Dunn suggests, however, the opposite: that the direct use of hydrogen may in fact be achieved in least costly route.<sup>595</sup> Dunn introduces the number of studies conducted by various parties, including the ones by both industry and academics. Dunn shows that the studies conducted for Ford Motor Company which had shown that the gradual adoption of hydrogen vehicles, starting from methane reformers to serve the small fleets to mass production of direct hydrogen infrastructures.<sup>596</sup> He suggests that this way hydrogen vehicle could be used at a cost per mile that is “near, or even below,” that of gasoline in a conventional vehicle.<sup>597</sup>

Dunn further suggests that there are no technical barriers to implementing a direct hydrogen infrastructure.<sup>598</sup> When environmental impact and the damage is considered,

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<sup>593</sup> Dunn, *supra* note 2, at 47.

<sup>594</sup> *Id.* at 54.

<sup>595</sup> *Id.*

<sup>596</sup> *Id.* at 55.

<sup>597</sup> *Id.*

<sup>598</sup> Dunn, *supra* note 1, at 55.

the direct hydrogen fuel cell vehicle emits the least environmental damage and the cost to build the direct hydrogen infrastructure will be offset by the benefit gained by the society as the hydrogen-fueled vehicles grow, the author concludes.<sup>599</sup>

### **Chapter 7: Building the Hydrogen Economy**

Dunn begins the chapter with shortcomings of private entities' efforts in financing the hydrogen transition. "Because the private bankers' need to provide a short-term rate of return", the private sector alone cannot finance the transition on their own, the author implies.<sup>600</sup> Dunn calls that the government should move toward a hydrogen economy. He argues that the starting point is to cut back on incentives for continued hydrocarbon production that will continue to frustrate efforts to introduce hydrogen fuels.<sup>601</sup> Dunn believes that artificially low fossil fuel prices will continue to delay the hydrogen transition.<sup>602</sup> In addition, governmental support for research and development are in need to promote innovations that have potential long-term benefit.<sup>603</sup>

Dunn also introduces the stronger political support in Germany which is the active leader in terms of hydrogen transition.<sup>604</sup> By contrast, he criticizes the United States government as lagging behind in terms of implementing hydrogen energy system. He views the United States government is still reluctant to resolve oil import dependence,

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<sup>599</sup> Dunn, *supra* note 1, at 57.

<sup>600</sup> *Id.* at 63.

<sup>601</sup> *Id.*

<sup>602</sup> *Id.* at 64.

<sup>603</sup> Dunn, *supra* note 1, at 66.

<sup>604</sup> *Id.* at 65

and has taken an uncertain political stance toward climate change.<sup>605</sup> With respect to businesses in private sector, he believes that oil companies should reposition themselves as energy firms by articulating the initiatives and strategies shown by BP and Shell.

Dunn acknowledges that geopolitics of energy will be affected in unpredictable ways as choices and decisions from a number of nations as well as private entities will shape the transition into hydrogen energy system. Henceforth, he calls that there exist “greatest educational need” to engage the public in making appropriate decisions regarding hydrogen infrastructure.<sup>606</sup> He believes such is “the vital process of introducing a new technology and it is an era in which cooperation is essential.”<sup>607</sup> Dunn ends the chapter by stating that while there may exist risks and costs involved in introducing a hydrogen economy, they are far less than that of traditional-carbon economy.<sup>608</sup>

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<sup>605</sup> Dunn, *supra* note 2, at 74.

<sup>606</sup> *Id.*

<sup>607</sup> *Id.* at 75.

<sup>608</sup> *Id.*

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## **Computer Games and Virtual Worlds: A New Frontier in Intellectual Property Law**

By: Rodd A. Dannenberg, Steve Mortinger, Roxanne Christ, Chrissie Scelsi, & Farnaz Alemi

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### **Introduction**

The media realm of video games and virtual worlds has been growing substantially over the last 20 years.<sup>609</sup> In the United States alone, video game sales totaled more than \$21.3 billion in 2008.<sup>610</sup> As the use of video games and virtual worlds continues to increase, the legal issues they raise become more complex.<sup>611</sup> These issues include the traditional areas of intellectual property law – copyright, trademark, patent, and trade secret – as affected by end user licensing agreements for each video game and

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<sup>609</sup> Computer Games and Virtual Worlds: A New Frontier in Intellectual Property Law 1 (Rodd A. Dannenberg, Steve Mortinger, Roxanne Christ, Chrissie Scelsi, & Farnaz Alemi eds., 2010).

