

JOURNAL ON TELECOMMUNICATIONS & HIGH TECHNOLOGY LAW

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The Journal on Telecommunications and High Technology Law is an association of students sponsored by University of Colorado Law School and the Silicon Flatirons Center for Law, Technology, and Entrepreneurship.

Subscriptions

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William S. Hein & Co., Inc.
1285 Main Street, Buffalo, NY 14209
p: 1.716.882.2600 • <http://www.wshein.com>
<http://heinonline.org> (for back issues in electronic format)

Cite as: 11 J. ON TELECOMM. & HIGH TECH. L. __ (2013).

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JOURNAL ON TELECOMMUNICATIONS & HIGH TECHNOLOGY LAW

Volume 11

Fall 2013

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FROM THE EDITOR

Information privacy law is increasingly becoming a larger and more important subject of legal scholarship, practice, policymaking, and popular attention. As technology advances so are the ways in which information can be collected and used. How to balance managing this data collection with protecting individual privacy is an ongoing struggle and topic of debate.

The Silicon Flatirons Center for Law, Technology, and Entrepreneurship and the Journal for Telecommunications and High Technology Law examined this rich topic area at the Fifth Annual Privacy Conference entitled the “Technology of Privacy” on January 11, 2013 at the University of Colorado at Boulder.

The Journal on Telecommunications and High Technology Law is pleased to present Omer Tene and Jules Polonetsky’s article, *Judged by the Tin Man: Individual Rights in the Age of Big Data*, presented at the Technology of Privacy Conference which examines the privacy risks associated with big data and offers potential solutions for addressing the issue. I am also proud to present an article by Scott Wallsten, *Two Cheers for the FCC’s Mobility Fund Reverse Auction*, evaluating the Federal Communication Commission’s Mobility Fund Phase 1 Auction.

In this issue there are also five student notes from students at the University of Colorado Law School. Kimberly Byer analyzes how current copyright laws can be applied to new technologies and how these technological advances could lead to the death of the First Sale Doctrine. Bryan Hall discusses flaws of the current patent system and offers suggestions for reform. Martina Hinojosa examines the Visual Artists Rights Act and the struggle between emerging art forms and moral rights. Zakary Kessler evaluates the way that the mortgage process is embracing the Internet, and Michael S. Wagner takes a preemptive look at the privacy concerns associated with Google Glass.

I would like to give a special thank you to Executive Editor Margaret Macdonald. Margaret continues to go beyond her required duties and this issue would not be possible without her tireless dedication and refreshing humor. I would also like to thank Managing Editor Jaclyn Freeman for her support this semester. Production Editors Andy Evans and Ilias Politis both deserve high praise for their hard work on getting this issue to

print. Garrett Anderson has done a great job as Resource Editor. Articles Editors Austin Chambers, Tyler Boschert, Ian Kuliasha, and Tim Simmons have all been critical in preparing the articles for print. Student Note Editors Stephanie Ryder, Lauren Ramirez, David DiGiacomo, Steve Martyn, and Jean Pyun have done a wonderful job working with student note writers to help develop and produce high quality articles for our future issues. Associate Editors Nick Grice, Nick Herrick, Georgiana Simion, and Genet Tekeste have been an amazing asset to the board. I also want to give a special thank you to Stephen Walter who selflessly volunteered to assist with the Journal's website. Finally, I want to thank all of our members for their contributions and hard work.

The Journal would not be possible without our outstanding faculty at the University of Colorado Law School. Our faculty advisors Harry Surden and Paul Ohm have provided endless support and advice. Our dean, Philip J. Weiser, is a continued source of encouragement and guidance. We are also grateful to have the support of Blake Reid, former JTHTL Editor-in-Chief. Our journal office manager Sara Schnittgrund has provided invaluable insight, and we are forever grateful for her assistance. Last, but certainly not least, a heartfelt thank you goes out to the Silicon Flatirons Center, in particular Anna Noschese, Jamie Stewart, Cactus Woodworth-Lies, and the Silicon Flatiron Fellows, without their support the Journal would not be possible.

Arielle Brown
Editor-in-Chief

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JUDGED BY THE TIN MAN: INDIVIDUAL RIGHTS IN THE AGE OF BIG DATA

OMER TENE AND JULES POLONETSKY*

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“‘How about my heart?’ asked the Tin Woodman.
 ‘Why, as for that,’ answered Oz, ‘I think you are wrong to want a heart.
 It makes most people unhappy. If you only knew it, you are in luck not to
 have a heart.’”¹

INTRODUCTION

Big data—the enhanced ability to collect, store and analyze previously unimaginable quantities of data in tremendous speed and with negligible costs²—delivers immense benefits in marketing efficiency,

* Omer Tene is Deputy Dean of the College of Management Haim Striks School of Law, Israel and a Senior Fellow at the Future of Privacy Forum; Jules Polonetsky is Co-chair and Executive Director of the Future of Privacy Forum.

1. L. FRANK BAUM, *THE WONDERFUL WIZARD OF OZ* 190 (1900).

2. Neil Versel, *Big Data Helps Kaiser Close Healthcare Gaps*, INFORMATION WEEK (Mar. 7, 2013), <http://www.informationweek.com/healthcare/electronic-medical-records/big-data-helps-kaiser-close-healthcare-g/240150269> (Kaiser Permanente defines big data as data for which the “size is beyond the ability of typical database software tools to capture, store, manage, and analyze.”). *See also*, McKinsey Global Institute, *Big Data: The Next Frontier for Innovation, Competition and Productivity* (2011), available at http://www.mckinsey.com/~/media/McKinsey/dotcom/Insights%20and%20pubs/MGI/Research/Technology%20and%20Innovation/Big%20Data/MGI_big_data_full_report.ashx. Big data, however, is typically characterized not only by volume but also by velocity (speed of processing) and variety (the capability to link diverse data sets and process unstructured data).

healthcare, environmental protection, national security and more.³ While some privacy advocates may dispute the merits of sophisticated behavioral marketing practices or debate the usefulness of certain data sets to efforts to identify potential terrorists,⁴ few remain indifferent to the transformative value of big data analysis for government, science, and society at large.⁵ At the same time, even big data evangelists should recognize the potentially ominous social ramifications of a surveillance society governed by heartless algorithmic machines.⁶

In this essay, we present some of the privacy and non-privacy risks of big data as well as directions for potential solutions. In a previous paper, we argued that the central tenets of the current privacy framework, the principles of data minimization and purpose limitation, are severely strained by the big data technological and business reality.⁷ Here, we assess some of the other problems raised by pervasive big data analysis. To highlight the ethical and moral dilemmas, we sometimes refer to big data algorithms as “the machine” (which is more elegant than “zombie,” though less animated than the “tin man” in the title).⁸ In their book, *A Legal Theory for Autonomous Artificial Agents*, Samir Chopra and Larry White note that “as we increasingly interact with these artificial agents in unsupervised settings, with no human mediators, their seeming autonomy and increasingly sophisticated functionality and behavior, raises legal and philosophical questions.”⁹ In this article, we argue that the focus on the machine is a distraction from the debate surrounding data driven ethical dilemmas, such as privacy, fairness, and discrimination. The

(together referred to as the “three v’s”). See also Press Release, Gartner, Gartner Says Solving ‘Big Data’ Challenge Involves More Than Just Managing Volumes of Data (June 27, 2011), available at <http://www.gartner.com/it/page.jsp?id=1731916>.

3. Omer Tene & Jules Polonetsky, *Privacy in the Age of Big Data: A Time for Big Decisions*, 64 STAN. L. REV. 63 (2012), <http://www.stanfordlawreview.org/online/privacy-paradox/big-data>.

4. Julia Angwin, *U.S. Terrorism Agency to Tap a Vast Database of Citizens*, WALL ST. J. (Dec. 13, 2012), available at <http://online.wsj.com/article/SB10001424127887324478304578171623040640006.html>; R. Jeffrey Smith, *Senate Report Says National Intelligence Fusion Centers Have Been Useless*, THE CENTER FOR PUBLIC INTEGRITY (Oct. 3, 2012), available at http://www.foreignpolicy.com/articles/2012/10/03/senate_report_says_national_intelligence_fusion_centers_have_been_useless.

5. See WORLD ECON. FORUM, PERSONAL DATA: THE EMERGENCE OF A NEW ASSET CLASS (2011), available at http://www3.weforum.org/docs/WEF_ITTC_PersonalDataNewAsset_Report_2011.pdf.

6. Paul Ohm, *Don't Build a Database of Ruin*, HARV. BUS. REV. BLOG (Aug. 12, 2012, 10:00 AM), http://blogs.hbr.org/cs/2012/08/dont_build_a_database_of_ruin.html.

7. Omer Tene & Jules Polonetsky, *Big Data for All: Privacy and User Control in the Age of Analytics*, 11 NW. J. TECH. & INTELL. PROP. 239 (2013); see also Jules Polonetsky & Omer Tene, *Privacy And Big Data: Making Ends Meet*, 66 STAN. L. REV. ONLINE 25 (2013).

8. Cf. Chopra & White’s use of “artificial agents.” SAMIR CHOPRA & LAURENCE WHITE, *A LEGAL THEORY FOR AUTONOMOUS ARTIFICIAL AGENTS* (2011).

9. *Id.* at 2.

machine may exacerbate, enable, or simply draw attention to the ethical challenges, but it is humans who must be held accountable.

Instead of vilifying machine-based data analysis and imposing heavy-handed regulation, which in the process will undoubtedly curtail highly beneficial activities,¹⁰ policymakers should seek to devise agreed-upon guidelines for ethical data analysis and profiling. Such guidelines would address the use of legal and technical mechanisms to obfuscate data; criteria for calling out unethical, if not illegal, behavior; categories of privacy and non-privacy harms; and strategies for empowering individuals through access to data in intelligible form.

HUMAN SUBJECT RESEARCH UNFETTERED

Big data has expanded the scope of human subject research far beyond anything envisaged by social science or medical researchers just a few years ago. Today, everyone—including businesses, governments, private citizens and platform operators—is a “researcher,” analyzing the data exhaust produced by individuals’ daily lives to identify useful patterns and correlations. In most cases, these research activities are not tempered by the procedural and ethical safeguards, which were traditionally required to conduct human subject research. To the contrary, the machine is often driven by entrepreneurs, app developers, or data scientists who seek innovation at any cost. Although in many large companies chief privacy officers and legal teams play an oversight role, today’s start-up app developers can rapidly amass vast amounts of data with little, if any, oversight. This type of research impacts not only the privacy of individuals whose data is examined, but also the rights of those subject to social sorting as a consequence.¹¹

Like any interpretative process, big data analysis is prone to error and far from objective. Data crunching may appear to be an exact science; yet it is laden with subjective input from researchers who decide which data to analyze, questions to examine, and purposes to pursue. As danah boyd put it: “[d]o numbers speak for themselves? The answer, we think, is a resounding ‘no’. . . . All researchers are interpreters of data.”¹² The same numbers tell different stories depending on the methodologies and theories of those who set the research agenda. Furthermore, the machine is not immune to error based on inaccurate input, skewed

10. See discussion *infra*, notes 60 to 66 and accompanying text.

11. For example, if research demonstrates that men between age 40 and 50 who smoked for 10 years have a high instance of heart disease, the insurance premiums charged to an individual who meets these criteria will rise regardless of whether or not his data was in the original dataset.

12. danah boyd & Kate Crawford, *Six Provocations for Big Data*, A DECADE IN INTERNET TIME: SYMPOSIUM ON THE DYNAMICS OF THE INTERNET AND SOC’Y (2011), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1926431.

samples, or faulty algorithms. Some commentators go so far as arguing that most current published research findings are false or at best inaccurate measures of the prevailing bias.¹³ When viewing ads tailored by intricate behavioral tracking infrastructures, we often sense that the machine gets us all wrong. Eli Pariser called this “a bad theory of you,” based on there being no single set of criteria that describes who we are.¹⁴ While relatively benign when the decision is whether to show a web surfer a sports ad or a fashion ad, erroneous results may have profound adverse effects on individuals’ lives in other contexts, such as healthcare, credit, employment or law enforcement.¹⁵

Even more fundamentally, big data analysis is inapposite to traditional methods of scientific research (i.e., define a research question; gather information; form an explanatory hypothesis; test the hypothesis; etc.). While these earlier paradigms were characterized by experimentation and reasoning, big data analysis is driven by the availability of data at an unprecedented scale as well as the computational resources enabling rapid value extraction. As Julie Cohen observes, “the idea of the scientific research program as a series of limited data collections for the purpose of testing and possibly falsifying a particular hypothesis.”¹⁶ Some regard this challenge to traditional scientific method a groundbreaking revolution, heralding a “fourth paradigm” of scientific research.¹⁷ Others question the rigor of scientific investigations that are both open-ended and ongoing.¹⁸ One commentator notes that “[r]elaxed practices regarding the communication of computational details is creating a credibility crisis in computational science, not only among scientists, but as a basis for policy decisions and in the public mind.”¹⁹

13. See John P. Ioannidis, *Why Most Published Research Findings Are False*, 2 PLOS MED. 696 (2005), available at <http://www.plosmedicine.org/article/info:doi/10.1371/journal.pmed.0020124>; see also David H. Freedman, *Lies, Damned Lies, and Medical Science*, THE ATLANTIC (Oct. 4, 2010, 6:16 PM), <http://www.theatlantic.com/magazine/archive/2010/11/lies-damned-lies-and-medical-science/308269/>.

14. ELI PARISER, *THE FILTER BUBBLE: WHAT THE INTERNET IS HIDING FROM YOU* (2011).

15. See, e.g., Nassim Taleb, *Beware the Big Errors of ‘Big Data’*, WIRED (Feb. 8, 2013), available at <http://www.wired.com/opinion/2013/02/big-data-means-big-errors-people>.

16. Julie E. Cohen, *What Privacy is For*, 126 HARV. L. REV. (forthcoming 2013), available at <http://www.harvardlawreview.org/symposium/papers2012/cohen.pdf>.

17. See, e.g., Gordon Bell, Tony Hey & Alex Szalay, *Beyond the Data Deluge*, 323 SCIENCE 1297 (2009), available at <https://www.sciencemag.org/content/323/5919/1297.full>.

18. See Mark Birkin, *Big Data Challenges for Geoinformatics*, in GEOINFOR GEOSTAT: AN OVERVIEW 1 (2012), available at <http://www.scitechnol.com/2327-4581/2327-4581-1-e101.pdf>.

19. VICTORIA STODDEN, *ESTABLISHING SCIENTIFIC FACTS*, COLUM. UNIV. DEPT. OF STATISTICS (Sept. 2011), available at <http://www.stanford.edu/~vcs/talks/VictoriaStoddenFQXiSept2011.pdf>; see also David Berry,

Finally, attention must be given to the accessibility of big data sets to the research community at large.²⁰ Traditionally, when scientists published their research, they also made the underlying data available so that other scientists could verify the results. Yet with big data, it is often only the employees of certain organizations that benefit from access, conducting analysis and publishing results without making the underlying data publicly available.²¹ Such scientists may argue, first, that the data are a proprietary asset of their business. Indeed, they may claim that disclosing the data could infringe customers' privacy.²² Who gets access to big data sets; for what purposes; in what contexts; and with what constraints—are fundamental questions that must be addressed by future research.²³

DISCRIMINATION – TELLING RIGHT FROM WRONG

Significantly, big data analysis allows for granular distinctions to be made between individual characteristics, preferences and activities. Whether such distinctions are made for the sake of personalization, research or public planning, they facilitate discrimination based on a wide (in fact, infinite) spectrum of characteristics. We refer here to “discrimination” in a value-neutral sense; i.e., drawing distinctions between individuals and treating them differently based on such distinctions.²⁴ To assess the ethical implications of discrimination, we need to unpack the meaning of the term, which is, of course, highly

The Computational Turn: Thinking About the Digital Humanities, 12 CULTURE MACH. 1 (2011); David L. Donoho et al., *Reproducible Research in Computational Harmonic Analysis*, COMPUTING IN SCI. & ENG'G, Jan./Feb. 2009, at 8.

20. See John Markoff, *Troves of Personal Data, Forbidden to Researchers*, N.Y. TIMES, May 2, 2012, at D1.

21. See Lev Manovich, *Trending: The Promises and the Challenges of Big Social Data*, in DEBATES IN THE DIGITAL HUMANITIES (Matthew Gold ed., 2012) (claiming that “only social media companies have access to really large social data – especially transactional data. An anthropologist working for Facebook or a sociologist working for Google will have access to data that the rest of the scholarly community will not.”).

22. See Bernardo Huberman, *Sociology of Science: Big Data Deserve a Bigger Audience*, 482 NATURE 308 (2012) (warning that privately held data was threatening the very basis of scientific research, and complaining that “[m]any of the emerging 'big data' come from private sources that are inaccessible to other researchers. The data source may be hidden, compounding problems of verification, as well as concerns about the generality of the results.”).

23. boyd & Crawford, *supra* note 12, at 12.

24. Merriam-Webster.com defines the intransitive verb “discriminate” as “1) to make a distinction; 2) to make a difference in treatment or favor on a basis other than individual merit.” Black’s Law Dictionary defines “discrimination” as: “1) The effect of a law or established practice that confers privileges on a certain class or that denies privileges to a certain class because of race, age, sex, nationality, religion, or disability; 2) Differential treatment; esp., a failure to treat all persons equally when no reasonable distinction can be found between those favored and those not favored.” BLACK’S LAW DICTIONARY 1886 (9th ed. 2009).

charged. Discrimination could be socially desired (e.g., treating minors as children and not as adults); generally acceptable (e.g., applying Amazon's recommendation system to enhance consumers' shopping experience); or morally reprehensible (e.g., not hiring individuals of a certain age or race). In our daily life, we draw distinctions (i.e., discriminate) all the time. A person sitting next to us on a plane is tall or short, agitated or relaxed, attractive or unattractive, young or old—there is an endless list of such adjectives; and our attitudes and actions towards that person will vary accordingly.

The machine can instantly make millions of such distinctions working with vast pools of personal data. But an ethical assessment of machine-driven distinctions requires a coherent theory of discrimination. The machine is incapable of determining whether a distinction is ethical or not. Unless we come up with a comprehensive theory of discrimination that can be represented algorithmically, we have no rigorous way to distinguish between ethical and non-ethical machine-based discrimination.²⁵ We certainly should not expect the machine to make moral decisions that we have yet to make.

Have we decided why it is legitimate to market to pregnant women in one context (e.g., based on subscription to a magazine) but morally distasteful to do so in another (e.g., Target's compilation of a "pregnancy score" for shoppers)?²⁶ Can an employer ethically decline to interview a job candidate because they see a picture of them drinking a beer on a social media site?²⁷ Is price discrimination, the offering of different prices to different people based on their perceived willingness to pay, good or bad? Does it favor the wealthy²⁸ or the less privileged?²⁹ Is it fair

25. There have been attempts of statistical testing for discrimination in big data analysis. See, e.g., Salvatore Ruggieri, Dino Pedreschi & Franco Turini, *Data Mining for Discrimination Discovery*, 4 ACM TRANSACTIONS ON KNOWLEDGE DISCOVERY FROM DATA, Art. 9 (May 2010); Binh Thanh Luong, Salvatore Ruggieri & Franco Turini, *k-NN as an Implementation of Situation Testing for Discrimination Discovery and Prevention*, in PROCEEDINGS OF THE 17TH ACM SIGKDD INTERNATIONAL CONFERENCE ON KNOWLEDGE DISCOVERY AND DATA MINING 502 (Aug. 2011). These efforts too must first coalesce around an agreed upon delineation of legitimate vs. illegitimate discrimination.

26. See Charles Duhigg, *How Companies Learn Your Secrets*, N.Y. TIMES MAG. (Feb. 16, 2012), <http://www.nytimes.com/2012/02/19/magazine/shopping-habits.html>.

27. Jeffrey Rosen, *The Web Means the End of Forgetting*, N.Y. TIMES (July 21, 2010), <http://www.nytimes.com/2010/07/25/magazine/25privacy-t2.html>.

28. See Jennifer Valentino-DeVries, Jeremy Singer-Vine & Ashkan Soltani, *Websites Vary Prices, Deals Based on Users' Information*, WALL ST. J. (Dec. 24, 2012), http://online.wsj.com/article_email/SB1000142412788732377204578189391813881534-lMyQjAxMTAyMDIwNDYyNDQyWj.html#12 (reporting that "areas that tended to see the discounted prices had a higher average income than areas that tended to see higher prices"); see also Omer Tene, *Privacy: For the Rich or for the Poor?*, CONCURRINGOPINIONS.COM (July 26, 2012), <http://www.concurringopinions.com/archives/2012/07/privacy-for-the-rich-or-for-the-poor.html>.

29. See Dana Mattioli, *On Orbitz, Mac Users Steered to Pricier Hotels*, WALL ST. J.

that companies can exploit price sensitivity on an individualized basis, thereby usurping the entire value surplus available in a transaction by pricing goods or services as close as possible to an individual's reservation price?³⁰ What is the fault line between legitimate (or at least not illegal) price discrimination and price discrimination that effectively excludes entire groups of individuals (who are viewed as not being "worth enough" to bother with) from the market? And what if the makeup of such excluded groups is positively correlated with racial or gender bias?

It is difficult enough to decide which forms of discrimination are illegal. Deciding whether discrimination that is not illegal is unethical or morally undesired may become daunting. Robert Fullinwider explains:

Many may be led to the false sense that they have actually made a moral argument by showing that the practice discriminates (distinguishes in favor of or against). The temptation is to move from 'X distinguishes in favor of or against' to 'X discriminates' to 'X is wrong' without being aware of the equivocation involved.³¹

Should we preempt any form of discrimination by requiring companies to mail Porsche catalogs to everyone regardless of income? Should Victoria's Secret or Pampers be required to target all shoppers regardless of gender or age? Or perhaps offers should always be *available* to all but not *promoted* to all? But then again, that may deny the benefit of the bargain to those who do not know about it.

Some of our ethical and moral criteria are so fragile, nuanced, and culturally dependent that it is not clear that the machine will *ever* be capable of appropriately weighing them. Indeed, it is far from clear that we would even *want* the machine to obtain the ability to distinguish right from wrong. Such an anthropomorphized machine—a "technological singularity"³²—would likely cause more privacy and moral angst than the current dumbed-down version.³³ Artificial intelligence has yet to

(Aug. 23, 2012), <http://online.wsj.com/article/SB10001424052702304458604577488822667325882.html>.

30. In a prior article we likened transacting with a big data platform to a game of poker where one of the players has his hand open and the other keeps his cards close. The online company knows the preferences of the transacting individual inside out, perhaps better than the individual knows him or herself. Tene & Polonetsky, *supra* note 7.

31. ROBERT FULLINWIDER, *THE REVERSE DISCRIMINATION CONTROVERSY: A MORAL AND LEGAL ANALYSIS* 11–12 (1980).

32. RAY KURZWEIL, *THE SINGULARITY IS NEAR: WHEN HUMANS TRANSCEND BIOLOGY* (2006).

33. Some would say such a machine is "creepy." See generally Omer Tene & Jules Polonetsky, *A Theory of Creepy: Technology, Privacy and Shifting Social Norms*, ___ YALE J. L. & TECH. (forthcoming 2014).

produce systems that approach human-cognition.³⁴ Far from it, the only morality that can currently be attributed to the machine is what Ian Kerr calls “slave morality,” the proclivity to fulfill human orders to inhuman perfection. Bruce Boyden recently argued that it is precisely the inhuman nature of the machine that allays privacy concerns in the context of machine-based communications surveillance.³⁵ “What people who worry about privacy are trying to prevent is changed beliefs about themselves, changed behavior by other people, or changed attributions of social status resulting from a disclosure of private information—in other words, changed mental states.”³⁶ For the sake of privacy, it may be best to leave the tin man without a heart.

DON’T BLAME THE MACHINE

A complicating factor is that the machine’s unrestricted ability to identify patterns in endless piles of data facilitates the masking of illegitimate or illegal discrimination behind layers upon layers of mirrors and proxies.³⁷ A clever programmer can embed bias in a complex algorithm such that discrimination will be very difficult to detect.³⁸ The machine can find strong correlations, which result in discriminatory outcomes that are based on neutral factors. It is wrong to discriminate based on race; yet it will be exceedingly difficult to detect such discrimination if it is based on a dozen factors that through big data analysis are found to be positively correlated to race. And sometimes it will be difficult to discern whether the category used for profiling is

34. Note Harry Surden’s observation that “these statistical and probability-based machine-learning models (often combined with logical-knowledge based rules about the world) often produce high-quality and effective results (not quite up to the par of nuanced human translators at this point), without any assertion that the computers are engaging in profound understanding with the underlying “meaning” of the translated sentences or employing processes whose analytical abilities approach human-level cognition.” Harry Surden, *Autonomous Agents and Extension of Law: Policymakers Should be Aware of Technical Nuances*, CONCURRINGOPINIONS.COM (Feb. 16, 2012), <http://www.concurringopinions.com/archives/2012/02/autonomous-agents-and-extension-of-law-policymakers-should-be-aware-of-technical-nuances.html>.

35. Bruce Boyden, *Can a Computer Intercept Your Email?*, 34 CARDOZO L. REV. 669 (2012).

36. *Id.* at n.188.

37. *Id.*; see, e.g., Carter Jernigan & Behram F.T. Mistree, *Gaydar: Facebook friendships expose sexual orientation*, 14(10) FIRST MONDAY (Oct. 2009), <http://www.firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/2611/2302> (demonstrating a method for accurately predicting the sexual orientation of Facebook users by analyzing friendship associations).

38. The Supreme Court has ruled that under the Civil Rights Act of 1964, a policy that was fair in form but discriminatory in impact is illegal. See *Griggs v. Duke Power Co.*, 401 U.S. 424, 431 (1971) (“Congress has now provided that tests or criteria for employment or promotion may not provide equality of opportunity merely in the sense of the fabled offer of milk to the stork and the fox.”).

legitimate or just a façade for another, less wholesome agenda.³⁹ This just goes to say that the machine can be a powerful tool for discrimination, just as it is a potent tool for healthcare research, environmental sustainability and economic efficiency. It does not discriminate any more or less legitimately than the people who use it.

There is nothing new about the fact that people discriminate based on unethical criteria, some of which are not illegal. For example, employers may (or may not) prefer to hire attractive job candidates.⁴⁰ That today they can satisfy such bias by sifting through candidates' Facebook profiles is a phenomenon that has nothing to do with the morality of the technology itself. To be sure, the machine enables the scaling of such discrimination to entire populations. But should we outlaw distinctions drawn by the machine in cases where those same distinctions are legal (albeit subject to moral disdain) if drawn by individuals? Some laws aspire to resolve machine-based discrimination by requiring the involvement of a human operator at certain decision-making junctures.⁴¹ However, it is far from clear that human intervention mitigates discrimination risk; in fact the opposite may be true. Indeed, when technical risk-based profiles were first introduced in the mortgage industry, they were hailed as a definitive answer to the unequal treatment loan officers give borrowers.⁴²

Consider, for example, recent research by Latanya Sweeney demonstrating that a greater percentage of ads having the word "arrest" in their text appear for searches on Google and Reuters.com for black-identifying first names (such as DeShawn, Darnell and Lakisha) than for white-identifying first names (such as Brad, Dustin and Jill).⁴³ Surely it is not the machine that independently decided to discriminate on a first

39. Consider the Federal Reserve Board report asserting that credit card companies adjusted consumers' rates and credit limits based in part on where they shopped, what they bought, and whom they bought from. What could such criteria be correlated to or disguise? See BD. OF GOVERNORS OF THE FED. RESERVE SYS., REPORT TO THE CONGRESS ON REDUCTIONS OF CONSUMER CREDIT LIMITS BASED ON CERTAIN INFORMATION AS TO EXPERIENCE OR TRANSACTIONS OF THE CONSUMER 19 (2010), available at <http://www.federalreserve.gov/BoardDocs/RptCongress/creditcard/2009/consumercreditreductions.pdf>.

40. See *Hiring Hotties*, THE ECONOMIST (July 21, 2012), <http://www.economist.com/node/21559357> (attractiveness discrimination); cf. *Don't hate me because I'm beautiful*, THE ECONOMIST (Mar. 31, 2012), <http://www.economist.com/node/21551535>.

41. See Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the Protection of Individuals with Regard to the Processing of Personal Data and on the Free Movement of Such Data, art. 15, 1995 O.J. (L 281) 31 [hereinafter European Data Protection Directive].

42. See U.S. DEPARTMENT OF JUSTICE, CIVIL RIGHTS DIVISION, FAIR LENDING ENFORCEMENT PROGRAM (2001).

43. Latanya Sweeney, Discrimination in Online Ad Delivery 11 (Jan. 28, 2013) (unpublished manuscript), available at <http://dataprivacylab.org/projects/onlineads/1071-1.pdf>.

name basis; rather as Sweeney observes, online ad delivery is a “socio-technical construct.”⁴⁴ In her research findings, Sweeney could not determine whether the documented bias was caused by advertisers providing ad templates suggestive of arrest disproportionately to black-identifying names, or by the Google Ad Sense algorithm simply reflecting *society’s* bias by preferring to place ads that obtain higher clickthrough rates.⁴⁵ Sweeney posits, “technology can do more to thwart discriminatory effects and harmonize with societal norms.”⁴⁶ Hence, she calls for “fairness by design” to complement the increasingly prevalent requirement for “privacy by design.”⁴⁷ Indeed, Cynthia Dwork and others suggest innovative ways to bake fairness into algorithms to prevent overt or covert discrimination.⁴⁸ At the same time, if we believe certain distinctions are worthy of legal restriction, law should bar their use in decisions regardless of whether they are made by human or machine. In other words, as long as humans continue to be biased and discriminating, machine-made decisions will reflect (and may very well amplify) such discrimination.

FRAGMENTATION OF PUBLIC DISCOURSE

An additional and somewhat related problem, which was exposed by Joe Turow,⁴⁹ Cass Sunstein⁵⁰ and others, concerns the risks to free speech and democratic discourse that are inherent in the fragmentation of the information commons. Personalization technologies channel content into “filter bubbles,” enabling platform providers and inevitably governments to “divide and conquer” by manipulating public opinion.⁵¹ For example, during the last U.S. Presidential elections, political campaigns were “micro-targeted” delivering individualized messages to potential voters based on their narrow interests, causes, and fears.⁵² The data that support this micro-targeting are increasingly being merged with information about the online identities and behavior of voters. These practices raise concerns about loss of voter anonymity, political speech,

44. *Id.* at 3.

45. *Id.* at 34.

46. *Id.* at 35.

47. *Id.*; Ira Rubinstein, *Regulating Privacy by Design*, 26 BERKELEY TECH. L.J. 1409 (2011).

48. CYNTHIA DWORK ET AL., FAIRNESS THROUGH AWARENESS (2011), available at <http://www.cs.toronto.edu/~zemel/documents/fairAwareItcs2012.pdf>.

49. JOSEPH TUROW, *THE DAILY YOU: HOW THE NEW ADVERTISING INDUSTRY IS DEFINING YOUR IDENTITY AND YOUR WORTH* (2012).

50. CASS SUNSTEIN, *REPUBLIC.COM* (2001).

51. PARISER, *supra* note 14.

52. Daniel Kreiss, *Yes We Can (Profile You): A Brief Primer on Campaigns and Political Data*, 64 STAN. L. REV. ONLINE 70 (2012); Natasha Singer & Charles Duhigg, *Tracking Voters’ Clicks Online to Try to Sway Voters*, N.Y. TIMES, Oct. 28, 2012, at A16.

freedom of association, and the transparency of the political process. “This means that campaigns can develop narrow appeals based on ideology and self-interest and direct them to different groups of voters, appearing to be all things to all people.”⁵³

Not only political speech but also artistic and creative freedoms may be affected in a big data environment. For example, recent reports describe how Netflix harvests data from millions of users to produce content that best fits their tastes.⁵⁴ On the one hand, the television market has for many years thrived on a ratings system assessing the popularity of shows based on eyeballs. On the other hand, the ability to amass granular information regarding individuals’ viewing habits and target specially tailored content at them raises concerns over siloization and narrowcasting. As Joseph Turow puts it, “the industrial logic behind the[se] activities makes clear that the emerging marketplace will be far more an inciter of angst over social difference than a celebration of the ‘American salad bowl.’”⁵⁵

Quite disturbing in this context,⁵⁶ is the fact that the machine is covered by an opaque veil of secrecy, which is backed by corporate claims of trade secrecy and intellectual property. In the analogue world, we could typically understand the logic underlying political advertising, credit or employment decisions; whereas in the big data environment, we are cowed into submission by a powerful data infrastructure, a “surveillant assemblage,”⁵⁷ delivering practically uncontestable results. This sense of being judged by the tin man, a heartless machine that operates based on incomprehensible criteria, is troubling.⁵⁸ It raises the specter of vulnerability and helplessness that accompanied Franz Kafka’s anti-hero Joseph K., who was confounded by an opaque, logically

53. Kreiss, *supra* note 52, at 74; see also Daniel Kreiss & Philip N. Howard, *New Challenges to Political Privacy: Lessons from the First U.S. Presidential Race in the Web 2.0 Era*, 4 INT’L J. COMM’N 1032 (2010).

54. Andrew Leonard, *How Netflix is Turning Viewers into Puppets*, SALON (Feb. 1, 2013, 5:45 AM), http://www.salon.com/2013/02/01/how_netflix_is_turning_viewers_into_puppets.

55. JOSEPH TUROW, NICHE ENVY: MARKETING DISCRIMINATION IN THE DIGITAL AGE 2 (2006).

56. See Allison Brennan, *Microtargeting: How Campaigns Know You Better than You Know Yourself*, CNN (Nov. 5, 2012, 6:45 PM), <http://www.cnn.com/2012/11/05/politics/voters-microtargeting> (“When asked if they wanted political advertising tailored to your interests, 86% of Americans surveyed said they did not . . . 64% said their support for a candidate would decrease if they found out a candidate was micro-targeting them differently than their neighbor.”).

57. Cohen, *supra* note 16, at 10.

58. Valentino-DeVries, *supra* note 28 (“It is difficult for online shoppers to know why, or even if, they are being offered different deals from other people. Many sites switch prices at lightning speed in response to competitors’ offerings and other factors, a practice known as ‘dynamic pricing.’”).

baffling bureaucracy trying him for an unknown charge.⁵⁹ And while perhaps tolerable when restricted to the marketing context, such opaque decision-making tools threaten to pose a risk to democracy and free speech when introduced into the political sphere.

(LACK OF) REGULATORY REFORM

Against the backdrop of these challenges, policymakers have struggled to come up with a coherent regulatory response. Over the past two years, the OECD, EU, and US have launched extensive processes for comprehensive reform of their privacy frameworks.⁶⁰ Yet the result of these processes remains strongly anchored in the existing policy framework, which is rooted in an architecture dating back to the 1970s.⁶¹ The major dilemmas and policy choices for informational privacy in the age of big data remain unresolved.

Specifically, privacy and data protection laws are premised on individual control over information and on principles such as data minimization and purpose limitation. Yet it is not clear that minimizing information collection is always a practical approach to privacy in the age of big data. To the contrary, data minimization appears inimical to the very concept of big data. And the discussion over individual control, which is closely linked (through the consent requirement) to principle of purpose limitation, too often transforms into an arena for highly charged polemics between industry and privacy advocates over what the public “really” wants.⁶² The recent legislative reform proposals in Europe,

59. FRANZ KAFKA, *THE TRIAL* (Oxford Univ. Press 2009) (1925).

60. See Omer Tene, *Privacy Law's Midlife Crisis: A Critical Assessment of the Second Wave of Global Privacy Laws*, 74 OHIO ST. L. J. (forthcoming 2013) (describing the reform processes); see also ORG. FOR ECON. CO-OPERATION & DEV., THIRTY YEARS AFTER THE OECD PRIVACY GUIDELINES 93 (2011), available at <http://www.oecd.org/sti/interneteconomy/49710223.pdf>; THE WHITE HOUSE, CONSUMER DATA PRIVACY IN A NETWORKED WORLD: A FRAMEWORK FOR PROTECTING PRIVACY AND PROMOTING INNOVATION IN THE GLOBAL DIGITAL ECONOMY (2012), available at <http://www.whitehouse.gov/sites/default/files/privacy-final.pdf>; FED. TRADE COMM'N., PROTECTING CONSUMER PRIVACY IN AN ERA OF RAPID CHANGE: RECOMMENDATIONS FOR BUSINESSES AND POLICYMAKERS (2012), available at <http://ftc.gov/os/2012/03/120326privacyreport.pdf>; EUROPEAN COMM'N, PROPOSAL FOR A REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL ON THE PROTECTION OF INDIVIDUALS WITH REGARD TO THE PROCESSING OF PERSONAL DATA AND ON THE FREE MOVEMENT OF SUCH DATA (GENERAL DATA PROTECTION REGULATION) (2012), available at http://ec.europa.eu/justice/data-protection/document/review2012/com_2012_11_en.pdf.

61. Tene, *supra* note 60; see also Omer Tene, *There is No New Thing Under the Sun*, CONCURRING OPINIONS (July 30, 2012, 7:47 PM), <http://www.concurringopinions.com/archives/2012/07/there-is-no-new-thing-under-the-sun.html>.

62. Natasha Singer, *Do Not Track? Advertisers Say 'Don't Tread on Us'*, N.Y. TIMES, Oct. 13, 2012, at BU 3 (discussing the “correct” default setting for the “do not track” mechanism in the W3C Tracking Protection Working Group).

which all but outlaw data-based profiling, appear detached from technological and business realities and impossible to operationalize.⁶³

When trying to solve the big data conundrum, it is easy to swing to extremes ranging from techno-utopianism on the one hand⁶⁴ to alarmist fear mongering on the other. Alas, technological, business, social, and ethical realities will force us to more carefully tread a path towards a nuanced reconciliation of big data benefits with individual rights. Clearly, the principles of privacy and data protection must be balanced against additional societal values such as public health, national security and law enforcement, environmental protection, and economic efficiency. Despite the heated rhetoric,⁶⁵ this remains true regardless of whether privacy is viewed as a consumer protection issue, as is often the case in the United States, or as a fundamental human right, as in Europe. Even fundamental rights are seldom absolute and often need to accommodate competing rights and interests.⁶⁶ In this part, we lay out several potentially useful directions for progress, focusing on empowering individuals by enhancing transparency and accountability.

63. See EUROPEAN COMM'N, *supra* note 60, at 20 (imposing strict restrictions on "profiling"); COMM. ON CIVIL LIBERTIES, JUSTICE & HOME AFFAIRS, EUROPEAN PARLIAMENT, DRAFT REPORT ON THE PROPOSAL FOR A REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL ON THE PROTECTION OF INDIVIDUAL WITH REGARD TO THE PROCESSING OF PERSONAL DATA AND ON THE FREE MOVEMENT OF SUCH DATA (GENERAL DATA PROTECTION REGULATION) 65 (Jan Philipp Albrecht ed. 2009), *available at* http://www.europarl.europa.eu/meetdocs/2009_2014/documents/libe/pr/922/922387/922387en.pdf (these restrictions would be further tightened according to the draft submitted by the European Parliament Rapporteur, which adds to Article 4 of the General Data Protection Regulation a definition of "profiling": "any form of automated processing of personal data intended to evaluate certain personal aspects relating to a natural person or to analyse or predict in particular that natural person's performance at work, economic situation, location, health, personal preferences, reliability or behaviour."); *Id.* at 32 (noting "a general ban is introduced on profiling as defined in Article 4 and it is only permissible where provided for by law, i.e., either by means of the data subject's consent or a statutory provision.").

64. Cohen, *supra* note 16, at 15 ("Some of the claims on behalf of Big Data, those framed in terms of a 'singularity' waiting in our soon-to-be-realized future, sound quasi-religious, conjuring up the image of throngs of dyed-in-the-wool rationalists awaiting digital rapture.").

65. See, e.g., James Fontanella-Khan, *Brussels fights US data privacy push*, FIN. TIMES (Feb. 10, 2013, 8:30 PM), <http://www.ft.com/intl/cms/s/0/903b3302-7398-11e2-bcbd-00144feabdc0.html#axzz2KmNKUWab> (noting "Europe's most senior justice official is adamant she will fight US attempts to water down a proposed EU data protection and privacy law that would force global technology companies to obey European standards across the world. Viviane Reding, EU commissioner for justice, said that the EU was determined to respond decisively to any attempts by US lobbyists – many working for large tech groups such as Google and Facebook – to curb the EU data protection law").

66. See John Morijn, *Balancing Fundamental Rights and Common Market Freedoms in Union Law: Schmidberger and Omega in the Light of the European Constitution*, 12 EUR. L. J. 15, 24 (2006).

OBSCURITY – IN PRAISE OF FUZZINESS

One promising path is the concept of obscurity, allowing individuals to hide in plain sight. Individuals are far less troubled by data analysis processes that do not *single them out* from a group. Stutzman and Hartzog note that “for an individual to be obscure, an observer must not possess critical information that allows one to make sense of the individual.”⁶⁷ In the context of big data, this can be achieved through various means of de-identification, preventing the metaphorical camera lenses from focusing on a particular individual. Indeed, this approach can be viewed as a reconceptualization of Warren and Brandeis’ “right to be let alone.”⁶⁸ One forceful technique is *differential privacy*, which allows researchers to draw lessons and derive valuable conclusions from a data set without being able to determine whether or not such conclusions are based on the personal data of any given individual.⁶⁹ Hence, differential privacy emphasizes not whether an individual can be directly *associated* with a particular revealed value; but rather the extent to which any revealed value *depends* on an individual’s data. Another technique is *k-anonymity*, which requires that the data for each person contained in a data release cannot be distinguished from at least k-1 individuals whose information also appears in the dataset.⁷⁰ In a previous article, we have argued that there are limits to de-identification in the context of big data.⁷¹ While we realize that de-identification is not a panacea, we recognize that there is a broad range of situations where it can be a mitigating precaution.

A more proactive approach, referred to by Stutzman and Hartzog as “obscurity by design” would mask personal information behind a veil of obscurity through means such as pseudonymization, restricted access policies and limited searchability.⁷² This would allow information to be shared usefully while at the same time minimizing privacy risks. Similarly, privacy enhancing measures can be integrated into new

67. Woodrow Hartzog & Frederic Stutzman, *The Case for Online Obscurity*, 101 CAL. L. REV. (forthcoming 2013).

68. Samuel Warren & Louis Brandeis, *The Right to Privacy*, 4 HARV. L. REV. 193 (1890).

69. Cynthia Dwork, *Differential Privacy* (2006) (unpublished manuscript), available at http://www.dbis.informatik.hu-berlin.de/fileadmin/lectures/SS2011/VL_Privacy/Differential_Privacy.pdf.

70. Latanya Sweeney, *k-Anonymity: A Model For Protecting Privacy*, 10 INT’L J. UNCERTAINTY, FUZZINESS & KNOWLEDGE-BASED SYS. 557 (2002).

71. Tene & Polonetsky, *supra* note 3; see also Paul Ohm, *Broken Promises of Privacy: Responding to the Surprising Failure of Anonymization*, 57 UCLA L. REV. 1701 (2010) (the seminal article advocating de-identification skepticism); Felix Wu, *Privacy and Utility in Data Sets*, 84 U. COLO. L. REV. (forthcoming 2013).

72. Fred Stutzman & Woodrow Hartzog, *Obscurity by Design: An Approach to Building Privacy into Social Media* (2012) (unpublished manuscript) available at http://fredstutzman.com/papers/CSCW2012W_Stutzman.pdf.

technologies to minimize their privacy footprint. For example, Snapchat is a mobile application that enables users to share photos or videos that vanish several seconds after being viewed by recipients.⁷³ If a recipient manages to capture a screenshot of a flickering photo, the sender is promptly notified by the app. Hence, Snapchat manages to achieve by nimble design what the European legislators seek to impose by regulation, namely a “right to be forgotten” or to erase one’s digital trail.⁷⁴

ACCESS AND TRANSPARENCY

A second promising path entails empowering individuals by granting them access to their personal data in intelligible, machine-readable form. Individuals would thus become active participants in the big data economy, analyzing their own information to improve their health, finances, career prospects, traffic management and more. Through mechanisms such as personal clouds or data stores, individuals could contract with third parties who would get permission to selectively access certain categories of their data to provide analysis, value-added services and mash-ups. We have called this the “featurization” of big data,⁷⁵ making data analysis a consumer-side application and unleashing a wave of innovation in the market for personal data applications.⁷⁶ Indeed, the thriving market for mobile apps provides ample proof that user-side installs work in real life.⁷⁷ This “sharing the wealth” strategy is justified by both efficiency and fairness concerns. In addition, it will benefit not only individuals but also businesses, which will get access to higher quality data about individuals’ expressed intentions as opposed to guessing such intentions by analyzing online clues.⁷⁸

73. See, e.g., Jenna Wortham, *A Growing App Lets You See It, Then You Don’t*, N.Y. TIMES, Feb. 9, 2013, at A1.

74. See Jeffrey Rosen, *The Right to be Forgotten*, 64 STAN. L. REV. ONLINE 88 (2012); Peter Fleischer, *Foggy Thinking About the Right to Oblivion*, PETER FLEISCHER: PRIVACY...? BLOG (Mar. 9, 2011), <http://peterfleischer.blogspot.co.il/2011/03/foggy-thinking-about-right-to-oblivion.html>.

75. *Id.*

76. The pioneering work in this field is by Doc Searls. See DOC SEARLS, *THE INTENTION ECONOMY: WHEN CUSTOMERS TAKE CHARGE* (2012); RICK LEVINE, CHRISTOPHER LOCKE, DOC SEARLS & DAVID WEINBERGER, *THE CLUETRAIN MANIFESTO: THE END OF BUSINESS AS USUAL* (2000).

77. See, e.g., *iOS v Android: App Revenues, Downloads and Country Breakdowns*, GUARDIAN APPS BLOG (Dec. 4, 2012), <http://www.guardian.co.uk/technology/appsblog/2012/dec/04/ios-android-revenues-downloads-country>; Joel Rubinson, APPNATION & RUBINSON PARTNERS INC., *HOW BIG IS THE US APP ECONOMY? ESTIMATES AND FORECASTS 2011-2015* (2011), available at <http://www.slideshare.net/joelrubinson/an3-us-app-economy20112015>.

78. See Ira Rubinstein, *Big Data: The End of Privacy or a New Beginning?*, 3 INT’L DATA PRIVACY L. (forthcoming 2013).

A third path involves a different type of transparency—with respect to businesses’ data analysis processes. Danielle Citron set the stage for the discussion of “technological due process,” pointing-out that “automated systems jeopardize due process norms.”⁷⁹ It is hard to audit, challenge or amend processes that are concealed in a black box. We propose that businesses be required to reveal the *criteria* used in their decision-making processes, if not the actual algorithms that may be subject to protection of trade secrets and other intellectual property rights.⁸⁰ As Louis Brandeis once wrote, “[s]unlight is said to be the best of disinfectants.”⁸¹ We trust that if the existence and uses of databases were visible to the public, businesses would more likely avoid unethical or socially unacceptable (albeit legal) uses of data. In certain cases, such as micro-targeting election campaigns, simply shining the light to expose different communications made to specific audiences may provide the necessary check on concerns of inappropriate pandering to constituencies. In other contexts, where the machine makes binding determinations as to individuals’ legal rights, due process requires that the subjects of such decisions are able to challenge them.

CLASSIFICATION OF HARMS

In order to tailor appropriate responses to big data problems, policymakers need to better define the risk of harm model. The regulatory toolbox to address privacy problems (e.g., notice and choice; data retention limitations) does not necessarily answer, and in fact may exacerbate, other harms such as fairness and discrimination.⁸² Given the blurry edges of the concept of privacy, privacy harms are notoriously difficult to categorize.⁸³ Yet without such categorization, privacy policy

79. Danielle Keats Citron, *Technological Due Process*, 85 WASH. U. L. REV. 1249, 1249 (2008).

80. See, e.g., European Data Protection Directive, *supra* note 41, art. 12(a) (requiring organizations to provide an individual with “knowledge of the logic involved in any automatic processing of data concerning him at least in the case of the automated decisions. . . .”); see also Dodd-Frank Wall Street Reform and Consumer Protection Act, 2010, § 1100F Pub. L. No. 111-203 (2010) (codified as amended at 15 U.S.C. § 1681(m) (2012)) (requiring lenders to disclose to borrowers information used to in risk-based pricing decisions, including any numerical credit score used; the range of possible scores; and key factors that adversely affected the borrower’s credit score).

81. Louis Brandeis, *What Publicity Can Do*, HARPER’S WKLY., Dec. 20, 1913, at 10, available at http://3197d6d14b5f19f2f440-5e13d29c4c016cf96cbbfd197c579b45.r81.cf1.rackcdn.com/collection/papers/1910/1913_12_20_What_Publicity_Ca.pdf.

82. For example, in order to comply with rules on affirmative action, certain organizations are compelled to collect and retain information about individuals’ gender or race. In these cases, data deletion, while privacy protective, would be counter-productive.

83. *Contra* M. Ryan Calo, *The Boundaries of Privacy Harm*, 86 IND. L. J. 1131 (2011); Daniel Solove, *A Taxonomy of Privacy*, 154 U. PA. L. REV. 477 (2006).

can become muddled with peripheral or even conflicting considerations. For example, as currently framed the European “right to be forgotten” may be viewed as affording protection for one’s reputation rather than privacy; and the right to “data portability” arguably belongs in the sphere of competition – not privacy law.

A harms-based approach to privacy need not be limited to pecuniary or tangible harms. A better understanding of the effect of data analysis on fairness, discrimination, siloization and narrowcasting can expand the scope of privacy harms that are subject to legal protection. Cynthia Dwork and Deirdre Mulligan refer to fairness concerns heavily weighted by issues of discrimination, including price discrimination based on location (redlining) or on knowledge of the consumer’s state of mind.⁸⁴ Jules Polonetsky and I point out that processing of personal data increasingly affects fairness, equality, and other values, which are no less important than—even if theoretically distinct from—core privacy interests.⁸⁵

PUTTING DATA IN CONTEXT

A final response involves the concept of context, which is based on Helen Nissenbaum’s “contextual integrity” analysis of privacy.⁸⁶ Privacy, according to Nissenbaum, is “a function of several variables, including the nature of the situation or context; the nature of information in relation to that context; the roles of agents receiving information, their relationships to information subjects; on what terms the information is shared by the subject and the terms of further dissemination.”⁸⁷ This approach may require, for example, that certain categories of sensitive data (e.g., genetic data) be segregated from the decision-making process in certain contexts (e.g., employment applications). Where to draw the contextual line becomes a weighty policy question where considerations of national security or public health are involved. In these cases, involving, for example, harvesting of social networking information to detect potential terrorist threats⁸⁸ or analyzing search engine logs to

84. Cynthia Dwork & Deirdre Mulligan, *Aligning Classification Systems with Social Values through Design* (June 8, 2012) (unpublished manuscript) (manuscript on file with authors).

85. Tene & Polonetsky, *supra* note 3.

86. HELEN NISSENBAUM, *PRIVACY IN CONTEXT: TECHNOLOGY, POLICY, AND THE INTEGRITY OF SOCIAL LIFE* (2009).

87. Helen Nissenbaum, *Privacy as Contextual Integrity*, 79 WASH. L. REV. 119, 155 (2004); *see also* FED. TRADE COMM’N., *PROTECTING CONSUMER PRIVACY IN AN ERA OF RAPID CHANGE: RECOMMENDATIONS FOR BUSINESSES AND POLICYMAKERS* (2012), available at <http://ftc.gov/os/2012/03/120326privacyreport.pdf>.

88. *See, e.g., Ryan Gallagher, Software That Tracks People on Social Media Created by Defense Firm*, GUARDIAN (Feb. 10, 2013), <http://www.guardian.co.uk/world/2013/feb/10/software-tracks-social-media-defence>.

analyze harmful drug interactions,⁸⁹ individuals' privacy interests may be outweighed by public policy concerns.

Moreover, as Nissenbaum recognizes, relationships and therefore context can change over time. Some argue that soliciting express consent should be a prerequisite to *any* shift in existing boundaries. In reality, however, shifting contexts are not always readily negotiated. Rather, organizations should assess the effects of any prospective change on data subject expectations; convey their policies clearly and conspicuously; and in certain cases provide data subjects with an opportunity to opt out. When a change in context is radical and transparency measures inadequate to support it, express consent can be relied upon to ensure that data subjects are willing to accept a new data use.⁹⁰

CONCLUSION

As we recognize the immense benefits of big data, we should avoid technological determinism that allows the machine to surge forward with disregard for evolving social norms. Instead of asking "what technology wants,"⁹¹ we should explore what it is that *we want* to achieve with technology and what price we are, or are not, willing to pay in privacy, social cohesion, and individual rights. The lack of agreement in the effort to standardize a "Do Not Track" protocol demonstrates the challenge in seeking a technological solution when the value of the activity to be proscribed remains widely disputed.⁹² Hence, we must first address the ethics and morality of the decisions that confront us. Practically, we need to devise agreed-upon guidelines for ethical data analysis and profiling, addressing such issues as obscurity by design; empowerment through useful access; transparency of decisional criteria; and categorization of potential harms. Technology innovators and data scientists will lead the way to new big data frontiers, but it is philosophers seeking "a new digital humanism"⁹³ who must closely follow in their footsteps.

89. See, e.g., Nicholas Tatonetti, Guy Haskin Fernald & Russ Altman, *A Novel Signal Detection Algorithm for Identifying Hidden Drug-Drug Interactions in Adverse Event Reports*, 19 J. AM. MED. INFORMATICS ASS'N. 79 (2012).

90. Jules Polonetsky & Omer Tene, *It's Not How Much Data You Have, But How You Use It: Assessing Privacy in the Context of Consumer Data Integration*, in FUTURE OF PRIVACY FORUM, (2012), available at <http://www.scribd.com/doc/115516310/It-s-Not-How-Much-Data-You-Have-But-How-You-Use-It-Assessing-Privacy-in-the-Context-of-Consumer-Data-Integration>; see also Paul Ohm, *Branding Privacy*, 97 MINN. L. REV. (forthcoming 2013).

91. Kevin Kelly, *WHAT TECHNOLOGY WANTS* (2010).

92. Omer Tene & Jules Polonetsky, *To Track or 'Do Not Track': Advancing Transparency and Individual Control in Online Behavioral Advertising*, 13 MINN. J. L. SCI. & TECH. 281 (2012).

93. JARON LANIER, *YOU ARE NOT A GADGET: A MANIFESTO* (2010).

TWO CHEERS FOR THE FCC'S MOBILITY FUND REVERSE AUCTION

SCOTT WALLSTEN*

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I. INTRODUCTION

The United States held its first competitive bidding, or “reverse auction,” for universal service funds in September 2012.¹ Put simply, in a reverse auction, providers bid the subsidy they believed was necessary to provide a specified service in a given area, and the regulator funds the firms that ask for the smallest subsidies. Although this sounds sensible, reverse auctions for universal service subsidies can be complicated and the idea has been controversial in the U.S.

Proponents of reverse auctions have advocated for their use in the U.S. for more than a decade,² arguing that reverse auctions would yield more reliable information on the costs of providing service in uneconomical areas and significantly reduce the levels of subsidies given

* I thank Evan Kwerel, Thomas Leonard, Gregory Rosston, Marius Schwartz, and Amy Smorodin for helpful comments, and Corwin Rhyon for excellent research assistance. All mistakes and opinions are my own.

1. *FCC Auctions: Summary: Auction 901*, FED. COMM'NS COMM'N, http://wireless.fcc.gov/auctions/default.htm?job=auction_summary&id=901 (last visited Oct. 19, 2013). The Mobility Auction is included in the Connect America Fund Order. Connect Am. Fund, *Report & Order & Further Notice of Proposed Rulemaking* 26 FCC Rcd. 17,663 (2011).

2. See Paul Milgrom, *Procuring Universal Service: Putting Auction Theory to Work in LE PRIX NOBEL: THE NOBEL PRIZES*, 1996 382 (1997), available at <http://www.stanford.edu/~milgrom/publishedarticles/Procuring%20Universal%20Service%20Putting%20Auction%20Theory%20to%20Work,%201996.pdf>; Dennis Weller, *Auctions for Universal Service Obligations*, 23 TELECOMM. POL'Y 645 (1999).

to firms. Other countries have used reverse auctions to fund universal service provision, including India, Australia, and Chile.³ Opponents counter that auctions can fail if the auction does not generate sufficient competition and that competition for service in areas that are often by definition the hardest to reach may be especially difficult to obtain.⁴

While it is far too early to investigate whether this national auction generated improvements in mobile voice and broadband service in underserved areas, it is not too soon to evaluate the design and implementation of the auction itself. This paper investigates the outcome of the Mobility Fund Phase 1 Auction (Auction 901) and considers what lessons can be derived for universal service and future reverse auctions, such as the upcoming broadcast incentive auction.

II. THE AUCTION: DESCRIPTION

As the FCC explained in its auction description, the Mobility Fund:

[W]ill offer up to \$300 million in one-time support to carriers that commit to provide advanced mobile voice and broadband services in areas where such services are currently unavailable. Winning bidders will have to deploy third generation (often called “advanced” or “3G”) service within two years or fourth-generation (“4G”) service within three years of the award of support.

This will be the first auction to offer high-cost universal service support through competitive bidding. Using a reverse auction format, bidders will identify a per-road mile support price at which they are willing to meet our requirements to cover the qualifying road miles in a given area. Support will be awarded based on the lowest bid amounts submitted, to at most one provider in a given area. Thus, bidders will compete not only against other carriers that may be bidding for support in the same areas, but against carriers bidding for support in other areas nationwide. Support will be awarded equal to the per-road mile bid rate multiplied by the number of qualifying road miles that the winning bidder actually covers within the required timeframe.⁵

3. Scott Wallsten, *Reverse Auctions and Universal Telecommunications Service: Lessons from Global Experience*, 61 FED. COMM. L.J., 373 (2009).

4. See, e.g., Dale E. Lehman, *The Use of Reverse Auctions for Provision of Universal Service*, attachment to Comments of Nat'l Telecomm's Coop. Ass'n, to *Public Notice* in the Fed.-State Bd. on Universal Serv. Seeks Comment on Certain of the Comm'n's Rules Relating to High-Cost Universal Serv. Support, WC Dkt. No. 05-337, CC Dkt. No. 96-45 (Oct. 12, 2006), available at <http://apps.fcc.gov/ecfs/document/view?id=6518525976>.

5. *FCC Auctions: Fact Sheet: Auction 901*, FED. COMM'NS COMM'N, http://wireless.fcc.gov/auctions/default.htm?job=auction_factsheet&id=901 (last visited Oct. 19, 2013).

In other words, the plan called for the FCC to order the bids from lowest (the bidder requesting the smallest subsidy) to highest (the bidder requesting the biggest subsidy) in terms of dollars per road-mile covered and grant awards until it reached its budget constraint of \$300 million. The hard budget of \$300 million is noteworthy. Most universal service funding, unlike nearly every other type of government or private spending, simply provides funding in all eligible areas based on estimated costs.⁶

The FCC used data at the Census Block level to develop a list of 14,245 “biddable items” within the areas deemed underserved. As Table 1 shows, the typical biddable item is small, with a median population of three and 1.6 miles of roads, and a mean population of 125 and 46 miles of roads.

14,245 Biddable Items	Mean	Median
Population	125	3
Road Miles	46	1.6
Road Miles		
Local neighborhood roads, rural roads, city streets	36.6	0.5
4WD vehicular trails	4.3	0
Secondary roads	2.3	0
Private roads for service vehicles	0.73	0
Services drives	2.1	0
Primary roads	0.03	0
All roads	46.0	1.57

TABLE 1: POPULATION AND ROADS IN BIDDABLE ITEMS⁷

The auction used a single-round sealed bid format, with winners receiving the amount they bid (i.e., pay-as-bid). Several organizations who submitted comments regarding the auction had advocated for a multiple-round mechanism, which the FCC typically uses, but it chose the single-round format “in light of the complications involved in conducting multiple rounds with many thousands of items.”⁸ The FCC

6. An economists’ letter to the FCC in 2009 also advocated for this type of competition among bidders in different areas. Comments from Paul Milgrom et al., Comments of 71 Concerned Economists: Using Procurement Auctions to Allocate Broadband Stimulus Grants to Nat’l Telecomm’s Info. Agency & Rural Util’s Serv., (Apr. 13, 2009) available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1377523.

7. *Attachment A: Summary of Eligible Census Blocks*, FED. COMM’NS COMM’N (Sept. 7, 2012), http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-12-1446A2.xls.

8. Mobility Fund Phase I Auction Scheduled for Sep. 27, 2012 Notice & Filing Requirements & Other Procedures for Auction 901, *Public Notice* 27 FCC Rcd. 4,725, ¶129

took other steps to simplify the auction, such as not allowing package bidding. While package bidding may have created certain efficiencies for some bidders, erring on the side of simplicity seems a prudent approach for the FCC's first foray into reverse auctions.

III. WAS THE AUCTION SUCCESSFUL?

Ultimately, whether the auction was successful will depend on whether the winning bidders provide service, whether the subsidy itself is responsible for that service being newly offered in an area, and the size of the subsidy relative to the costs of other ways of providing the same service. We cannot answer those questions yet, but we can evaluate the design and implementation of the auction itself as reflected in data on bids and bidders.

The auction resulted in 33 out of 52 qualified bidders receiving a total of \$300 million to cover about 83,500 road miles (Table 2).⁹

Bidder	Total subsidy (\$ millions)	Road miles covered
Allied Wireless Communications Corporation	45.9	4,417
NE Colorado Cellular, Inc.	40.2	12,079
United States Cellular Corporation	30.9	1,724
Union Telephone Company	22.8	13,577
Commnet of Nevada, LLC	21.1	2,777
Carolina West Wireless, Inc.	20.8	594
T-Mobile West LLC	19.3	10,328
Pine Belt Cellular, Inc.	10.2	1,570
Plateau Telecommunications, Incorporated	9.3	4,933
Leaco Rural Telephone Cooperative, Inc.	6.7	11,282
NEP Cellcorp, Inc.	6.7	838
Texas 10, LLC	6.6	4,818
Hardy Cellular Telephone Company	5.6	194
TexNet 4G, LLC	5.2	3,521
Pine Cellular Phones, Inc.	5.1	965
West Virginia PCS Alliance, L.C.	5.0	152
Powertel/Memphis, Inc.	4.4	361
East Kentucky Network, LLC	4.4	1,307
T-Mobile Northeast LLC	3.7	252
Sagebrush Cellular, Inc.	3.7	1,165

(2012).

9. Prior to the auction, some worried that smaller firms would be at a disadvantage in this auction, but the FCC declined to give special preference to smaller firms. *See id.* at n.72. As a matter of economics, special preference could only have introduced inefficiencies and resulted in fewer (or, at least, not more) road miles covered for the same amount of money. As it turns out, the concern was unwarranted as small firms appear to be well-represented.

USCOC of Central Illinois, LLC	3.6	251
Central Louisiana Cellular, LLC	3.4	2,128
Standing Rock Telecommunications, Inc.	3.3	1,290
GCI Communication Corp.	3.2	120
VTel Wireless, Inc.	2.1	941
PTI Pacifica Inc.	1.3	332
Georgia RSA 8 Partnership	1.2	212
Cross Wireless, LLC	1.2	64
Oklahoma Western Telephone Company	0.9	102
Wichita Online, Inc.	0.8	98
Commnet Four Corners, LLC	0.6	28
Pinpoint Wireless, Inc.	0.6	133
Eagle Telephone System, Inc.	0.1	946.8
TOTAL	\$300	82,547

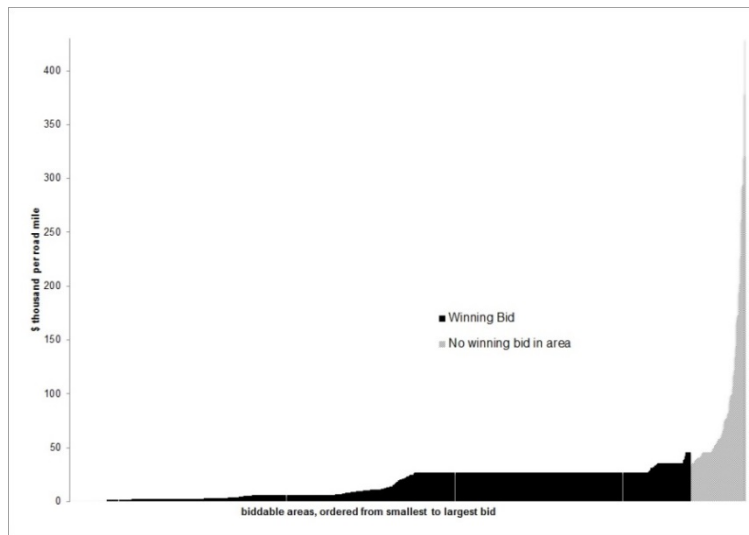
TABLE 2: TOTAL SUBSIDY AND ROAD MILES COVERED BY BIDDER¹⁰

Figure 1 shows both the winning bids and the bids in areas in which no provider was awarded funds. A total of 865 out of the 14,274 biddable areas received at least one bid, and of those 795 areas received subsidies. Winning bids ranged from as little as \$130 per road mile to \$35,000 per road mile,¹¹ while bids in areas in which nobody won ranged from \$35,000 up to \$430,000 per road mile.¹²

10. *Mobility Fund Phase I Auction: Winning Bids*, FED. COMM'NS COMM'N, http://wireless.fcc.gov/auctions/901/reports/901winning_bids_by_bidder.pdf (last visited Oct. 19, 2013).

11. *Id.*

12. *Mobility Fund Phase I Auction: All Bids*, FED. COMM'NS COMM'N, http://wireless.fcc.gov/auctions/901/reports/901all_bids.pdf (last visited Oct. 19, 2013) (the \$430,000 bid was by U.S. Cellular for 10.52 miles in Sevier County, Tennessee).

FIGURE 1: BIDS ORDERED BY LEAST TO MOST \$/ROAD MILE¹³

An auction that yields winners and losers does not, of course, mean that the auction achieved its objectives. A reverse auction for universal service is intended to create a mechanism that induces firms to reveal the subsidy they truly believe is necessary to make service provision viable rather than rely on cost models. Cost models are subject to significant error as well as strategic game playing since much of the data used in the models come from subsidy recipients who have little incentive to provide evidence of low costs. While reverse auctions do not face those problems, they face other inherent difficulties. For example, it may be difficult to generate multiple bids, which is typically a hallmark of successful auctions. Some reverse auctions for universal service provision in other countries had that problem, resulting in the incumbent telecommunications provider being the only bidder and bidding exactly the regulator's reserve price.¹⁴

The FCC recognized this challenge and handled the potential problem of few bidders for any given area by comparing bids across all areas and funding them in order of cost-effectiveness until the budget was exhausted, as discussed above. On the one hand, this approach created an incentive for bidders not to ask for too high a subsidy for a

13. Note that a few winning bids are higher than bids in some areas that received no funding. This at first seemingly strange result is simply an expected consequence of the budget constraint. A bidder's total subsidy requested is (\$/road mile) x (number of road miles), and as the total amount won approached the budget constraint some bids were too large in terms of total dollars requested to fund without exceeding the budget so had to be skipped.

14. Wallsten, *supra* note 3.

biddable area regardless of its expected competition for fear of bidding too high relative to bids in other areas. On the other hand, the pay-as-bid feature of the auction was more likely to create strategic bidding than, say, a uniform price auction.

Figure 2 provides summary data on bids by number of bidders for each biddable area. Perhaps not surprisingly, especially given the large number of biddable items in a single round, the auction generated little direct competition (i.e., multiple bids for a given biddable item). Out of the 865 areas that received bids, 837 (97%) received only a single bid. However, unlike some reverse auctions elsewhere, 70 of the 837 lone bidders received no subsidies at all because their bids were too high relative to others' bids in other geographic areas. Of the 795 areas that won subsidies, 767 had only a single bidder, 27 had two bidders, and only 1 had three bidders. The FCC's strategy of considering each bid relative to all the other bids appears to have been successful, as evidenced by the large difference between unsuccessful bids and winning bids.

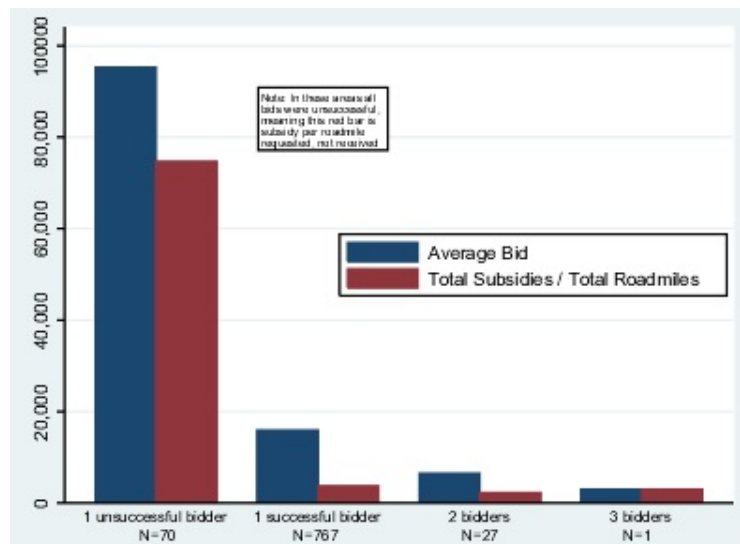


FIGURE 2: AVERAGE SUBSIDY PER ROAD MILE BY NUMBER OF BIDDERS¹⁵

Figure 2 highlights two points. First, the results demonstrate how much more of a “bang for the buck” it is possible to get when subsidies

15. *Mobility Fund Phase I Auction: Winning Bids*, *supra* note 10; *Mobility Fund Phase I Auction: All Bids*, *supra* note 12; “Average bid” (top bar) is the average of dollars per road mile bids (average of winning bids in areas with multiple bidders). “Total Subsidies / Total Road Miles” (bottom bar) is the sum of (winning) bids in dollars divided by total road miles covered. N is the number of “biddable items” in a particular category.

are ordered by cost-effectiveness rather than by simply distributing subsidies to all eligible areas. By ordering subsidies in terms of cost-effectiveness, \$300 million covered 83,500 road miles. Based on bids received in areas that were ultimately not awarded funding, covering the next 1,924 miles would have required an additional \$144 million in subsidies. Similarly, in areas that received bids but were not awarded funds, firms bid an average of about \$95,000 per road mile (about \$75,000 when evaluating total subsidies requested by total road miles that would have been covered). By contrast, areas that received subsidies averaged \$16,000 per road mile and less (\$9,000 when considering the overall dollars per road mile).

To be sure, this outcome is the result of funding areas based on estimated cost-effectiveness, not the result of an auction, *per se*. The advantage of an auction mechanism is that it has the potential to induce firms to ask only for the subsidy they truly need. Thus, and second, the figure highlights how competition can reduce subsidies. Based on total dollars awarded and total road miles covered, subsidies in areas that received only one bid were about \$500 per road mile more than in areas with two bidders.

Only one area—in Latimer County, Oklahoma—received three bids, making it impossible to generalize about the benefits of more than two competitors.¹⁶ Nevertheless, it provides a nice mini-case study highlighting why allocating funds via cost models can lead to subsidies higher than necessary and why competition for subsidies can be so useful. In this auction, the lowest bidder asked for less than one-third the amount the highest bidder requested (Table 3). The three bidders presumably all had information at least as good as any cost model a regulator would have used, yet the three estimated very different subsidies necessary to cover the 38.5 miles of eligible roads in that county. A cost model might have resulted in spending close to an additional \$250,000 in this one area alone.

Bidder	\$/road mile	Total bid (subsidy requested)
Pine Cellular Phones, Inc.	3,000	\$114,750
Cross Wireless, LLC	7,726	\$295,520
Oklahoma Western Telephone Company	9,849	\$376,724

TABLE 3: BIDS FOR SUBSIDIES IN LATIMER COUNTY, OKLAHOMA¹⁷

Similarly, consider how much larger the subsidies would have been

16. Mobility Fund Phase I Auction: All Bids, *supra* note 12, at 15.

17. *Id.*

if a cost model had yielded estimates closer to the amounts submitted by the losing bidder in areas that received two bids. As Table 4 shows, subsidies requested by the losing bidder averaged \$5,340 per road mile more than subsidies requested by the winning bidder. Subsidies based on information from the losing bidders would have resulted in an additional \$33 million—more than three times as much as it did, in fact, spend—to cover the same 12,400 miles.

	Average \$/road mile	Total subsidy requested
Winning bidders	\$2,291	\$14.2 million
Losing bidders	\$7,631	\$47.3 million

TABLE 4: BIDS AND TOTAL SUBSIDY REQUESTED BY WINNING AND LOSING BIDDERS IN AREAS THAT RECEIVED TWO BIDS¹⁸

More intense competition for the subsidy is the most obvious explanation for lower subsidies in areas with more bidders, but it is not the only possible explanation. Another possibility is that potentially more profitable areas, which inherently require fewer subsidies, attract more bidders. Under that explanation, it is not the bidding competition, *per se*, that led to reduced subsidies, but rather that more firms were interested in those areas because they require less government help to be profitable. It is also possible that both are true: areas that are expected to be more profitable attract more firms who bid for less government assistance, both because they expect to earn more in these areas than in others and because they expect other firms to bid as well.

If multiple bidders are attracted to particular characteristics, and those characteristics alone are responsible for low bids, then we would expect to see all bids in those areas to be low. Table 4 above, however, lends some weight to the hypothesis that competition matters. In particular, the table shows a large spread between the winning and losing bids in areas with two bidders. This observation does not mean that *only* bidder competition matters in determining price, however.

If only bidder competition mattered in determining the magnitude of the subsidy then we would expect to see few differences, on average, in features of the biddable items. In other words, we expect to see no significant differences in average population and miles of roads in areas that received no bids, 1 unsuccessful bid, 1 successful bid, 2 bids, and 3 bids. Similarly, if only the characteristics of the biddable item matters then we would expect to see stark differences in those characteristics

18. *Mobility Fund Phase I Auction: Winning Bids*, *supra* note 10; *Mobility Fund Phase I Auction: All Bids*, *supra* note 12.

across the regions varying with the auction outcome.

The Appendix investigates these questions more rigorously, but summary figures suggest that the characteristics of the biddable items matter in determining the size of the requested subsidy. Figure 3 provides information on population in the biddable items by outcome (whether the subsidy was awarded). The figure shows some stark differences in population by outcome, lending support for the hypothesis that the characteristics of the biddable item affect the number of bidders, but not ruling out the hypothesis that the number of bidders also matters. In particular, the typical area that received no bids tends to have the fewest people—a median of only two people, although with a large range. By contrast, areas that received two and three bids had the largest populations. However, areas with only one bidder that were successful typically had much lower populations than areas with one bidder that received no subsidies.

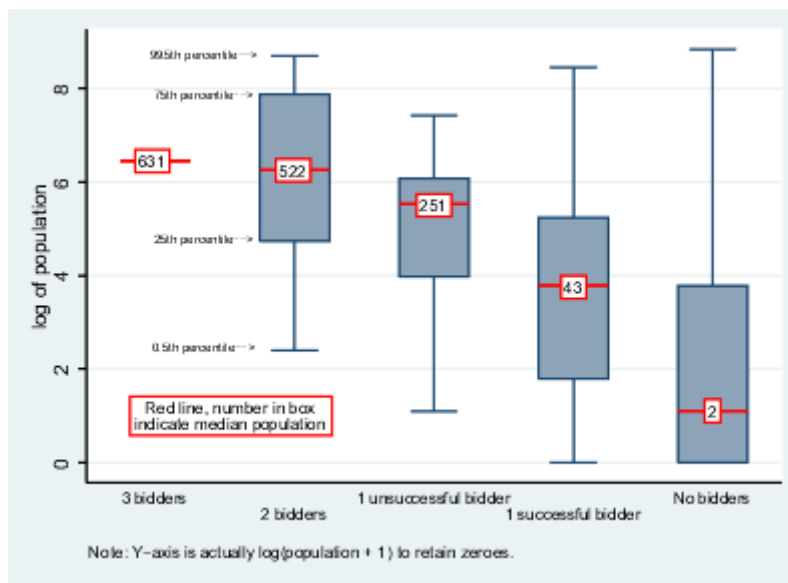


FIGURE 3: POPULATION BY NUMBER OF BIDDERS / OUTCOME¹⁹

Figure 4 presents information on the number of miles by type of road by the number of bidders. Again, this figure shows that the characteristics of the biddable item matter in determining requested subsidy size. The figure shows that areas with two bidders had far more

19. Attachment A: Summary of Eligible Census Blocks, *supra* note 7; Mobility Fund Phase I Auction: Winning Bids, *supra* note 10; Mobility Fund Phase I Auction: All Bids, *supra* note 12.

miles of road than areas with only one successful bidder. On the other hand, areas with no bidders had more miles of road, on average, than areas in which firms bid but no subsidies were awarded. The area with three bidders also had relatively few road miles, but with only one biddable item receiving three bidders, it is not possible to draw any general conclusions.

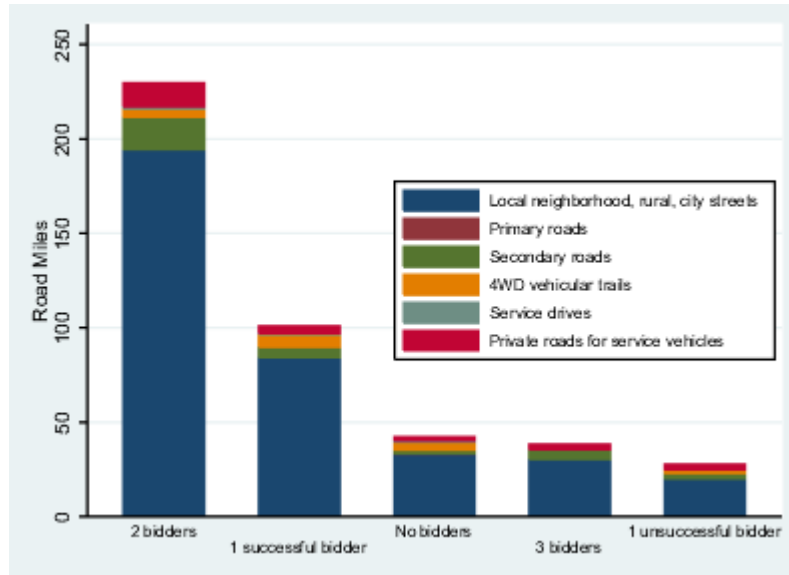


FIGURE 4: ROAD MILES BY NUMBER OF BIDDERS / OUTCOME²⁰

The evidence suggests that both hypotheses discussed above are true. Areas likely to be more profitable were more likely to receive multiple bids, but the bidding competition itself also resulted in lower subsidies.

IV. WHAT CAN WE LEARN FROM THE AUCTION?

Overall, the FCC is to be commended on designing and running a reverse auction that succeeded in many ways. In particular, the evidence suggests that the auction mechanism managed to distribute funds at a lower cost per road mile and, therefore, to provide more new coverage than would have been possible without an auction.

Additionally, concerns expressed by opponents prior to the auction proved to be unwarranted. The Blooston Rural Carriers, for example,

20. *Id.*

were “concerned that the specific ‘lowest per-unit bids across all areas’ selection mechanism” would “ensure that AT&T, Verizon, and Sprint Nextel will receive virtually all the Mobility Fund support they want that is awarded by reverse auction.”²¹ As shown in Table 2 above, none of those companies received any subsidies in the reverse auction, suggesting that the auction did not create an advantage for large over small carriers.