<sup>610</sup> *Id.*

<sup>611</sup> *Id.* at 2.

virtual world user.<sup>612</sup> This book discusses these traditional rights in the non-traditional setting of video games and virtual worlds.<sup>613</sup>

### **End-User License Agreements: The Private Law in Video Games and Virtual Worlds**

While video game users are generally constrained in their actions by the programmers of the game, the conduct of virtual world users is governed by contract law.<sup>614</sup> All actions of a virtual world resident are constrained by a contract called an end user license agreement (EULA).<sup>615</sup> An EULA is a contractual agreement between a virtual world resident and the company that operates the virtual world.<sup>616</sup> These agreements are accepted electronically by virtual world residents before being allowed to access the virtual world.<sup>617</sup> These EULAs serve as gatekeepers to many virtual worlds and are often non-negotiable.<sup>618</sup>

EULAs offer a number of benefits as a method of governing virtual worlds.<sup>619</sup> Because EULAs are an express agreement between parties, they clearly state what

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<sup>612</sup> *Id.*

<sup>613</sup> *Id.* at 2-3.

<sup>614</sup> Dannenburg, *supra* note 1, at 6.

<sup>615</sup> *Id.*

<sup>616</sup> *Id.* at 9.

<sup>617</sup> *Id.*

<sup>618</sup> *Id.* at 9-10.

<sup>619</sup> Dannenburg, *supra* note 1, at 11.

constitutes permissible or impermissible conduct.<sup>620</sup> EULAs also usually include a termination provision, providing that if a virtual world resident breaches the EULA, his account will be terminated.<sup>621</sup> This approach also allows virtual world creators to pick and choose which terms and restrictions they would like included.<sup>622</sup> EULAs usually include provisions that prohibit harassing or offending other participants.<sup>623</sup> Many agreements also contain arbitration and choice of forum clauses.<sup>624</sup> There is some speculation that as virtual world EULAs change over time, users will gravitate toward those with the greatest freedom and most rights.<sup>625</sup>

There are a number of concerns and limitations involving EULAs. First is whether the contract itself, and any material modifications of the contract, are unenforceable because of unconscionability.<sup>626</sup> A contract is unenforceable if it results from an unfair bargaining process (procedural unconscionability) that lends to an unfair result (substantive unconscionability).<sup>627</sup> Next, most EULAs allow the virtual world operator to unilaterally modify its EULA at any time, and in its sole discretion, after the

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<sup>620</sup> *Id.*

<sup>621</sup> *Id.*

<sup>622</sup> *Id.*

<sup>623</sup> *Id.* at 12.

<sup>624</sup> Dannenburg, *supra* note 1, at 13.

<sup>625</sup> *Id.* at 17.

<sup>626</sup> *Id.* at 19.

<sup>627</sup> *Id.* at 19-20.

user agrees to its terms.<sup>628</sup> Modifications generally require notification under common law, however it is not always necessary for virtual world operators to provide notice to its virtual world users.<sup>629</sup> While virtual world operators may not need to give new consideration to users when modifying their EULA, the modifications are still limited by the doctrine of unconscionability.<sup>630</sup>

Another issue regarding EULAs lies in the area of privity of contract.<sup>631</sup> EULAs do not create rights or obligations between or among virtual world members themselves, nor do they bind third parties who have not “signed” the agreement.<sup>632</sup> This raises problems with third-party beneficiary clauses, as well as intentional or tortious interference of contract by third parties.<sup>633</sup>

The next limiting factor of EULAs are state’s consumer protection limitations.<sup>634</sup> While EULAs give virtual world operators some leeway, these agreements are still governed by contract law, and may be limited by common law or by state and federal statutes.<sup>635</sup> Every state has enacted statutes that protect consumers against unfair, unconscionable, deceptive, and fraudulent business practices.<sup>636</sup>

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<sup>628</sup> *Id.* at 27.