The auction was not perfect, of course, and several issues require additional thought.

a. Evaluating Bids

The FCC used miles of roads as the relevant unit of measure for evaluating bids because, it explained:

[It] . . . implicitly will take into account many of the other factors that commenters argue are important – such as business locations, recreation areas, and work sites – since roads are used to access those areas. . . . Because bidders are likely to take potential roaming and subscriber revenues into account when deciding where to bid . . . we believe that support will tend to be disbursed to areas where there is greater traffic, even without our factoring traffic into the number of road mile units.²²

But subsidy per road mile may not be the right way to evaluate bids, especially given the types of roads in these areas. In particular, as Table 1 above showed, about 80 percent of the roads in areas that won subsidies were local neighborhood, rural, and city streets. A distant second was 4WD trails, representing about 9.3 percent of roads. Because local streets and trails are probably not used primarily for long-distance travel, perhaps other factors like population or number of workers might have been a better evaluation measurement than road miles.

Consider an alternative mechanism that awarded subsidies on the basis of dollar per person covered. Figure 5 shows how the bids would have been ordered under this scenario. The figure shows that using population instead of road miles would have resulted in a different ordering of cost-effectiveness, and that some bids that won when based on road miles would not have been awarded subsidies, and vice versa. To be sure, using different criteria for evaluating bids would have led to different bidding behavior, so it would be inappropriate to assume the figure shows the precise outcome that would have occurred if population

21. Comments of Blooston Rural Carriers to *Notice of Proposed Rule Making* in Universal Serv. Reform Mobility Fund, WT Dkt. No. 10-208 6-7 (Dec. 16, 2010), available at <http://apps.fcc.gov/ecfs/document/view?id=7020924213>.

22. Connect Am. Fund, *supra* note 1, at ¶351.

was used. Nevertheless, it demonstrates how the evaluation mechanism matters to the outcome.

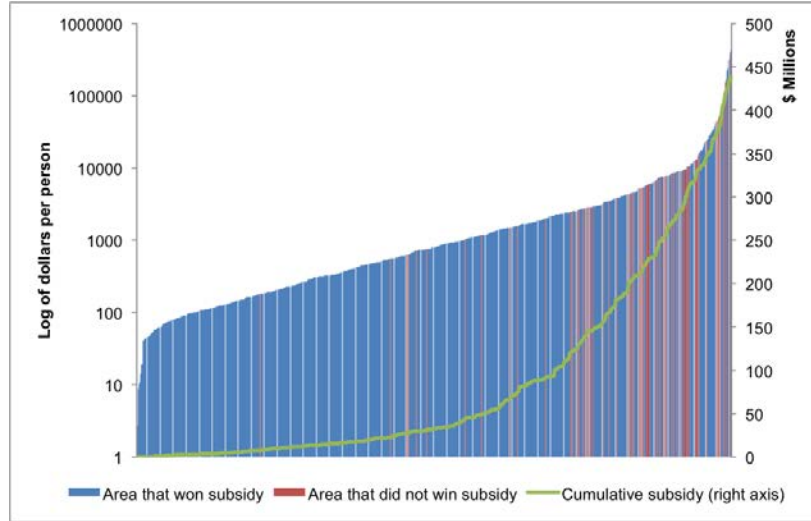


FIGURE 5: SUBSIDIES IF AWARDED BY POPULATION INSTEAD OF ROAD MILE²³

Because the auction results will differ based on the evaluation mechanism, and because it is not clear that subsidy per road miles is the best measure of cost-effectiveness, the FCC may want to reconsider this particular metric. To be clear, this discussion does not demonstrate that dollars per person is a better measure than dollars per road mile, only that the question is worth investigating in more detail.

b. Converting Bids to Subsidies

This auction used a “pay-as-bid” approach, in which winning bidders received the subsidy for which they bid, as opposed to, for example, a Vickrey auction, in which winning bidders receive the bid submitted by the second-place bidder. In a pay-as-bid auction, bidders do not necessarily face incentives to bid their true value and base their bid, at least in part, on how much they expect others to bid. We do not know the extent to which companies engaged in strategic bidding in this auction, but we do know that the winning bids ranged from \$130 per road mile to \$35,000 per road mile. It is not difficult to imagine the

23. Attachment A: Summary of Eligible Census Blocks, *supra* note 7; Mobility Fund Phase I Auction: Winning Bids, *supra* note 10; Mobility Fund Phase I Auction: All Bids, *supra* note 12.

winner of the \$130 subsidy kicking himself for not bidding for a subsidy of at least an order of magnitude larger.

If this auction were a one-time only event this would not be a major issue. However, the FCC may run a second reverse auction for the Mobility Fund Phase II, which will award \$500 million annually.²⁴ Not only are the stakes higher, making strategic bidding potentially more valuable, but, in addition, bidders know the results of the first auction, and in a pay-as-bid system are likely to try to avoid being the lowest bidder.

c. Competition and Auction Participation

As discussed earlier, very few biddable items received multiple bids. This outcome did not take the FCC by surprise, and the Commission dealt with the issue adroitly through the auction mechanism, which compared each bid to all the other bids. Nevertheless, the lack of head-to-head competition is concerning since competition is crucial to an auction's success. It is therefore worth considering whether any changeable policy factors artificially reduced participation and whether the FCC could increase participation in future auctions.

For example, after identifying all the areas eligible to be auctioned based on the current level of service, the FCC removed some areas from consideration based on existing commitments by firms to provide service in the future. The Mobility Fund order notes:

Pursuant to the USF/ICC Transformation Order, we will also make ineligible for support census blocks for which, notwithstanding the absence of 3G service, any provider has made a regulatory commitment to provide 3G or better wireless service, or has received a funding commitment from a federal executive department or agency in response to the carrier's commitment to provide 3G or better wireless service.²⁵

The USF/ICC Transformation Order provides more information about this requirement:

To implement this decision, we will require that all wireless competitive ETCs that receive USF high cost support, under either legacy or reformed programs, as well as all parties that seek Mobility Fund support, review the list of areas eligible for Mobility Fund support when published by the Commission and identify any areas with respect to which they have made a regulatory commitment to

24. Further Inquiry Into Issues Related to Mobility Fund Phase II, *Public Notice*, 27 FCC Rcd. 14,798 (2012).

25. Mobility Fund Phase I Auction Scheduled for Sep. 27, 2012, *supra* note 8, at ¶11.

provide 3G or better wireless service or received a federal executive department or agency funding commitment in exchange for their commitment to provide 3G or better wireless service. We recognize that a regulatory commitment ultimately may not result in service to the area in question. Nevertheless, given the limited resources provided for Mobility Fund Phase I and the fact that the commitments were made in the absence of any support from the Mobility Fund, we conclude that it would not be an appropriate use of available resources to utilize Mobility Fund support in such areas.²⁶

Excluding areas in which subsidized support either already exists or in which a provider expects to launch subsidized service is sensible in principle. After all, subsidizing areas in which someone has already agreed to build seems wasteful. If the goal of the auction was to maximize new road coverage subject to the budget constraint, then the FCC's decision to exclude certain areas was correct. In fact, the FCC notes that maximizing new coverage *was* the objective: "[s]upport will be allocated to maximize the road miles covered by new mobile services without exceeding the budget of \$300 million."²⁷

A key question given the FCC's maximand is whether the criteria for removing biddable areas from consideration were appropriate. The rules may have given incumbent providers a *de facto* right of first refusal since they were not required to actually be providing service yet, and, as the FCC said, "a regulatory commitment ultimately may not result in service."²⁸

More rigorous standards for excluding otherwise eligible biddable areas may have increased participation by including more desirable but still underserved areas in the auction and may also have induced firms to participate that were instead given a *de facto* right to receive a subsidy.

Additionally, the lack of participation by the largest providers is puzzling. As the Blooston Rural Carriers note:

AT&T, Verizon, Sprint Nextel and other large national and regional wireless carriers have the size and purchasing power to negotiate the most favorable and least expensive per-unit terms possible for construction contracts and bulk equipment purchases. In addition, these large carriers enjoy substantial economies of scale that can further reduce the per-unit costs of their planning, overhead and other capital expenditures.²⁹

26. Connect Am. Fund, *supra* note 1, at ¶342.

27. Mobility Fund Phase I Auction Scheduled for Sep. 27, 2012, *supra* note 8, at ¶2.

28. Connect Am. Fund, *supra* note 1, at ¶2.

29. Comments of Blooston Rural Carriers, *supra* note 21, at 6.

Given that the Universal Service Program should strive to meet its goals at the lowest possible cost to telecom users, who pay for the program through taxes on telecom service, Blooston's comments suggest that the largest carriers would be best positioned to deliver cost-effective service. Perhaps Blooston is wrong and smaller carriers have innate advantages in areas such as those included in the mobility fund auction. But if Blooston is correct, the FCC might investigate why the largest carriers mostly avoided the auction since their participation would have provided additional competition and probably increased the coverage obtained for the fixed amount of money.

Finally, the FCC should consider barriers to participation in the auction that cannot be addressed through auction design, but must engage other parts of the Commission and areas of regulation. Specifically, firms could not participate in this auction unless they had access to spectrum:

Applicants are required to provide a description of the spectrum access that the applicant will use to meet its obligations in areas for which it is the winning bidder, including whether the applicant currently holds a license for or leases the spectrum.³⁰

Thus, FCC decisions affecting how well secondary spectrum markets work and the availability of spectrum that licensees make available for wholesale use might have a large effect on the pool of potential entrants into the auction. For example, Lightsquared had planned on providing wholesale wireless access, but the FCC's decision to deny the company the right to launch its network meant that its spectrum was not available for potential retail providers.³¹

Given the recent timing of the Lightsquared decision it is conceivable that its spectrum or network would not have been available in time for this auction. Additionally, publicly-available information does not make it possible to determine whether access to spectrum was, in fact, a barrier to entry in this auction. Nevertheless, the point is that when considering potential auction participation, it is worth evaluating how seemingly unrelated rules and regulations might affect participation.

V. CONCLUSION AND IMPLICATIONS FOR FUTURE AUCTIONS

The Universal Service Program remains an impressive example of inefficiency and inequity,³² and the reforms associated with the Connect

30. Mobility Fund Phase I Auction Scheduled for Sep. 27, 2012, *supra* note 8, at ¶167.

31. See, e.g., David Goldman, *LightSquared: The wireless industry's biggest gamble is failing*, CNNMONEY (Apr. 5, 2012, 1:34 PM), <http://money.cnn.com/2012/04/05/technology/lightsquared/index.htm>.

32. See, e.g., David L. Kaserman & John W. Mayo, *The Quest for Universal Telephone*

America Fund do remarkably little to address underlying problems. In that context, spending an *additional* \$300 million is inherently egregious.

Nevertheless, this one-time expenditure should be considered a qualified success, although only time will tell whether it achieved its ultimate goal of bringing service to new areas. While this exercise demonstrated that the FCC can run an effective reverse auction, it also yields certain lessons. Most notably, the auction highlighted the potential difficulty in generating participation. The FCC handled this problem well, but must continue to think hard about how to encourage participation in upcoming reverse auctions, most notably on the broadcaster side of the Incentive Auctions. For example, while the Incentive Auction enabling legislation limits the FCC's ability to determine which broadcasters are eligible to participate,³³ the FCC retains some discretion and should use that discretion to broaden the pool of potential participants as much as possible.

Additionally, the pay-as-bid feature of the auction may be problematic, especially in the much larger upcoming Mobility Fund Phase II. The FCC should consider employing other mechanisms more likely to induce firms to reveal their true estimates of the subsidies necessary to provide service.

Perhaps most importantly, the auction demonstrated that allocating subsidies based on cost-effectiveness measures has the potential to dramatically increase the bang for the buck we get from universal service expenditures. Refining the auction mechanism to create stronger incentives for bidders to reveal truthful estimates of necessary subsidies could simultaneously reduce universal service expenditures.

Hopefully, this experience with reverse auctions will signal to the FCC the waste inherent in traditional funding mechanisms and spur additional novel approaches to bring more rational funding mechanisms to the program.

VI. APPENDIX: REGRESSION ANALYSIS

This appendix examines in more detail the characteristics of the

Service: The Misfortunes of a Misshapen Policy in TELECOMMUNICATIONS POLICY: HAVE REGULATORS DIALED THE WRONG NUMBER? 131 (Donald L. Alexander ed., 1997); ROBERT W. CRANDALL & LEONARD WAVERMAN, *WHO PAYS FOR UNIVERSAL SERVICE? WHEN TELEPHONE SUBSIDIES BECOME TRANSPARENT* (2000); Thomas Hazlett, "Universal Service" Telephone Subsidies: What Does \$7 Billion Buy? (June 2006) (unpublished manuscript), available at <http://www.arlingtoneconomics.com/studies/whatdoes7billionbuy.pdf>; Gregory L. Rosston & Scott Wallsten, *The Path to Universal Broadband: Why We Should Grant Low-Income Subsidies and Use Experiments and Auctions to Determine the Specifics*, 8 *ECONOMISTS' VOICE* 1 (2011).

33. Expanding the Economic and Innovation Opportunities Through Incentive Auctions, *Notice of Proposed Rulemaking*, FCC 12-118, Dkt. No. 12-268 ¶73 (Oct. 2, 2012), available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-12-118A1.pdf.

biddable items that attract bidders and how direct bidding competition affects winning bids.

First, consider which characteristics cause bidders to enter the competition. In principle, providers will participate if their expected revenues plus the subsidy make service economically viable. Data from the FCC includes population, miles of road by type, geographic size of the biddable item, cellular market area (CMA), and state and county. Each of those may affect the desirability of a given biddable item, although in a reduced-form model it is not obvious whether each makes an area more or less attractive.

I estimate a least-squares regression in which the number of bids an area receives is the dependent variable, ranging from zero to three, where an observation, i , is a biddable item:

$$\text{number of bids}_i = f(\text{population}_i, \text{road miles}_i, \text{area}_i, \text{CMA}_i, \text{State}_i)$$

Population increases the desirability of a given area because it signals higher potential demand for service. Higher population may also be correlated with the presence of existing service in adjacent areas and therefore possibly competition, even if not in that small biddable area. Miles of road can have a similar effect: more road miles may indicate higher demand if miles correlates with the length of time road users might use your service, but more roads might also mean higher total costs. CMA fixed effects will control for factors unique to that market, and state fixed effects will control for factors like state-level regulations that affect demand and supply.

Table 5 shows the results of estimating this regression.

Dependent Variable = Number of Bids	
Population	6.80e-05*** (6.80)
Area	-2.01e-05*** (3.87)
Miles	Primary roads
	-0.0031 (1.09)
	Secondary roads
	0.0011* (1.84)
	Local neighborhood, rural, city streets
	2.80e-05 (1.19)
	4WD vehicular trails
	-0.00014*** (2.69)
	Services drives
	1.30e-05 (0.18)
	Private roads for service vehicles
	-0.00031

	(1.32)
Constant	-.0018***
	(6.90)
Observations	14,263
R-squared	0.44
Robust t-statistics in parentheses	
*** p<0.01, ** p<0.05, * p<0.1	
State and CMA fixed effects included but not shown.	

TABLE 5: CHARACTERISTICS OF BIDDABLE ITEMS CORRELATED WITH
NUMBER OF BIDS

The table shows that population is positively and statistically significantly correlated with the number of bids, suggesting that expected demand affects entry into the bidding market. The magnitude of the coefficient, however, is small. The coefficient suggests that each additional 14,700 people in a biddable item is correlated with an additional bidder. Given that the mean population of a biddable item is 125 this effect seems negligible.

The size of the area is negatively and statistically significantly correlated with the number of bids, suggesting that larger areas are more costly to serve. As with population, though, the magnitude is tiny. Each additional 50,000 square miles is correlated with one fewer bidders, but the mean is just 59 square miles

Certain types of roads also appear to affect bidder participation. Miles of secondary roads is positively and statistically significantly correlated with bidder participation while miles of 4WD trails is negatively and significantly correlated with bidder participation. Again, the magnitudes of these coefficients are small.

Second, we evaluate how the number of bidders affects the subsidy levels in areas receiving at least one bid:

$$bid_i = f\left(\begin{matrix} \text{number bids}_i, \text{winning bid}_i, \text{population}_i, \text{road miles}_i, \text{area}_i, \text{CMA}_i, \text{State}_i \\ | \text{number bids}_i \geq 1 \end{matrix}\right)$$

where bid_i is dollars per road mile, number bids_i is the number of bids received for item i , winning bid_i is a dummy variable indicating whether the bid ultimately was accepted, and the other variables are as described above. Table 6 shows the results of estimating this regression.

Dependent variable = \$/road mile (mean = \$21,975)	
Number of bids	-14,481***
	(3.15)
Winning bid?	-35,738***
	(5.16)

Population		-4.906***
		(3.08)
Area		3.660
		(0.87)
Miles of	Primary roads	-768.9
		(1.53)
	Secondary roads	19.72
		(0.37)
	Local neighborhood, rural, city streets	-2.579
		(1.08)
	4WD vehicular trails	-18.35
		(1.23)
	Services drives	-3.657
		(0.49)
	Private roads for service vehicles	-28.39
		(0.74)
Constant		74,134***
		(16.38)
Observations		884
R-squared		0.661
Robust absolute t-statistics in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		
CMA and state fixed effects included but not shown.		

TABLE 6: BIDS AND BIDDERS

The table shows, most importantly, that competition matters. Each additional bidder is correlated with about \$14,500 less in subsidies, even controlling for characteristics of the biddable item. These results highlight the, albeit not surprising, point that auctions require competition to be successful.

THE DEATH OF THE FIRST SALE DOCTRINE

KIMBERLEY BYER*

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INTRODUCTION

The traditional brick-and-mortar video rental stores may soon be a thing of the past and copyright law's first sale doctrine may go right along with them. Historically, video rental stores and used book stores have thrived under the protection of the first sale doctrine, which provides that the purchaser of a lawfully made copy of a copyrighted work can subsequently transfer that particular copy to others without needing the copyright owner's permission.¹ The first sale doctrine focuses on the distinction between owning a particular "copy" of a work and ownership of the underlying "copyright." Accordingly, someone who purchases a lawfully made DVD copy of a movie can then sell, rent, trade or give away that DVD without permission from the movie studio that owns the copyright in the underlying movie. This is how traditional video rental stores operate: they purchase the DVDs they rent out, thus eliminating the need to enter into any type of licensing agreement with the movie studios.

With the modern prevalence of technology, digital files have begun to squeeze their analog counterparts out of the market. As more and more content owners start to forgo the traditional method of distributing copyrighted works in tangible physical mediums in favor of digital licenses, the important question is what impact will this have on

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1. 17 U.S.C.A. § 109(a) (West 2008).

copyright law. Particularly, will copyright's first sale doctrine survive this transition, or is the Copyright Act in desperate need of a major reform?

One way to phrase the complexity of the issue is to ask: if it is legally permissible to rent a DVD and a DVD player to an individual to enjoy in the privacy of his home, does it follow that it would be legally equivalent to do the same basic thing but with the physical device in a different location. Put more simply, does the length of the cable matter in determining whether something constitutes copyright infringement?² If the cable from your DVD player to your TV is just a few feet long, it is legal. But if the cable is much longer such as when the DVD player is located in a central data center, is it suddenly illegal?³ A recent decision from a federal district court seems to suggest just that.

Zediva, an innovative start-up, cleverly attempted to create the next generation DVD-rental store. According to Zediva, its business model was analogous to a traditional brick-and-mortar DVD rental store: Zediva bought physical copies of new-release DVDs and rented the physical disk along with a DVD player to its customers, and like brick-and-mortar rental stores, Zediva rents those DVDs to only one person at a time. However: "It does so not by requiring the customer to come to a physical store, but by bringing the store to the customer via the Internet."⁴

Motion Pictures sued for infringement of its exclusive right, as the copyright owner, to publicly perform the work. The studio argued that unlike a brick-and-mortar video rental store, which can rent its copies without permission from the copyright holder under the first sale doctrine, Zediva was publicly performing the movies by streaming them to its customers. Motion Pictures contended that because Zediva was publicly performing the movies rather than merely distributing copies, Zediva's conduct was outside of the protection of the first sale doctrine.

Zediva argued that under the first sale doctrine, it did not need a license from Motion Pictures. Zediva contended that unlike other online streaming services, such as Netflix and Amazon, which allow multiple users to access the same digital file, Zediva streams from the actual, physical copies of DVDs, which play on DVD players housed at its central data facility.

2. Mike Masnick, *Court Shuts Down Zediva: Apparently The Length Of The Cable Determines If Something Is Infringing*, TECHDIRT (Aug. 2, 2011, 11:09 AM), <http://www.techdirt.com/articles/20110802/02374615353/court-shuts-down-zediva-apparently-length-cable-determines-if-something-is-infringing.shtml>.

3. *Id.*

4. Opposition to Motion Picture Studios' Motion for Preliminary Injunction at 8, Warner Bros. Entm't., Inc. v. WTV Sys., Inc. (C.D. Cal. 2011) (No. 11CV02817), 2011 WL 4401800.

A U.S. district court in California disagreed with Zediva and issued a preliminary injunction ordering the company to shut down its operations.⁵ This case illustrates the growing tension between the first sale doctrine and public-performance rights. Under the first sale doctrine, individuals who buy legal copies of a copyrighted work are allowed to resell, rent, or lend those copies. The first sale doctrine embodies the essential balance in U.S. copyright law between increasing public access to works and incentivizing their creation. It essentially gives the copyright owner the right to control the initial public distribution of a work while also lessening the copyright owner's monopoly over any subsequent sale or rental of a particular copy of a work. In the age of digital media, however, consumers are turning to digital copies as a replacement for traditional physical copies. If purchasing physical copies becomes obsolete, will the first sale doctrine lose all meaning?

This note reviews existing copyright law in the context of the Zediva case and considers if new reform is needed to bring copyright law up to date with the state of modern technology. Part II explores the statutory framework of the Copyright Act, particularly how the first sale doctrine operates to protect the public's interests in relation to the copyright owner's exclusive right of public performance. Part III examines how case law has developed to determine when a performance becomes "public" under the statute. Part IV analyzes the legality of Zediva's business model in the context of this prior case law. Finally, part V explores the policy arguments for and against copyright reform, asks whether the digital revolution has basically killed the first sale doctrine, and considers what that might mean for copyright law. This note proposes that if the public performance right is extended too far beyond the traditional movie theater concept, to the point that a performance in the privacy of one's home is considered public, then the counter-balancing effect of the first sale doctrine is rendered obsolete and copyright owners now have, in essence, a full monopoly right over their works.

I. STATUTORY FRAMEWORK

Section 106 of the Copyright Act grants copyright owners six exclusive rights: reproduction, preparation of derivative works, distribution, public performance, public display, and digital transmission performance.⁶ In other words, one must obtain the copyright owner's

5. Warner Bros. Entm't v. WTV Sys., Inc., 824 F. Supp. 2d 1003 (C.D. Cal. 2011) (order granting preliminary injunction).

6. 17 U.S.C. § 106 provides:
"Subject to sections 107 through 122, the owner of copyright under this title has the exclusive rights to do and to authorize any of the following:

permission to copy the work, make an adaptation of it, distribute or sell it, or perform or display it publicly.

A. *The First Sale Doctrine*

The Copyright Act places several limitations on these rights. The first sale doctrine limits a copyright owner's distribution right such that her right to control the sale of a particular copy of a work is terminated once the owner releases that copy to the public through a sale, gift, or loan.⁷ The first sale doctrine embodies the law's well-established policy prohibiting restraints on the alienation of personal property.⁸ The system of distributing copyrighted works in the form of freely alienable copies has benefited the public by increasing the overall affordability and access to the works.⁹ Furthermore, the first sale doctrine is crucial to preserving the delicate balance between protecting copyright owner's rights and ensuring public access to creative works.

The first sale doctrine originated from the common law's historic disfavor of restraints on the alienation of personal property. In 1908, the United States Supreme Court expressly recognized the first sale doctrine in *Bobbs-Merrill Co. v. Straus*,¹⁰ holding that although the copyright owner has an exclusive right to reproduce a work, copyright law does not give the copyright owner the right to control the resale market of the work by imposing mandatory price restraints on what others can charge.¹¹ Once the copyright owner sells copies of a work at a wholesale price to a retailer, the copyright owner's vending right is exhausted, and the retailer is free to resell the copies to the public at any price she chooses.

-
- (1) to reproduce the copyrighted work in copies or phonorecords;
 - (2) to prepare derivative works based upon the copyrighted work;
 - (3) to distribute copies or phonorecords of the copyrighted work to the public by sale or other transfer of ownership, or by rental, lease, or lending;
 - (4) in the case of literary, musical, dramatic, and choreographic works, pantomimes, and motion pictures and other audiovisual works, to perform the copyrighted work publicly;
 - (5) in the case of literary, musical, dramatic, and choreographic works, pantomimes, and pictorial, graphic, or sculptural works, including the individual images of a motion picture or other audiovisual work, to display the copyrighted work publicly; and
 - (6) in the case of sound recordings, to perform the copyrighted work publicly by means of a digital audio transmission."

7. 17 U.S.C. § 109(a).

8. R. Anthony Reese, *The First Sale Doctrine in the Era of Digital Networks*, 44 B.C. L. REV. 577, 584 (2003).

9. *Id.*

10. 210 U.S. 339, 350 (1908).

11. *Id.* at 341 (the Plaintiff-copyright owner of a book had placed the following notice in copies of the book: "[t]he price of this book at retail is \$1 net. No dealer is licensed to sell it [the copies] at a less price, and a sale at a less price will be treated as an infringement of the copyright." The defendant wholesaler disregarded the plaintiff's notice and sold the books for eighty-nine cents).

A year after the *Bobbs-Merrill* decision, Congress codified the first sale doctrine in the Copyright Act of 1909. Intending to strike a balance between the copyright owner's right to control distribution of his work and the public's interest in alienating copies of the work,¹² Congress provided the following provision in Section 27 of the 1909 Copyright Act:

The copyright is distinct from property in the material object copyrighted, and the sale or conveyance, by gift or otherwise, of the material object shall not itself constitute a transfer of the copyright, nor shall the assignment of the copyright constitute a transfer of the title to the material object; but nothing in this title shall be deemed to forbid, prevent, or restrict the transfer of any copy of a copyrighted work the possession of which has been lawfully obtained.¹³

As it reads today, Section 109(a) of the Copyright Act provides: "Notwithstanding the provisions of section 106(3) [granting the exclusive right of distribution], the owner of a particular copy or phonorecord lawfully made under this title . . . is entitled, without the authority of the copyright owner, to sell or otherwise dispose of the possession of that copy or phonorecord."¹⁴

As a result, an owner of a lawful copy of a work may resell that copy, rent it, loan it to a friend, give it away or destroy it without having to obtain permission from the copyright owner. It is the first sale doctrine that has historically enabled video rental stores, used bookstores, and libraries to flourish by permitting them to realize the full resale value of the used copies without having to pay royalty fees to the author or publisher.¹⁵

Section 109(a) of the Copyright Act establishes a two-pronged test for the first sale exception to apply. First, the first sale doctrine protects only the *owner* of a particular copy that was lawfully made under the copyright statute. Ownership can be established by virtue of a sale, gift, bequest or other transfer of title: "Because the first sale exception rests upon the principle that copyright owners receive full value for the work when it is first sold," a person with anything less than full ownership may not be protected by first sale.¹⁶ A copy that was loaned, rented, stolen or otherwise transferred without transferring title would not be protected by the first sale doctrine. Mere possession, therefore, is

12. Keith Kupferschmid, *Lost in Cyberspace: The Digital Demise of the First-Sale Doctrine*, 16 J. MARSHALL J. COMPUTER & INFO. L. 825, 832 (1998).

13. 17 U.S.C. § 27 (1977) (current version at 17 U.S.C. § 109 (2011)).

14. 17 U.S.C. § 109(a).

15. Reese, *supra* note 8, at 585.

16. Victor F. Calaba, *Quibbles 'N Bits: Making a Digital First Sale Doctrine Feasible*, 9 MICH. TELECOMM. TECH. L. REV. 1, 5 (2002).

insufficient for the first sale doctrine to apply, “regardless of whether that possession is legitimate, such as by rental, or illegitimate, such as by theft.”¹⁷ Thus, someone who rents a video from Blockbuster and then resells it or rents it to someone else is not protected by the first sale doctrine and would be infringing the author’s distribution right, because the renter does not “own” the copy.¹⁸

Under the second prong, only copies made with the authority of the copyright owner or the law receive the benefit of the first sale doctrine. To come within the scope of the first sale doctrine, section 109(a) requires that the particular copy be *lawfully made*, though not necessarily with the copyright owner’s authorization.¹⁹ Under the statute, a copy could be “lawfully made” even without the copyright owner’s authority or permission. For example, a copy made under fair use or under the compulsory licensing provisions could qualify; however, pirated copies, regardless of whether or not the owner has knowledge of the piracy, are not protected under the doctrine, and the sale or rental of the pirated copy may infringe the copyright owner’s distribution right.²⁰ This distinction further exemplifies Congress’s intent to limit the scope of the copyright owner’s rights, in contrast to the tendency of current case law, which has broadened the reach of copyright holders.

Finally, the first sale exception limits only the distribution and display rights. It does not protect one from copyright infringement liability who reproduces, adapts, or publicly performs a work without permission from the copyright holder. Even though the first sale doctrine allows the owner of a particular copy to resell it, the first sale doctrine does not apply to the copyright holder’s exclusive right to publicly perform the work.²¹ Thus, the first sale doctrine is a defense to the distribution and display rights only, and is irrelevant in an infringement suit based on the public performance right.²²

17. U.S. COPYRIGHT OFFICE, DMCA SECTION 104 REPORT 99-101 23 (Aug. 2001), available at <http://www.copyright.gov/reports/studies/dmca/sec-104-report-vol-1.pdf>.

18. Because the first sale doctrine protects only the “owner” of a copy, some copyright owners attempt to use licenses to avoid the first sale doctrine by characterizing the transaction in such a way that transfer of ownership does not pass to the buyer of a particular copy. For example, computer software is often licensed to the user. If the buyer claims first sale protections, the copyright owner may argue that the first sale does not apply because the buyer does not own the copy. See, e.g., *Vernor v. Autodesk, Inc.*, 621 F.3d 1102, 1107 (9th Cir. 2010).

19. 17 U.S.C. § 109(a).

20. H.R. REP. NO. 94-1476, at 79 (1976) (“[the] resale of an illegally ‘pirated’ phonorecord would be an infringement, but the disposition of a phonorecord legally made under the compulsory licensing provisions of section 115 would not.”).

21. 17 U.S.C. § 109(a).

22. James Grimmelmann, *That Zediva Thing? It’s So Not Going to Work*, THE LABORATORIUM (Mar. 16, 2011, 3:27 PM), http://laboratorium.net/archive/2011/03/16/that_zediva_thing_its_so_not_going_to_work.

B. The Public Performance Right

Section 106(4) of the Copyright Act grants copyright owners the exclusive right “in the case of . . . motion pictures and other audiovisual works, to perform the copyrighted work publicly.”²³ The Copyright Act, in two clauses of Section 101, defines what constitutes a public performance for purposes of Section 106(4):

To perform or display a work “publicly” means—

(1) to perform or display it at a place open to the public or at any place where a substantial number of persons outside of a normal circle of a family and its social acquaintances is gathered; or

(2) to transmit or otherwise communicate a performance or display of the work to a place specified by clause (1) or to the public, by means of any device or process, whether the members of the public capable of receiving the performance or display receive it in the same place or in separate places and at the same time or at different times.²⁴

A performance is “public” if the location is open to the public, if more people are present than just family and social acquaintances, or if the work is transmitted to such a public location or to the public (even if members of the public receive it at separate places and times).²⁵ For example, if Carol wanted to invite a few friends over to her house on a Friday night to watch a movie, that would probably not constitute infringement because it is a private performance.²⁶ But, if Carol wanted to show the movie at a public park, it would constitute a public performance and would require the copyright owner’s authorization.

The limiting factor is “to the public:” unlicensed performances “to the public” are infringing; unlicensed private performances are not. Determining when a performance becomes public is therefore crucial in analyzing the public performance right.²⁷ Unfortunately, although § 101

23. 17 U.S.C. § 106(4).

24. 17 U.S.C. § 101.

25. *Id.*

26. However, it is not always this simple. The statute does not define what constitutes a normal circle of family and social acquaintances or how many people beyond that circle are necessary to reach a “substantial number of persons.” The “substantial number of persons” sub-clause of Section 101(1) is ambiguous and courts can affect the outcome of a determination of a public performance by changing the temporal or spatial scope of the place. For example, if a court wanted to consider a hotel room occupied for one night by one person a private place, but considered the whole hotel over a longer time span a “public” place under the “substantial number of persons” sub-clause.

27. John Kheit, *Public Performance Copyrights: A Guide to Public Place Analysis*, 26 RUTGERS COMPUTER & TECH. L.J. 1, 5 (1999).

of the Copyright Act explains the meaning of a “performance,”²⁸ the statute does not clearly define what constitutes a “public place.”²⁹ The statutory definition of public performance lacks a physical definition of a public place; rather a space is implicitly transformed into a “public place” depending on certain amorphous conditions, which leads to inconsistent interpretation by the courts.³⁰ As a result, the definition of a public performance “has been left obfuscated by statute, legislative history, and case law.”³¹

The “substantial number of persons” sub-clause of Section 101(1) is particularly ambiguous and a court can often affect the outcome by simply changing the temporal or spatial scope of what constitutes “the place” for purposes of determining whether it is a public or private performance.³² For example, an individual hotel room, occupied for one night by one person, may be considered a private place, but a court could also find that it is a “public” place if it chose to broadly consider the whole hotel over a longer time span.³³

The unclear and confusing language in the “transmit” clause further complicates public performance analysis.³⁴ Section 101 of the Copyright Act states that a performance may be “to the public” even if it is received in “separate places” and at “different times.”³⁵ Neither the Senate nor House Reports offer any explanation of what this phrase means.³⁶ This ambiguity leads to the seemingly contradictory result that a performance may be “to the public” even though only one person ultimately receives it.³⁷ If taken literally, it would mean that playing a video in one’s own private home would constitute a public performance because other

28. Section 101 of the Copyright Act states: “to perform” a work means “to recite, render, play, dance, or act it, either directly or by means of any device or process or, in the case of a motion picture or other audiovisual work, to show its images in any sequence or to make the sounds accompanying it audible.” 17 U.S.C. § 101 (2010).

29. Kheit, *supra* note 27, at 17.

30. *Id.* at 19.

31. *Id.* at 18.

32. *Id.* at 24-25.

33. *Compare* Columbia Pictures Indus., Inc. v. Prof'l Real Estate Investors, Inc., 866 F.2d 278 (9th Cir. 1989), *with* On Command Video Corp. v. Columbia Pictures Indus., 777 F. Supp. 787 (N.D. Cal. 1991).

34. The statute defines the act of transmission: “To ‘transmit’ a performance or display is to communicate it by any device or process whereby images or sounds are received beyond the place from which they are sent.” 17 U.S.C. § 101.

35. *Id.*

36. MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 8.14[C][2] (2012 ed.) (explaining that under the statutory phrase “same place or separate places,” a television or radio broadcast received in the privacy of individual homes is nevertheless a “public” performance).

37. *See, e.g.,* Twentieth Century Fox Film Corp. v. Cablevision Sys. Corp., 478 F. Supp. 2d 607, 616 (S.D.N.Y. 2007) [hereinafter Cablevision I], *rev'd in part, vacated in part sub nom.* Cartoon Network LP, LLLP v. CSC Holdings, Inc., 536 F.3d 121, 123-24 (2d Cir. 2008) [hereinafter Cablevision II].

members of the public may be playing the same work in their own homes “at different times.”³⁸ This interpretation leads to the absurd result that a person who buys a DVD may clearly resell it under the first sale doctrine without violating the copyright holder’s distribution right, but in order for the buyer to play it on her own DVD player in her own home, she would have to obtain a performance right license.³⁹ Professor Nimmer proposed one explanation to the definition: “Upon reflection, it would seem that what must have been intended was that *if the same copy . . . of a given work is repeatedly played (i.e., ‘performed’) by different members of the public, albeit at different times, this constitutes a ‘public’ performance.*”⁴⁰

II. THE DEVELOPMENT OF CASE LAW

A. “Open to the Public” and the Nature of the Place Analysis

The ambiguities in the statute have led to inconsistent interpretation by the courts and public place analysis appears to be more about the courts value judgments than statutory interpretation.

In *Columbia Pictures Industries v. Redd Horne, Inc.*,⁴¹ a video rental store, Maxwell’s Video Showcase, provided private viewing booths in the rear of the store where customers could watch the videos they had just rented. The VCRs were not located in the booths themselves, but were kept behind the counter in the front of the store.⁴² One of the store’s employees would place the cassette in the VCR and press play; the movie was then transmitted to the TV in the viewing booth where between two to four people could watch it.⁴³ Under Nimmer’s “different times” theory, the same copy of a video would not only be repeatedly played, but also transmitted from the front of the store to the back.

The Third Circuit held that this constituted a public performance in violation of the copyright holder’s exclusive right.⁴⁴ The court found the viewing booths analytically indistinguishable from traditional movie theaters, with the additional feature of privacy.⁴⁵ However, the court did not base its holding on the transmit clause, but rather, on the nature of

38. NIMMER & NIMMER, *supra* note 36, at § 8.14[C][3].

39. Prima facie it would seem that such a performance is not a public performance. But the above-quoted “at different times” phrase in the definition of what constitutes a public performance casts some doubt upon this conclusion. *Id.*

40. *Id.*

41. 749 F.2d 154 (3d Cir. 1984).

42. *Id.* at 157.

43. *Id.*

44. *Id.* at 158-59.

45. *Id.*

Maxwell's stores as places that were "open to the public."⁴⁶ The court added that "[s]imply because the cassettes can be viewed in private does not mitigate the essential fact that Maxwell's is unquestionably open to the public."⁴⁷ In other words, the court defined the relevant "place" where the performance occurred as the entire store, not each individual booth within the store.⁴⁸ Here, the performance was public because the place where the showing occurred was open to the public, even though the viewing audience was limited to a small group of family or social acquaintances.⁴⁹

A couple of years later, the Third Circuit extended *Redd Horne's* nature of the place definition to find that the mere authorization of a performance violated the copyright holder's public performance right.⁵⁰ *Columbia Pictures Industries, Inc. v. Aveco, Inc.* presented a slightly different variation of *Redd Horne's* facts. The defendant Aveco rented videocassettes and private viewing rooms.⁵¹ The primary difference in Aveco was that the video players were kept in the individual booths and the video was not transmitted beyond the particular room in which it was played.⁵² The customer could operate the machines and be allowed "complete control" over them; Aveco employee's assisted only upon request.⁵³ The Third Circuit found *Redd Horne* indistinguishable.⁵⁴ The court stated "[its] opinion in *Redd Horne* turned not on the precise whereabouts of the video cassette players, but on the *nature* of [the defendant's] stores."⁵⁵

But in *Columbia Pictures Industries, Inc. v. Professional Real Estate Investors, Inc.*, the Ninth Circuit found no violation of public performance rights when the hotel rented video discs to its guests for viewing on hotel-provided equipment installed in the guests' rooms.⁵⁶ The copyright owners in *Professional Real Estate* argued that because the hotel rooms were available for rent by the public, hotels were "open to the public," and thus, movies viewed in a guest's room are "performed . . . publicly."⁵⁷ The court, however, rejected this argument and upheld

46. *Id.* at 159 ("We find it unnecessary to examine the second part of the statutory definition because we agree with the district court's conclusion that Maxwell's was open to the public.").

47. *Id.*

48. *Id.*

49. *Id.*

50. *Columbia Pictures Indus., Inc. v. Aveco, Inc.*, 800 F.2d 59, 62 (3d Cir. 1986).

51. *Id.* at 61.

52. *Id.*

53. *Id.*

54. *Id.* at 62.

55. *Id.* at 63.

56. *Columbia Pictures Indus., Inc. v. Prof'l Real Estate Investors, Inc.*, 866 F.2d 278, 281 (9th Cir. 1989).

57. *Id.* at 280.

the lower court's decision that in-room viewing was a private performance, distinguishing it from the private booth viewings in the Third Circuit's *Redd Horne* and *Aveco* decisions. Distinguishing *Redd Horne* and *Aveco*, the district court in *Professional Real Estate* noted:

The principal and sole purpose of viewing rooms in the *Redd Horne* and *Aveco* cases was to watch movies. In contrast, a hotel is a place to live while away from one's permanent home. The primary or even a principal reason of renting a hotel room is not to view movies. At best, the viewing of movies in a hotel room is incidental entertainment, no different from viewing movies in the privacy of one's home.⁵⁸

Finding that a hotel room is not a place "open to the public," the court applied the nature of the place analysis but narrowed its focus to the individual hotel room, rather than the entire hotel, which was clearly open to the public.⁵⁹ The court noted that while the hotel may be "open to the public," a guest's hotel room, once rented, is not.⁶⁰ The court analogized the circumstance to people viewing the movie in their own homes, a place where "individuals enjoy a substantial degree of privacy," and found that this precluded having a public performance.⁶¹ The court stated that the House Report⁶² specifically exempts these performances from the copyright owner's control: "to the extent that a gathering of one's social acquaintances is normally regarded as private, we conclude that in-room videodisc movie showings do not occur at a 'place open to the public.'"⁶³ Thus, it seems likely that if the viewer is actually in his or her own home, the performance should not be deemed "public."

B. The Transmit Clause

The Ninth Circuit's holding in *Professional Real Estate* was based on its reading of the definition of a "public place." It did not have the occasion to consider the scope of the transmit clause.⁶⁴ In considering whether the hotel "otherwise communicate[d]" the movies "to the

58. *Columbia Pictures Indus., Inc. v. Prof'l Real Estate Investors, Inc.*, No. 83-2594, 1986 WL 32729, at *5 (C.D. Cal. 1986), *aff'd*, 866 F.2d 278 (9th Cir. 1989).

59. *Prof'l Real Estate*, 866 F.2d at 281.

60. *Id.*

61. *Id.* at 281.

62. H.R. REP. NO. 94-1476, at 64 (1976) ("The term 'a family' in this context would include an individual living alone, so that a gathering confined to the individual's social acquaintances would normally be regarded as private. Routine meetings of businesses and governmental personnel would be excluded because they do not represent the gathering of a 'substantial number of persons.'").

63. *Prof'l Real Estate*, 866 F.2d at 281.

64. *Id.*

public,” the court noted that a plain reading of the “transmit clause” indicated that its purpose is “to prohibit transmissions and other forms of broadcasting from one place to another without the copyright owner’s permission.”⁶⁵ The court opined that under the transmit clause, a public performance at least requires “sending out some sort of signal via a device or process to be received by the public at a place beyond the place from which it is sent.”⁶⁶ If a transmission and reception did occur, it did so entirely within the guest room, and it was certainly not received beyond the place from which it was sent.⁶⁷ Thus, in finding that the transmit clause did not apply to the in-room video rentals because the videos were not transmitted beyond the guest’s room, the court’s analysis is limited to whether the hotel rooms themselves were “places open to the public.”

A few years after the *Professional Real Estate* decision, a case involving the transmission of movies at a hotel raised the previously unanswered issue of whether transmitting a video from a central location to a hotel room was a transmission to the public, even though the individual hotel room was considered a private place.⁶⁸ In *On Command Video Corp. v. Columbia Pictures Industries*, the plaintiff sought declaratory judgment that its hotel video movie viewing system did not constitute a public performance of the copyrighted videos shown through the system. Hotel guests could watch a movie in their hotel room by turning on the television and using a remote control to select a movie from an on-screen menu.⁶⁹ The hotel’s viewing system consisted of a computer program, a sophisticated electronic switch and a bank of video cassette players, all of which were centrally located in the hotel’s equipment room.⁷⁰ The video cassette players each contained a videotape and were connected to televisions in the hotel rooms by wiring.⁷¹ The district court described the system as follows:

A hotel guest operates the system from his or her room by remote control. . . . Once a particular video is selected, that video selection disappears from the menu of available videos displayed on all other television sets in the hotel. The video is seen only in the room where it was selected by the guest. It cannot be seen in any other guest room or in any other location in the hotel. The viewer cannot pause, rewind, or fast-forward the video. When the movie ends, it is

65. *Id.* at 282.

66. *Id.*

67. *Id.*

68. *On Command Video Corp. v. Columbia Pictures Indus.*, 777 F. Supp. 787, 789 (N.D. Cal. 1991).

69. *Id.* at 788.

70. *Id.*

71. *Id.*

automatically rewind and then immediately available for viewing by another hotel guest.⁷²

The copyright owners argued that because the system is comprised of components dispersed throughout the hotel and not just in the guests' rooms, the relevant place of the performance was not the individual rooms, but rather the entire hotel, which is a public place.⁷³ However, the court rejected this argument, noting that it would eviscerate both the concepts of "performance" and "public place."⁷⁴ The court stated that "a performance of a work does not occur every place a wire carrying the performance passes through; a performance occurs where it is received."⁷⁵ Thus, a movie video is "performed only when it is visible and audible."⁷⁶ The only place where this occurred in On Command's viewing system was in the individual hotel rooms. Thus, the court stated that was the only place of performance for the public place analysis.⁷⁷ Relying on the *Professional Real Estate* decision, the district court held that no public performance occurred under the public place clause of section 101 because hotel rooms are not public places.⁷⁸

However, the court stated that the "non-public nature of the place of the performance has no bearing . . . under the transmit clause."⁷⁹ The court held that under the meaning of the transmit clause, the public performance right was infringed "because the relationship between the transmitter of the performance, On Command, and the audience, hotel guests, is a commercial, 'public' one regardless of where the viewing takes place."⁸⁰ Thus, a public performance occurred because On Command's system "transmitted" the movies to "the public."⁸¹ Even though hotel guests watching the videos through On Command's system did not watch them in a "public place," they were still "members of the public."⁸²

Attempting to avail itself of the first sale defense, On Command argued that its system did not involve "transmissions," but rather "electronic rentals" similar to guests borrowing physical videotapes.⁸³ Rejecting this argument, the court held that On Command transmitted

72. *Id.*

73. *Id.* at 789.

74. *Id.*

75. *Id.*

76. *Id.*

77. *Id.*

78. *Id.*

79. *Id.* at 790.

80. *Id.*

81. *Id.*

82. *Id.*

83. *Id.* at 789.

performances of the movies directly under the language of the statute.⁸⁴ “The system ‘communicates’ the motion picture ‘images and sounds’ by a ‘device or process’—the equipment and wiring network—from a central console in a hotel to individual guests rooms, where the images and sounds are received ‘beyond the place from which they are sent.’”⁸⁵ The court found it immaterial that the hotel guests initiated the transmission by turning on the television and choosing the video.⁸⁶

Applying the transmit clause’s “separate places/different times” provision, the court reasoned that “whether the number of hotel guests viewing an On Command transmission is one or one hundred, and whether these guests view the transmission simultaneously or sequentially, the transmission is still a public performance since it goes to members of the public.”⁸⁷ In reaching this conclusion, the district court focused on a piece of legislative history from a 1967 House Report:

[A] performance made available by transmission to the public at large is “public” even though the recipients are not gathered in a single place, and even if there is no direct proof that any of the potential recipients was operating his receiving apparatus at the time of the transmission. The same principles apply whenever the potential recipients of the transmission represent a limited segment of the public, such as the occupants of hotel rooms. . . ; they are also applicable where the transmission is capable of reaching different recipients at different times, as in the case of sounds or images stored in an information system and capable of being performed or displayed at the initiative of individual members of the public.⁸⁸

According to the district court, because the transmitter and the audience had a commercial relationship, the relationship necessarily involved members of the public.⁸⁹ Thus, under the *On Command* court’s broad definition of “public performance,” a commercial relationship will be a determinative factor in finding a public performance.⁹⁰

However, in a more modern case, *Cartoon Network L.P. v. CSC Holdings, Inc.* (referred to as the “Cablevision” case), involving a remote DVR, the Second Circuit interpreted the transmit clause’s “separate

84. *Id.*

85. *Id.* at 789-90.

86. *Id.*

87. *Id.*

88. H.R. REP. NO. 90-83, at 29 (1967).

89. *On Command*, 777 F. Supp. at 791; see also Daniel Diskin, *The Zediva Lawsuit: Why the Studios Will Win*, COPYRIGHT AND TRADEMARK BLOG (Apr. 13, 2011), <http://copymarkblog.com/2011/04/13/the-zediva-lawsuit-why-the-studios-will-win>.

90. Vivian I. Kim, Note, *The Public Performance Right in the Digital Age: Cartoon Network LP. v. CSC Holdings*, 24 BERKELEY TECH. L.J. 263, 283 (2009).

places/different times” provision more narrowly.⁹¹ In *Cablevision*, a cable television provider, offered “remote storage” DVR systems that allowed customers who did not have a stand-alone DVR to record cable television programs on central hard drives housed and maintained by Cablevision at a “remote” location.⁹² RS-DVR customers would then receive playback of those programs through their televisions using only a remote control and a standard cable box equipped with Cablevision’s RS-DVR software.

Copyright holders of numerous movies and television programs sued Cablevision for declaratory judgment and injunctive relief. The copyright owners argued that because the recordings were made at Cablevision’s facilities and the playbacks were transmitted from there, Cablevisions operation of the RS-DVR would directly infringe their exclusive rights of reproduction and public performance.⁹³

Comparing the RS-DVR to the standard set-top DVR, the district court observed, “the RS-DVR is not a single piece of equipment,” but rather “a complex system requiring numerous computers, processes, networks of cables, and facilities staffed by personnel twenty-four hours a day.”⁹⁴ But the complexity of Cablevision’s systems did not figure in the Second Circuit’s analysis; rather, the court focused on the fact that the customer could do no more with the remote DVR than they could with a standard set-top DVR: “to the customer, however, the processes of recording and playback on the RS-DVR are similar to that of a standard set-top DVR.”⁹⁵ The primary difference between the set-top DVR and the RS-DVR is the location of the equipment; in an RS-DVR, the technology is housed with the cable provider and not in the viewer’s home. As a result, instead of sending signals from the remote to an on-set box, the viewer sends signals from the remote, through the cable, to the server at Cablevision’s central facility. In other words, the system in *Cablevision* operated, from the user’s perspective, like playing a movie back from a DVR with a very long cable attached. A standard set-top DVR and the resulting time-shifting by at-home viewers has long been considered permissive.⁹⁶ If both the end result and the amount of viewer control is basically the same in both the new and the old technologies, shouldn’t the two be legally equivalent? Put differently, if the only

91. *Cablevision II*, 536 F.3d 121, 134 (2d Cir. 2008).

92. *Id.* at 124.

93. *Id.* at 134.

94. *Id.* at 125.

95. *Id.*

96. *See Sony Corp. v. Universal City Studios, Inc.*, 464 U.S. 417, 423 (1984) (time-shifting by consumers in private homes is fair use and not copyright infringement, and, thus, the manufacturer of the VCR technology cannot be held liable for any activity on part of the consumer).

significant difference between the standard DVR and the remote DVR is the location of the equipment, should the length of the cable be determinative in deciding whether infringement of a copyright occurred? The Second Circuit in *Cablevision* thought no.⁹⁷

The question at issue in *Cablevision* was whether the transmissions of those shows during playback from Cablevision's central servers to its user's homes constituted a performance "to the public." The district court thought this type of transmission was "to the public," because it considered the potential audience of the underlying work (i.e., the program) being transmitted as opposed to the potential audience of the single *transmission*. Thus, it concluded that the RS-DVR playbacks constituted public performances because "Cablevision would transmit the *same program* to members of the public, who may receive the performance at different times, depending on whether they view the program in real time or at a later time as an RS-DVR playback."⁹⁸ The district court further relied on the nature of the relationship analysis in *On Command*, and stated that "where the relationship between the party sending a transmission and party receiving it is commercial," as it is here between Cablevision and its RS-DVR customers, "courts have determined that the transmission is one made 'to the public.'"⁹⁹ In so holding, the district court awarded summary judgment to the plaintiff-content owners.

The Second Circuit reversed and interpreted the transmit clause more narrowly to refer to a particular "transmission," and not a particular "work." The court held that "under the transmit clause, we must examine the potential audience of a given transmission by an alleged infringer to determine whether that transmission is 'to the public.'"¹⁰⁰ In other words, "it is relevant, in determining whether a transmission is made to the public, to discern who is 'capable of receiving' the performance being transmitted."¹⁰¹ Under this analysis, Cablevision does not transmit "to the public" because a particular playback transmission is only capable of going to a single user's home and does not have the potential of reaching the public at large, even "in separate places" or at "different times."¹⁰²

97. *Cablevision II*, 536 F.3d at 134.

98. *Cablevision I*, 478 F. Supp. 2d at 623 (emphasis added).

99. *Id.*

100. *Cablevision II*, 536 F.3d at 137.

101. *Id.* at 134; see *In re Celco P'ship*, 663 F. Supp. 2d 363, 371 (S.D.N.Y. 2009) (stating that in analyzing whether a transmission is to the public, "the focus is on the transmission itself and its potential recipients, and not on the potential audience of the underlying work"); *United States v. ASCAP*, 627 F.3d 64, 73 (2d Cir. 2010) (quoting *Cablevision II*, 536 F.3d 121, 136 (2d Cir. 2008) ("[W]hen Congress speaks of transmitting a performance to the public, it refers to the performance created by the act of transmission, not simply to transmitting a recording of a performance.")).

102. 17 U.S.C. § 101.

Finding that Cablevision did not infringe the plaintiff's copyrights, the court held, "because the RS-DVR system, as designed, only makes transmissions to one subscriber using a copy made by that subscriber, we believe that the universe of people capable of receiving an RS-DVR transmission is the single subscriber whose self-made copy is used to create that transmission."¹⁰³

In so holding, the Second Circuit rejected the district court's broad approach as irreconcilable with the language of the transmit clause.¹⁰⁴ The court explained that the implication of the district court's interpretation, which focuses on the potential audience of a particular "work" rather than on the people capable of receiving a particular "transmission," is the odd result that *any* transmission of a copyrighted work would constitute a public performance. The court feared that under such a broad interpretation of the transmit clause, "a hapless customer who records a program in his den and later transmits the recording to a television in his bedroom would be liable for publicly performing the work simply because some other party had once transmitted the same underlying performance to the public."¹⁰⁵ Rather, the Second Circuit stated that when Congress speaks of transmitting a performance to the public, it refers to the performance created by the act of transmission

III. THE ZEDIVA CASE

Relying on the *Cablevision* decision, Zediva purchased physical copies of new release DVDs at retail and used place-shifting technology to essentially "rent" those movies out using the Internet such that only one user could watch the same physical DVD at the same time. As the company explains on its website:

A couple of years ago we came up with an idea for the next generation of DVD rentals. It seemed to us logical and evolutionary that if a customer was able to rent and play a DVD in his home, there should be no reason why he or she could not do that from the Internet cloud. After all, you can do that with a DVR, so why not with a DVD player?¹⁰⁶

Instead of negotiating streaming rights, Zediva thought it could invoke the protections of the first sale doctrine and thus circumvent the need to get a license from the movie studios by following the model of a brick-and-mortar video rental store and literally rent DVDs and DVD

103. *Cablevision II*, 536 F.3d at 137.

104. *Id.* at 135.

105. *Id.* at 136.

106. Christophor Rick, *Virtual DVD Rental Service Zediva Shut Down Permanently*, REELSEO, <http://www.reelseo.com/zediva-shut-down-permanently/> (last visited April 7, 2013).

players directly to customers. Under this model, Zediva was able to “shave down” its pricing by “cutting movie studios out of the equation.”¹⁰⁷ For \$1.99, customers could rent a physical disk and DVD player. In comparison, Zediva’s competitors, like iTunes, Netflix, and other licensed streaming video services, charged between \$3.99 and \$5.99 for new releases.¹⁰⁸ This approach had the additional advantage of allowing Zediva to rent out new-release movies the day they came out on DVD, often weeks earlier than the studios released them to Netflix or Redbox.

On April 4, 2011, the Motion Picture Association of America (MPAA) and some of its member studios filed suit against Zediva in the United States District Court for the Central District of California, alleging that Zediva has directly infringed the studio’s exclusive right to publicly perform their copyrighted works and asking the court to grant a preliminary injunction. The studios argue that Zediva’s portrayal of itself as a modern day video rental store is “disingenuous” and a “gimmick [. . .] in an effort to avoid complying with U.S. Copyright Law.”¹⁰⁹ They argue that Zediva is transmitting its movies to the public, via its streaming technology, which is not the same as the method of physical delivery used by brick-and-mortar rental stores. According to the studios, it is this transmission that makes Zediva’s service a public, rather than private, performance in violation of the studio’s exclusive right.

Because the first sale doctrine is a defense only to the distribution right the central issue was whether Zediva’s rental service constituted a “transmission” “to the public,” and was thus an infringement of the movie studio’s exclusive right of public performance, or was an online rental of physical DVDs, and thus beyond the reach of the studio’s copyright.

Zediva maintains racks full of DVD players at its data center. Each DVD player holds a single DVD. When a customer has rented a DVD and DVD player, that customer has sole and exclusive control of that DVD and DVD player, and only that customer can view the disc.¹¹⁰ During the rental period, the customer controls the DVD player by pressing play, stop, rewind, etc.¹¹¹ As with traditional video rental

107. Jared Newman, *Zediva’s Movie Rentals Are 50% Cheaper Than iTunes*, TIME TECHLAND BLOG (Mar. 16, 2011), <http://techland.time.com/2011/03/16/zedivas-movie-rentals-are-50-cheaper-than-itunes/#ixzz1rrrhBbY>.

108. Warner Bros. Entm’t Inc. v. WTV Sys., Inc., 824 F. Supp. 2d 1007, 1015 (C.D. Cal. 2011) (order granting preliminary injunction).

109. *Id.*

110. Opposition to Motion Picture Studio’s Motion for Preliminary Injunction at 9, Warner Bros. Entm’t Inc. v. WTV Sys., Inc., 824 F. Supp. 2d 1003 (C.D. Cal. 2011) (No. CV 11-02817), 2011 WL 4401800.

111. *Id.* at 3 (“While the movie is playing, the user’s web browser displays buttons with which the user can send commands to the DVD player. These buttons allow the user to pause

stores, only after the customer returns the disk can Zediva rent it out to someone else.¹¹² Thus, the only way for Zediva to increase capacity to meet demand “is to do the same thing any other DVD rental business would have to do—buy lots and lots of DVDs.”¹¹³

Zediva characterizes its system as analogous to “playing back a movie from a DVD with a very long cable attached.”¹¹⁴ Under this analogy, the user’s computer acts as a “remote control” for the DVD player located at Zediva’s facilities. When a Zediva customer wishes to “rent” a particular movie, the customer “presses” a virtual button on the Zediva website. Zediva’s system then sends a request to their control server, which sets in motion a series of actions on various servers created and controlled by Zediva. However, unlike traditional video rentals, Zediva’s customers never have physical access to the DVDs or the DVD players. When a customer requests a particular DVD by pressing the virtual “button”, Defendants, through their Zediva system:

- (1) start the play process on a particular DVD player holding the requested Copyrighted Work; (2) convert the analog video signal from the DVD player into a digital signal using a video adapter; (3) feed the digital signal into a DVD control server which converts the digital signal to a form suitable for streaming across the Internet; (4) convert the digital signal to a format that can be viewed in the player created by Defendants and used on their website; (5) transmit the performance via the Internet to the customer; and (6) provide the customer with a custom viewer necessary to view the video stream.¹¹⁵

Federal Judge John Walter found that Zediva is transmitting the studios’ copyrighted movies, and that the transmission was to the public, concluding that Zediva’s service constituted a public performance. Although the court noted that injunctive relief is “an extraordinary remedy that may only be issued upon a clear showing that plaintiff is entitled to such relief,”¹¹⁶ Judge Walter granted the studios’ motion for a preliminary injunction, finding that the MPAA was not only likely to prevail on the merits but would also suffer irreparable harm absent a preliminary injunction.¹¹⁷

the DVD, to skip to another part of the DVD, to turn on or off subtitles, and so on. The user watches the movie straight from the original DVD.”).

112. *Warner Bros.*, 824 F. Supp. 2d at 1007 (noting that on Zediva’s website, “if all of the copies of a particular Copyrighted Work are ‘rented out’ when a customer wants to view it, that customer ‘can request to be notified, via email, when it becomes available’”).

113. *Opposition*, *supra* note 110, at 10.

114. *Id.*

115. *Warner Bros.*, 824 F. Supp. 2d at 1007.

116. *Id.* at 1008 (*quoting* *Winter v. Natural Res. Def. Council*, 555 U.S. 7, 22 (2008)).

117. A plaintiff seeking a preliminary injunction must establish: (1) a likelihood of

The court determined that the studios had a strong likelihood of success on the merits because under the plain language of the transmit clause, Zediva was engaged in the public transmission of copyrighted works.¹¹⁸ The court rejected Zediva's argument that their service offered "DVD rentals" rather than "transmissions" of any performances, comparing this reasoning to the similarly unsuccessful argument made in *On Command*, in which a hotel transmitted movies from a central console to individual guests' rooms. As in *On Command*, the court concluded Zediva "transmits performances of Plaintiffs' Copyrighted Works 'directly under the language of the statute.'"¹¹⁹ According to the court, the fact that the works were transmitted beyond the place where they were sent was sufficient to bring Zediva's system within the scope of the transmit clause. The court explained, Zediva "'communicates' the 'images and sounds' of Plaintiffs' Copyrighted Works through the use of a 'device or process'—the equipment, including various servers, and internet—from a central bank of DVD players to individual customer's computers, where the images and sounds are received 'beyond the place from which they are sent.'"¹²⁰ In contrast to the court's reasoning in *Cablevision*, the court found it immaterial that Zediva's users initiated the transmission by turning on their computers and choosing which movie to view.

After rejecting Zediva's rental theory and finding that Zediva transmitted the works, the court further held that these transmissions were "to the public." The court stated that the issue is not whether customers are watching in a "public place" but only that those customers are "members of the public."¹²¹ Relying heavily on the *On Command* decision, which also placed great emphasis on the commercial relationship, the court explained that "[Zediva's] transmissions are 'to the public' because the relationship between [Zediva], as the transmitter of the performance, and the audience, which in this case consists of their customers, is a commercial, 'public' relationship regardless of where the viewing takes place."¹²²

In *Cablevision*, the Second Circuit rejected *On Command* and strongly criticized the emphasis on the commercial relationship. The Second Circuit stated, "[w]e find this interpretation untenable, as it completely rewrites the language of the statutory definition. If Congress

success on the merits; (2) that the moving party will suffer irreparable harm absent a preliminary injunction; (3) that the balance of equities tips in the moving party's favor; and (4) that an injunction is in the public's interest. *Winter*, 555 U.S. at 20.

118. *Warner Bros.*, 824 F. Supp. 2d at 1012.

119. *Id.* at 1009.

120. *Id.*

121. *Id.* at 1008.

122. *Id.* at 1010.

had wished to make all commercial transmissions public performances, the transmit clause would read: ‘to perform a work publicly means . . . to transmit a performance for commercial purposes.’”¹²³

However, the *Zediva* court dismissed the *Cablevision* case, distinguishing it in a lengthy footnote. The court noted that, in *Cablevision*, each transmission was to a single subscriber from a unique copy created at the initiative of the subscriber. Here, *Zediva* was using the same DVD over and over again.¹²⁴

CONCLUSION: POLICY REFORM?

The Constitution grants Congress the power to award artists a limited monopoly over their creative works in order to advance creative innovation. The ultimate purpose of copyright law is not to reward the artists by protecting their economic investments in works, but rather, to stimulate artistic creativity and provide public access to creative works. Thomas Jefferson cautioned against unlimited monopoly rights and believed protecting the public against overly long monopolies on creative works is an essential role of the government: “Creative work is to be encouraged and rewarded, but private motivation must ultimately serve the cause of promoting broad public availability of literature, music, and the other arts.”¹²⁵ In protecting artists’ creative expression, copyright law seeks to strike the proper balance between public access and incentivizing the creation of works.

With the rise of new technologies, it is not always clear how traditional copyright law applies to digital media. “The definitional lines separating the exclusive rights—once fairly clear—are now blurred. Confusion over which rights are implicated in online transactions has created uncertainty in the marketplace and chilled innovation.”¹²⁶ The current statutory regulation, passed in 1976, is stifling entrepreneurial innovation by making it too costly for start-up companies to risk relying on the current state of the laws and then subsequently be sued out of existence, as was *Zediva*’s fate. The fundamental issue here is the very nature of copyright law itself, “which is patched up with duct tape each time some new technology hits the market.”¹²⁷

However, scholars disagree on whether the proper solution to this problem is statutory reform or a market-based solution. Some argue that market-based solutions won’t work because “voluntary agreement

123. *Cablevision II*, 536 F.3d 121, 139 (2d. Cir. 2008).

124. *Warner Bros.* 824 F. Supp. 2d at nn.7-8.

125. *Twentieth Century Music Corp. v. Aiken*, 422 U.S. 151, 156 (1975).

126. John Eric Seay, *Legislative Strategies For Enabling The Success Of Online Music Purveyors*, 17 UCLA ENT. L. REV. 163, 164 (2010).

127. Masnick, *supra* note 2.

among the parties seems highly unlikely given the history of dissension between them.”¹²⁸ In order to combat online piracy and illegal streaming of copyrighted works while also promoting new development, Congress needs to clearly define the rights and create a fair digital marketplace to ensure that entrepreneurs and start-up companies are able to enter the marketplace to invest in new technologies.¹²⁹

Others contend that Congress, as a political culture, is not capable of producing the regulation necessary because powerful interest groups too easily displace its goals.¹³⁰ Entities like the Recording Industry Association of America (“RIAA”) and other Hollywood interest groups hope to forestall change so that music labels and movie studios can continue to exercise a strong monopoly right in the industry. As a result, the balance between public access and rewarding innovation has tipped toward the type of unlimited monopoly right Thomas Jefferson feared. Rather than encouraging innovation in the digital market place, increased protection of the exclusive rights of copyright holders has led to “criminalizing the core creativity that this [technology] could produce.”¹³¹ Lawrence Lessig argues, “[w]e are at a stage in our history when we urgently need to make fundamental choices about values, but we should trust no institution of government to make such choices.”¹³²

128. Seay, *supra* note 126, at 167.

129. *Id.* at 165.

130. *Id.* at 164 (Seay offers, “while legislative change is needed, it is difficult to salve a wound when the patient will not submit to treatment.”).

131. LAWRENCE LESSIG, CODE: AND OTHER LAWS OF CYBERSPACE, VERSION 2.0 8 (2011).

132. *Id.*

A BROKEN PATENT SYSTEM: HOW TO ADDRESS THE CLAIM CONSTRUCTION PROBLEM IN LITIGATION

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INTRODUCTION

The process for patent litigation is flawed because the current regime for patent claim construction provides poor notice to a litigant. This flaw is punctuated by the egregious claim construction reversal rate of 32.5% at the U.S. Court of Appeals for the Federal Circuit (“Federal Circuit”).¹ To understand how the patent process came to this crossroads, it is helpful to trace the progression of the patent system along three lines: case law, scholarship in academia, and legislation.

Two different lines of Federal Circuit case law track two different

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1. David L. Schwartz, *Practice Makes Perfect? An Empirical Study of Claim Construction Reversal Rates in Patent Cases*, 107 MICH. L. REV. 223, 248 (2008).

facets of notice to litigants: the *Markman-Cybor* line tracks the amount of deference the Federal Circuit accords to the district courts (the 94 district courts along with the ITC and the USPTO funnel into the singular Federal Circuit for patent subject matter), and the *Telegenix-Phillips* line details the Federal Circuit's methodology for claim construction.

When the Federal Circuit accords no deference to a district court, then a litigant has poor notice because the method of claim construction in a district court is never an indicia of the method of claim construction in a given Federal Circuit tribunal. Under this regime, a litigant may make one claim construction argument in a district court and a wholly different claim construction argument at the Federal Circuit. The lack of deference to the district court results in a claim construction regime that is disjointed, and the district court-Federal Circuit dynamic adds uncertainty to patent litigation.

For methodology of claim construction, the clearer the procedure is for determining the scope of a patent, the better a litigant can predict how a court will construe the ordinary meaning of a claim term. In addition to clarity of methodology choice, the methodology itself affects the notice to a litigant. The procedural method of claim construction favors objective resources like dictionaries and provides better notice while the holistic method of claim construction favors subjective resources like the patent's description of the invention and provides better accuracy, *i.e.* fidelity to the inventor's intent.

The fluid case law of the Federal Circuit has engendered corresponding literature publication in academia. Professor Moore conducted empirical research to help frame how jury trials differ from bench trials in patentee win rates,² how litigants forum shop,³ and how juries determine willful infringement differently from judges.⁴ However, it was Professor Moore's empirical work in 2005 that shed light on the poor notice that litigants suffer when facing the patent system. In her 2005 work, Professor Moore found that the claim construction reversal rate at the Federal Circuit was 34.5%.⁵

These informative empirical studies spawned many proposals, both subtle and extreme, on how to fix the patent system. A common refrain among academics is for specialized trial court judges at the district court

2. Kimberly A. Moore, *Judges, Juries, and Patent Cases--An Empirical Peek Inside the Black Box*, 99 MICH. L. REV. 365, 408-09 (2000).

3. Kimberly A. Moore, *Forum Shopping in Patent Cases: Does Geographic Choice Affect Innovation?*, 79 N.C. L. REV. 889, 893-94 (2001).

4. Kimberly A. Moore, *Empirical Statistics on Willful Patent Infringement*, 14 FED. CIR. B.J. 227, 232 (2004).

5. Kimberly A. Moore, *Markman Eight Years Later: Is Claim Construction More Predictable?*, 9 LEWIS & CLARK L. REV. 231, 239 (2005).

level.⁶ The theory is that specialized trial court judges will gain expertise and hopefully reduce the claim construction reversal rate at the Federal Circuit.⁷ Other scholars have suggested a single specialized trial court,⁸ additional courts of appeals,⁹ and disclosure of extrinsic sources on the cover of the patent to interpret its claims.¹⁰

Reform to the patent system arrived in the America Invents Act (“AIA”), which President Obama signed into law on September 16, 2011. The AIA amounted to front-end administrative changes at the USPTO, and it did little to affect downstream issues such as the poor notice to a litigant in the form of an egregious claim construction reversal rate at the Federal Circuit. The AIA’s most fundamental change to the patent system was the switch from the first-to-invent to a first-to-file system.¹¹ This change trickles down to other aspects of the patent prosecution process. For example, interference hearings to determine priority of inventorship are moot. Yet these front-end changes to the patent process do not directly reach the problem of a 32.5% claim construction reversal rate at the Federal Circuit.

Recent Federal Circuit case law, academic literature, and the AIA have not improved the poor notice that a litigant has at the Federal Circuit. The Federal Circuit case law leaves much to be desired because the Federal Circuit reviews the district court’s claim construction *de novo*. A litigant has to guess which methodology a district court will use in its claim construction, and then a litigant has to guess which methodology the Federal Circuit will use.

In this Note, I propose that the USPTO should annually publish a USPTO dictionary to reduce the egregious claim construction reversal rate at the Federal Circuit, and the procedural method of claim construction is the best method to realize notice benefits from an annually published USPTO dictionary. A clear choice in methodology along with the methodology itself will provide better notice to a litigant. In addition, a clear and repeatable claim construction process will improve the dynamic between the district courts and the Federal Circuit, engendering more deference to the district courts in matters of claim construction.

6. See, e.g., Donna M. Gitter, *Should the United States Designate Specialist Patent Trial Judges? An Empirical Analysis of H.R. 628 in Light of the English Experience and the Work of Professor Moore*, 10 COLUM. SCI. & TECH. L. REV. 169, 173 (2009).

7. *Id.*

8. Moore, *supra* note 3, at 932-33.

9. Craig Allen Nard & John F. Duffy, *Rethinking Patent Law’s Uniformity Principle*, 101 NW. U. L. REV. 1619, 1625 (2007).

10. Joseph Scott Miller & James A. Hilsenteger, *The Proven Key: Roles and Rules for Dictionaries at the Patent Office and the Courts*, 54 AM. U. L. REV. 829, 838 (2005).

11. America Invents Act, S. 23, 112th Cong. (2011), available at <http://www.govtrack.us/congress/billtext.xpd?bill=s112-23>.

I. HOW THE CURRENT PATENT SYSTEM CAME TO BE

A. Case Law

The Federal Circuit case law affects the notice that a litigant receives because the case law outlines the Federal Circuit's level of deference to the district courts and the Federal Circuit's methodology for claim construction. The *Markman-Cybor* line of case law tracks the evolution of the district court-Federal Circuit dynamic from deference to the district courts' determination to *de novo* review. The *Telegenix-Phillips* line of case law traces the methodology, either procedural or holistic, that the Federal Circuit applies to claim construction.

i. Markman-Cybor

In *Markman*, the Federal Circuit held that claim construction is a matter of law, and judges, not juries, should interpret claim terms.¹² The Federal Circuit argued that interpreting patents is more analogous to statutory interpretation, which is an objective process, rather than contract interpretation, where a fact-finder tries to discern the subjective intent of the parties.¹³ The Federal Circuit also argued that the subjective intent of the patentee is "of little or no probative weight in determining the scope of a claim (except as documented in the prosecution history)."¹⁴ Instead, the Federal Circuit argued that the construction of the claim term should be from the perspective of a person who has "ordinary skill in the art at the time of the invention . . ."¹⁵ Thus, the Federal Circuit side-stepped any concerns that judges would be making factual determinations.

The Supreme Court granted *certiorari* and agreed with the Federal Circuit's result, but it used policy arguments rather than a statutory analogy to determine that patent claim construction is a question of law for judges, not juries. The Court did a historical account of the patent system and determined that the history did not provide "clear answers."¹⁶ Therefore, the Court turned to "functional considerations."¹⁷ The Court stated that claim construction is a specialty that is better suited for judges rather than "jurors unburdened by training in exegesis."¹⁸ In addition, the court thought that having judges determine claim construction would pull the analysis out of the juror's black box, and this would provide more

12. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 983-84, 987 (Fed. Cir. 1995).

13. *Id.* at 987.

14. *Id.* at 985.

15. *Id.* at 986.

16. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 388 (1996).

17. *Id.*

18. *Id.*

uniformity for the patent system and better notice to litigants.¹⁹

The Federal Circuit took the Court's holding in *Markman* to its logical ends in *Cybor*. In *Cybor*, the Federal Circuit held that its judges should review district court claim constructions *de novo* because claim construction is a matter of law.²⁰ After *Cybor*, the Federal Circuit accords no deference to a district court judge's claim construction.

While the holdings in *Markman* and *Cybor* met some functional considerations of claim construction, these holdings introduced a new problem: a litigant has poorer notice and is less certain of an outcome in a patent case because the "main event" is now at the appellate level.²¹ District court judges are at the mercy of Federal Circuit review, which, as discussed below, is a moving target at best.

ii. Telegenix-Phillips

If litigants are to have proper notice, the various players in the patent system need a methodology with repeatability. The *Telegenix-Phillips* line of case law tracks the moving target that is the Federal Circuit's methodology of claim construction interpretation.

Before wading into the background of the *Telegenix-Phillips* line of case law, it is prudent to precisely define procedural and holistic claim construction. Professors Wagner and Petherbridge defined procedural claim construction as a method that gives primary weight to the ordinary meaning of the claim language itself.²² Therefore, the person who is constructing the claim would turn to evidence extrinsic to the patent itself, such as a dictionary, to discern the ordinary meaning of a claim term. If after utilizing extrinsic sources the claim term still has ambiguity, then the person would turn to the evidence that is intrinsic to the patent, such as the specification, to determine the context in which the claim term in question is used, and then decide what the claim term means.

In contrast, holistic claim construction places weight on the context in which the patent was written. Therefore the person who is construing the claim would turn to evidence intrinsic to the patent itself to discern the meaning of the claim term. If, after the intrinsic sources are depleted, the claim term's meaning is still not defined, then the person may turn to sources extrinsic to the patent to determine the meaning of the claim term in question.

19. *Id.* at 309.

20. *Cybor Corp. v. FAS Techs.*, 138 F.3d 1448, 1454 (Fed. Cir. 1998).

21. *See Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996).

22. R. Polk Wagner & Lee Petherbridge, *Did Phillips Change Anything? Empirical Analysis of the Federal Circuit's Claim Construction Jurisprudence*, INST. FOR L. & ECON., Research Paper No. 11-27, 7 (2011).

Procedural claim construction provides better notice to a litigant because extrinsic resources objectively discern the ordinary meaning of a claim term. From the point of view of a litigant, it is easier to predict how a judge will utilize dictionaries to determine the ordinary meaning of a claim term than it is to predict how a judge will interpret the context – specification and wrapper – in light of which a claim term should be viewed.

Regarding case law, in 1996 the Federal Circuit decided *Vitronics*, in which the court took a holistic stance on claim construction methodology.²³ The court ruled that a court should first look to intrinsic evidence such as the claim's themselves, the specification, and the wrapper to determine the claim term's ordinary meaning.²⁴ Only if there is remaining ambiguity should a court resort to extrinsic evidence such as dictionaries.²⁵ In *Vitronics*, the Federal Circuit reversed the district court's use of extrinsic evidence because the intrinsic evidence left no ambiguity in a patent's claim term.²⁶

Since the Federal Circuit decided *Vitronics* in 1996, it slowly tracked toward a more procedural method of claim construction where extrinsic evidence such as dictionaries was not as taboo as it once was. This march towards a procedural method of claim construction reached a high water mark in 2002 when a Federal Circuit tribunal fully endorsed a procedural method of claim construction in *Telegenix*. Here, the Federal Circuit outlined a method of claim construction where, in order to determine the ordinary meaning of a claim term, the court *must* first look to extrinsic evidence such as dictionaries.²⁷ Only if there is ambiguity should the court look to intrinsic evidence.²⁸ The primary concern of the *Telegenix* court was that by going to the intrinsic evidence first, the claim constructor would read limitations into the claims themselves that the inventor never intended.²⁹ The court reasoned that by using a procedural method, no unintended limitations will be read into the claims.³⁰ In addition, the *Telegenix* court noted that its new endorsement of the procedural method of claim construction did not override the lexicographer rule where an inventor can specify his or her own definitions in the patent's specification.³¹

The march towards procedural claim construction came to an abrupt

23. *Vitronics*, 90 F.3d at 1582.

24. *Id.*

25. *Id.* at 1583.

26. *Id.*

27. *Tex. Digital Sys., Inc. v. Telegenix, Inc.*, 308 F.3d 1193, 1202-03 (Fed. Cir. 2002).

28. *Id.* at 1203.

29. *Id.* at 1204.

30. *Id.* at 1205.

31. *Id.* at 1204.

halt in 2005 when the Federal Court decided *Phillips*. Here, the Federal Circuit considered the *Telegenix* decision, and it proffered arguments against procedural claim construction. The *Phillips* court started with a nod to the *Telegenix* court's concern of reading limitations into the patent's claims.³² However, the Federal Court argued the procedural method put too much emphasis on extrinsic evidence and not enough on intrinsic evidence.³³ The *Phillips* court was worried that extrinsic evidence determines the meaning of claim terms in the abstract, not in the context of the patent.³⁴ The court also noted that dictionaries are general in nature, not necessarily from the perspective of one skilled in the art, and dictionaries often contain multiple meanings for the same word.³⁵ In the end, the *Phillips* court concluded that dictionaries were still important but not as important as the court in *Telegenix* claimed they were.³⁶

In sum, the Federal Circuit has arrived at no deference to the district courts and a half-hearted endorsement of holistic claim construction in the *Markman-Cybor* and *Telegenix-Phillips* case lines, respectively. As a result, a litigant must guess which methodology the district court judges will use and which methodology the Federal Circuit will use upon appeal.

B. Scholarship in Academia

With such fluid and ever-changing case law at the Federal Circuit, the output from academia on the topic of patent law was rich in the post-*Markman* era. The scholarship prompted several researchers to take empirical looks at the Federal Circuit, and, accordingly, the scholars proposed reforms based on the empirical results.

i. Empirical Analyses

Kimberly Moore led the empirical charge against the Federal Circuit with her research that showed a 34.5% claim construction reversal rate at the Federal Circuit.³⁷ With more recent data, Professor Schwartz demonstrated that the claim construction reversal rate at the Federal Circuit has decreased to 32.5%, but remains high.³⁸ Professor Schwartz went further in his study, and he tried to understand why the claim construction reversal rate was so high. He determined that the

32. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1320 (Fed. Cir. 2005).