<sup>629</sup> Dannenburg, *supra* note 1, at 28.

<sup>630</sup> *Id.* at 29.

<sup>631</sup> *Id.* at 30.

<sup>632</sup> *Id.*

<sup>633</sup> *Id.* at 31.

<sup>634</sup> *Id.* at 35.

<sup>635</sup> Dannenburg, *supra* note 1, at 35.



The last issue limiting EULAs surrounds the fact that children make up a large portion of consumers.<sup>637</sup> The child user's status as a minor may limit the virtual world operator's ability to enforce its EULA against them.<sup>638</sup> Because most EULAs assume the user has the legal capacity to enter into a contract, many courts are reluctant to enforce contracts against minors.

There are a number of potential resolutions to the intellectual property and private law issues that arise from EULAs in video games and virtual worlds.<sup>639</sup> The first solution would require virtual world operators to modify their existing EULAs as a way to temper one-sided provisions that put these agreements at risk of being classified as contracts of adhesion.<sup>640</sup> The second solution would be to continue allowing courts to rule on these issues using common law protections such as tort or property law.<sup>641</sup> The last solution would be to create an online system for resolving disputes, so the parties involved can resolve their issues in the environment they arise.<sup>642</sup>

### **Copyright Law Implications in Video Games and Virtual Worlds**

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<sup>636</sup> *Id.*

<sup>637</sup> *Id.* at 37.

<sup>638</sup> *Id.*

<sup>639</sup> *Id.* at 40.

<sup>640</sup> Dannenburg, *supra* note 1, at 40.

<sup>641</sup> *Id.*

<sup>642</sup> *Id.*

Today, federal copyright law in the United States is governed by the Copyright Act of 1976.<sup>643</sup> The Copyright Act provides protection for “original works of authorship”, and provides the author of a protectable work the exclusive right to make copies of that work, to distribute it, to make derivative works based on it, and to publicly perform and display it.<sup>644</sup> In the realm of video games and virtual worlds, users may seek to copyright any original design created while playing.<sup>645</sup>

In order for an author to receive copyright protection, his creation must meet several requirements.<sup>646</sup> The first requirement is that the creation must be an “original work of authorship.”<sup>647</sup> Courts have held that video games are protectable because they constitute “audiovisual works”, and computer programs are protectable because they constitute “literary works.”<sup>648</sup> The second requirement for copyright protection is the constitutional requirement that the work be original.<sup>649</sup> The last requirement for copyright protection is that it be “fixed in any tangible medium of expression” from which it can be “perceived, reproduced, or otherwise communicated for a period of more than transitory

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<sup>643</sup> *Id.* at 49.

<sup>644</sup> *Id.*

<sup>645</sup> Dannenburg, *supra* note 1, at 48.

<sup>646</sup> *Id.* at 49.

<sup>647</sup> *Id.*

<sup>648</sup> *Id.* at 50.

<sup>649</sup> *Id.* at 53.

duration.”<sup>650</sup> Courts have found that both video games and computer programs are “fixed.”<sup>651</sup>

The rules of a video game are not generally copyrightable due to the “idea/expression dichotomy” which states that copyright protection does not extend to any “idea, procedure, process, system, method of operation, concept, principle, or discovery.”<sup>652</sup> As previously mentioned, video games generally fall under two different “works of authorship.”<sup>653</sup> Audiovisual works, which embody the visual displays of the games while they are played, and literary works, which embody the games’ computer code.<sup>654</sup> This is an important distinction because the copyright in each can be protected, or attacked, separately.<sup>655</sup>

Just as in video games, copyright protection extends to both the audiovisual work and the underlying computer code of virtual worlds.<sup>656</sup> However, virtual worlds raise many more copyright issues because they allow users to create and modify objects within the worlds.<sup>657</sup> It is very difficult to apply any of the statutory categories of copyrightable

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<sup>650</sup> Dannenburg, *supra* note 1, at 54.

<sup>651</sup> *Id.* at 54-55.

<sup>652</sup> *Id.* at 55, 57.

<sup>653</sup> *Id.* at 58.