33. *Id.*

34. *Id.*

35. *Id.* at 1321.

36. *Id.* at 1324.

37. Moore, *supra* note 5, at 234.

38. Schwartz, *supra* note 1, at 248.

teacher-learner dynamic between the Federal Circuit and the district courts is broken.³⁹

Within the hierarchy of the U.S. federal court system, when an appellate level court rules on a particular issue, lesser courts will apply the new or clarified rule to future cases. Therefore, case law under the appellate court is standardized on the pertinent issue. In patent law, even after a particular district court judge has his or her case appealed and overruled, that particular district court judge's claim construction reversal rate at the Federal Circuit does not improve.⁴⁰ This leads to the conclusion that either the Federal Circuit is not promulgating clear case law or the district court judges are not getting the message,⁴¹ and thus, the claim construction reversal rate at the Federal Circuit remains high.

Professor Joseph Miller and student James Hilsenteger delve deeper into claim construction, and they do an empirical study of how the Federal Circuit uses dictionaries. Professor Miller's research demonstrated that the Federal Circuit has increasingly turned to dictionaries since the *Markman* decision. The years 1996 to 1999 yielded an average of 11.75 instances of dictionary use by the Federal Circuit, and the years 2000 to 2003 yielded an average of 31.24 instances of dictionary use by the Federal Circuit.⁴² Important caveats to go along with these figures include: the generally rising number of patent cases through time, and these figures were compiled just before the *Phillips* decision, which checked the procedural method of claim construction and the use of dictionaries.

Professor Miller also compiled data on which dictionaries the judges on the Federal Circuit use and on the variations of technically trained judges versus non-technically trained judges. Professor Miller determined that the Merriam Webster family of dictionaries account for 38.4% of citations to any source.⁴³ Also, Professor Miller determined that judges with technical backgrounds are more likely to turn to technical treatises for claim interpretation.⁴⁴

Professor Miller uses his finding to bolster arguments in favor of a procedural method of claim construction, which is discussed below, but the figures also ground conversations, proposals, and publications in hard data. The Federal Circuit did in fact trend towards a procedural method of claim construction after *Markman*. Professor Lemley's updated reversal rate of 32.5% is a decrease from Professor Moore's original determination of 34.5%. This decrease is likely statistically significant,

39. *Id.* at 225-26.

40. *Id.* at 252-53.

41. *Id.* at 225-26.

42. Miller & Hilsenteger, *supra* note 10, at 859.

43. *Id.* at 862.

44. *Id.* at 864-65.

but there are many plausible explanations besides procedural claim construction providing better notice to litigants.

ii. Proposed Reforms

Professors across academia have proposed many different reforms to the patent system in order to improve either the district court-appellate court dynamic or claim construction methodology, i.e., the two aforementioned facts of notice for litigants. Proposed reforms include: a single trial court for patent cases, specialized trial court judges in existing district courts, additional courts of appeals, and USPTO rules that require a patentee to specify the dictionary or treatise of choice for claim term interpretation.

In her 2001 paper, Professor Moore argued that a single trial court for patent cases could alleviate some ills in the patent system like forum shopping, inconsistency among the 94 district courts, and the single patent trial court would develop expertise.⁴⁵ In 2002, Professor Rai published a paper in favor of specialized trial courts for patent cases, and she attacks the status quo from a legal fiction angle. The legal fiction is that determining claim construction is inherently partially factual, not a pure matter of law per *Markman*.⁴⁶ Rai argues that it is too much of a stretch to believe the legal fiction that a generalist judge can assume the perspective of a person who is skilled in the art.⁴⁷ Rai notes that a highly specialized trial court might entrain more deference from the Federal Circuit than the currently low amount of deference the trial courts receive in the aftermath of *Markman*.⁴⁸

However, the prospect never gained traction because of some fatal defects in a specialized trial court for patent cases. Ostensibly, proffered benefits of a single trial court system like accumulated expertise would improve notice. A single trial court that is better aligned with the Federal Circuit would reduce the disconnect that currently exists between the district court and the Federal Circuit. However, a 2008 paper by Professor Schwartz shattered the notion that a trial court judge can accumulate expertise in patent cases.⁴⁹ Professor Schwartz empirically demonstrated that trial court judges who have had their patent cases reversed at the Federal Circuit do not improve their subsequent claim construction reversal rate.⁵⁰ In addition, proposals for a single trial court for patent cases do not address practical limitations like a hypothetical,

45. Moore, *supra* note 3, at 932-33.

46. Arti K. Rai, *Specialized Trial Courts: Concentrating Expertise on Fact*, 17 BERKELEY TECH. L.J. 877, 882 (2002).

47. *Id.* at 881-82.

48. *Id.* at 880.

49. Schwartz, *supra* note 1, at 258-59.

50. *Id.* at 252.

independent inventor in Alaska who has to travel to Washington D.C. just to litigate. The concept of a single trial court for patent cases never gained much traction in academia.

Next, authors in academia have proposed specially designated judges within the existing district court structure. Professor Gitter drew an analogy to the English patent system where patent cases exist in specialized trial courts.⁵¹ Professor Gitter noted that the US and the English patent systems were largely the same, but the English system's claim construction reversal rate at the appellate level is half of the reversal rate in the US system.⁵² Professor Gitter traces this result to one difference between the two systems: the fact that the English system has a specialized trial court judges.⁵³ However, the proposal for specialized trial court judges has the same accumulated knowledge defect as the proposals for specialized trial courts; Professor Schwartz demonstrated that trial court judges do not accumulate knowledge.⁵⁴ Moreover, within the Gitter paper there are additional differences between the US and English patent systems that might account for the difference in results.⁵⁵

Regardless of the Schwartz empirical study, proposals for specialized trial court judges has gained traction to a certain degree within academia as well as some traction outside of academia. There is currently a pilot program in place in fourteen district courts that will "enhance expertise in patent cases among U.S. district judges."⁵⁶

A more radical solution is to add more courts of appeals to join the Federal Circuit at the appellate level. Professors Nard and Duffy suggest that one of the weaknesses in the current patent system is the fact that there is only one appellate court; they suggest that a single appellate court swings too far in the direction of uniformity.⁵⁷ The professors put forward the notion that multiple courts of appeals result in more robust case law. A single court of appeals suffers from a dearth of ideas. Multiple courts of appeals would cede short-term volatility, i.e. poor short-term notice, but in the long-term the case law would be less volatile because the appellate case law would be a product of consensus, not a decree from the singular Federal Circuit.⁵⁸ When the Federal Circuit hands down a decision, it is bound by that decision unless it overturns its own case law or the Supreme Court grants *certiorari*. This makes the

51. Gitter, *supra* note 6.

52. *Id.* at 183, 191.

53. *Id.* at 191-92.

54. Schwartz, *supra* note 1, at 225-26.

55. Gitter, *supra* note 6, at 193-94.

56. Karen Redmond, *District Courts Selected for Patent Pilot Program*, UNITED STATES COURTS (June 7, 2011), http://www.uscourts.gov/news/newsview/11-06-07/District_Courts_Selected_for_Patent_Pilot_Program.aspx.

57. Nard & Duffy, *supra* note 9, at 1622.

58. *Id.* at 1623-24.

case law more brittle according to Professors Nard and Duffy. Adding more courts of appeals is certainly radical, and it has not garnered a foothold in academia.

Finally, Professor Miller attacks the source, the USPTO, and suggests that patentees should make additional disclosures that appear on the face of the patent. Professor Miller proposes that patents should contain: (1) the field of art, (2) all problems the claimed invention helps solve, (3) a lexicon of all claim terms that the applicant defines differently from the person skilled in the art, and (4) a list of preferred objective reference sources.⁵⁹

Many of these proposals would improve notice to litigants because they serve to limit the domain of possible interpretations of the scope of a patent. Certainly, a patentee could list a vague field of art, and the practical effect of this requirement would be negligible. However, requirements like listing preferred objective reference sources would have teeth.

Professor Miller demonstrates that the major families of dictionaries have different methods of defining words and that appeals to the Federal Circuit have turned on the court's choice of dictionary.⁶⁰ If a patentee had to specify which dictionary he or she was using, then courts would not have to make subjective choices on which dictionary to use. Generally, Professor Miller's proposals favor a procedural method of claim construction, and his proposals aim to provide better notice for litigants.

The empirical studies of researchers, particularly Professor Moore, ground the patent debate in cold truths. The claim construction reversal rate at the Federal Circuit is egregious, and it continues to be so. Also, the Federal Circuit has trended towards procedural claim construction with its increasing use of dictionaries in the 2000s. However, that data was collected prior to the *Phillips* decision.

With the debate centering on cold truths, the professoriate has suggested numerous proposals for patent reform. The proposals exist on a sliding scale: the more radical the proposal, the less certain one can be of its outcome. At the extreme, the Nard and Duffy proposal for more courts of appeals is radical, and the outcome is uncertain because there is no reference for such a drastic move. In contrast, Professor Miller's proposal for having patentees specify which field of art the patent exists in is incremental at best, and as such, any resulting change might be negligible. The proposals from academia were numerous, but when Congress decided on patent reform, they did not take to heart many of

59. Joseph Scott Miller, *Enhancing Patent Disclosure for Faithful Claim Construction*, 9 LEWIS & CLARK L. REV. 177, 183-84 (2005).

60. Miller & Hilsenteger, *supra* note 10, at 877.

academia's suggestions.

C. America Invents Act

President Obama signed the AIA into law on September 16, 2011. The AIA's primary change to the patent system was the switch from a first-to-invent system to a first-to-file system.⁶¹ This switch has implications for prior art, interferences proceedings, grace periods, and prior use rights.⁶² However, the AIA did not reduce the poor notice to litigants at the litigation stage of the patent system.

Filing occurs later than the actual invention so the prior art in a first-to-file system is more expansive. This could lead to a causal chain where a patent's scope is narrower, and the patent may have less ambiguity as a result. Ambiguity, or uncertainty, is the downstream problem identified for litigants so a less ambiguous patent may lead to better notice for litigants.

Other effects of the first-to-file system include no more interference proceedings to determine who the first inventor is, which is incidental to the first-to-invent system. The first-to-file system also narrows the one-year grace period for disclosures.⁶³ These changes amount to front-end house cleaning that will reduce the patent backlog at the USPTO, which stands at about 1,200,000 applicants.⁶⁴

In sum, the AIA missed the boat when it came to improving notice to litigants. Some of the AIA's changes like the expanded prior art may or may not improve downstream notice at the litigation stage, but the primary goal was to alter the patent system at the USPTO, not the district courts or the Federal Circuit.

The patent system currently provides poor notice to litigants. The Federal Circuit accords no deference to district courts on the matter of claim construction, and the Federal Circuit does not decree a particular method of claim construction. Researchers in academia have conducted empirical studies that show how poorly the current patent regime performs at the litigation stage: 32.5% claim construction reversal rate at the Federal Circuit.⁶⁵ Researchers in academia also proposed reforms, both subtle and extreme, to cure the failing patent system. Recently, the federal government enacted legislation that makes upstream changes to the patent system at the USPTO, but the AIA does not address the

61. *Patents Examination*, U.S. PATENT & TRADEMARK OFF., http://www.uspto.gov/aia_implementation/patents.jsp.

62. *Id.*

63. *Id.*

64. John Schmid, *Patent Backlog Hinders Nation's Job Creation: When Innovative Ideas Sit in a Pile, Start-Ups Never Get Started*, JSONLINE (Jan. 9, 2011), <http://www.jsonline.com/business/114839694.html>.

65. Schwartz, *supra* note 1, at 248.

downstream issues that plague patent litigation.

II. AN ANNUALLY PUBLISHED USPTO DICTIONARY TO IMPROVE NOTICE

The procedural method of claim construction should be the method to interpret claim terms, and an annually published USPTO dictionary would greatly improve notice to a litigant. An annually published USPTO dictionary would (A) need to fit into the existing patent law system, (B) abrogate the Federal Circuit's arguments in *Phillips*, (C) address Professor Miller's concerns about centralized power at the USPTO, and (D) even if the Federal Circuit fully endorsed a procedural method of claim construction, the dictionary would thread an objective line between the Federal Circuit and the 94 district courts.

A. How a USPTO Dictionary Would Work in the Patent System

An annually published USPTO dictionary would fit within the existing patent system and offer notice benefits that did not exist before. Regarding the Federal Circuit-district court facet of notice (described in the *Markman-Cybor* line of cases), a USPTO dictionary normalizes claim construction resources across the various players in the patent system: litigants, the USPTO, district courts, and Federal Courts. Likewise, regarding the specific claim construction facet of notice (described in the *Telegenix-Phillips* line of cases), a litigant now has several sources in front of him or her to determine the scope of a patent: the claims, the specification, the wrapper, and the USPTO dictionary. However, for the USPTO dictionary to become a reality, the USPTO must resolve the logistics of such a venture as well as how the USPTO Dictionary would interact with existing rules such as the lexicographer rule.

As a practical matter, the USPTO would have a massive task of publishing an initial dictionary and then maintaining annual publications thereafter. However, the task has been done before: there is an existing, diffuse body of technical dictionaries. For example, a single professor, Phillip Laplante, published the Comprehensive Dictionary of Electrical Engineering.⁶⁶ Likewise, McGraw-Hill publishes the Dictionary of Scientific and Technical Terms.⁶⁷ Therefore, it is not an insurmountable task to generate this type of publication.

Another ground-level concern is the financing of such an

66. See PHILLIP A. LAPLANTE, COMPREHENSIVE DICTIONARY OF ELECTRICAL ENGINEERING (1998).

67. MCGRAW-HILL PROFESSIONAL, DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS (6th ed. 2002).

undertaking. Access to expert knowledge in a wide range of technical fields as well as the publication of the USPTO dictionary will require capital. The USPTO could charge a fee to use digital or physical copies of the dictionary. However, a downside is that this model will price out patent law practitioners with limited funds. A solution to this problem would be to subsidize production and dissemination of the USPTO dictionary. Politics control funding to federal agencies, and any proponent of a USPTO dictionary will need to justify the costs of any subsidy. However, such a cost would need to be clearly outweighed by a subsequent benefit. The discussion below justifies that benefit.

The USPTO dictionary would have characteristics of both extrinsic and intrinsic evidence in practice. The USPTO dictionary would not be completely extrinsic because it is published by the USPTO, the same body that grants patent rights. In the same vein, the USPTO dictionary would not be completely intrinsic because it is not physically embodied within the patent itself. The extrinsic-intrinsic evidence paradigm does not categorize an annually published USPTO dictionary well.

So how would a USPTO dictionary work? When a person is discerning the meaning of a claim term, he or she would reference the USPTO dictionary. A USPTO dictionary would be the implied, default reference for this task. This initial choice of the USPTO dictionary is better than conventional extrinsic and intrinsic resources for several reasons. The USPTO dictionary would be an objective source, but it would still retain an eye towards patent claim construction because the USPTO publishes the dictionary. If the USPTO dictionary does not yield a decisive answer, then a person would then defer to either extrinsic or intrinsic resources.

An annually published USPTO dictionary would maximize notice to litigants when it is used in a procedural claim construction regime. If the litigant uses the USPTO dictionary to discern the ordinary meaning of a claim term and succeeds, then the issue is resolved and conclusive. The litigant will be able to predict the claim term's definition as it will be interpreted in a district court and in the Federal Circuit. If the USPTO dictionary does not yield a conclusive answer but yields multiple answers, then a litigant has narrowed the possible interpretations to a few possibilities, and he or she may turn to extrinsic or intrinsic evidence to arrive at a narrower interpretation of the claim term.

An additional benefit of a USPTO dictionary is that it would be assembled by persons who are skilled in the relevant art. Electrical engineers, botanists, and computer programmers could pin down lexicons in their respective areas of expertise. This aspect of the USPTO dictionary clears a significant hurdle in patent litigation: the idea that a lay judge, as a matter of law, can interpret how a person who is skilled in the art would define a contested claim term. Academics have criticized

the United States patent system on this very point.⁶⁸ If teams of experts are standardizing technical lexicons, then judges would not have to sustain this particular legal fiction anymore.

A final component of the USPTO dictionary is the fact that it would be published once a year. Patents have a twenty-year lifespan, and claim term interpretation may happen during litigation many years after the patent was filed. To further complicate things, the lexicon of some sciences changes rapidly over time. Therefore, the annual component of the USPTO dictionary would serve to pin down scientific lexicons as those lexicons change. If you would like to know the definition of “computer” from 1991, then you would reference that definition from the hypothetical 1991 USPTO dictionary.

The USPTO dictionary would not override the lexicographer rule. The lexicographer rule allows an inventor to define his or her own terms within the patent. The lexicon in a particular field of technology may change extremely rapidly, or there might not be a lexicon at all, and the lexicographer rule may be a necessity. Even further, an inventor may simply want to define a claim term with an unorthodox definition. In any event, a USPTO dictionary would not override the lexicographer rule. A USPTO dictionary would be the presumed source of claim term definitions *unless* the inventor exercised his or her lexicographer rights and defined a claim term otherwise. The retention of the lexicographer rule along with the presumptive USPTO dictionary provides certainty and thus notice to the claim construction process.

A USPTO dictionary can provide clarity and notice in a patent process that is currently muddled and rife with uncertainty. The USPTO would have to consider issues such as publishing the initial volume of the dictionary as well as funding the effort. Fortunately there is precedent on these points. After publication the USPTO dictionary would have to fit into the patent system scheme. A USPTO dictionary can dovetail into the current system, and litigants can realize the benefit of improved notice.

B. Addressing Arguments in Phillips

While the initial efforts of creating a USPTO dictionary are feasible, and such a dictionary could fit within the patent system, the USPTO would have to comport with Federal Circuit case law. The Federal Circuit’s most recent decision on claim construction methodology is *Phillips*. In *Phillips*, the Federal Circuit checked the *Telegenix* decision, and it favored a holistic method of claim construction without completely ruling out the procedural method of claim construction.⁶⁹ A procedural

68. Rai, *supra* note 46, at 881-82; Gitter, *supra* note 6, at 191-92.

69. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1320 (2005).

method of claim construction provides better notice to litigants, and a USPTO dictionary could abrogate the Federal Circuit's arguments against the procedural method of claim construction in *Phillips*.

In its opinion, the Federal Circuit listed a series of five arguments against using the procedural method of claim construction. The Federal Circuit's first argument was that, "extrinsic evidence by definition is not part of the patent and does not have the specification's virtue of being created at the time of patent prosecution for the purpose of explaining the patent's scope and meaning."⁷⁰ Presumably the virtue that the Federal Circuit mentions is fidelity to the intentions of the inventor. However, a USPTO dictionary can achieve the same temporal fidelity to the inventor. As mentioned above, a litigant can retrieve a hypothetical USPTO dictionary from when the patent was prosecuted to determine the meaning of a claim term. As for the purpose prong of the virtue, the USPTO dictionary does not usurp the lexicographer rule, and the inventor is free to define the claim terms within a patent.

The second argument against extrinsic evidence proffered by the Federal Circuit is that extrinsic evidence is not written by technically-minded people, and thus the dictionaries definitions may not reflect the same definitions that a person who is skilled in the relevant art may use.⁷¹ This concern with dictionaries does not exist in a USPTO dictionary by its nature. The USPTO dictionary would be composed exclusively from people who are skilled in the relevant art. For example, as mentioned in section II-A, a committee of electrical engineers would standardize electrical engineering terminology and lexicography to normalized definitions. The Federal Circuit's concern on this point does not carry weight with a USPTO dictionary.

Third, the Federal Circuit argues that extrinsic evidence in the form of expert reports and testimony that are prepared for litigation are biased.⁷² In other words, the experts are retained because their reports and testimony are favorable to one side. A USPTO dictionary would not suffer from any biases in preparation for litigation.

The Federal Circuit next argues that there is "a virtually unbounded universe of extrinsic evidence of some marginal relevance that could be brought to bear on any claim construction question."⁷³ This is certainly true with dictionaries. Litigants would likely pick their friends out of a crowd, *i.e.* litigants would choose from a wide range of dictionaries the definition that best helps the litigant's case. However, this issue does not pertain to a USPTO dictionary because there is no unbounded universe

70. *Id.* at 1318.

71. *Id.*

72. *Id.*

73. *Id.*

of evidence; there is only one USPTO dictionary. When litigants are assessing the scope of the patent, their ability to pick their friends out of a crowd is limited because the singular USPTO dictionary would be the presumed default source of claim term definitions.

Lastly, the Federal Circuit ironically states that extrinsic evidence undermines the public notice function of patents.⁷⁴ The Federal Circuit argues that undue reliance on extrinsic evidence might change the meaning of claim terms at the expense of the indisputable public record that is intrinsic evidence (claims, the specification, and prosecution history).⁷⁵ Since the USPTO dictionary would be published by a federal agency, the USPTO, the USPTO dictionary would become a part of the public record. Unlike the intrinsic evidence, the USPTO dictionary is objective. With the other examples that the Federal Circuit cites as public records, a litigant must formulate the context of the patent to discern the meaning of the claim terms. It is more difficult to predict how a court will interpret the context of a patent than it is to predict how a court will determine the objective definition of a claim term, especially if a USPTO claim term dictionary is established. The concept of a USPTO dictionary goes directly to the notice function in the patent system, and the Federal Circuit's argument on this point would not carry weight.

C. Addressing Professor Miller's Concerns

Joseph Miller is a law professor who is sympathetic to the procedural method of claim construction for mostly the same reasons I have described throughout the paper, including notice. In his legal scholarship, Professor Miller proposes many ways to improve the patent system because he also sees the system as needing reform. Miller never speculates on the idea of a USPTO dictionary, but he does broach the topic of centralized authority at the USPTO.⁷⁶ Since a USPTO dictionary would fall into the gambit of centralized authority at the USPTO, it is worthwhile to address Miller's arguments.

For context, one of Miller's propositions for improved notice was the USPTO requirement that inventors would specify dictionaries and technical treatises that anyone could use to interpret the scope of the patent.⁷⁷ This drives against an inventor's natural tendency to make patents as broad as possible. If an inventor has to specify several extrinsic sources for claim term interpretation, then the possible interpretations of the scope of the patent are fewer, and litigants have better notice. As I have argued in this Note, a USPTO dictionary is better

74. *Id.* at 1318-19.

75. *Id.* at 1319.

76. Miller & Hilsenteger, *supra* note 10, at 903.

77. *Id.* at 836.

than inventor-specified extrinsic sources because if an inventor specifies more than one extrinsic source, the extrinsic sources might conflict, providing no notice benefit. Also, an inventor has the incentive to specify the most obscure extrinsic sources to avoid painting himself or herself into a corner. This also does not benefit notice because a litigant might not have access to the most obscure extrinsic sources.

Aside from these points, Miller comments on why it would be bad for the USPTO to specify an official list of extrinsic sources.⁷⁸ Again, Miller does not mention a USPTO dictionary, but his arguments can be cast as arguments against centralized authority at the USPTO.

Miller's first argument is that the patent process is applicant driven, and centralized authority is antithetical to this aspect of the process.⁷⁹ At first blush this may seem true, but one must take the long view to see how centralized authority on this point would affect the applicant-driven patent process. Assume that the USPTO dictionary becomes a reality, then an applicant with adequate legal counsel would not be oblivious to this fact. An applicant would know that a USPTO dictionary is the presumed source of claim term definitions, and the lexicographer rule would not be abandoned. Thus, a USPTO dictionary would not steal any power from the applicant in the patent process because an applicant retains the freedom to define the claim terms as he or she sees fit.

Miller's second argument is that centralized USPTO authority on extrinsic evidence is on the wrong side of an information asymmetry.⁸⁰ He argues that applicants know more than patent examiners about the best, most up-to-date resources.⁸¹ However, if a USPTO dictionary became a reality, it would necessarily require persons who are skilled in the relevant art to determine the content of the dictionary. So the USPTO could establish a normalized version of the lexicon in a given technical field. If the application wanted to deviate from the norm, then again, he or she is free to become his or her own lexicographer.

Miller's third argument criticizes the costs associated with centralized USPTO authority on extrinsic sources.⁸² The USPTO dictionary would certainly require resources. However, as mentioned above in section II-A, there are various pricing models that could accommodate the expense of publishing a USPTO dictionary. Even if the dictionary required a subsidy, it would certainly be justified by the benefit the USPTO dictionary would provide in the way of notice to litigants.

A strictly procedural method of claim construction is the ideal

78. *Id.* at 903.

79. *Id.*

80. *Id.*

81. *Id.*

82. *Id.*

regime for a USPTO dictionary, but such a dictionary's costs and benefits cannot be measured in a vacuum. *Phillips* endorses the holistic method of claim construction, and it is the current law. Thus, the facet of notice relating to the *Telegenix-Phillips* line of cases (clarity of claim construction methodology and the methodology itself) cannot be quickly remedied. However, even in a holistic regime of claim construction methodology, a USPTO dictionary would still aid in improving notice to litigants because it can improve the facet of notice relating to the *Markman-Cybor* line of cases (the level of defense that the Federal Circuit accords a district court).

The Federal Circuit does not accord any deference to a district court on matters of claim construction, and the result is a disjointed claim construction methodology between a district court and the Federal Circuit. This is reflected in the ever-glaring 32.5% claim construction reversal rate at the Federal Circuit.⁸³ There are also other issues at the intersection of the Federal Circuit and the district courts: the breakdown of the teacher-learner dynamic between the Federal Circuit and the district courts⁸⁴ and different dictionary selections by different courts.⁸⁵

In a holistic claim construction regime, a USPTO technical dictionary likely would not be the silver bullet in each case, but it would still provide enough benefit to the patent system to justify its publication. Currently, the patent system does not have a singular, objective resource like a USPTO technical dictionary. In the instance of the teacher-learner dynamic, a USPTO dictionary would be a common touchstone between the district courts and the Federal Circuit that carries the weight of the USPTO.

In an instance of different dictionary selection, the presence of a USPTO dictionary would not directly solve the problem because, in theory, both the Federal Circuit and the district courts would be free to choose from a litany of extrinsic resources. However, a USPTO dictionary would carry more gravitas than other extrinsic resources, and courts would likely utilize a USPTO dictionary as the go-to resource if the intrinsic resources leave ambiguity as to the ordinary meaning of a claim term.

Finally, the claim construction reversal rate at the Federal Circuit would be dependent on a variety of issues such as the teacher-learner dynamic and dictionary choice, but a USPTO dictionary would be worth publication in the wake of *Phillips* because *Phillips* still left the door open to procedural claim construction, and a USPTO dictionary could at least normalize those cases. According to a working paper by Professors

83. Schwartz, *supra* note 1, at 248.

84. *Id.* at 252.

85. Miller & Hilsenteger, *supra* note 10, at 877.

Wagner and Petherbridge, Federal Circuit judges still use a procedural claim construction method in 63.8% of cases.⁸⁶

Therefore, even in a holistic regime, a USPTO dictionary can still realize a benefit because the procedural method of claim construction is utilized more often than the holistic method, and objective resources like a USPTO dictionary are paramount in the procedural method. In sum, a strictly procedural claim construction regime would allow a USPTO dictionary to realize its full potential and provide litigants with the best notice, but a USPTO dictionary will still incur benefits in the *Phillips*, quasi-holistic regime.

CONCLUSION

The current patent system provides poor notice for litigants. The claim construction methodology at the Federal Circuit haphazardly swings between procedural and holistic. The professoriate has done much research, but their proposals for solutions have fallen on deaf ears in Congress, which is noted by the AIA's administrative focus. In this Note I propose a strict procedural claim construction regime where an annually published USPTO dictionary provides the intellectual cover from the Federal Circuit's arguments against procedural claim construction in the *Phillips* decision.

An annually published USPTO technical dictionary would have both intrinsic qualities (inherent in every patent) as well as extrinsic qualities (akin to an objective dictionary). Such a dictionary would be the default resource for interpreting claim terms unless the patentee invokes the lexicographer rule. The annual publication aspect of a USPTO dictionary would help litigants track the changing meanings of claim terms over time, and the compilation of the dictionary by persons skilled in the art would help lay judges see the claims through the eyes of such persons.

Even if the Federal Circuit does not endorse a strict procedural regime of claim construction, a USPTO dictionary still provides a benefit. A USPTO dictionary could help bridge the gap between the district courts and the Federal Circuit, a dynamic that patents cases and variable court claim constructions have strained.

86. Wagner & Petherbridge, *supra* note 22, at 15.

CHALLENGES FOR EMERGING ART FORMS UNDER THE VISUAL ARTISTS RIGHTS ACT

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INTRODUCTION

The Visual Artists Rights Act ("VARA") was enacted to bring moral rights into United States copyright law. It was established for two purposes: (1) to achieve the goal of preserving and protecting "certain limited categories of works of visual art that exist in single copies or in

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limited editions,”¹ and (2) to achieve this goal “without interfering, directly or indirectly, with the ability of U.S. copyright owners and users to further the constitutional goal of ensuring public access to a broad, diverse array of creative works.”² The statute grants the “author of a work of visual art the right (a) to claim authorship of that work, and (b) to prevent the use of his or her name as the author of any work of visual art which he or she did not create.”³ VARA protections apply to a limited range of mediums, including paintings, drawings, prints, sculptures, and still photographic images produced for exhibition purposes.⁴

In its current form, the VARA fails to contemplate art practices that fall outside the statute’s list of protected mediums. For example, “site-responsive art” is an emerging form of public art that is described as a “response” to the history or character of a particular place. Because site-responsive art may involve multiple collaborators and mediums beyond those listed in the statute, it provides an opportunity to analyze the VARA’s deficiencies.

Part I of this note provides a brief history of moral rights as they were established on an international level. It describes how the formation of moral rights has influenced the common law and statutory conceptualization of moral rights in United States copyright law. Part II briefly describes the challenges for the application of moral rights to “emerging mediums,” historical examples of which include photography and public art. Part III provides an in-depth description of site-responsive art practice. Site-responsive art serves as the most recent example of an “emerging medium” that is hindered by moral rights in their current form. This section concludes that in light of the unanticipated characteristics of emerging art forms, such as site-responsive art, moral rights should be re-designed as natural rights in order to ensure protection for all artists.

I. THE MORAL RIGHTS DEBATE

A. The Origins of Moral Rights

In the late nineteenth century, as authors became increasingly cosmopolitan, their susceptibility to piracy increased.⁵ Authors living outside of their home countries attempted to pressure their host governments into offering them, and their work, copyright protections

1. 136 Cong. Rec. E3716-03, 1990 WL 207029, E3717.

2. *Id.*

3. 17 U.S.C. §106A(a)(1)(a-b).

4. 17 U.S.C. §101.

5. See Peter Burger, *The Berne Convention: Its History and Its Key Role in the Future*, 3 J.L. & TECH. 1, 8 (1988).

comparable to those protections afforded to domestic authors.⁶ Although many countries expressed interest in providing protection for foreign authors' rights on the condition of reciprocity, very few international treaties formalizing such an agreement were entered into prior to 1852.⁷ Prompted to take matters into their own hands, a group comprised only of literary authors and led by Victor Hugo assembled with the goal of achieving international copyright protection.⁸ The group referred to themselves as the *International Association* ("IA"), but they would later be named *L'Association Littéraire et Artistique Internationale* ("ALAI"), after they incorporated the interests of artists into their mission.⁹ The group declared its objectives to be "the propagation and defense of the principles of intellectual property in all countries, the study of international conventions, and working toward their improvement."¹⁰ The group drafted five resolutions that would later provide the basis for the Berne Convention of 1886.¹¹

The IA believed that the only way to successfully achieve international copyright protection would be through the formation of a union. In 1883, the IA called a meeting of parties interested in participating in such an alliance in Berne, Switzerland.¹² At the Conference, a committee of seven members was charged with preparing a draft treaty, which ultimately consisted of ten articles providing for copyright protection.¹³ Three days after the Conference commenced, the group that assembled at Berne approved the ten proposed provisions.¹⁴ In an addendum to the Committee's proposed provisions, the Swiss government stated that a fundamental principle of the Union was to establish that an "author of a literary or artistic work, whatever his nationality and the place of publication, must be protected in every country the same as the nationals of such country."¹⁵ The addendum went on to say that the most "shocking differences in international law will gradually disappear and a new regime will be established, more uniform, and consequently more secure for authors."¹⁶

6. *Id.*

7. *Id.* (quoting Stephen P. Ladas, *THE INTERNATIONAL PROTECTION OF LITERARY AND ARTISTIC PROPERTY* 24 (1938)).

8. *Id.* at 11.

9. *Id.*; see also Ladas, *supra* note 7, at 74. The ALAI is still active today. Its membership consists of national entities and individuals. The United States is a member of ALAI. Its U.S. office is based at Columbia University School of Law. See <http://www.alai.org/index-a.php?sm=0>.

10. Ladas, *supra* note 7, at 74.

11. Burger, *supra* note 5, at 12.

12. *Id.*

13. Ladas, *supra* note 7, at 76.

14. *Id.*

15. *Id.*

16. *Id.*

B. The Berne Convention

In 1884, the Swiss government hosted representatives from fourteen nations in the first official iteration of the Berne Convention.¹⁷ Several countries did not approve of the proposal set forth by the IA and therefore did not attend. Among these were: the Dominican Republic, Greece, Mexico, Nicaragua, and the United States.¹⁸ Instead of the ten articles drafted by the committee, the Swiss government used the Berne Convention of 1884 to propose an eighteen-article treaty to the convening parties.¹⁹ The 1884 treaty provisions pertained to national treatment,²⁰ abolition of formalities as a prerequisite for copyright protection,²¹ recognition of a translation right during the entire term of copyright, and the establishment of an International Bureau of the Union (“the Union”).

The second official iteration of the Berne Convention occurred on September 7, 1885.²² This time, twenty countries, including the United States, were represented.²³ It was at this conference that the expression “*protection des oeuvres litteraires et artistiques*,” or, “protection of works of literary and artistic works” was adopted.²⁴ A major point of dispute stemmed from certain countries’ reluctance to derogate from their national law.

The final Berne Convention was held in 1886. With the language drafted at the previous convention unchanged, the only true function of the Convention was to sign the treaty.²⁵

Berne participants agreed on three principal concepts: national treatment, country of origin, and the negation of formalities as a prerequisite for copyright protection.²⁶ Their agreement on each of these matters continues to be reflected in the international treaty that governs the treatment of moral rights among member nations. For example, national treatment, addressed in Article II of the treaty, provides for the

17. *Id.* at 77. The countries represented included: Austria-Hungary, Belgium, Costa Rica, France, Germany, Great Britain, Haiti, Italy, the Netherlands, Paraguay, Salvador, Sweden, Norway, and Switzerland.

18. *Id.* at n.14.

19. The lengthier 1884 treaty did not fundamentally differ from the 1883 articles.

20. National treatment “requires each member State [of the Berne Convention] to accord to nationals of other member States the same level of copyright protection provided to its own citizens.” Edward J. Ellis, *National Treatment Under the Berne Convention and the Doctrine of Forum Non Conveniens*, 36 IDEA J.L. & TECH 327, 330 (quoting S. Rep. 352, 100th Cong., 2d Sess. 2 (1988), reprinted in 1988 U.S.C.C.A.N. 3706, 3707 (hereinafter S. Rep. 352)).

21. Examples of formalities include registration of a copyright or publishing the work with copyright notice.

22. Ladas, *supra* note 7, at 80.

23. *Id.*

24. *Id.* at 82.

25. *Id.*; see also Burger, *supra* note 5, at 15.

26. *Id.* at 16-17.

enjoyment by artists in other countries, “the rights which the respective laws do now or may hereafter grant to nationals.”²⁷ The Country of Origin, also described in Article II, is defined as the location in which the work was first published.²⁸ Because the Convention does not require formalities for authors to obtain protection, the Country of Origin determines the conditions with which an artist must comply in order to receive protection.²⁹

Protected “literary and artistic works” are listed in Article IV of the 1886 Convention. They include:

[B]ooks, pamphlets, and all other writings; dramatic or dramatico-musical works, musical compositions with or without words; works of design, painting, sculpture, and engraving; lithographs, illustrations, geographical charts; plans, sketches, and plastic works relative to geography, topography, architecture, or science in general; in fact, every production whatsoever in the literary, scientific, or artistic domain which can be published by any mode of impression or reproduction.³⁰

As evidenced by this list, the scope of works that can be protected under the Convention is extraordinarily broad. While this list is extensive, it is not exclusive.³¹

One interesting point of contention that occurred at the 1886 Convention involved photography as a protected medium. In the end, the Convention declared that countries that wished to protect photography, such as France, were to do so voluntarily.³² With such critical decisions left in the hands of individual nations, the 1886 Convention’s goal of creating a uniform system of moral rights was only partially achieved.

Another considerable point of contention at the 1886 Convention was that of access to public information. While the main purpose of the Convention was to arrive at significant protections for authors, the countries represented agreed that depending on the laws of the country of origin, a work could be reproduced without the author’s permission for use by the public. The Convention did not provide protection for political discussion, news of the day, or current topics.³³

27. Ladas, *supra* note 7, at 1123, app. I (reprint of Article II of the ACTS OF THE INTERNATIONAL COPYRIGHT UNION, Berne Convention of 1886).

28. *Id.*

29. *See id.*; *see also* Burger, *supra* note 5, at 6.

30. Ladas, *supra* note 7, at 1124, app. I (reprint of Article IV of the ACTS OF THE INTERNATIONAL COPYRIGHT UNION, Berne Convention of 1886).

31. Burger, *supra* note 5, at 18.

32. Ladas, *supra* note 7, at 1131, app. I. (reprint of Final Protocol ¶ 1 of the ACTS OF THE INTERNATIONAL COPYRIGHT UNION, Berne Convention of 1886); *see also* 2 S. Ladas, *The International Protection of Literary and Artistic Property*, 79.

33. Burger, *supra* note 5, at 19.

Disagreements regarding photography and public information are indicative of the various conceptual camps that pervaded the Berne Convention. The first camp, which was advocated by the French, preferred shared universal protections among all member nations.³⁴ The second camp, most prominently favored by Great Britain, wished to leave protections to national law.³⁵ The third, which most accurately represents the point of view adopted by the Berne Convention of 1886, was a hybrid of the first two groups, and involved some shared protections while leaving others to national law. Although Berne members reached a compromise by fusing the French and British camps, the same inconsistencies that caused disagreement at Berne continue to exist today.

In addition to favoring shared universal protection for all member nations' artists, France prefers to view moral rights as a "natural right," or one that is a human or fundamental right.³⁶ Because moral rights are considered a natural right in France, a standard of taste, usefulness, or medium is not relevant to the determination of rights. Anything an artist creates may be a protected medium. Even today, France arguably offers the most extensive protection for moral rights in the world.³⁷

The same is not true of moral rights in Great Britain, which bases its moral rights on more traditional property concepts. British law protects only three kinds of moral rights: the artist's right of paternity, integrity, and privacy.³⁸ As an additional layer of exclusion to the moral rights entitlement, these three types of moral rights are available only to a limited number of works and authors.

Britain's treatment of moral rights is closely mirrored in the United States, where moral rights are meant to serve a utilitarian function. It can be argued that the real impetus for the inclusion of moral rights in U.S. law was not necessarily for the sake of artist protection, but more in the interest of economic growth and development.

C. The Limited Scope of Moral Rights in the U.S.

Prompted by the adoption of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)³⁹, the United States joined the Berne Convention in 1988.⁴⁰ Domestic copyright reform

34. *Id.* at 15.

35. *Id.*

36. See John Finnis, *NATURAL LAW AND NATURAL RIGHTS* 198 (2d ed. 2011).

37. Irma Sirvinskaite, *Toward Copyright "Europeanification": European Union Moral Rights*, 3 J. INT'L MEDIA & ENT. L. 263 (2010-11).

38. *Id.*

39. Berne membership was a prerequisite to the adoption of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs) at the World Trade Organization.

40. WIPO-ADMINISTERED TREATIES, available at

became necessary in order to ensure compliance with the Berne Convention. There were two major inconsistencies between existing U.S. copyright law and the Berne requirements: one was that Berne did not require “formalities,” or the use of registration, in order to assert copyright protection; the other was that the Convention required that its members treat copyright protection as a natural right.⁴¹ Conversely, in the U.S., registration was required to assert copyright protections, and its copyright law was most closely associated with legal property rights. U.S. copyright law was based on a utilitarian need to foster the “progress of the useful sciences and arts.”⁴²

The Berne Convention Implementation Act (BCIA) amended the language of the Copyright Act to make copyright registration optional.⁴³ Although registration may still be obtained by submitting an application and fee to the U.S. Copyright Office, 17 U.S.C. §408(a) makes it clear that “registration is not a condition of copyright protection” for any article of copyrightable work.⁴⁴

Moral rights, on the other hand, have been more difficult to implement. First of all, moral rights are not closely embedded in the copyright statute because they are limited to specific visual art mediums. Second, moral rights over a work of art do not continue after the death of the author. Third, moral rights protect only those works of art that exist in single copies or limited editions. Finally, moral rights cede priority to “the ability of U.S. copyright owners and users to further the constitutional goal of ensuring public access to a broad, diverse array of creative works.”

It has been argued that because moral rights are scattered among competing propositions derived from common law established before and after the passage of the VARA, moral rights are difficult for courts to construe.⁴⁵ U.S. courts therefore apply moral rights inconsistently. The issue of “taste,” as discussed in Part II, is a debilitating bar to artists seeking to have the courts recognize their rights under the VARA.

The confusion regarding moral rights is certainly not limited to the courts. For artists, the inability to locate the extent of their entitlement to moral rights is a hurdle, particularly for those without the capital or the know-how to enforce their rights. Artists must engage in a search for the grounds on which to base their entitlement to moral rights. This problem

http://www.wipo.int/treaties/en/ShowResults.jsp?treaty_id=15.

41. Mira T. Sundara Rajan, *MORAL RIGHTS: PRINCIPLES, PRACTICE, AND NEW TECHNOLOGY* 140 (Oxford University Press 2011).

42. *Id.*

43. Berne Convention Implementation Act of 1988, H.R. 4262, 100th Cong. (1988) (enacted).

44. 17 U.S.C. § 408(a) (2005).

45. Rajan, *supra* note 41, at 141.

is particularly pronounced in the realm of public art, including site-responsive art, because these artists are more likely involved in political and community engagement activities which make issues of authorship more difficult to establish. Public artists do not always benefit from the resources such as a managed career, gallery exhibitions, and sales at auction houses that established gallery artists do. Therefore, they receive less publicity and are less commercially successful than their counterparts in the museum and gallery setting.

The following section describes the difficulties of obtaining moral rights for “emerging mediums” such as photography, public art, and site-responsive art. It is meant to contextualize the difficulties that public artists, including site-responsive artists, must overcome in order to assert moral rights over an artwork.

II. EMERGING MEDIUMS: PROBLEMS OF FUNCTION AND TASTE

It is not a new phenomenon that artists practicing in emerging mediums receive inadequate copyright protection and a limited ability to enforce moral rights. Photography and public art are historical examples of both the global community and the United States’ failure to proactively address the unique characteristics of emerging mediums. What follows is a brief description of how these mediums have been treated within the moral rights debate. In both of these examples, functionality and traditional “taste” have undermined photographers’ and public artists’ moral rights.

A. Photography

Berne’s vision that the “most shocking differences in international law will gradually disappear and a new regime will be established, more uniform, and consequently more secure for authors”⁴⁶ has not been fully realized. There is a continued distinction between the treatment of moral rights as a natural right and moral rights as a legal right. The way in which these differences manifest themselves is directly tied to the medium of the works to be protected.

Photography is an excellent example of a medium that has been increasingly accepted as a medium worthy of protection. However, the process to include photography in the list of traditionally protected mediums such as painting, drawing, and sculpture has been lengthy. In the late-nineteenth century, the photographer was seen less as an artist and more as the “operator of a machine.”⁴⁷ This is perhaps a cause for

46. Ladas, *supra* note 7, at 76.

47. See Justin Hughes, *The Photographer’s Copyright – Photograph as Art, Photograph*

the exclusion of photography from the initial Berne Convention. Although Berne later added photography as a class of protected work, only those photographs that were deemed “artistic” were protected.⁴⁸ The issue of artistic merit and aesthetic taste became a hindrance to the achievement of moral rights protection. Even when photographs eventually became fully included in Berne, the duration of their protection was limited. In 1971, photographs were granted protection for the life of the artist plus 25 years; all other mediums were granted protection for the life of the artist plus 50 years. As of 1996, all photographs are protected for the life of the artist plus 50 years.

The French theorist Pierre Bourdieu described photography as a “middle brow art” situated between “noble” and “vulgar” practices.⁴⁹ Bourdieu posited that the practice of photography “condemns its practitioners to create a substitute for the sense of cultural legitimacy which is given to the priests of all the legitimate arts.”⁵⁰

In a similar vein, the Convention required that any nation who wished to protect the moral rights of photographers do so by promulgating national statutes. The Convention’s decision to exclude photography allowed nations to make distinctions between photographic works and other, more established, works of art. The Convention’s decision to leave protection for photography to member nations ultimately failed to grant the hoped-for “universal protection” that the Convention wished to establish.

As will be discussed in Section III, Bourdieu’s ideas of photography as a “middle-brow” art have been re-created in U.S. federal courts’ conceptions of site-specific artwork. The courts’ treatment of site-specific artwork reveals foreseeable problems for the treatment of the emerging practice of site-responsive artwork.

B. Public Art

Contemporary public art is a far cry from the public art of ancient Rome, in which emperors used art as a sign of power and wealth, or the grandiose monuments of the U.S., most notably those that are featured on the National Mall in Washington D.C. as symbols of the country’s history and power. During the twentieth century, public art in the United States was revived and more widely disseminated among the nation’s communities with the start of the Federal Art Project (FAP) arm of the Works Progress Administration. The FAP was part of the New Deal, and

as *Database*, 25 HARV. J.L. & TECH. 329, 343 (2012).

48. *Id.* at 341.

49. Pierre Bourdieu. *The Market of Symbolic Goods. THE FIELD OF CULTURAL PRODUCTION: ESSAYS ON ART AND LITERATURE.* (1983).

50. *Id.*

funded artists' work between 1935 and 1942. The goals of the FAP were two-fold: (1) to provide artwork for non-federal public buildings such as hospitals, schools, and community centers, and (2) to provide jobs for unemployed artists.

The artworks that came out of the FAP were widely varied. Photographers, painters, sculptors, and muralists were represented. Notable artists such as: Berenice Abbott, a photographer who produced many iconic images of New York City's skyline; Jackson Pollock, a painter known for his abstract expressionist "drip-paintings"; and Diego Rivera, a Mexican artist best known for his large scale murals, were included in the group. Because of the explicit goal of the FAP to place art works in the community, public art became embedded in the everyday lives of Americans.

Naturally, production and dissemination of public art following the FAP drastically decreased. Instead, the new public art of the time rested primarily in the propaganda posters produced by the government in hopes of rallying Americans behind the war effort. The New Deal and the WWII era marked a period in which the United States government was the driving force of public art.

The most pronounced, and arguably the most revolutionary, period of public art in the United States began in the 1960s and 1970s. Social unrest prompted artists to engage in their own propaganda, be it against the war in Vietnam or, conversely, to rally support for domestic concerns like the women's rights and civil rights movements. At that time, murals were an ideal solution for public art for several reasons. First, murals were very visible. They could be produced with cheap materials such as house paint, instead of the more traditional (and more expensive) oil and canvas mediums of traditional painters. The production of a mural only required one artist to sketch the design on paper and on the wall or board on which the mural itself would be placed. Upon completion of the initial sketch, a single artist could engage several non-artists to paint within the artist's completed drawing.

One of the most iconic murals of the early 1970s still exists in the United States today. Construction on "The Great Wall of Los Angeles" started in 1974 by Mexican-American artist Judy Baca. Baca has described the mural movement of the 1970's as a way in which ethnic and racial minorities were able to assert their place in American society during a time in which they "lacked representation in public life, with neither voice in elections, or elected representatives."⁵¹

The public art of the 1970s signaled a pronounced shift from public art as an agent of government authority to public art as a more

51. Judith F. Baca, BIRTH OF A MOVEMENT: 30 YEARS IN THE MAKING OF A SITE OF PUBLIC MEMORY 3 (UCLA 2001).

participatory medium in which trained artists and non-artists alike could be involved in the creation of public art forms. Following the mural movement of the 1970s, museums and municipal governments took note of the value of public engagement in the creation and exhibition of public art. At the same time public art was flourishing on the ground in a community development context, it was also gaining prominence in more traditional circles. Public art expanded outward from a heavy basis in murals to forms that included large-scale sculptures and installations designed not with a particular social agenda in mind, but with goals of testing social exchanges through the use of art.

Nonetheless, public art still remains outside of the circle of traditional, “legitimate” arts. The benefactors of art production are a testament to the distinction between traditional, gallery-based art forms and public art. There remains a vast difference between, say, an exhibition mounted at the Metropolitan Museum of Art and the recently commissioned sculptures by the Public Art Fund. In a typical experience at the Met, for example, visitors are expected to refrain from touching the artwork, and are not permitted to use flash photography in the galleries. Site-responsive art, on the other hand, offers an implied invitation to not only touch and photograph the work, but also to make adjustments to the work. The participatory nature of the public’s interaction with a site-responsive artwork is a defining feature of the genre.

III. SITE-RESPONSIVE ART: CURRENT ISSUES IN VARA APPLICATION

Failure to learn from and fully implement the goals of the initial Berne Convention have created global and domestic inconsistencies in copyright and moral rights protection. Thus far the U.S. system has failed to respond to these inconsistencies. However, site-responsive artwork offers an opportunity to address the ongoing issues in moral rights protection for artists working in emerging mediums.

A. An Overview of Site-Responsive Art

Although both site-specific and site-responsive art emerged from public art practice, the two are not to be confused with one another.⁵² Site-specific art “is meant to become part of its locale, and to restructure the viewer’s conceptual and perceptual experience of that locale through the artist’s intervention.”⁵³ Conversely, site-responsive artists are

52. See Vogel, *infra* note 57.

53. *Site-Specific Art/Environmental Art*, GUGGENHEIM, <http://www.guggenheim.org/new-york/collections/collection-online/show-full/movement/?search=Site-specific%20art/Environmental%20art> (last visited Jan. 10, 2012).

“concerned with the experience of being” in certain spaces.⁵⁴ Arguably, site-specific art is an artist’s attempt to change a specific place through intervention, while site-responsive art seeks to serve as the artist’s “response” to the existing characteristics of a particular place.

Nonetheless, the line between site-specific and site-responsive art is a thin one. One site-specific artist, Ann Hamilton, described the process of transitioning from what she thought would be a site-specific project to what turned out to be a site-responsive project.⁵⁵ As a site-specific project, she planned to serve as an interventionist in an abandoned textile warehouse. The warehouse had been previously occupied by as many as 1200 workers during its heyday. Hamilton hoped to recreate the former life of the space, bringing to light the effect of a dwindling economy on what was previously a flourishing company town. Hamilton experienced a conceptual shift when she realized that there were untracked emotions and memories connected with the space—ideas to which she could not be privy as an outsider to the community.

A primary dividing line between site-specific and site-responsive art may be described as resting in a quantitative/qualitative distinction. The site-specific artist is calculated: he or she has a specific intention in creating a work that will be placed in a particular space. The site-responsive artist is more of a facilitator for the public. While the site-responsive artist will typically use a tangible medium (in Hamilton’s case, she used textile art in the textile warehouse) the results of their intervention are subject to development once placed within the public sphere. They are interested in “the inter-relationship of the past and present, imprints of history and current activity, the physical feel and texture of the space and with bringing those experiences out to the public.” Site-responsive art “has the ability to make the audience think about where they are, to reintegrate the lost fragmented forgotten place back into their consciousness.”

The results of site-responsive art works are incapable of pre-determination. So, although a site-responsive artist can own the tangible work that they placed in a particular space, they cannot own the inherent value, history, or context of the space itself. Regardless, site-responsive artists benefit from the placement of what some may describe as sub-par artwork in a place filled with a rich history and participatory visitors.

54. *An Introduction to Art as Site-Response*, ART/SITE, <http://www.sitespecificart.org.uk/intro.htm> (last visited Jan. 12, 2012).

55. *Spirituality*, ART21, <http://www.pbs.org/art21/artists/ann-hamilton> (last visited Jan. 10, 2012).

B. *The Andy Monument*

The New York City Public Art Fund (PAF)⁵⁶ recently commissioned site-responsive sculptures that were mounted in three separate locations in Manhattan. At the time of their unveiling, Public Art Fund Director Nicholas Baume explicitly rejected the notion that the sculptures were site-specific. Instead, he described the sculptures as site-responsive, stating that “[T]hey are all linked because they use New York City as a context.”⁵⁷

One of the sculptures commissioned by the PAF was designed and fabricated by Rob Pruitt, a successful New York-based artist. Pruitt created a life-sized bronze sculpture of Andy Warhol entitled *The Andy Monument*.⁵⁸ The final product was cast in silver chrome, and was placed in front of the former site of Andy Warhol’s *Factory*. The Factory served both as Andy Warhol’s studio, and as a counterculture meeting ground from 1963 to 1968.⁵⁹ It was dubbed “The Silver Factory” after an artist lined the interior of the building with tin foil. Pruitt’s use of silver chrome in his final product of *The Andy Monument* was likely a nod to the tin foil that distinguished the Silver Factory. By placing the sculpture in front of the Factory, Pruitt’s sculpture received the benefit of a cult following of New Yorkers and other visitors, many of whom deposited Campbell’s Soup cans and Brillo Pads at the foot of *The Andy Monument*. Although critics did not find particular inherent value in the quality of the statue, Pruitt still received positive reviews for *The Andy Monument*.

The Andy Monument has been described as “site-responsive” because it is directly connected to the site in which it is placed. Moreover, while the sculpture is cast in bronze, its surface is in chrome, perhaps offering a subtle nod to Warhol’s “Silver Factory.” Baume described the sculpture as “giving tangible form to the intangible presence that Warhol still represents for so many New Yorkers and art lovers around the world. Pruitt’s standing monument stands on the street corner as the artist once did signing copies of *Interview* magazine.”⁶⁰

56. NEW YORK PUBLIC ART FUND, <http://publicartfund.org/pafweb/about/membership.html>. (last visited Mar. 25, 2012).

57. Carol Vogel, *The Public Warhol in a Public Sphere*, N.Y. TIMES, Nov. 26, 2010 at 31.

58. The sculpture was modeled on the body of a Cincinnati art collector.

59. See WARHOL SHOP, *The Factory*, <http://www.thewarholshop.com/thefactory.php>. The Factory was originally located at 231 East 47th Street in Midtown Manhattan. After the original building was condemned in 1968, Warhol moved The Factory to 33 Union Square West. The Union Square Factory remained active until 1984. This is the site at which artist Rob Pruitt installed the sculpture of Andy Warhol.

60. *The Andy Monument Audio Tour, Part I: Introduction to the Exhibition by Curator Nicholas Baume*, PUBLIC ART FUND, http://publicartfund.org/robpruitt/images/uploads/Nicholas%20Baume_The%20Andy%20Mon

After its unveiling, the art world and the general public reacted favorably to the work, but the positive reception was not based on the tangible sculpture itself. Rather, the sculpture benefited from its placement in Union Square. For example, one notable art critic, Jerry Saltz of New York Magazine, stated that he did not “actually love the statue itself. . . . But I love the passion behind it and the idea of putting this sculpture in this place at this time. It beautifully evokes the pathos, perversity, and runaway genius of this great swish-hero-artist.”⁶¹ Without the benefit of New York’s Union Square, without the benefit of Andy Warhol, and without the benefit of the continued cult following of Andy Warhol’s legacy, would *The Andy Monument* be as relevant if it were placed in a closed gallery with white walls surrounding it? Would it even be a work of art, or would it be an unrecognizable chrome sculpture, devoid of any particularly poignant meaning or artistic merit?

C. “Recognized Stature” and Limits on Emerging Mediums

Left to infuse their own interpretations, courts have applied arbitrary standards to moral rights. Most notably, courts that have addressed moral rights in the context of site-specific art have determined that one must meet a level of artistic merit set forth by the courts or by the legislature. To date there are no published cases of courts addressing the moral rights of site-responsive art in the United States.

To obtain moral rights protection, an artist bears the burden of showing that his or her artwork is one of “recognized stature.”⁶² Under the VARA, works of recognized stature are those “that have been ‘recognized’ by members of the artistic community and/or the general public.”⁶³

An artist must have a certain level of notoriety in order to obtain moral rights protection. In *Dixon*, an artist designed an outdoor sculpture for an individual client. When the client sold the property at which the sculpture was installed, he moved the sculpture, destroying it in the process. Under the VARA, the artist claimed that he had the right to prevent the sculpture from being modified or destroyed. Most importantly, the artist claimed that the work was part of a larger body of art that he had created, and it therefore had a unique personal meaning to him. The court held that “an artist must show not only the work’s artistic merit but also that it has been recognized as having such a merit.”⁶⁴

ument%20GBC.mp3.

61. Jerry Saltz, *Jerry Saltz on the Unveiling of the Andy Monument*, VULTURE, NYMAG.COM, http://nymag.com/daily/entertainment/2011/03/jerry_saltz_on_the_unveiling_o.html.

62. *Scott v. Dixon*, 309 F. Supp. 2d 395, 400 (E.D.N.Y. 2004).

63. *Id.* (citing *Carter v. Helmsley Spear, Inc.*, 861 F. Supp. 303, 325 (S.D.N.Y. 1994)).

64. See 17 U.S.C.A. § 106(a)(3)(B) (West 2002).

Because the artist had only achieved local fame, the artist could not establish that the sculpture was a work of art of recognized stature within the meaning of VARA.⁶⁵

The issue of taste is not only considered in light fame and notoriety, but also with respect to subject matter and placement of art works. In *Kelly v. Chicago Park District*, an artist planted a wildflower garden in a Chicago City Park.⁶⁶ Unlike *Dixon*, the artist in this case funded his own work and installed it with the permission of Chicago officials. Without the artist's permission, the Chicago Parks and Recreation department destroyed the garden. The artist asserted moral rights over the garden, as it was a site-specific work. At trial, the court rejected the artist's moral rights claim, stating that although it could obtain copyrightability as a painting or sculpture, it was not sufficiently original to obtain protection. Although the Court of Appeals conceded that, "nothing in the definition of a 'work of visual art' either explicitly or by implication excludes this [site-specific] form of art from moral rights protection," it still held against the artist, stating that the garden "lacked the kind of authorship and stable fixation normally required to support copyright."

Under existing copyright law, the courts are free to interpret the VARA in a manner based on economic principles. The phrase, "recognized stature" was not defined by the VARA, though one court said that a work would have stature if:

it is viewed as meritorious, and (2) its stature is recognized by art experts, other members of the artistic community, or by some cross-section of society. Generally the court will determine whether a work of art has 'stature' based on expert testimony.⁶⁷

Limiting moral rights only to those artists of "recognized stature" limits protection to those artists who have achieved a certain level of fame. In the existing structure of the visual art world, fame is inevitably tied to economic success. The purposes of moral rights in the U.S., therefore, more closely mimic traditional intellectual property rights, as opposed to protecting artistic integrity. Moreover, moral rights, because they are meant to protect the individual artist, should not attempt to be reconciled with the intellectual property's interest in economic utility. Instead, moral rights should be more broadly construed than the current practice of limiting an artist's moral rights based on their notoriety and their recognition by critics and experts.

D. A Proposed Solution for VARA Application to Emerging

65. *Dixon*, 309 F. Supp. 2d at 400.

66. *Kelley v. Chicago Park Dist.*, 635 F.3d 290, 291 (7th Cir. 2011).

67. *See Phillips v. Pembroke Real Estate, Inc.*, 288 F. Supp. 2d 89, 97 (D. Mass. 2003).

Mediums

As a way to tackle the problems of site-responsive artwork, the threshold question should be: where does the work find its point of completion? In the example of *The Andy Monument*, the work could have been complete when Pruitt finished the sculpture in his studio. It could have also been complete when the sculpture was placed in Union Square, in front of the site of the Factory. Or perhaps it could have been complete when visitors placed iconic symbols of consumption that Warhol both abhorred and embraced: Brillo pads and Campbell's soup cans.

Another question may be raised regarding whether a whole new work was created when visitors to the *Andy Monument* added Brillo pads and Campbell's soup cans. At that stage, it could be argued that by adding elements to the sculpture, visitors created a derivative work. In that case, Pruitt would only be able to claim ownership and moral rights over the *Andy Monument* itself. With the addition of new objects, it may be that infinite derivative works are created. But are derivative works the only way in which untraditional authors can be recognized?

Another question is whether the work, and potentially, subsequent derivative works, benefited from joint authors. Public art, and by default, site-responsive work is meant to be participatory and inclusive. Of course there would be a problem with joint authorship because in the case of *The Andy Monument*, Pruitt would not have consented to joint authors. Moreover, Pruitt, in assuming his moral rights, could potentially block visitors from altering the sculpture by making their own additions to the sculpture. However, as has been noted, Pruitt's sculpture has benefited from the additions that visitors have offered.

These queries bring to light a key distinction between the interests of the commercial artist and the interests of the public. Copyright law and moral rights have been established under the guise of the U.S. interest in useful arts and sciences and in property rights. But the general public, and some practicing artists for that matter, are not always interested in financial returns.

There is no benefit to society in limiting the right to make alterations to the sculpture, particularly in light of our interest in promoting creativity. Copyright law should first recognize that there can be multiple tiers at which fixation is achieved. In the existing structure, the only way in which individual visitors to *The Andy Monument* could achieve some form of authorship rights or copyright protection would be to claim their work as a derivative work. Even then, though, individual visitors would have to agree upon a finished form, otherwise there may be a limit over further derivative works as new amendments are made to the sculpture.

The idea of multiple levels of fixation requires not only an

adjustment to copyright law, but also an adjustment in the U.S. conception of moral rights. Untraditional authors do not always have a chief interest in the economic or property benefits connected with the work. Therefore, ways in which moral rights are manifest in the current form of the VARA bestows undue favor upon visual artists in the site-responsive context, and robs contributing artist-visitors of their ideas without affording them credit for their contributions. Visual artists should not receive a unilateral benefit in which they can place a work of art in a particular context and reap the rewards of that context either by way of the physical setting, or by the media attention stemming from alterations made by visitors. Instead, moral rights should take on more of the meaning with which “moral” is typically associated: they should recognize that contributions to works of visual art may come from several sources, and when an artist’s work receives enrichment from outside sources, those sources should be appropriately credited.

The tension between traditional, recognized artists and non-traditional artists is not limited to the visual arts. Olufunmilayo B. Arewa has recognized the limits of copyright protection for emerging musicians, particularly those using improvisational mediums. Arewa argues that “[m]usic compositional practices have varied both over time and among genres in ways that should be more explicitly recognized in copyright considerations of music.”⁶⁸ A visual-textual bias, Arewa argues, “constrains copyright . . . in ways that prevent copyright frameworks from encompassing musical creativity in its fullest.”

Parallels can be drawn between improvisational music and site-responsive art. In both, there are no written or tangible accompaniments that will guide precisely where the works will reach their completion. As such, similar issues of fixation are present in both mediums. Arewa’s notion that there is a bias toward the visual-textual is grounded in the idea that there is a bias toward that which can be tangibly perceived. The same is certainly true of visual art, in which copyright protection is geared only toward a certain limited category of tangible artworks, which, as the limited case law dealing with site responsive artwork confirms, must meet a certain “stature” as defined by experts.

Building on Arewa’s idea, Mark P. McKenna has stated that copyright fails because it “fixates on threats to ownership and compensation for creators . . . ignoring the risk to unwritten creative practices . . .”⁶⁹ Again, copyright law in its current form not only negates the rights of authorship to individuals that contribute to the development

68. Olufunmilayo B. Arewa, *Creativity, Improvisation, and Risk: Copyright and Musical Innovation*, 86 NOTRE DAME L. REV. 1829, 1831.

69. Mark P. McKenna, *Introduction: Creativity and the Law*, 86 NOTRE DAME L. REV. 1819, 1820 (2011).

of a work through means beyond defined mediums of a certain stature, but it deprives potential artists of the right to contribute to or fully develop a work due to potential shields by the VARA, which prevent modifications to the work. The VARA should acknowledge the multiple levels of fixation and contribution to works of art in order to adequately distribute moral rights protection to those who deserve it.

CONCLUSION

U.S. Copyright Law has long been criticized for failing to anticipate the complexities of creative practices in both performance and in the visual arts. Like the inclusion of Victor Hugo's *L'Association Littéraire et Artistique Internationale*, which drafted the propositions that provided the foundation for the Berne Convention, policymakers should acknowledge emerging art forms by listening to artists. Discussing the public's enthrallment with remixes, Girl Talk artist Gregg Gillis has stated, "[i]deas impact data, manipulated and treated and passed along. I think it's just great on a creative level that everyone is so involved with the music that they like . . . [y]ou don't even have to be a traditional musician . . . I just think it's great for music."⁷⁰

Site-responsive artwork presents a timely challenge for Congress to address the failures of copyright law in its current form. Creativity must be viewed not only as a way to ensure the nation's economic health and prosperity by way of training enough scientists and engineers, but it must also be viewed as a way to foster a creative society in general. Addressing the failures of copyright law—and moral rights in particular—is one way in which Congress must acknowledge that creativity in its truest form is unplanned, experimental, and responsive, but nonetheless deserving of the same rights and protections as creativity that is planned, traditional, and reactionary.

70. Lawrence Lessig, REMIX: MAKING ART AND COMMERCE THRIVE IN THE HYBRID ECONOMY 14 (2008).

GETTING ONE STEP CLOSER TO A COMMERCIAL EMORTGAGE: U.S. LAW AND NOT TECHNOLOGY IS PREVENTING THE COMMERCIAL MORTGAGE MARKET FROM TRANSITIONING TO A PAPERLESS EMORTGAGE

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I. INTRODUCTION

Any homeowner readily, and quite loudly, decries the process of

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executing the mountain of standardized forms required to close the typical residential mortgage, and commercial property owners utter the same complaints when executing commercial mortgages. This Note analyzes the way that the mortgage process is embracing the Internet, albeit halfheartedly, as a transaction vehicle. Residential mortgage brokers control the entire origination and loan closing process, and they ensure that the borrower properly signs the forms promulgated by each state. Conversely, commercial mortgages typically require detailed, unique, and painstakingly negotiated contracts. Akin to its residential cousin, closing a commercial mortgage also requires a mound of paper and an extensive process. The typical commercial mortgage features a real estate professional or otherwise skilled investor with experience in negotiating complex transactions as the borrower and ultimate controller of the whole process. The process of closing a commercial mortgage replaced the public feudal transfer ceremony of livery of seisin long ago.¹ A commercial mortgage transaction securing a loan from an “institutional lender,” like the Federal Home Loan Mortgage Corporation (“Freddie Mac”) or the Federal National Mortgage Association (“Fannie Mae”), still typically generates paper copies of documents that at times total several hundred pages.² These volumes of paper represent legal and technical progress from feudal times, but the process fails to take full advantage of the commercial and technological progress ushered in through the Internet. In the more than two decades since legal and technology scholars began heralding a revolutionary change from paper documents and signatures that were recorded personally by hand to digital versions recorded online, very little has changed in these key pieces of the commercial mortgage transaction in the U.S.³ This failure to embrace the advantages of electronic transaction processes in commercial transactions stands in stark contrast to some of the headway that has been made in transitioning to an electronic mortgage in the residential finance industry.⁴ Major U.S. residential loan originators have made the transition to these electronic mortgages, and they openly

1. See *U.S. v. Schurz*, 102 U.S. 378, 398 (1880) (explaining the details and history of the public ceremony that served as proof of transfer of ownership of real property).

2. The underwriting checklist for the typical institutional commercial mortgage for a multifamily property requires the production of several reports and forms. Additionally, these checklists can vary in their requirements over time, so the exact date of the checklist is often important to the specific mortgage transaction. FREDDIE MAC, EXHIBIT 1: UNDERWRITING CHECKLIST 1-2 (2011), CHECKLISTS SECTION 1.1 CONVENTIONAL CHECKLISTS 1-4 (2012), available at http://www.freddiemac.com/multifamily/resources/Exhibit_1.1_Conventional_UW_Checklist.pdf (standard delivery referring to the interest rate terms of the mortgage).

3. See *id.*

4. See generally FANNIE MAE, GUIDE TO DELIVERING EMORTGAGE LOANS TO FANNIE MAE VERSION 2.5 7 (2007), available at https://www.fanniemae.com/content/technology_requirements/emortgage-delivery-guide.pdf.

market this option to residential borrowers.⁵ The transition to electronic residential mortgages is far from complete, and obstacles remain to fully implementing electronic residential mortgages. Significant differences exist between commercial and residential mortgages, so examining the transition to an electronic residential mortgage only illuminates some of the reasons why electronic commercial mortgage implementation lags behind its residential sibling. More broadly, this Note examines the series of reasons why the commercial mortgage market has failed to adopt electronic commercial mortgages.

First, this Note examines the legal enforceability of electronic transactions and signatures, while relating these legal elements to the practical business necessities of the commercial mortgage industry. In Part II, this Note evaluates the advances in secure document delivery and storage systems, digital document properties, and electronic signatures that have allowed these advances to make electronic mortgage (“eMortgage”)⁶ transactions more compelling to savvy market participants than they were at the turn of the millennium. In Part III, this Note analyzes the remaining barriers to recording and recognition of these documents and determines that the current state of the law is insufficient to help commercial eMortgages gain meaningful traction in the industry. After demonstrating that the law is currently insufficient to entice industry participants to move forward with eMortgages, Part IV of this Note proposes potential changes to the law that will help create a legal environment that will recognize, enforce, and even favor the commercial eMortgage.

As a representative example of the inner workings of the typical commercial mortgage transaction, this Note focuses on mortgages secured by multifamily apartment properties. Apartment community mortgages are a helpful lens for this examination because of the large amounts of publicly accessible information on the loan origination process. Furthermore, Freddie Mac and Fannie Mae originate “conventional” mortgages that are held in the lender’s portfolio after

5. Due to the highly competitive and dispersed nature of the residential mortgage origination industry, it is tremendously difficult to determine the total number of originators using electronic mortgage documents and signatures. It is readily apparent from Internet searches on the subject that industry leaders and large dollar volume originators have begun marketing and using these electronic formats. Press Release, Quicken Loans, Quicken Loans To Implement E-Signature Technology In Mortgage Application Process (Jan. 21, 2002), *available at* <http://www.quickenloans.com/press-room/2002/quicken-loans-implement-esignature-technology-mortgage-application-process>; Press Release, Ellie Mae, Wells Fargo Funding Authorizes Encompass360™ as E-Signing Technology Partner (Apr. 12, 2010), *available at* <http://www.elliemae.com/wells-fargo-funding-authorizes-encompass360-as/>.

6. For the purposes of this Note, the term eMortgage includes the documents typically associated with a commercial mortgage including, at a minimum, the promissory note, security instrument (mortgage or deed of trust), and assignment.

origination, which makes these lenders very representative of the entire commercial real estate lending market. Conventional loans are typically held until maturity on the balance sheets of almost every type of financial institution involved in the commercial real estate lending market. Fannie Mae and Freddie Mac also originate mortgages predetermined for securitization in the capital markets.⁷ When securitized, Fannie Mae and Freddie Mac group these mortgages into pools as collateral for Commercial Mortgage Backed Securities (“CMBS”).⁸ Financial institutions trade these CMBS bonds like other commercial debt securities.

II. ELECTRONIC TRANSACTIONS AND THE COMMERCIAL MORTGAGE

A. OVERVIEW

eMortgages do not eliminate any of the relevant documents used in creating a traditional commercial mortgage. The two are functionally and legally equivalent. However, eMortgages hold an inherent advantage over their paper accumulating counterparts by facilitating the electronic creation, signing, and recording of the relevant documents. Borrowers, bankers, and attorneys need never leave their computers to complete the transaction.

The commercial and residential mortgage processes are nearly identical in critical respects. Since the two processes are generally analogous, this Note sometimes uses examples from the residential process to illustrate similar situations in the commercial mortgage processes. Just as the Internet has produced advantages in originating residential mortgage transactions, it will do so in the commercial mortgage market. As its single greatest advantage, the use of electronic documents achieves a reduction in transaction and information costs in generating a commercial mortgage. In many ways, the typical commercial mortgage transaction gets more than halfway to an eMortgage because the parties use electronic markups of the promissory note, deed of trust, and other documents when they originate a traditional commercial mortgage.⁹ Third parties already deliver several reports

7. See FANNIE MAE, AN OVERVIEW OF FANNIE MAE’S MULTIFAMILY MORTGAGE BUSINESS 7 (2012), available at https://www.fanniemae.com/content/fact_sheet/multifamilyoverview.pdf; FREDDIE MAC, FREDDIE MAC MULTIFAMILY SECURITIZATION 16 (2013), available at http://www.freddiemac.com/multifamily/pdf/mf_securitization_investor-presentation.pdf.

8. See FANNIE MAE, *supra* note 7; FREDDIE MAC, *supra* note 7.

9. The author worked extensively as an analyst for commercial real estate finance transactions prior to attending law school and is relying on personal experience of assisting in the closing of more than forty commercial mortgages. These transactions were with the

electronically to the originating lender and borrower that are required by regulators, like the Phase I environmental reports.¹⁰

Like residential mortgages, commercial mortgages were once local or regional transactions. Historically, rational and prudent investment in commercial mortgages required a local connection to the financed property.¹¹ The lender and borrower needed to understand the specific characteristics of the property and local market in order to make intelligent investment decisions.¹² Only proximity to the property provided the parties with the critical information.¹³ Once information became more accessible due to the explosion of travel and technology, capital began to flow over greater distances. By 2010, more than \$68.8 billion in multifamily commercial mortgages were originated by more than 2,548 different lenders.¹⁴ This represents a dollar volume increase of 31% from 2009; 51% of the dollar volume was originated by the top 1% of lenders.¹⁵ No longer is the transaction a simple, local affair; rather, the land, lender, and borrower may all be in different states or countries while creating increasingly complex financing structures.¹⁶

Commercial mortgages are critical to the U.S. and global economies. Prior to the financial crash in 2008, commercial real estate mortgages experienced a nearly decade long period of tremendous growth in the volume and dollar amount of transactions.¹⁷ This growth in outstanding mortgages was mimicked by growth in the market value of commercial real estate that also peaked in 2008 and began a sharp decline in 2009.¹⁸ While the trend in overall commercial mortgage originations turned sharply negative with the onset of the financial crisis, the crisis ground one sector of the market, CMBS, to a complete halt. The sheer number and dollar volume of commercial mortgages

nation's leading commercial mortgage broker and banker, CB Richard Ellis ("CBRE") – Melody Capital Markets ("Melody"). Additional information regarding CBRE and Melody is available at *Debt & Equity Finance*, CB RICHARD ELLIS, <http://capitalmarkets.cbre.com/Debt+and+Equity/default.htm> (last visited Nov. 2, 2012).

10. See generally FANNIE MAE, *supra* note 4 (allowing for electronic delivery of third party reports).

11. See Arthur R. Gaudio, *Electronic Real Estate Records: A Model For Action*, 24 W. NEW ENG. L. REV. 271, 273 (2002).

12. *Id.*

13. *Id.*

14. Press Release, Mortg. Bankers Ass'n of Am., \$68.8 Billion of Total Multifamily Lending in 2010; a 31 Percent Increase from 2009 (Oct. 19, 2011), available at <http://www.mbaa.org/NewsandMedia/PressCenter/78224.htm>.

15. *Id.*

16. Gaudio, *supra* note 11.

17. PRUDENTIAL REAL ESTATE INVESTORS, US QUARTERLY OUTLOOK: JULY 2011 3 (2011), available at [http://www2.prudential.com/o&s/prei.nsf/14ef712a6b099d9d852566ef005111d0/5e4b4b6fc091f028852578dc0054821b/\\$FILE/US_Quarterly_PRU%20July%202011.pdf](http://www2.prudential.com/o&s/prei.nsf/14ef712a6b099d9d852566ef005111d0/5e4b4b6fc091f028852578dc0054821b/$FILE/US_Quarterly_PRU%20July%202011.pdf).

18. *Id.*

demonstrates their importance to the U.S. and global economies, and reducing these transaction costs will greatly improve this economic sector.

CMBS served as a significant source in the increase in commercial mortgage debt outstanding and its relative impact on the U.S. economy. The bundling and resale of commercial mortgages into CMBS peaked in 2007 with a total issuance of \$228.6 billion.¹⁹ In the first quarter of 2000, outstanding commercial mortgage debt stood at \$1.5 trillion, and it grew by 127% to a peak of \$3.4 trillion in the first quarter of 2009.²⁰ Experts note that there were “[a] number of factors [that] led to the growth of debt, including rising property values, increased supply and the success of CMBS as a financing tool.”²¹ Even as the industry has begun a process of contraction through the deleveraging of commercial properties, the sector represented a 21.7% share of Gross Domestic Product (“GDP”).²² This percentage represents a significantly higher percentage of U.S. GDP than the 17.3% average over the prior 30 years, but it remains well below the peak of 24.3% in the first quarter of 2009.²³ As these numbers prove, commercial mortgage debt acts as a significant part of economic output in the U.S., and reductions in the costs of originating, recording, servicing, and insuring these investments should allow commercial mortgage sector to boost the pace of economic recovery.

The tremendous growth in the volume and the market dominance wielded by “institutional lenders” helps push the industry to seek practical and legal solutions that will create nationally standardized mortgage systems.²⁴ Commercial real estate properties and mortgages occupy approximately “12.4% of the \$52.8 trillion investable universe,”²⁵ which makes this sector “the third largest asset class in the U.S.”²⁶ Due to this size and the ability to provide diversity in cash flows, capital appreciation, and significant risk-adjusted returns, global capital markets continue to elevate the level of investment in originating and

19. *Id.* at 4.

20. PAUL FIORILLA ET AL., *DELEVERAGING THE COMMERCIAL MORTGAGE MARKET: HOW MUCH FURTHER TO GO?* 2 (2011), available at [http://www2.prudential.com/o&s/prei.nsf/14ef712a6b099d9d852566ef005111d0/9cbda34f9018b78f8525781d00586d2b/\\$FILE/Deleveraging%202011%20PRU.pdf](http://www2.prudential.com/o&s/prei.nsf/14ef712a6b099d9d852566ef005111d0/9cbda34f9018b78f8525781d00586d2b/$FILE/Deleveraging%202011%20PRU.pdf).

21. *Id.*

22. *Id.* at 4.

23. *Id.*

24. Sam Stonefield, *Electronic Real Estate Documents: Context, Unresolved Cost-Benefit Issues and a Recommended Decisional Process*, 24 W. NEW ENG. L. REV. 205, 219 (2002).

25. PRUDENTIAL REAL ESTATE INVESTORS, *THE CASE FOR COMMERCIAL REAL ESTATE* 2 (2011), available at <http://www.prei.prudential.com/view/page/pimcenter/6815>.

26. *Id.*

securitizing commercial mortgages over the long term.²⁷

B. ELECTRONIC TRANSACTION STATUTES

The first step in transitioning to commercial eMortgages requires the adoption of legal standards for executing, enforcing, recording, and securely storing each mortgage's electronic documents. There is a broad legal framework in place that is available to accomplish this goal.