<sup>654</sup> *Id.*

<sup>655</sup> Dannenburg, *supra* note 1, at 59.

<sup>656</sup> *Id.* at 60.

<sup>657</sup> *Id.*

“works of authorship” to a particular item within a virtual world.<sup>658</sup> However, U.S. courts have not yet directly addressed this issue.<sup>659</sup>

It can be argued that certain objects created within a virtual world are more copyrightable than objects in reality.<sup>660</sup> Copyright protection only covers an item’s design features, and does not extend to an item’s usefulness.<sup>661</sup> While this distinction may be difficult to make in the real world, one can argue that none of the objects created in a virtual world are truly useful.<sup>662</sup> Therefore, as long as a virtual creation is original, it should be copyrightable.<sup>663</sup> For example, users may wish to copyright the clothing they create for their avatars.<sup>664</sup> While the area is still largely unsettled, many aspects of video games and virtual worlds are likely to be copyrightable.<sup>665</sup>

Video game and virtual world copyrights also raise issues surrounding the ownership of certain copyrights.<sup>666</sup> Under U.S. copyright law, ownership of a protectable work vests initially in the work’s author.<sup>667</sup> If the work is made for hire, the “hirer” is

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<sup>658</sup> *Id.*

<sup>659</sup> *Id.* at 62.

<sup>660</sup> Dannenburg, *supra* note 1, at 59.

<sup>661</sup> *Id.* at 63.

<sup>662</sup> *Id.*

<sup>663</sup> *Id.*

<sup>664</sup> *Id.* at 64.

<sup>665</sup> Dannenburg, *supra* note 1, at 68.

<sup>666</sup> *Id.*

<sup>667</sup> *Id.*

considered the author.<sup>668</sup> In the realm of video games and virtual worlds, the creator may choose to give users the right to modify code or create works within the game/world.<sup>669</sup> Such modifications are considered derivative work, and sole ownership (minus the pre-existing material) is given to the creator.<sup>670</sup> Many video game operators actually support the creation of derivative works because they benefit operators in the long-run.<sup>671</sup> However, the extent of a user's intellectual property rights in the content he creates is usually limited by the EULA agreed to.

Most virtual worlds allow users to transfer items between one another, with or without the game operator's specific permission.<sup>672</sup> Copyright issues may arise when transfers are made outside the virtual world and with real money.<sup>673</sup> "Commodification" is the treatment of virtual objects as objects in the real world.<sup>674</sup> Many game operators prohibit commodification and consider it to infringe their copyrights in the game.<sup>675</sup> Some have argued that there can be no infringement, because the items being sold stay exactly where they were created: within the game.<sup>676</sup> Regardless of whether such

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<sup>668</sup> *Id.*

<sup>669</sup> *Id.* at 71.

<sup>670</sup> Dannenburg, *supra* note 1, at 71.

<sup>671</sup> *Id.* at 71-72.

<sup>672</sup> *Id.* at 79.

<sup>673</sup> *Id.* at 80.

<sup>674</sup> *Id.*

<sup>675</sup> Dannenburg, *supra* note 1, at 80-81.

<sup>676</sup> *Id.* at 81.

transfers infringe owner's copyrights, they often violate the EULA agreed to between the owner and the user.<sup>677</sup>

Once copyrights are established, copyright owners can license their exclusive rights, thereby exploiting and controlling access to the protected works.<sup>678</sup> Copyright licensing involving virtual worlds is complex and unsettled.<sup>679</sup> Users who have the right to license their virtual creations are faced with communication difficulties, and often cannot compose a proper written licensing agreement.<sup>680</sup>

Although not necessary, copyright owners may wish to follow the proper formalities of notice and registration.<sup>681</sup> Adherence to these formalities will allow copyright owners to protect their creations from infringement.<sup>682</sup> Establishing a claim of infringement requires the author to show (1) ownership of a valid copyright, and (2) illicit copying by a defendant.<sup>683</sup> This is a common problem in virtual worlds because other users can easily copy most virtual creations using external software.<sup>684</sup> The remedies

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<sup>677</sup> *Id.*

<sup>678</sup> *Id.* at 82-83.