Several federal and state statutes provide the legal framework for evaluating the market viability of commercial eMortgages. There are two statutes that represent the basis for creating and accepting electronic documents throughout the commercial mortgage process. The Uniform Electronic Transactions Act ("UETA")²⁸ and the Electronic Signatures in Global and National Commerce Act ("E-Sign")²⁹ give the same force and effect to electronic signatures and recording as traditional methods if the parties have agreed to the use of such methods.³⁰ One of these two laws applies in each state. E-Sign was enacted in 2000, but as of 2007, this legislation had done little to transform the typical mortgage from an "inefficient and paper-intensive" process.³¹ Going forward, E-Sign seems unlikely to serve as a foundation for the widespread implementation of electronic signatures for commercial eMortgages. These acts and the substantive counterparts enacted in the states provide the main definitions of what "counts" as an electronic signature or document.³²

UETA will prove more reliable and better tailored to meet the needs of enforcing and embracing electronic signatures in commercial mortgage transactions. Possibly recognizing the speed and variety of technological change, the drafters of UETA provided many forms of data that would qualify as an "electronic signature" if so designated by the parties.³³ Specifically, the forms listed were "an electronic sound, symbol, or process attached to or logically associated with a record and executed or adopted by a person with the intent to sign the record."³⁴ This variety allows for technology to match the business needs of commercial mortgage industry participants, and it allows the industry to

27. *Id.* at 1.

28. *See* Uniform Electronic Transactions Act [hereinafter UETA], 7A pt. 1 U.L.A. 211, 211-99 (2002). All references to UETA will be to the uniform version unless otherwise designated.

29. *See* Electronic Signatures in Global and National Commerce Act [hereinafter E-Sign], 15 U.S.C. §§ 7001-31 (2013).

30. Patricia Brumfield Fry, James A. Newell & Michael R. Gordon, *Coming to a Screen Near You—"eMortgages"—Starring Good Laws and Prudent Standards—Rated "XML,"* 62 BUS. LAW. 295, 295 (2006).

31. *Id.* at 296.

32. *See generally* UETA §2.

33. *See id.* §2(8).

34. *See id.*

implement standards that reflect the various security and efficiency benefits of certain media compared to others.

UETA also seeks to harmonize and equate electronic signatures with physical signatures, so that they are simultaneously recognized and interchangeable in the law.³⁵ Under UETA, the parties may also agree to limit what documents and signatures that they will accept electronically.³⁶ In the face of disagreement between the parties, the one seeking to enforce the signature carries the burden of proof.³⁷ Broadly, UETA provides for electronic record retention that preserves the essential elements of physical record retention.³⁸ It accomplishes the retention of original records by providing that the electronic record must be accessible in the future in a form that is the same as what would be considered an “original” paper form.³⁹ When comparing electronic documents to their paper counterparts, each are enforced differently. Enforcement of the former requires access to and control of the digital document, and enforcement of the latter requires physical possession of an “original.”⁴⁰ Proof of control of the electronic documents becomes extremely important in the commercial mortgage context because of the need to prove ownership of the mortgage following a transfer or sale, which occurs most frequently when loans are sold into pools for securitization as CMBS.

UETA provides market participants with an effective safe harbor for proving their ownership and control of an eMortgage.⁴¹ The safe harbor establishes the legal effect of the electronic record so long as it is deemed authoritative and the parties and electronic records involved are authenticated.⁴² Again, since the legal framework establishes a need for ongoing access, security, and verification of the electronic mortgage record, the eMortgage requires industry changes far beyond the closing table. These deep changes will be slow in their advance, but this seems to fit the longstanding trend against rapid change in U.S. real property and mortgage law. This is important during the transition from paper documents to electronic documents because there will be a period where

35. *See id.* §2 cmt. 7.

36. *See id.* §5(d).

37. *See id.* §9(a).

38. Chris Christensen, Attorney, Pierson Patterson, LLP, Presentation at the Nat'l Tech. in Mortg. Banking Conference & Expo, eMortgage 101: The Big Picture 27 (Mar. 28, 2011), available at <http://www.mbaa.org/files/Conferences/2011/Tech/Tech11eMortgage101March28.pdf> (presenting leading industry perspectives during the National Technology in Mortgage Banking Conference & Expo).

39. *Id.*

40. *See* Candace M. Jones, *Going Paperless: Transferable Records and Electronic Chattel Paper*, PRAC. LAW., July 2002, at 37-38.

41. *Id.* at 44.

42. *Id.*

trust must be built by the parties that these agreements are sufficient over time to protect their investment. Without changes in the legal and economic status quo, commercial eMortgages will continue to gain prominence at the pace of a trickle rather than a flood.

The pace of change is painstakingly slow and is reflected in the ability to get electronic documents accepted for recording in many states. The Uniform Real Property Electronic Recording Act ("URPERA") has been adopted in at least eighteen states; it provides that eMortgages are recordable and enforceable even when the signatures are digital.⁴³ In fact, URPERA was specifically created to help reassure borrowers and lenders in mortgage transactions that their electronic documents and signatures were recordable and valid.⁴⁴ While UETA and E-Sign permit the use of electronic signatures when notarization is required, URPERA establishes the specific framework and standards for electronic notarization of the promissory note, deed of trust, and other documents that together constitute the commercial mortgage.⁴⁵ The requirements are practical in that the seal or other physical memorial of the notary's assent to the presence and identity of the signer is no longer required.⁴⁶

UETA and E-Sign contain additional protections to ensure the negotiability of the commercial mortgage note, whereby the parties to the transaction and the electronic records they create exist in a parallel system.⁴⁷ This system satisfies the Uniform Commercial Code requirements for a promissory note to be a negotiable instrument if in paper form.⁴⁸ Most importantly to the parties of the transaction, this system ensures that "the information concerning obligors and the holder of the rights to enforce the obligations may be stored electronically" and will not "affect their rights or liabilities" regardless of whether the original transaction "was concluded with paper documents or electronic records."⁴⁹ Since the legal effect of electronic signatures and documents under UETA is based on protecting the documents against a denial of their enforceability because of their electronic form, courts are instructed to look to the intent of the parties and perform the substantive analysis in the same manner as if the transaction was completed though paper.⁵⁰ In the analysis, context is imperative, and the facts and circumstances involved in the creation of the electronic document or signature are

43. Gerald Korngold, *Legal and Policy Choices in the Aftermath of the Subprime and Mortgage Financing Crisis*, 60 S.C. L. REV. 727, 741 (2009).

44. Fry et al., *supra* note 30, at 299 n. 21.

45. *Id.* at 300-01.

46. *Id.* at 301.

47. *Id.* at 302.

48. *Id.*

49. *Id.*

50. See UETA §(7) cmt. 2 (2002).

determinative.⁵¹ These systems of law work to remove the law's reliance on the need for an "original" to memorialize the transaction as part of the public record or to enforce the provisions of the deal by changing the law to give full legal effect to electronic documents as executed without requiring one, single "original" source.⁵²

C. ELECTRONIC TRANSACTION TECHNOLOGY

Technology industry leaders have found that electronic documents require effective security parameters in order for transaction participants in any industry to trust the validity of the documents.⁵³ Security measures embedded in or directly tied to the document best ensure electronic document security.⁵⁴ Many proactive organizations currently employ solutions focused explicitly on the document itself.⁵⁵ These solutions focus on control of the document by encrypting access, tracking activity and use permissions for the documents, and protecting the integrity of the document as if it were an original paper copy.⁵⁶ Digital signatures embedded in the document or directly attached to it help assure that the document has not been changed, originated by the actual counterparty, and evidence of assent and agreement to the document.⁵⁷

III. CREATING THE eMORTGAGE

The legal and technological framework detailed in Part II of this Note merely set the stage for the creation and execution of eMortgages. The commercial mortgage origination process must be adapted and applied to this framework. This Part III broadly canvases the way this framework changes how a commercial mortgage is created when it is created as an eMortgage and not its paper equivalent.

A. OVERVIEW

UETA, E-Sign, and URPRA erected the basic structure of the legal framework for enforcing commercial eMortgages. Legislators intentionally omitted compliance standards and technological methods

51. *See id.* §9.

52. Fry et al., *supra* note 30, at 303.

53. *See* Adobe, *A Primer on Electronic Document Security: How Document Control and Digital Signatures Protect Electronic Documents*, 3 (2007), http://www.adobe.com/security/pdfs/acrobat_lifecycle_security_wp.pdf.

54. *Id.*

55. *Id.*

56. *Id.*

57. *Id.*

for accomplishing these electronic transactions.⁵⁸ The commercial mortgage industry began collaborating with technology experts to assign industry-wide technological standards for creating, securing, and storing eMortgages. Mortgage industry experts define an eMortgage as “[a] mortgage where the critical loan documentation, at a minimum the promissory note, is created, executed, transferred, and ultimately stored electronically.”⁵⁹ The commercial mortgage industry has gravitated toward an electronic mortgage process because of the obvious cost advantages over creating and overnight shipping of hundreds of pages of documents for each transaction. Shipping costs for these documents are not insignificant.⁶⁰ Of greater importance is the fact that these documents do not stay at the closing location, and they must be able to move post-closing. These documents must be collected into a file and follow the “mortgage” through to a location for servicing, future sale or assignment, or even securitization.⁶¹ For standard “permanent” commercial mortgages, this mortgage file will need to be kept together and available for interested parties for the ten year life of the loan. Document custody, security, and file management on such a large scale has pushed the commercial mortgage industry to embrace electronic creation, storage, and handling of documents as a method of cost containment and investment security.⁶² Industry participants have so fully embraced the use of technology in the post-closing arena, that efficient electronic document management and security have become integral to a firm’s survival in a post-2008 lending crisis environment.⁶³ eMortgages further provide commercial lenders with the ability to promote streamlined, if

58. See Fry et al., *supra* note 30, at 304.

59. Harry Gardner, Chief Strategy Officer, Signiadocs, Presentation at the Nat’l Tech. in Mortg. Banking Conference & Expo, eMortgage 101: Overview 3 (Mar. 28, 2011), available at <http://www.mbaa.org/files/Conferences/2011/Tech/Tech11eMortgage101March28.pdf> (presenting leading industry perspectives during the National Technology in Mortgage Banking Conference & Expo).

60. In a hypothetical transaction from Denver to Houston, it would cost approximately \$20 to send 0.5 lbs. of documents via FedEx for 2nd day delivery. See generally *Get Rates & Transit Times*, FEDEX, <https://www.fedex.com/ratefinder/standalone?method=getQuickQuote> (last visited Oct. 23, 2011).

61. The items contained in an underwriting checklist are collected prior to and at closing, and these documents become the loan file that will need to be maintained by the loan servicer and other interested parties throughout the life of the loan. See FREDDIE MAC, CONVENTIONAL CASH PURCHASE PROGRAM STANDARD DELIVERY: FULL UNDERWRITING CHECKLIST 1-2 (Oct. 7, 2011), available at http://www.freddiemac.com/multifamily/pdf/Exhibit_1.2_CC_full_std_10-07-11.pdf (referencing standard delivery in relation to the interest rate terms of the mortgage).

62. See *MBA Prepares for its Document Management and Custody Conference*, MORTG. BANKERS ASS’N (Aug. 8, 2008), <http://www.mbaa.org/files/MBAExecPodcasts/MBAPreparesforitsDocumentManagementandCustodyConference.mp3>.

63. See *id.*

not instant, accessibility to closed loan documents for authorized users.⁶⁴ The ability to verify the authenticity of the electronic documents and the accompanying electronic signature helps to prevent fraud, borrower confusion, and decisional delays due to the use and shipment of paper.⁶⁵

B. INDUSTRY STANDARDS

This legal framework also requires widespread industry buy-in in order to be an effective tool in creating an environment that encourages the adoption of commercial eMortgages. The leadership in the commercial mortgage industry is working hard to craft these industry standards to help drive this necessary buy-in. Within the legal framework created by UETA, E-Sign, and URPERA, the Mortgage Bankers Association of America ("MBA") has been at the forefront of creating a "vendor-neutral environment" for both commercial and residential mortgages through its Mortgage Industry Standards Maintenance Organization, Inc. ("MISMO").⁶⁶ MISMO and eMortgages are key technology initiatives for the industry, and they are highlighted as a part of the continued embrace of technology going forward in today's difficult credit environment.⁶⁷ The MISMO standards' effectiveness require a critical mass of market participants who accept the standards and begin using them. If the secondary market will not accept digitally executed commercial mortgages in sufficient numbers to allow issuers to pool together commercial mortgages from a variety of lenders, the transition to these eMortgages will die before it establishes firm roots in the market.

Traditional residential mortgages contain two features that make them particularly amenable to industry wide technical standards in electronic form: mortgages are highly regulated and mostly standardized instruments.⁶⁸ The business also features high-volume and repetition.⁶⁹ Both of these factors lead to the industry pushing technology to reduce the transaction costs and standardization of terms and forms to ensure compliance in each new transaction.⁷⁰ This critical mass is essential because of the secondary mortgage market's presence as the main driver

64. See Brenda Clem, Senior Director, Equifax, Presentation at the Nat'l Tech. in Mortg. Banking Conference & Expo, eMortgage 101: Getting Started 36 (Mar. 28, 2011).

65. See *id.* at 40-42.

66. Fry et al. *supra* note 30, at 307.

67. See Paul Green Discusses MBA's National Technology in Mortgage Banking Conference & Expo, MORTG. BANKERS ASS'N (Mar. 11, 2010), <http://www.mbaa.org/files/MBAExecPodcasts/PaulGreenDiscussesMBAsNationalTechnologyinMortgageBankingConference&Expo.mp3>.

68. James Bryce Clark, *Technical Standards and Their Effects on E-Commerce Contracts: Beyond the Four Corners*, 59 BUS. LAW. 345, 355 (2003).

69. *Id.*

70. *Id.* at 360.

for demand for new institutional mortgage originations. As of March 2013, MISMO had more than 100 industry leading subscribers participating at some level in using or creating the MISMO standards.⁷¹ Seeing so many active participants in developing standards for the commercial eMortgage is not surprising because the cost advantages to market participants remain too compelling to ignore. This participation can ensure that the standards fit a broad range of functionality and needs of different participants in the commercial eMortgage process, from originators to CMBS purchasers.⁷² With broad buy-in from the industry, commercial mortgage market participants can be assured that adoption of the technical standards is much less risky since “there’s a crowd heading in the same direction.”⁷³

As stated above, UETA, E-Sign, and URPERA protect parties to a transaction that have explicitly agreed to transact electronically. This agreement coupled with widespread adherence to common standards ensures that the parties can achieve the cost advantages of repeating the standard electronic steps for each new transaction.⁷⁴ The parties’ attorneys must pay specific attention to ensure that the consent to transact electronically has been obtained and memorialized.⁷⁵ Retaining this proof of agreement to the electronic mortgage process is essential in proving the validity of the note and other documents associated with the eMortgage under the structure set up by UETA.⁷⁶ This proof must conform with proof of a signature in paper form because UETA treats an electronic signature as equivalent to a traditional written one.⁷⁷ Since originators begin to harvest the myriad of advantages of eMortgages following the transition period, the solid legal and practical foundations created by these laws serve as the critical infrastructure going forward through the process.

As parties expand their use and understanding of these new standards, they should eventually have an important role in shaping the commercial eMortgage transaction.⁷⁸ According to MISMO, the use of its standards allow participants to “save time, reduce costs[,] and improve data accuracy and transparency while passing cost savings to consumers.”⁷⁹

71. See *Subscriber List*, MISMO, <http://www.mismo.org/AboutMISMO/SubscriberList.htm> (last visited Mar. 17, 2013).

72. See generally Clark, *supra* note 68, at 347.

73. See *id.*

74. See *id.* at 354.

75. Margo H. K. Tank & Frank J. Supik, eMortgage Implementation Considerations, Elec. Banking L. & Com. Rep. (Thomson Reuters/West), vol. 11, no. 6, July/Aug 2006, at 1.

76. *Id.*

77. *Id.*

78. See Clark, *supra* note 68, at 357.

79. *Why MISMO?*, MISMO, <http://www.mismo.org/AboutMISMO/WhyMISMO.htm>

*C. PRELIMINARY INROADS INTO PAPER COMMERCIAL
MORTGAGES: eVAULTS*

The first step in implementing MISMO standards is creating a system where eMortgage originators can store “originals” of the electronic transaction documents. This storage system is essential because the origination of the eMortgage is the first day in the life of the loan. Throughout the rest of the loan’s life, a multitude of parties need access at various times to all of the documents created at origination, and without an eMortgage, this requires access to the huge original paper file. In light of the crushing paper burden, eMortgages provide relief in that servicers can simply maintain an electronic vault (“eVault”) filled with the electronic mortgage records without the gigantic warehouses full of paper. Lenders have realized over the past decade that each new transaction represents a tiny piece of their ongoing data management and warehousing activities.⁸⁰ The eVault issues are so important to the process of transitioning to commercial eMortgages that MISMO has set out broad recommendations for what it would consider an effective eVault system.⁸¹ Many of the current requirements that investors place on those controlling and keeping mortgage documents will have counterparts in an eVault system.⁸² This extension of these security requirements to eVaults is intuitive. With a paper mortgage, a lender wants to protect those documents in a safe, fire resistant building while maintaining strict controls on access to the building. With the eMortgage, the lender maintains the same concerns regarding system security and maintaining extremely limited access to the digital documents.⁸³ An effective eVault will combine secure data storage, access to authorized personnel, and integration with the systems used in the original closing process of the commercial mortgage transaction.⁸⁴

Even if the change to commercial eMortgage origination is slow for a particular vendor, eVaults, once implemented, create uniformity in the management of post-closing documents.⁸⁵ While lenders still originate traditional mortgages, eVaults add value with hybrid functions to capture traditional paper mortgages.⁸⁶ Several suitable hybrid eVaults are in

(last visited Mar. 17, 2013).

80. See *MBA Prepares*, *supra* note 62.

81. MISMO, EMORTGAGE VAULTING GUIDE 4 (2006), <http://www.mismo.org/Specifications/eMortgageSpecifications.htm> (follow “v.30” hyperlink; then follow “eMortgage Vaulting Guide v3.0” hyperlink; users must register at the MISMO website to download the PDF report).

82. See *id.* at 5.

83. See *id.*

84. See *id.* at 18.

85. See *id.* at 15.

86. See *id.*

place in many title companies and counties across the country, and they are used to store a graphic image of the paper documents that are scanned by the recorder as they are recorded.⁸⁷ The availability of these images has allowed many counties to make public property records available online by offering users access to copies of paper documents via computer images.⁸⁸ However, this hybrid system is inherently limited because the graphic images of the paper documents do not have embedded data that would allow the system to correctly categorize and index the document to the corresponding property.⁸⁹ In the end, these counties have a manually intensive process that requires indexing by hand and uploading to the electronic system, likely reducing any potential cost savings that could be derived from a truly electronic recording (“eRecording”)⁹⁰ system.

eRecording gains significant functionality by providing secure access to documents that are electronic, signed electronically, are considered evidence of an original agreement, and are considered written notification or assent to disclosures that are required by law.⁹¹ Since the major benefits of eRecording include the quicker return of the eMortgage to the closing agent, commercial lenders will be able to move this document into the eVault for storage or sale more efficiently.⁹² The synergies create advantages by establishing a platform where it is easy for users to access the eMortgage while the system securely monitors the integrity of the documents within.⁹³ Those seeking to create these systems are not left totally in the dark because the government-sponsored entities (“GSE”) have published standards for their eMortgages. The UETA standards discussed above drive the development of eVault interfaces.⁹⁴

While the UETA standards drive the design of eVault interfaces, industry leaders are working to create eVault standards that accomplish a different but related goal. Many industry leaders, like Fannie Mae and Freddie Mac, are currently developing eMortgage and eVault standards with the goal of spurring eMortgage origination. Freddie Mac’s standards for eMortgage storage and access post-closing have been in development

87. Gaudio, *supra* note 11, at 276.

88. *Id.*; *see, e.g., Boulder County Public Records*, BOULDER COUNTY CLERK & RECORDER, <http://recorder.bouldercounty.org/countyweb/login.do?countyname=Boulder> (last visited Nov. 18, 2011) (providing users with an interface for searching property records).

89. Gaudio, *supra* note 11, at 276.

90. eRecording is a system for electronic submittal of all of the necessary electronic mortgage documents.

91. *See* MISMO, *supra* note 81, at 15.

92. Stonefield, *supra* note 24, at 215.

93. *See* MISMO, *supra* note 81, at 12.

94. *See id.* at 10-11.

since they first published them in their *eMortgage Handbook* in 2005.⁹⁵ These standards are a means to an end in establishing a method for eMortgage originations acceptable to the lending giant. Under UETA, one of the most important parts of any eVault system is the ability to store information, at will, depending on what is deemed important information according to the purpose of the underlying document.⁹⁶ Any sound eVault will also contain a protocol for ensuring the description, location, and holder of the authoritative copy of the eMortgage.⁹⁷ The properly designated authoritative copy protects parties to the transaction by providing the corresponding legal protections to the holder in due course, much in the same way one is protected as the holder of the executed original paper document.⁹⁸ Thus, a significant synergy and cost savings from the entire eMortgage process is not properly recognized until one accounts for the way that eMortgages allow document custodians to streamline and update their processes to provide ease of storage and access with increased security. To fully embrace the value created by eVaults fully, originators must use all electronic commercial mortgage origination systems that provide secure and streamlined disclosures; electronic executions, signatures, and acknowledgements of mortgage documents; and electronic transfer and recording of these documents.

D. ALL GROWN UP: CLOSING AN eMORTGAGE

While eVaults help pave the way away from the traditional paper-based mortgage, mortgage originators, title companies, and county recorders will need to embrace additional technologies to implement commercial eMortgages fully. Commercial eMortgages will require secure electronic mortgage documents that can be drafted, signed, delivered, recorded, and stored digitally. Without endorsing any specific technology or service provider, MISMO has promulgated standards and formal guidance or “white papers” covering each important part of this drafting and closing process.⁹⁹ Furthermore, “eMortgage

95. See *id.* at 10.

96. See *id.* at 9.

97. MBA, COMMERCIAL eMORTGAGES: THE PRESENT AND FUTURE OF “PAPERLESS TRANSACTIONS” IN COMMERCIAL MORTGAGE LENDING 8 (2003), available at http://www.mismo.org/specs/specs-downloads/cat_view/252-docs.html?start=5 (follow “Commercial eMortgage Position Paper” hyperlink; users must complete the free registration to download the PDF report).

98. *Id.*

99. Several documents have been placed on the MISMO website that can be downloaded for free. These documents describe the specifications that MISMO recommends for the eMortgage. See *Commercial Specifications*, MISMO, <http://www.mismo.org/specs/commercial-specs.htm> (last visited Nov. 17, 2011); *eMortgage Specifications*, MISMO, <http://www.mismo.org/specs/emortgage-specs.htm> (last visited Nov.

implementations are complex, requiring compliance with federal[, state[, and local laws[; evolving industry standards[; and secondary market investor requirements.”¹⁰⁰ Adoption of an eMortgage system that complies with these MISMO standards creates a legally compliant eMortgage system for the lender that is of better quality, and features the desired reduction in costs and time in new mortgage originations.¹⁰¹

The cornerstone of the MISMO standards is the development and endorsement of SMART¹⁰² documents for eMortgages. The SMART document is a format that “links data, the visual representation of the form, and signature.”¹⁰³ This link format ensures that the document being created and secured as the “original” is in fact what is represented on the computer screen and electronically signed by the borrower.¹⁰⁴ The MISMO SMART document employs XML and XHTML to create an electronic document with a “header” section that contains all of the information about the document itself including the version and whether the document has been signed.¹⁰⁵ Furthermore, there is a data section containing the substantive information conveyed by the words in the document like the address and amount of the mortgage debt.¹⁰⁶ The information in both the data and the header sections is in XML format, and the XHTML of the view section tells the document how to display this substantive information to the user viewing the various documents of the eMortgage.¹⁰⁷ Once the SMART document is ready to be signed by the parties, it is embedded with the capability to be signed digitally, and “this digital signature ‘wraps the SMART Doc and acts as a tamper seal’ ensuring the “integrity of the document contents.”¹⁰⁸ These technologies create a complete, all-electronic, and secure equivalent of a paper-based original commercial mortgage.

When using these secure systems and technology, electronic signatures for eMortgages are secure and flexible. Each eMortgage can be signed by several parties and subparts of individual documents can also be signed separately from the document in its entirety.¹⁰⁹ Prior to

17, 2011).

100. Tank & Supik, *supra* note 75, at 1.

101. *See id.*

102. SMART stands for Secure, Manageable, Achievable, Retrievable, and Transferrable. MBA, *supra* note 97, at 7.

103. MISMO, SMART DOCUMENT TECHNOLOGY OVERVIEW 2 (2002), <http://www.mismo.org/specifications/emortgagespecifications.htm> (follow “SMART Doc Technology Overview v1.0” hyperlink; users must complete the free registration to download the PDF report).

104. *Id.*

105. *Id.* at 5.

106. *Id.*

107. *Id.*

108. *Id.*

109. *Id.* at 4-5.

applying a secure electronic signature to an eMortgage, a user will verify his or her identity through a secure web-based system similar to those commonly used for online banking transactions.¹¹⁰ The electronic signature on an eMortgage SMART document provides two distinct features: authentication and tamper evidence.¹¹¹ For authentication, the digital signature is accompanied by an electronic certificate that verifies the identity of the sender of the signed document.¹¹² The XML signature also allows the recipient of a signed document to verify whether the document has been changed after the authenticated user “signed” the document.¹¹³ When used with data encryption, this tamper evident seal protects the original character of the signed document by allowing a recipient to verify whether document data has changed since the document was signed.¹¹⁴

There are several existing technologies that provide security for electronically generated and signed documents. Public Key Infrastructure (“PKI”) is the “most widely accepted form of encryption and protection of document integrity.”¹¹⁵ PKI encryption technology is based on embedding data keys within an electronic document that can only be accessed if the correct “private key” is matched to the corresponding “public key.”¹¹⁶ The document cannot be reconstructed once encrypted without the user matching both keys.¹¹⁷ This security method is “multi-layered and complex, making it extremely difficult to break.”¹¹⁸ PKI encryption has proven effective technology for ensuring the security of electronic documents and signatures.¹¹⁹ Freddie Mac requires that the tamper evident seal certifies that the view and data sections of the eMortgage XML SMART document are identical.¹²⁰ Further PKI seals and XML SMART document technologies applied to commercial

110. See generally MISMO, REMOTE ELECTRONIC AUTHENTICATION IN THE MORTGAGE INDUSTRY 2-3 (2007), available at http://www.mismo.org/files/InformationSecurityGuidelines/MISMO_Remote_Authentication_Whitepaper.pdf (users must complete the free registration to download the PDF report). There are several examples of commonly used secure online banking interfaces. See, e.g., CHASE, <https://www.chase.com> (last visited Nov. 18, 2011).

111. MISMO, XML IMPLEMENTATION GUIDE: GENERAL INFORMATION 11 (2010), available at http://www.mismo.org/specs/specs-downloads/cat_view/16-specifications/20-information-security/111-i-guide-sections/112-xml-signature-guidance.html (follow “XML Signature Section for General I-Guide 1 v1” hyperlink; users must complete the free registration to download the PDF report).

112. *Id.*

113. *Id.*

114. *Id.*

115. MBA, *supra* note 97, at 6.

116. *Id.*

117. *Id.*

118. *Id.*

119. *Id.*

120. Fry et al., *supra* note 30, at 310.

eMortgages require that the digital certificates be industry verified and accredited.¹²¹ With these technologies applied to commercial eMortgages, borrowers and originators trust that these electronic documents are secure and represent the actual transaction between the parties.

The MBA has created an organization to accredit certificate suppliers according to each supplier's ability to conform to the required encryption, identification, and accessibility of their certificates.¹²² Digital signatures ensure the authenticity and integrity of the data encompassed in the eMortgage SMART document. Combined with eVaults, eMortgages are designed to be efficient and secure while allowing borrowers and other transaction participants to sign "original" electronic documents. Sophisticated commercial borrowers will embrace the eMortgage closing process because of the security and ease of use of the eMortgage documents and electronic signatures.

Once the commercial eMortgage is closed, it is able to be transferred quickly and securely to the eVault; however, there is a gaping hole in the process when it comes time to record the eMortgage. So far, the process of creating, executing, and delivering an eMortgage has been electronic. Counsel and the title companies could do all of their respective drafting and research digitally. The borrower can sign the document electronically, and the eMortgage can be securely delivered to the commercial lender's eVault. Much of the time and cost savings generated by performing all of these tasks electronically would be wasted if, after closing, the lender or title company was forced to print and send traditional copies of the eMortgage to the county clerk and recorder for recording. This lack of effective means for eRecording of eMortgages is the last major impediment to the industry moving from the traditional commercial mortgage to a commercial eMortgage.

IV. THE MISSING PIECE: eRECORDING

A. STALLED IMPLEMENTATION OF eRECORDING

Although commercial lenders currently have widespread incentive to create "hybrid" eVaults that can accept both traditional and eMortgages,¹²³ they do not have sufficient incentive to transact exclusively through eMortgages because there is a legal and practical breakdown at the recording phase of the mortgage transaction process. In 2003, the MBA acknowledged two major factors that were impeding the implementation of eRecording: first, there are states and local

121. *Id.* at 309-10.

122. *Id.* at 307.

123. *See* MISMO, *supra* note 81, at 15.

jurisdictions that have failed to enact the legal framework necessary for counties to accept eMortgage documents, and second, there are significant upfront costs for counties to obtain the necessary technology to establish eRecording.¹²⁴ Some estimates are approximately \$80,000 per county in up-front costs.¹²⁵ Additionally, even in the jurisdictions that have eliminated the legal barriers to eRecording, the systems were designed as “hybrids” that only have the technical capability of accepting images of executed “original” paper copies of the mortgage documents.¹²⁶ These jurisdictions will also face significant upfront costs in transitioning to true eRecording. In light of these costs and the economic downturn since 2008, it is not surprising that the pace of implementation of eRecording, where legal, has been slow.

More recently, commercial mortgage industry participants have recognized that they could not work alone to solve the remaining legal and systematic issues preventing the implementing eRecording.¹²⁷ More broadly, the Public Records Industry Association (“PRIA”) sees itself as bridging the gap between “two interdependent segments of the American economy,” and this positive approach leads to hope that universal eRecording can be achieved in the near future.¹²⁸ Much like MISMO in the commercial mortgage industry, PRIA is actively working to develop and promulgate industry standards for counties to use in implementing eRecording.¹²⁹ In spite of the fact that recording offices are not solely focused on cost savings and efficiency like other market participants because they are focused on ensuring the validity and reliability of the property recording system, many of these bureaucrats have embraced the switch to eRecording.¹³⁰ These recorders will continue to face an uphill battle to implement these changes because many of them “face new costs without new funding; unknown, conflicting, and changing technical standards, equipment requirements; and operating protocols; and a lack of clear legal authority under state law.”¹³¹ Much of the focus of the MISMO and PRIA standards will help alleviate the technological and equipment-based difficulties.

The process has been generally slow for more than a decade.¹³² As

124. See MBA, *supra* note 97, at 7.

125. See Stonefield, *supra* note 24, at 233.

126. See MBA, *supra* note 97, at 8.

127. See *eMortgage Specifications*, *supra* note 99 (describing collaboration with PRIA to develop and implement eRecording industry standards).

128. *About PRIA: History*, PRIA, <http://www.pria.us/i4a/pages/index.cfm?pageid=3295> (last visited Nov. 17, 2011).

129. *Id.*

130. Stonefield, *supra* note 24, at 223.

131. *Id.* at 223-24.

132. Press Release, PRIA, eRecording Counties Top 700 Mark 1 (Sept. 19, 2011), *available at*

of September 2011, there were only 700 counties using eRecording out of a total of approximately 3,300 throughout the U.S.¹³³ The pace has been increasing, with the number of counties using eRecording more than tripling after 2006.¹³⁴ For those who have implemented eRecording, the programs have been widely successful and have produced the advertised time and cost savings for market participants.¹³⁵ Colorado is an unusual example because it uses eRecording in every county and 100% of the population has access to eRecording.¹³⁶ Colorado's state legislature embraced eRecording, specifically designating funds for the purchase of the necessary technology.¹³⁷ By using this designated funding, Colorado rapidly increased the speed at which eRecording was implemented.¹³⁸ However, in spite of the several vendors and technology providers competing in the marketplace,¹³⁹ the costs of implementing eRecording systems continue to impede the majority of counties from adopting them.¹⁴⁰ At a time where there are shrinking state budgets and competing funding needs, it will be unlikely to see other state legislatures approach the adoption of eRecording with the same bravado as the Colorado statewide funding plan. In order for eRecording to succeed nationwide, states must duplicate this effort across the country, implementing the necessary funds and legal framework for eMortgages to be accepted through the necessary eRecording technology.¹⁴¹ One source of funds that would pay for implementation of eRecording is to divert a percentage of overall recording fees to pay for implementing eRecording systems. The title companies could serve as another source of payment for eRecording implementation through the enactment of a

http://www.pria.us/files/public/News/Press_Releases/PRIA/2011/PRIA%20700%20eRecording%20Counties%20-%20FINAL.pdf.

133. *Id.*

134. *Id.*

135. *Id.*

136. Press Release, PRIA, Colorado Attains 100 Percent Engagement (Apr. 11, 2011), *available at*

http://www.pria.us/files/public/News/Press_Releases/PRIA/2011/Colorado_Reaches_100_Percent.pdf (last visited Nov. 17, 2011) (also noting that Hawai'i was unusual in the same way by reaching the 100 percent plateau).

137. *Id.*

138. *Id.*

139. There are several vendors providing the secure Internet-based portals for users to upload documents and county employees to retrieve, record, and return the documents. These interim systems are critical for the phase of implementation during which counties must maintain both electronic and traditional paper property records. *See, e.g.,* CORP. SERV. CO., <http://www.erecording.com/> (last visited Jan. 31, 2012); SIMPLIFILE, <https://simplifile.com/eRecording/index.jsp> (last visited Jan. 31, 2012); ERXCHANGE, <https://www.erxchange.com/UI/About.aspx> (last visited Jan. 31, 2012).

140. Cost information from vendors is generally unavailable. Considering that the Colorado legislature specifically designated funds to implement the systems, significant implementation costs exist.

141. *See* Stonefield, *supra* note 24, at 224.

dedicated levy on title companies for the closing services that they perform. Title insurance companies are very profitable and payout a significantly lower percentage of their total revenue in claims than do other types of insurance, like automobile insurance.¹⁴² State insurance commissioners who regulate title insurance companies could ensure that a short-term levy on title insurance premiums is not passed through to consumers by highlighting the cost savings to the insurance companies over the long term. Additionally, these cost savings must eventually reduce the premiums paid by the property owner for these recording services.

B. PROPOSED CHANGES TO SPUR GROWTH IN eRECORDING

In order to change the legal framework to improve the speed of broad eRecording implementation, policy makers must entertain a balanced approach to incentivize this transition. Since commercial parties are sophisticated and extremely cost conscious, albeit traditionalist, it is unlikely that they will oppose implementation of eRecording.¹⁴³ Over the long term, eRecording generates economies of scale and process automations that make it unlikely that the bureaucracy responsible for recording will save tremendous amounts of public resources.¹⁴⁴ This direct reduction in costs is in addition to the indirect benefits to the public land records of enhanced “accessibility and searchability” that will likely include tract-based indexing of property records in addition to the traditional grantor-grantee indexing that is most commonly used currently.¹⁴⁵ Integration of the eRecording database across county lines within a state will also provide for more extensive and complete title searches that will give prospective lenders or purchasers even greater certainty that the borrower or seller is conveying an interest that they actually own.¹⁴⁶

In light of these advantages and the uptick in adoption of eRecording over the past five years, it appears that the implementation of eRecording on a national scale might continue to move quickly. New counties that embrace eRecording can springboard upon the experiences of the jurisdictions that have been working with eRecording.¹⁴⁷ Still at this pace of growth, it will be another decade before all counties allow

142. Les Christie, *Title Insurance: Getting Ripped Off?*, CNN MONEY (Jan. 11, 2006, 10:41 AM), http://money.cnn.com/2006/01/11/real_estate/title_insurance_exposed/index.htm.

143. See Stonefield, *supra* note 24, at 225 (explaining possible consumer hostility to electronic mortgage documents and recording).

144. See *id.* at 228.

145. *Id.* at 230.

146. *Id.* at 231.

147. See Gaudio, *supra* note 11 at 299 (discussing the role of MISMO and PRIA in moving the eRecording process forward).

eRecording: too slow considering the nature of the changes in these transactions created by technology over the same timeframe.

A continued emphasis on a decentralized approach to implementation may possibly lead to the most practical implementation of eRecording.¹⁴⁸ The use of state and local task-forces to implement these policy changes have the benefit of creativity and a close fit to the individual needs of each jurisdiction.¹⁴⁹ Conversely, now that there are counties in at least thirty-eight states that have implemented eRecording,¹⁵⁰ communication between these jurisdictions should allow for a broad and quick implementation of the system in the remaining jurisdictions by focusing on the best practices as related by each jurisdiction. Additionally, national pressure in the form of new federal legislation could force states to consider using a percentage of their recording fees to implement the required eRecording technology to enter into conformity with the rest of the nation.¹⁵¹ On a smaller scale, it would be more prudent for each state legislature to implement minimum standards for all of the state's recording offices. States that have unified systems across recording offices allow citizens and other information seekers to access digital copies of mortgage documents through these eRecording systems. The price of access to these documents should be less than that charged for paper copies of records at the various Recorders' offices because there is no longer a need for the recorder to search for the document or create a paper copy for the patron. States that have not enacted the necessary laws for eRecording need to be the focal points of industry group communication in order to determine the cause of their failure to legalize and implement eRecording.

The role of title companies in the commercial mortgage process could allow them to stand firmly in the way of such optimism. Title companies, especially the five giants that recently controlled more than 92% of the U.S. title insurance market,¹⁵² risk losing their oligarchic role that they have enjoyed for several decades.¹⁵³ Profits in the industry rose 386% between 1995 and 2004 alone, and profits remain exceptionally

148. See Stonefield, *supra* note 24, at 237.

149. *Id.* at 231.

150. *E-Recording Network*, SIMPLIFILE, <https://simplifile.com/eRecording/customers-network.jsp> (last visited Dec. 22, 2012) (providing a service map for that company's service in at least 38 states).

151. Stonefield, *supra* note 24, at 238-39.

152. Letter from Orice M. Williams, Dir. of Fin. Mkts. & Cmty. Inv., Gov't Accountability Office, to Spencer Bachus Ranking Member, Comm. On Fin. Servs., U.S. House of Representatives (Apr. 13, 2007), *available at* <http://www.gao.gov/new.items/d07401.pdf>.

153. See Bruce M. Owen, *Kickbacks, Specialization, Price Fixing, and Efficiency in Residential Real Estate Markets*, 29 STAN. L. REV. 931, 936-37 (1977) (characterizing title insurance practices at the time as oligarchic).

high in spite of the recent economic downturn.¹⁵⁴ Aside from a reduction in the fees title companies receive for handling the transfer of loan documents from the closing to the recorder's office, title companies suffer tremendous loss in value of their internal title plants once property records become openly and cheaply accessible by the public online. The title plants created and maintained by the title insurance companies may be their most significant asset, and the title companies have spent years and significant amounts of money growing these internal title records to maintain their dominance in the market to the exclusion of attorneys.¹⁵⁵

Once fully implemented, eRecording will cause all property records to become digitized and searchable over the coming decades. This searchability will cause title companies to lose the advantage that was created by their private searchable title plants, which will change their business models forever. In spite of the substantial risk that eRecording will drastically change their business model, many title insurance companies are crafting ways to add value to the eRecording process.¹⁵⁶ Title insurance companies are reaping the benefits of standardization and cost savings of eRecording in residential mortgage transactions.¹⁵⁷ By implementing eVaults for their internal title plant systems, the title companies enjoy cost savings in addition to the use of these systems for eRecording because these systems also make their title searches and resulting title insurance policies less expensive as well.¹⁵⁸ By adapting to this change instead of trying to impede the technological change, these title companies need not sacrifice their role in the real estate transaction and should still reap the benefits of the cost savings created by eRecording. The risks to the insurer are controllable, making title insurance companies profitable over the long term regardless of whether there are pressures to reduce their fees following the complete integration of eRecording across the U.S.¹⁵⁹ In addition to the immediate cost benefits, their expanded role in providing real estate transactional closing services will secure demand for their services all while operating under a business model featuring eRecording. In spite of the incentive to fight change, the title insurance industry actively supports the adoption of

154. Editorial, *Reforming Title Insurance Industry Should Be State Priority*, TAMPA TRIBUNE, Sept. 17, 2007, available at <http://tbo.com/list/news-opinion-editorials/reforming-title-insurance-industry-should-be-state-priority-186825>.