<sup>679</sup> *Id.* at 84.

<sup>680</sup> Dannenburg, *supra* note 1, at 85.

<sup>681</sup> *Id.* at 88.

<sup>682</sup> *Id.* at 92.

<sup>683</sup> *Id.* at 93.

<sup>684</sup> Dannenburg, *supra* note 1, at 92.

available to plaintiffs who successfully prove a copyright infringement claim include the actual damages suffered plus any profits enjoyed by the infringer.<sup>685</sup>

### **Real World Patent Issues for a Virtual World**

The issues surrounding patent law in the context of virtual worlds are extremely complex.<sup>686</sup> In order for the United States Patent and Trademark Office (USPTO) to grant a patent, the inventor must show that his invention is useful, new, and non-obvious.<sup>687</sup> A patent owner has the right to exclude others from making, using, selling, or offering to sell the patented invention or importing it into the country.<sup>688</sup> A useful invention is one that is “operable to perform its intended function.”<sup>689</sup> Video games and virtual worlds are considered “useful” and therefore patentable given that they are new, non-obvious, and has subject matter tied to a particular machine or transforms data to a different state or thing.<sup>690</sup>

There are a large number of problems that could arise when obtaining a patent for a video game or virtual world, or for an invention created within a video game or virtual world.<sup>691</sup> Process inventions frequently cross-over into video games and virtual worlds,

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<sup>685</sup> *Id.* at 106.

<sup>686</sup> *Id.* at 112.

<sup>687</sup> *Id.*

<sup>688</sup> *Id.* at 112-113.

<sup>689</sup> *Id.* at 113.

<sup>690</sup> Dannenburg, *supra* note 1, at 114.

<sup>691</sup> *Id.* at 122.

and remain the most easily identifiable invention that could apply to a virtual world.<sup>692</sup> If it is not possible for a user to claim a process invention, he may claim a virtual world invention by claiming the computer on which the program runs.<sup>693</sup> However these types of claims may only apply to a centralized computer server, and would limit the available damages in an infringement suit.<sup>694</sup> Claiming a machine patent for an invention created within a virtual world raises philosophical questions of whether an item can exist virtually.<sup>695</sup> Creations within a virtual world are not likely to be seen as a composition of matter invention, unless the common understanding of “matter” changes to include virtual matter.<sup>696</sup> Design patents may also apply to video games and virtual worlds.<sup>697</sup> Design patents cover the “ornamental appearance” of an item, such as a character in a video game, and are becoming more popular with gaming manufacturers.<sup>698</sup>

It is also important to understand the importance behind licensing and enforcing virtual world patents.<sup>699</sup> Proving infringement in a virtual world is even more complex than proving infringement in the real world.<sup>700</sup> Analyzing a virtual world infringement

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<sup>692</sup> *Id.* at 122, 124.

<sup>693</sup> Dannenburg, *supra* Note 1, at 124.

<sup>694</sup> Dannenberg, *supra* note 1, at 124.

<sup>695</sup> Dannenburg, *supra* note 1, at 126.

<sup>696</sup> *Id.* at 126.

<sup>697</sup> *Id.*

<sup>698</sup> *Id.* at 129-130.

<sup>699</sup> Dannenberg, *supra* note 1, at 129-30.

<sup>700</sup> Dannenburg, *supra* note 1, at 134.



claim requires consideration of the software's source code, object code, hardware used, the interaction between the software and hardware components, and the interaction between the software and user.<sup>701</sup> EULAs may require that each user license his patent rights to the operator of the virtual world and all other users of the virtual world.<sup>702</sup> There can also be problems identifying the real-world identity of online avatars.<sup>703</sup> There are also issues surrounding jurisdiction and venue since it is difficult to identify the location of a virtual world.<sup>704</sup>

Because patent rights are usually limited by a geographical area, it is difficult to identify the property and applicable controlling law in a dispute concerning virtual world conduct.<sup>705</sup> Pinpointing the governing law in a dispute between parties can be very difficult if more than one EULA is involved.<sup>706</sup> Some people have gone so far as to suggest a "virtual patent system" as an alternative for providing patent rights to inventors in the video game and virtual world realm.<sup>707</sup>

### **Implications of Video Games and Virtual Worlds in Trademark Law**

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<sup>701</sup> *Id.* at 134-35.

<sup>702</sup> *Id.* at 136.

<sup>703</sup> *Id.* at 137.

<sup>704</sup> *Id.* at 137-38.

<sup>705</sup> Dannenburg, *supra* note 1, at 140.

<sup>706</sup> *Id.*

<sup>707</sup> *Id.* at 141.

Trademarks are mainly used to distinguish one source of goods from another.<sup>708</sup> Game designers may use trademarks to make game environments more realistic, thus improving their appeal.<sup>709</sup> Game players may wish to use trademarks as a form of self-expression and to brand their personalities.<sup>710</sup> Whenever trademarks are used without permission, whether due to designers or players, many legal issues arise.<sup>711</sup>

Trademark protection for video games and virtual worlds is available under both federal and state law.<sup>712</sup> The Lanham Act, which is the source of federal trademark protection, defines a trademark as “any word, name, symbol, or device, or any combination thereof” that is used to “identify and distinguish [someone’s] goods, including a unique product, from those manufactured or sold by others and to indicate the source of the goods, even if that source is unknown.”<sup>713</sup> Product packaging and design features are also protectable under trademarks.<sup>714</sup>

Like many of the other areas of intellectual property law, many uses of trademarks in the contexts of video games and virtual worlds involve conventional questions governed by well-established rules.<sup>715</sup> Most trademark disputes within the

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<sup>708</sup> *Id.* at 146.

<sup>709</sup> *Id.*

<sup>710</sup> Dannenburg, *supra* note 1, at 146.

<sup>711</sup> *Id.* at 147.

<sup>712</sup> *Id.*

<sup>713</sup> *Id.* at 148.

<sup>714</sup> *Id.*

<sup>715</sup> Dannenburg, *supra* note 1, at 155.

realm of video games and virtual worlds fall into three categories: (1) traditional liability for the use of trademarks on physical products like packaging, (2) direct liability for the use of marks within a game, and (3) secondary liability for the use of marks within a game.<sup>716</sup>

Unlike the previously discussed areas of intellectual property law, trademark infringement does not turn on the idea of “virtual-ness.”<sup>717</sup> A trademark established in the physical world can be infringed by unauthorized use in a virtual world, and a trademark established in a virtual world can be infringed upon by unauthorized use in the physical world.<sup>718</sup> The real issue regarding trademarks (even in the contexts of video games and virtual worlds) continues to be balancing the goal of minimizing consumer confusion with the goal of facilitating free speech.<sup>719</sup>

### **Implications of Video Games and Virtual Worlds and the Law of Trade Secrets**

Unlike other forms of intellectual property, trade secrets are governed entirely by state law, and there is some variation from state to state.<sup>720</sup> It is unclear which jurisdiction’s laws would govern trade secret issues arising from video games and virtual worlds, but the laws of each state are based on three common sources: (1) The Uniform Trade Secrets Act, (2) the Restatement of Unfair Competition, and (3) the Restatement of

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<sup>716</sup> *Id.*

<sup>717</sup> *Id.* at 161.

<sup>718</sup> *Id.*

<sup>719</sup> *Id.*

<sup>720</sup> Dannenburg, *supra* note 1, at 188.

Torts.<sup>721</sup> The Uniform Trade Secrets Act (UTSA), which has been adopted in different forms by 47 states, defines a trade secret as information that (1) derives actual or potential economic value from not being generally known to, and not being readily ascertainable by proper means to other persons who can obtain economic value from its disclosure or use, and (2) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.<sup>722</sup> Like the UTSA, the Restatement of Unfair Competition requires a trade secret to be competitive enough and secret enough to provide an economic advantage.<sup>723</sup> The Restatement of Torts further requires the information to “be in continuous use of the operation of the business.”<sup>724</sup>

The real issue in applying trade secret law to the realms of video games and virtual worlds is “to whom the secret gives an advantage.”<sup>725</sup> The issue of whether the economic advantage required by trademark law must be to the user in the real world, the avatar in the virtual world, or to both has not yet been decided by courts.<sup>726</sup> The basic test for assessing economic advantage, however, is whether the owner is able to use some method to enhance his business opportunities as compared to his competitors.<sup>727</sup>

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<sup>721</sup> *Id.*

<sup>722</sup> *Id.* at 189.