155. See Michael Braunstein, *Structural Change and Inter-Professional Competitive Advantage: An Example Drawn From Residential Real Estate Conveyancing*, 62 MO. L. REV. 241, 248-49 (1997).

156. *Title Source Says Its Smart Option Signing Breaks New Ground*, AM. LAND TITLE ASS'N (Jan. 10, 2012), <http://www.alta.org/news/news.cfm?newsID=16426>.

157. *Id.*

158. Charles Szypszak, *Public Registries and Private Solutions: An Evolving American Real Estate Conveyance Regime*, 24 WHITTIER L. REV. 663, 705 (2003).

159. See Christie, *supra* note 142.

eRecording, and the industry trade group, the American Land Title Association, is an active member of PIRA and MISMO.¹⁶⁰ Still, title insurance companies act half-heartedly in their embrace of this transition as evidenced by their failure to secure nationally uniform implementation of eRecording.

Rather than pursue a policy requiring a uniform change to state recording statutes as the primary means of achieving universal eRecording, the federal government and state lawmakers can exercise sufficient informal policymaking tools to push the transition forward. For example, Federal regulators and Congress can change the requirements placed on originators by the mortgage giants Freddie Mac and Fannie Mae. Due to their overwhelming market position, the lenders easily impose underwriting and delivery requirements on banks and other originators. If the originators fail to follow the technical guidelines, they risk losing the ability to have Fannie Mae and Freddie Mac purchase their loans. Further options remain for state legislators to mandate a more centralized system for eRecording across all of their counties. This type of system requires a partnership between county recording offices and the secretary of state. The advantages of using a single eRecording vendor across the state significantly outweigh the minor preferences and nuances followed by each recorder's office.

V. CONCLUSION

Clearly, technology problems do not prevent commercial eMortgages from becoming widespread reality. Borrowers and lenders are clamoring for the cost savings associated with keeping the commercial mortgage process electronic; they prefer not to have to execute and record paper documents after spending months negotiating a transaction electronically. However, a lack of pressure to conform to eRecording prevents additional progress in the adoption of eMortgages. Policy makers must choose between greater national uniformity of recording laws, or they can allow states and individual counties to continue to meander through the process haphazardly. In addition to the benefits to lenders and borrowers, commercial eMortgages generate significant cost savings for title insurance companies and recorders. Commercial eMortgages coupled with eRecording fulfill a key governmental objective of providing clear and easy access to public land records at the lowest possible cost. Rather than remain stuck in the past wasting time and money on a paper based process, policy makers must align the technical advances made by the law through UETA and

160. *Industry Technology Information*, AM. LAND TITLE ASS'N, <http://www.alta.org/technology/index.cfm> (last visited Jan. 31, 2012).

UERPA with the economic reality by properly incentivizing this transition. Failure to create this missing legal piece is like requiring modern mortgage financiers to trade in Excel for the abacus.

GOOGLE GLASS: A PREEMPTIVE LOOK AT PRIVACY CONCERNS

MICHAEL S. WAGNER*

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I. INTRODUCTION

It is undeniable that we all live in a world surrounded by technology. Indeed, recent reports have shown that 90% of Americans own some type of computerized gadget.¹ While many of us have come to embrace—whether willingly or not—the use of technology and gadgets in our everyday lives, we often fail to realize the full impact it causes. This type of technology has provided us with many benefits, such as having a wireless phone; e-mail on the go; and the ability to search a vast amount of knowledge via the Internet with the push of a button on a device we carry in our pocket.²

With these benefits, however, come potential drawbacks. Some of these harms are social, e.g., being connected to others at all times of the day. For example, friends, family, and even employers expect others to

* Student, University of Colorado Law School, Expected Graduation May 2013. I would like thank Professors Paul Ohm, Harry Surden, and Scott Peppet for their time and assistance. I would also like to thank the speakers and panel members at the Silicon Flatiron's Technology of Privacy Conference for their willingness to discuss the privacy policy issues contemplated within this paper. This paper was written in January 2013.

1. Amy Gahran, *Report: 90% of Americans Own a Computerized Gadget*, CNN (Feb. 3, 2011, 5:52 PM), http://articles.cnn.com/2011-02-03/tech/texting.photos.gahran_1_cell-phone-landline-tech-gadget?_s=PM:TECH.

2. Ironically, much of this ability is used for searching for “grumpy cats,” YouTube videos, and the like.

be constantly available for a phone call or to answer an e-mail. Other harms affect us on a more personal, private level. These types of privacy harms have been the center of recent debates, including the debate on Do Not Track, and such harms are often hard to detect and identify. One reason for this difficulty is that the general public often does not understand the technology and its potential uses. This lack of understanding makes it difficult to be fully aware of what information is being used. If the public cannot even identify the personal information that they are giving up, it becomes especially challenging for them to determine whether their privacy has been violated.³ This problem is exacerbated as technology continues to advance, leaving more and more people with a lack of sufficient technical knowledge. For these reasons, this paper looks to identify the potential privacy harms that may arise from the use of the upcoming advanced augmented-reality technology, Google Glass.⁴ By identifying these potential harms now, we may be able to start the conversation and debate on these particular privacy concerns before any potential harm actually occurs.⁵

II. A FRAMEWORK FOR IDENTIFYING POTENTIAL HARMS

Privacy is a value that people have wanted to protect for a long time, but because of opposite desires based on curiosity, man's inquisitive nature, and a fear of the unknown, privacy protection has always faced challenges.⁶ As this battle has grown and technology has advanced, the difficulty in concisely explaining the situation has become increasingly difficult. Fortunately, Professor Harry Surden⁷ has provided

3. Notably, in Professor Annie Anton's recent presentation at the Silicon Flatirons' Technology of Privacy Conference (January 2013), she posited that, based on empirical evidence, consumers' top privacy concerns and values did not change over the six years between 2002 and 2008, despite drastic changes in technology. Annie Anton, Privacy Values and Privacy by Design, Presentation Before the Silicon Flatirons Technology of Privacy Conference (Jan. 11, 2013), *available at* http://www.siliconflatirons.com/documents/conferences/2013.01.11%20Privacy/Anton_PrivacyConf2013.pdf.

4. See, e.g., *Google Glass*, GOOGLE+, <https://plus.google.com/+GoogleGlass/posts> (last visited Sept. 29, 2013); *Google Glass*, Mashable, <http://mashable.com/category/project-glass> (last visited Sept. 29, 2013).

5. In comparison, the current Do Not Track debate has been ongoing for longer than expected and started after the harms were already realized. See Jeff Blagdon, *Do Not Track: an uncertain future for the web's most ambitious privacy initiative*, The Verge (Oct. 12, 2012), <http://www.theverge.com/2012/10/12/3485590/do-not-track-explained>.

6. See, e.g., U.S. CONST. amend. IV, and the case law that has formed around it; see also *Olmstead v. United States*, 277 U.S. 438, 478 (1928) ("The makers of our constitution undertook to secure conditions favorable to the pursuit of happiness... They sought to protect Americans in their beliefs, their thoughts, their emotions and their sensations. They conferred, as against the government, the right to be let alone, the most comprehensive of the rights and the right most valued by civilized men.").

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a useful way to discuss these issues and identify certain harms that may arise from new technologies.⁸

Before getting into the details of Professor Surden's framework, it is helpful to define what privacy means within this area. While many definitions have come and gone, the most appropriate definition of privacy for this paper is as follows: "the ability to control information about oneself."⁹ This definition is appropriate because it focuses on the individual wanting to protect his or her privacy, and the definition remains true regardless of who or what attempts to violate that privacy.

A. Professor Surden's Framework

Professor Surden builds a framework for analyzing privacy rights by looking to different constraints as regulators of human behavior.¹⁰ Traditionally, privacy rights are those that arise out of positive legal rights that have been "explicitly identified and instantiated by rule-makers."¹¹ However, it is shortsighted to believe that this is the only privacy protection we have. Instead, there are four major categories of constraints: (1) laws, (2) markets, (3) social norms, and (4) constraints which are based upon the physical and technological state of the world.¹² This fourth category is what Professor Surden collectively refers to as "structural constraints."¹³ All of these constraint categories are able to control or modify behavior by changing the *costs* of engaging in certain activities.¹⁴ For example, the law raises costs by creating legal punishments, such as fines or imprisonment. Markets create economic costs, and social norms create social costs.¹⁵ Structural constraints, in turn, create physical and/or technological costs for conducting

<http://lawweb.colorado.edu/profiles/profile.jsp?id=316> (last visited Sept. 29, 2013).

8. Harry Surden, *Structural Rights in Privacy*, 60 SMU L. Rev. 1605 (2007), available at <http://ssrn.com/abstract=1004675>. Although the journal is paginated as 1605-1629, the SSRN paper is paginated 100-45. As such, I will be citing to page numbers from the SSRN version.

9. *Id.* (citing Eugene Volokh, *Freedom of Speech and Information Privacy: The Troubling Implication of a Right to Stop People from Speaking About You*, 52 Stan. L. Rev. 1049, 1050 (2000)); Kent Walker, *Where Everybody Knows Your Name: A Pragmatic Look at the Costs of Privacy and the Benefits of Information Exchange*, 2000 Stan. Tech. L. Rev. 2, ¶ 5 (2000), available at <http://stlr.stanford.edu/pdf/walker-information-exchange.pdf> (defining privacy as "the ability to prevent other people or companies from using, storing, or sharing information about you").

10. Surden, *supra* note 8 at 110.

11. *Id.* at 102.

12. *Id.* at 110.

13. *Id.*; Lawrence Lessig, *The New Chicago School*, 27 J. Legal Stud. 661, 662-63 (1998).

14. Surden, *supra* note 8, at 111. Costs are considered in a broad sense, rather than just monetary costs.

15. *Id.*

activities.¹⁶

Because different behavior regulating mechanisms exist, policymakers and society alike are faced with the challenge of how to use each of these mechanisms effectively.¹⁷ Typically, rule-makers will tend to look to law to control behavior because the law is what they know best.¹⁸ Society, however, will often create its own social, market, and structural-based constraints without the involvement of any policymakers or rule-makers.¹⁹ Many of these constraints may be formed unconsciously by society or may be a natural result of the current state of the world.²⁰ Such unconsidered constraints are of a particular importance to privacy because many of the privacy “rights” we appreciate today are merely the result of latent, non-legal constraints on behavior.²¹

More specially, structural constraint mechanisms have played a key role in protecting society’s privacy interests.²² There are two different types of structural constraints: (1) explicit structural constraints and (2) latent structural constraints.²³ Explicit structural constraints are those things that are intentionally placed to raise the costs of certain behaviors and to sometimes prevent such behaviors entirely. For example, a property owner may put up a fence to raise the cost of someone entering his or her property.²⁴ Additionally, a homeowner may construct walls on his house to protect others from seeing what is inside. Another form of explicit structural constraints arises from technology. In a technological sense, passwords and encryptions are structural constraints because they raise the costs of reading password-protected or encrypted files.²⁵

Unlike explicit structural constraints, latent structural constraints are those constraints that are the natural result of the current state of the world.²⁶ These latent structural constraints impose secondary costs on behaviors that would encroach on individuals’ privacy.²⁷ Some of the most important of these latent constraints are those that impose costs that are so high, they render certain behaviors almost impossible.²⁸ For example, a person’s thoughts are often considered to be his or her most private possession.²⁹ This is only true because people do not currently

16. *Id.*

17. *See id.*

18. *Id.*

19. *See id.*

20. *See id.* at 113-14.

21. *Id.* at 114.

22. *Id.*

23. *Id.*

24. *Id.* at 114-15.

25. *See id.* at 115.

26. *Id.*

27. *See id.*

28. *Id.*

29. *See, e.g.,* *Olmstead v. United States*, 277 U.S. 438 (1928).

possess the ability to read another's mind, which is the result of latent structural constraints. In other words, the current state of the technological world has created costs so high that it is impossible (or nearly impossible) to read someone's mind—effectively creating a non-legal privacy right to one's own thoughts. Additionally, some explicit structural constraints are only effective as constraints because there exist latent structural constraints as well. To use the example of a wall of a house from above, the wall only protects one's privacy because the latent structural constraints have created costs high enough that people cannot see through the walls. Notably, these privacy interests are not just interests to keep our thoughts private from the government, but also from other members of society.

B. Advancing Technology's Effect on Structural Constraints

As technology advances, latent structural constraint mechanisms are often eroded, and the costs that such mechanisms impose are lowered, sometimes significantly.³⁰ For instance, let's again consider the example of the wall of a house. The wall works as a structural constraint protecting privacy because others cannot see through the wall. Through the advancement of technology, however, it is now possible to partially "see" through the walls of a house using thermal imaging. After the introduction of thermal imaging, the wall now provides less privacy protection than it previously provided. As such, some other mechanism must be put in place to protect the privacy interest at the same level. One could add additional "thermal imaging proof" materials to the walls, or the law could be used to regulate the use of thermal imaging devices. In this situation, the law was adapted to partially alleviate this privacy erosion.³¹ In *Kyllo v. United States*, the Supreme Court held that under the Fourth Amendment, the use of thermal imaging by the police required a search warrant.³² This ruling, however, does not prevent the use of thermal imaging by non-government members of society nor does it prevent the government from using thermal imaging all together.³³ Thus, the creation of thermal imaging technology has still lessened the public's privacy right that was in place prior to the existence of thermal imaging technology.

Professor Surden refers to this ongoing erosion of latent structural constraints by technology as the "structural rights/emerging technology

30. Surden, *supra* note 8.

31. *Kyllo v. United States*, 533 U.S. 27, 40 (2001) (reversing a conviction based on thermal imaging evidence where the police did not have a warrant).

32. *Id.*

33. *See id.*

dynamic.”³⁴ Because the goal of technology itself is often to reduce transactional and operational costs, advancements in technology allows for conduct that was previously too cost prohibitive to take on.³⁵ As these cost-eroding technologies become widespread, there is effectively a “rights shift.”³⁶ In the words of Professor Surden:

The default state of the world changes from one in which the structural privacy interest was adequately protected to a world in which the privacy interest is no longer protected. Assuming there is no parallel constraint mechanism—law, norms, or markets—to continue to safeguard the privacy right, this phenomenon can be seen as the loss of a previously held right.³⁷

Unfortunately, although optimistic, we often focus on the cost reducing benefits that new technology will provide without immediately considering the possible harms that are associated with the technology. In some cases, it is difficult to recognize these harms at the outset because they are not obvious, or the latent structural constraint that is being eroded is not obvious. However, where these latent structural constraints can be identified prior to the widespread use of a new technology, policymakers can implement another form of constraint, such as law, to prevent the loss of the previously held privacy right.³⁸ Therefore, in the next section, I apply the framework and principles of the “structural rights/emerging technology dynamic” from this section to the emerging augmented-reality technology, Google Glass, to determine what latent structural constraints will be eroded by this new technology. By identifying possible privacy rights erosions prior to the widespread use of Google Glass, policymakers or society as a whole will be able to consider whether another form of constraint may be needed to protect the privacy interests in place today.

III. THE LATENT STRUCTURAL CONSTRAINTS ERODED BY GOOGLE GLASS

Google Glass appears to be the next major advancement in augmented reality technology.³⁹ Indeed, *Time Magazine* has already

34. Surden, *supra* note 8, at 123-24; Other authors have also recognized the effect advanced technologies have on privacy interests. See, e.g., Lessig, *supra* note 13; Christopher Slobogin, *Public Privacy: Camera Surveillance of Public Places and the Right to Anonymity*, 72 Miss. L.J. 213, 264-66 (2002); Daniel J. Solove, *Identity Theft, Privacy, and the Architecture of Vulnerability*, 54 Hastings L.J. 1227, 1228-30 (2003).

35. Surden, *supra* note 8, at 124.

36. *Id.* at 125.

37. *Id.*

38. *Id.* at 126.

39. See, e.g., *Google Glass (Google +)*, *supra* note 4; *Google Glass (Mashable)*, *supra*

named Google Glass to be one of the “Best Inventions of the Year 2012,” stating that “[Google] Glass is, simply put, a computer built into the frame of a pair of glasses, and it’s the device that will make augmented reality part of our daily lives.”⁴⁰ Prior to analyzing the latent structural constraints involved with Google Glass, it is first useful to look at a brief history of augmented reality.

A. A Brief History of Augmented Reality

Augmented reality ideas have tantalized us for years on the big screen and have been taken to great lengths by those in Hollywood. Recent Hollywood blockbusters featuring such technologies include films in the *Iron Man* series, *Transformers* series, *Minority Report*, and, classically, the *Terminator* series, to name a few. These augmented reality ideas, however, are becoming more of a “science fact” than a “science fiction.”

Even before these movies were popular, scientists were already trying to create a usable augmented reality system. In 1968, a working prototype of an augmented-reality system was developed by Ivan Sutherland.⁴¹ A photo of then Ph.D. student Sutherland wearing his system is shown below.⁴²

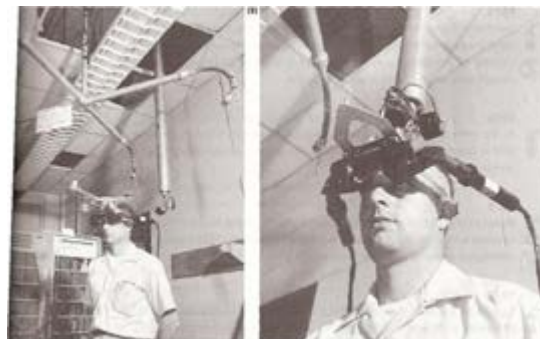


FIGURE 1

As can be seen from the picture, this head-mounted system had to be suspended from the ceiling because it was “rather heavy and

note 4.

40. *Best Inventions of the Year 2012: Google Glass*, TIME (Oct. 31, 2012), <http://techland.time.com/2012/11/01/best-inventions-of-the-year-2012/slide/google-glass>.

41. Scott Peppet, *Freedom of Contract in an Augmented Reality: The Case of Consumer Contracts*, 59 UCLA L. Rev. 676, 689 (2012); Ivan E. Sutherland, *A Head-Mounted Three-Dimensional Display*, Proc. Fall Joint Comp. Conf. 757 (1968), available at <http://141.84.8.93/lehre/ss09/ar/p757-sutherland.pdf>.

42. Sutherland, *supra* note 41, at 761.

uncomfortable to use.”⁴³ The goal of Sutherland’s system was to present the user with a perspective image which changed as he moved.⁴⁴

As augmented-reality experimentation continued, information was continually added to the displays, and work towards a *Terminator*-type heads-up display was underway.⁴⁵ Experiments included outdoor navigation systems for the visually impaired, backpack-based systems combining head-worn displays, location awareness and computational ability, and battlefield information systems along with flight displays for fighter pilots.⁴⁶ With the development of mobile computing and mobile devices throughout the 1990s and 2000s, augmented-reality technology was ready to go mobile.⁴⁷ Wireless internet, the Global Positioning System (GPS), and cellular-based internet access have also been major factors in preparing augmented reality for success.

Some successes and advancements in augmented reality systems have recently occurred, yet none have been in widespread use and many are still not commercially available.⁴⁸ Notably, one recent augmented reality advancement that garnered significant attention (mostly via viral video) was the “Sixth Sense” project developed by Pranav Mistry.⁴⁹ In this project, Mistry chose to implement his augmented reality via a wearable projector instead of using goggles or glasses.⁵⁰ In essence, the system incorporates a projector attached to a smart device which projects images onto products or surfaces we interact with on a daily basis.⁵¹ The system is then capable of identifying products, faces, and other visual objects, such as articles in newspapers.⁵² The “Sixth Sense” then allows a user to interact with the system via different hand gestures.⁵³ This invention was displayed in 2009 and received rave reviews but has yet to reach the market by Mistry or any other major technology company.

43. *Id.* at 760; this eventually led to the system being called the “Sword of Damocles.” See Peppet, *supra* note 41 at 689 and Stephen Cawood & Mark Fiala, *Augmented Reality: A Practical Guide 2* (2007) (explaining the origins of the “Sword of Damocles” nickname).

44. Sutherland, *supra* note 41, at 757.

45. See Peppet, *supra* note 41, at 689.

46. *Id.*

47. See *id.*

48. See, e.g., Peppet, *supra* note 41, at 693-94 (citing, e.g., *Vehicle Displays: Head Up Displays*, Microvision, https://www.microvision.com/solutions/head_up_displays.html (last visited Sept. 29, 2013); Paul Ridden, *World First GPS Goggles With Head Mounted Display*, Gizmag (Oct. 8, 2010), <http://www.gizmag.com/zeal-recon-transcend-gps-head-mounted-display-goggles/16605/>).

49. Peppet, *supra* note 41, at 694; Pranav Mistry, *sixthsense*, PRANAVMISTRY.COM, <http://www.pranavmistry.com/projects/sixthsense/> (last visited Jan. 18, 2013). The Sixth Sense project went viral quickly in part due to the TED2009 presentation.

50. Emily McManus, *An Interview with Pranav Mistry, the genius behind Sixth Sense*, TED Blog (Mar. 11, 2009, 1:00 PM), http://blog.ted.com/2009/03/11/sixth_sense_pranav/.

51. Mistry, *supra* note 49.

52. Peppet, *supra* note 41, at 694-95.

53. *Id.*

While there does not seem to be a concrete reason for this delay, Mistry has merely stated that “things take time.”⁵⁴ Fortunately, while we continue to wait on Mistry, Google Glass should be available to the public for purchase within the next year.⁵⁵

B. Google Glass

On April 4, 2012, Google introduced its Google Glass project that was likely under development since 2010, if not earlier.⁵⁶ As initially disclosed, Google Glass has taken the functionality of a smart phone and integrated it into a pair of glasses.⁵⁷ The Google Glass system also comes in a compact, somewhat stylish pair of glasses (especially compared to Sutherland’s headset⁵⁸), as shown below.⁵⁹



FIGURE 2

Back in 2010, Google’s Eric Schmidt suggested that pushing information to users in real time will be more important to Google than its (then) current search capabilities,⁶⁰ and Google seems to be moving in a direction consistent with Schmidt’s statements. While Google has been

54. Jesse Brown, *Stuck between invention and implementation*, Maclean’s (Feb. 25, 2011, 2:35 PM), <http://www2.macleans.ca/2011/02/25/stuck-between-invention-and-implementation/>.

55. *Best Inventions of the Year 2012: Google Glass*, *supra* note 40.

56. David Goldman, *Google unveils ‘Project Glass’ virtual-reality glasses*, CNNMoney (Apr. 4, 2012, 2:35 PM), http://money.cnn.com/2012/04/04/technology/google-project-glass/?source=cnn_bin.

57. *Id.*; *Project Glass: One day...*, YouTube (Apr. 4, 2013), <http://www.youtube.com/watch?v=9c6W4CCU9M4> (the initial video release from Google).

58. *See* Figure 1, *supra*.

59. Photo of the Google Glass glasses, Google+, https://lh4.googleusercontent.com/-quy9Ox8dQJI/T3xUHhub6PI/AAAAAAAAAHQ/YvjqA3Pw1sM/s420/glass_photos.jpg (last visited Jan. 18, 2013).

60. Peppet, *supra* note 41, at 694; *see also* Holman W. Jenkins, Jr., *Google and the Search for the Future*, Wall St. J., Aug. 14, 2010, at A9 (quoting Schmidt as saying, “[O]ne idea is that more and more searches are done on your behalf without you needing to type. I actually think most people don’t want Google to answer their questions. . . . They want Google to tell them what they should be doing next.”).

a bit cagey about all the features of Google Glass, likely because the project is still in development, Google has revealed some of the possible capabilities. First, the spectacles will have a video camera built into the frames so that the Google Glass system can record and analyze what the user is seeing.⁶¹ There will also be a display screen for the user to see the augmented reality information.⁶² Whether that display screen will be small, as pictured in Figure 2, or a full lens, has yet to be determined.⁶³ A microphone and speaker will also be included; however the controls are still not clear.⁶⁴ Some suggest that the controls may be voice and motion based, i.e., movements of one's head could indicate selections and scrolling.⁶⁵ Recent news suggests the Google Glass system will actually include a small projector to project controls or a virtual keyboard onto the user's hand or arm.⁶⁶

As shown in the initial video, Google has plans to implement full Google functionality into the glasses.⁶⁷ For instance, there will be a navigation system, weather information, video chat, and live transportation updates, among other things.⁶⁸ Presumably, the current functionality of the Google Goggles application will also be implemented into the Google Glass project, which will allow for people to effectively perform live searches by looking through the glasses.⁶⁹ Google Goggles also provides the functionality of analyzing and identifying images, such as products. Additionally, considering the current success of Face.com and its acquisition by Facebook, along with the facial recognition technology shown in 2009 by Mistry's Sixth Sense, it would also not be unreasonable to believe that Google Glass will implement some type of facial recognition features.⁷⁰ At the very least, Google Glass should be able to incorporate the functionality that is

61. See *Project Glass: One day*, *supra* note 57; James Rivington, *Project Glass: what you need to know*, TechRadar (Aug. 8, 2012), <http://www.techradar.com/us/news/video/project-glass-what-you-need-to-know-1078114>.

62. *Id.*

63. *Id.*

64. *Id.*

65. *Id.*

66. Andy Boxall, *Google considers laser projected virtual controls for Project Glass, because it's not sci-fi enough already*, Digital Trends (Jan. 17, 2013), <http://www.digitaltrends.com/mobile/project-glass-patent-shows-laser-projected-virtual-control-system/>; U.S. Patent Application Serial No. 13/533,120 (filed June 26, 2012, published Jan. 17, 2013).

67. See *Project Glass: One day*, *supra* note 57.

68. *Id.*

69. *Google Goggles*, Google, <http://www.google.com/mobile/goggles/#text> (last visited Jan. 18, 2013).

70. Mistry, *supra* note 49; Alexia Tsotsis, *Facebook Scoops Up Face.com For \$55-60M To Bolster Its Facial Recognition Tech*, TechCrunch (June 18, 2012), <http://techcrunch.com/2012/06/18/facebook-scoops-up-face-com-for-100m-to-bolster-its-facial-recognition-tech/>.

currently seen on a modern smartphone, and that “ability to access digital information—email, instant messages, walking or driving directions, lecture notes, product information, and so on—directly through your eyeglasses would obviously bring augmented reality to a dramatically different level than being forced to use your smartphone.”⁷¹ Although this list is likely not entirely accurate or complete at this point, it provides a good basis for analyzing some of the benefits and structural constraints involved.^{72,73}

It is hard to determine all the benefits of Google Glass before it is in widespread use, “but it would be very surprising if there were none.”⁷⁴ To avoid being pessimistic, there are likely some identifiable benefits. Users wearing Google Glass with facial recognition will never forget a face again. In fact, Google Glass may be able to remember everything for the user, not just faces, but also facts and information. The benefits of an unlimited memory are seemingly endless and would likely be one the greatest benefits offered by Google Glass. Additionally, users could use Google Glass for navigation and have directions and maps overlaid on top of their normal view. Users could also get live searches of products and conduct online shopping on the fly. This live information could also eliminate certain transaction costs associated with asymmetric information and other contractual issues.⁷⁵ Almost everything that we see today could be enhanced in some way, but such enhancements do not come without risks of privacy interest erosions.

C. Latent Structural Constraints Identified

The first latent structural constraint that may be eroded by the implementation of Google Glass relates to the possible facial recognition

71. Peppet, *supra* note 41 at 694.

72. More information should be revealed soon as Google is giving developers who have pre-ordered glass an early look this month (January 2013) at two “hackathons” in New York City and San Francisco. *Google's 'Project Glass' eyeglasses connect to the web, display info right before your eyes*, The Denver Channel, (Jan. 18, 2013), <http://www.thedenverchannel.com/money/science-and-tech/googles-project-glass-eyeglasses-connect-to-the-web-display-info-right-before-your-eyes>.

73. It is important to note that even if Google fails to deliver and the Google Glass project is no more than a wearable webcam, other competitors, including Microsoft already have similar technology in development. Chris Smith, *Microsoft plotting Google Project Glass rival with augmented live events*, Tech Radar, (Nov. 22, 2012), <http://www.techradar.com/us/news/world-of-tech/microsoft-plotting-google-project-glass-rival-with-augmented-live-events-1114627>. As such, this analysis would be appropriate for other similar technologies. Google Glass was chosen because Google’s current development, success, popularity, cash flow, and resources lead one to believe that it is likely to be successful in this project.

74. Peter Eckersley, EFF Technology Projects Director, discussing Google Glass over lunch at the Silicon Flatiron’s Technology of Privacy Conference (Jan. 11, 2013).

75. See Peppet, *supra* note 41.

function. Prior to Google Glass, individuals effectively had the right to not be recognized by strangers while in public. While this may not be true when dealing with the government, up until now, it has been very difficult for one person to immediately know the name of a perfect stranger (unless he or she was wearing a name tag). In other words, the costs of identifying a stranger in real time are so high that it effectively renders such an activity impossible. Indeed, as of now, to identify a stranger, a person would have to follow a series of user-initiated steps. For the most efficient, low-cost example I can think of, a person, Patty, would first take a picture of the stranger, Steve, with her smartphone. This step has its own social costs associated with it as well because people generally do not like to have their pictures taken while walking down the street. After snapping the photo, Patty could use a search tool like Face.com,⁷⁶ another consumer available facial recognition program, or possibly Google Goggles to try to determine Steve's identity.⁷⁷ Once Patty gets the results and determines that the stranger she just took a picture of is Steve, she can now search for Steve to determine if there is any additional information about Steve on the web. If Patty has acted quickly, roughly ten minutes have passed and Patty is finally ready to determine if she wants to interact with Steve. Unless Patty and Steve have stayed in the same place for this entire time or Patty has been eerily following Steve, it is likely too late for Patty to interact with Steve. These costs multiply as Patty tries to complete these steps for every stranger she passes or every stranger in the room.

The costs of completing all these steps have realistically prevented individuals from conducting such facial recognition. With the implementation of Google Glass and live facial recognition, this process will become automated, almost instantaneous, and, as Google Glass becomes popular, may also be free of the associated social costs. By reducing or eliminating these costs by removing the latent structural constraints, the emergence of Google Glass will eliminate any perceived right to remain anonymous to strangers while being in public.⁷⁸

To prevent this loss of a privacy right, different forms of constraints will need to be put in place. The law could be used to regulate the use of facial recognition technology, possibly requiring Google Glass to have a

76. Face.com is no longer active as a freestanding website since its acquisition by Facebook. See FACE.COM, <http://face.com/> (last visited Sept. 29, 2013).

77. For a presentation on the current state of facial recognition technology and additional privacy considerations, see Alessandro Acquisti, *Faces of Facebook: Privacy in the Age of Augmented Reality*, Heinz College, Carnegie Mellon Univ. (2012), available at <http://blackhat.com/docs/webcast/acquisti-face-BH-Webinar-2012-out.pdf>.

78. Although this paper does not look to determine which rights to privacy are considered important or any type of hierarchy of rights, one could argue that this particular right is not important or worth worrying about. However, one need only look to a celebrity and his or her often hostile relationship with paparazzi to see an opposing argument.

certain time delay in identifying faces. Such a solution would seemingly maintain the status quo that exists today. Besides law, society may impose additional social costs to wearing Google Glass if live facial recognition is available. For example, members of society may judge harshly those who wear Google Glass because they believe that use of Google Glass violates their privacy. Other explicit structural constraints could also be used to defeat the facial recognition technology. However, many of these additional structural constraints come with associated social costs. For example, one could simply wear a mask to avoid being recognized, but the social costs of wearing a mask in public are not trivial. Recognizing these potential social costs, Japanese researchers have developed the “privacy visor” that is meant to shield one from facial recognition technology by emitting infrared light to interfere with cameras.⁷⁹ This terse analysis merely scratches the surface of possible solutions that likely exist for solving this problem, and it is meant to provide only a small starting point for future discussion.

There are also latent structural constraints relating to the processing and recording of the video data taken by Google Glass. Currently, there is an ongoing debate surrounding “big data” and Internet tracking of user’s activity.⁸⁰ In the current technological state, data aggregators collect data that is limited to what websites we visit and how we use the Internet. However, the existence of this limitation is certainly not because data aggregators do not want more data, but because there are much higher costs associated with obtaining that data. Today, data aggregators use things like cookies, super cookies, browser fingerprints, and other similar methods to learn as much about you as they can, but there are limitations to this collection process as well. For example, such tracking mechanisms are browser based and can be easily evaded or tricked by using VPN connections or other encryption methods, disabling cookies, and using multiple browsers.

Google Glass transmits much more information than just simple web browsing, it transmits everything a user experiences as he or she sees it.⁸¹ This may have major privacy implications for those people

79. As of now, the social costs of wearing these glasses still seems to be pretty high (see the picture), but the final product could be quite stylish and at a reasonable estimated price of \$1. (Also, the “purple” light seen in the photo would not be seen by the naked eye). Ryan Gallagher, *These Goofy-Looking Glasses Could Make You Invisible to Facial Recognition Technology*, Slate (Jan. 18, 2013, 3:12 PM), http://www.slate.com/blogs/future_tense/2013/01/18/isao_echizen_and_seiichi_gohshi_s_privacy_visor_shields_you_from_facial.html.

80. See, e.g., Blagdon, *supra* note 5; Paul Ohm, *Broken Promises of Privacy: Responding to the Surprising Failure of Anonymization*, 57 UCLA L. Rev. 1701 (2010); *Consumer Data Privacy in a Networked World*, The White House, (Feb. 23, 2012), <http://www.whitehouse.gov/sites/default/files/privacy-final.pdf>.

81. This statement relies on the assumption that Google Glass must transmit the video it

whose images and actions are captured by Google Glass, but there will also be major privacy implications for those wearing Google Glass. First, the implications for a person who is captured on Google Glass, i.e., the non-user, will be considered. As discussed above, this could include the names and faces of all the people a user meets or even passes on the street. It could also include previously unknown details about those people. Google Glass would be recording and transmitting a person's clothing preferences, where they live, where they work, their speech patterns, travel patterns and preferences, and with whom that non-user interacts, just to name a few.

Businesses are already trying to capture many of these pieces of data, but currently the costs of doing so on a widespread level are prohibitively high. Today, the fashion industry has added facial recognition cameras into mannequins.⁸² These mannequins record statistics like gender, race, and approximate age to improve targeted marketing.⁸³ The mannequins also record consumer reaction when looking at certain items, and development is underway for recording sounds and phrases heard from customers.⁸⁴ Businesses have, however, stopped short of having these anthropomorphic video recorders leave the store and follow you down the street. This is likely due to the high economic costs of the mannequins along with the incredibly high "creepy" social costs of sending mannequins on reconnaissance missions.

Google Glass removes these latent structural constraints by creating an army of real-life video-recording mannequins, i.e., Google Glass users. As the use of Google Glass becomes widespread, people will be hard-pressed to go anywhere in public without being recorded by a Google Glass device. This will allow data aggregators to turn the current state of "big data" into "massive data" with minimal costs. Unless other constraint mechanisms are put into place, the "digital dossiers" of every individual are likely to expand at an exponential rate.⁸⁵ While there may be some benefits to having such an abundance of data,⁸⁶ such a massive

captures for remote processing—likely via cloud computing technologies that have already been developed by Google.

82. Liz Klimas, *'Spooky' Mannequins Outfitted with Facial Recognition Cameras Spy on Shoppers*, *The Blaze* (Nov. 21, 2012 1:38 PM), <http://www.theblaze.com/stories/2012/11/21/spooky-mannequins-outfitted-with-facial-recognition-cameras-spy-on-shoppers/>.

83. *Id.*

84. *Id.*

85. See Daniel J. Solove, *The Digital Person: Technology & Privacy In The Information Age* 1–2 (2004) (defining the digital dossier).

86. See Omer Tene and Jules Polonetsky, *Judged by the Tin Man: Individual Rights in the Age of Big Data*, Presentation Before the Silicon Flatirons Technology of Privacy Conference (Jan. 11, 2013), *available at* http://www.siliconflatirons.com/documents/conferences/2013.01.11%20Privacy/Tene_Privacy

collection of data likely violates the privacy interests and rights that we as a society appreciate today due to the latent structural constraints that prevent such large-scale data collection.

While much of the above problem could be prevented by implementing other constraints to prevent facial recognition as discussed above, such as the “privacy visor,”⁸⁷ data privacy concerns for the user of Google Glass are likely even higher. Google Glass users are not only recording the actions of other people, but they are also recording all of their own actions from a first-hand point-of-view. Previously, the costs for a data collection company have been high and have effectively prevented them from collecting this type of detailed data. But now users will likely be wearing Google Glass more than they use their smartphones because of the added ease and convenience. With increased use and increased data capture, the user’s own “digital dossier” will expand even more quickly than those around him or her.⁸⁸ This erosion of latent structural constraints is similar to the issues being discussed in the current Do Not Track debate.⁸⁹ The Do Not Track debate has arisen because latent structural constraints were removed with emergence of the Internet, cookies, and digital fingerprint tracking. By removing the latent structural constraints, data aggregators were then able to track users’ activities without their knowledge. With the emergence of Google Glass, data aggregators will now be able to track even more about a user—possibly without his or her knowledge. Such data collection is particularly likely considering that the data will be processed by Google, which prides itself on providing “free” services (at the cost of data) and is the owner of Double Click, one of the largest Internet advertisers around. With this additional data, Google Glass could take targeted advertising to an entirely new level. Such advertising would likely be unnervingly accurate and would interact with almost everything the user interacts with. Some members of the media have already identified this possible harm and have asked the question “is Project Glass evil?”⁹⁰ Others have created parodies of what the Google Glass experience might really look like when supplemented with ads.⁹¹

To maintain the privacy right that people currently have in not giving aggregators a live feed of their entire lives, other constraint mechanisms will have to be put in place to make up for the latent

Conf2013.pdf.

87. Gallagher, *supra* note 79.

88. See Solove, *supra* note 85.

89. See Blagdon, *supra* note 5.

90. Rivington, *supra* note 61 (answering the question with “it could be.”). My answer is simply “no.”

91. *ADmented Reality – Google Glasses Remixed with Google Ads*, YouTube (Apr. 5, 2012), http://www.youtube.com/watch?v=_mRF0rBXIeg.

structural constraints eroded by Google Glass. First, explicit structural constraints do not seem to work well in this situation. For example, the user himself cannot wear a “privacy visor” to prevent Google Glass from identifying the user. The user will have already voluntarily provided his or her identifying information to Google Glass, either at purchase or through some form of sign-up. Additionally, encryption will only help prevent others, such as hackers or eavesdroppers, from accessing the transmitted data. Even with encryption, Google itself will still be able to decipher the data because it will need to analyze the transmitted data in order to provide useful augmented-reality data on the Google Glass screen. Increased social costs may not be immediately useful either. As we have seen in the Do Not Track debate, there has not yet been a massive public outcry against data collection. Also, the user is voluntarily choosing to wear and use Google Glass. Thus, law and policy are left to come to the rescue. Here, the debate will be very similar to that of Do Not Track, and if Peter Swire and the rest of the W3C participants look forward far enough, this Google Glass issue could be solved with careful wording in a Do Not Track agreement. Again, these solutions are meant to provide only a small starting point for future discussion of this potential problem.

IV. CONCLUSION

In a world where we are constantly surrounded by technology, we must be aware of our environment, our interests, and the true consequences of implementing new technologies. By analyzing technology, such as Google Glass, with our privacy interests in mind, we are able to determine where some of our interests may be impinged. While there are likely more latent structural constraints and solutions that are not considered or identified in this paper, all the constraints in danger of erosion by Google Glass should be contemplated before these constraints are eroded entirely. If this is done, society, policymakers, or even Google itself can proactively implement the necessary constraint mechanisms to keep our current privacy interests and privacy rights intact.