<sup>723</sup> *Id.* at 190.

<sup>724</sup> *Id.*

<sup>725</sup> Dannenburg, *supra* note 1, at 191.

<sup>726</sup> *Id.* at 191-192.

<sup>727</sup> *Id.* at 193.

The larger issue in the context of video games and virtual worlds is the one of secrecy.<sup>728</sup> In most virtual worlds, whatever you type or speak is broadcast to all avatars within a certain distance from your avatar.<sup>729</sup> Almost all communication that takes place in a virtual world is susceptible to eavesdropping by other users, and stored on the servers of the provider.<sup>730</sup> Usually, any general disclosure destroys the required secrecy.<sup>731</sup> It is extremely critical that the trade secret actually remain secret and that the person claiming trade secret protection can show that he took reasonable steps to protect the secrecy.<sup>732</sup> Video game and virtual world users also sometimes use trade secrets in conjunction with other forms of intellectual property protection such as patents and copyrights.<sup>733</sup>

Because trade secrets must be kept a secret, any element of the game that can be viewed by players cannot be considered a trade secret.<sup>734</sup> Therefore, all trade secrets for gaming companies must occur “behind the scenes.”<sup>735</sup> However, real-world secrets can sometimes be revealed by players while they are playing the game.<sup>736</sup> Also, trade secrets

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<sup>728</sup> *Id.* at 194.

<sup>729</sup> *Id.*

<sup>730</sup> Dannenburg, *supra* note 1, at 194.

<sup>731</sup> *Id.* at 195.

<sup>732</sup> *Id.* at 196.

<sup>733</sup> *Id.* at 197-199.

<sup>734</sup> *Id.* at 200.

<sup>735</sup> Dannenburg, *supra* note 1, at 200.

<sup>736</sup> *Id.*

could be developed by a player, or group of players, in a virtual world that could provide real-world or in-game benefits.<sup>737</sup>

### **International Considerations of Virtual Worlds**

Virtual worlds are inherently international, which makes the legal issues surrounding them even more confusing.<sup>738</sup> Within the game or virtual world it is impossible to distinguish a resident of one country from another.<sup>739</sup> While virtual worlds may feel limitless, it is important for users to remember that they are playing within a specific geographic area, and that the virtual world itself exists in computer servers and networks which are also located in a specific geographic area.<sup>740</sup> Most virtual worlds exist over closed networks, and everything stored on those networks are under the control of the hosts, service providers, and system administrators.<sup>741</sup> In this sense, virtual worlds do not seem international at all.<sup>742</sup>

However, cross-border interactions and transactions take place every day within virtual worlds.<sup>743</sup> Since this is the case in virtual worlds, and the internet as a whole, there are several issues raised including choice of law, and personal and subject matter

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<sup>737</sup> *Id.* at 202.

<sup>738</sup> *Id.* at 216.

<sup>739</sup> *Id.*

<sup>740</sup> Dannenburg, *supra* note 1, at 216.

<sup>741</sup> *Id.* at 217.

<sup>742</sup> *Id.*

<sup>743</sup> *Id.*

jurisdiction.<sup>744</sup> To make things even more complicated, there is no single set of laws that govern conduct affecting the exploitation of intellectual property across national borders.<sup>745</sup> In the context of copyright law, even determining where a work originated is a challenge, much less where that work has been infringed.<sup>746</sup> The international nature of virtual worlds also poses many problems with patent and trademark prosecution, particularly in areas of priority and territoriality.<sup>747</sup> Existing case law, which is not fully developed in this area, cannot give a clear picture of how the new “virtual issues” will take shape.<sup>748</sup>

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<sup>744</sup> *Id.*

<sup>745</sup> Dannenburg, *supra* note 1, at 217.

<sup>746</sup> *Id.* at 220-222.

<sup>747</sup> *Id.* at 242.

<sup>748</sup> *Id.*