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FROM THE EDITOR

The rapid growth of the Internet over the past twenty years stirs the imagination as to what the next twenty will bring. What architectural advances will we see? How will regulatory intervention evolve? What new applications will arive?

The Silicon Flatirons Center for Law, Technology, and Entrepreneurship and the *Journal on Telecommunications and High Technology Law* set out to answer these questions at the 9th annual Digital Broadband Migration symposium, entitled *Imagining the Internet's Future*, on February 8-9, 2009 at the University of Colorado at Boulder. Thought leaders from academia, government, and industry converged against the snowy backdrop of Boulder's Flatirons to discuss bleeding-edge Internet policy, architecture, regulation, and content issues.

Out of this veritable blizzard of discussion emerged six pieces that I am pleased to present in this first issue of the eighth volume of the *Journal*. First, U.S. Federal Trade Commissioner Bill Kovacic presents his remarks from the conference, discussing the future of the FTC in the Internet age and providing a valuable framework for future regulators to follow. On the topic of architecture, Professor Shane Greenstein offers an innovative prescription for evaluating the economic health of the Internet, while Professor Christopher Yoo reevaluates network neutrality principles in light of recent changes to the technology and business relationships that underlie the network. Next, Professor Jim Speta considers the role of the Federal Communications Commission in regulating the Internet in light of the recent *Comcast* order. Finally, our authors delve into the future of Internet content, with Professor Stacey Dogan considering the interplay of trademark use and search engines and Professor Eric Goldman glimpsing into the future of Wikipedia.

I am also pleased to present three student notes from my fellow editors. First, Todd Adelmann discusses the problematic interaction of the Digital Millennium Copyright Act with software in replacement parts. Next, Per Larsen addresses the potentially anti-competitive pricing regime of text messaging in a note selected as the winner of the Silicon Flatirons Writing Competition. Finally, Avi Loewenstein considers the phenomenon of "sniping" in the world of online ticket sales.

I offer my heartfelt thanks to each of our authors for their contributions to the *Journal*, and to our Articles Editors Todd Adelmann, Dan McCormick, Rachel Mentz, and Mimi Poe, Production

Editors Per Larsen and Jeff O'Holleran, Associate Editors Chris Achatz, Ruchi Kapoor, Ty Layman, Brian Tadtman, and Noah Oloya, Sources Editors Kazuyo Morita and Rebecca Siska-Salkin, and all of our members for their outstanding work in shepherding each of the articles through the editing and production processes. I also commend our Casenote and Comment Editors Kelli Brensdal, Ashley Campbell, Jenna Feiler, Devin Looijen, Melissa MacDonald, and Marissa McGarrah for their dedication to providing an academically rigorous and rewarding student note process for our members. Last, but certainly not least, I truly appreciate the efforts of our Managing Editor Avi Loewenstein and Executive Editor Tyler Martinez, who go above and beyond the call of duty to ensure that the *Journal's* trains always run on time, and of our Symposium Editor Eric Schmidt, who is working to ensure that our next symposium exceeds the high standard set by this one.

We owe a debt of gratitude to the outstanding faculty here at the University of Colorado Law School for guiding us through the process of running the *Journal* and providing our members with invaluable feedback and advice on their notes. In particular, I thank our Professors Paul Ohm and Harry Surden, our advisors, and Professors Brad Bernthal and Andrew Schwartz for generously donating their time to our cause.

It remains for me to thank Professor Mark Loewenstein and his wife Linda for opening their home to us, Dale Hatfield, Anna Noschese, and everyone at Silicon Flatirons for their support of the *Journal*, our colleagues at the Colorado Law Review and Colorado Journal of International Environmental Policy for their camaraderie, Adrian Gheorghe from Romania for designing our new logo, and Cindy Gibbons and Martha Utchenik for their administrative assistance.

Finally, on a bittersweet note – this is the first issue of the *Journal* crafted without the guidance of our founding advisor, Professor Phil Weiser. Professor Weiser is bringing his considerable talents to bear in the public interest at the U.S. Department of Justice. Without a doubt, the *Journal* would not be what it is today without Professor Weiser's limitless dedication and expert advice. He has served as a teacher, a mentor, a friend, and an invaluable resource to many *Journal* members, myself included, over the past decade. While his service at DOJ will surely make our country a better place, we miss tremendously his presence at Colorado Law and hope that his travels bring him back soon. I dedicate this issue to him.

Blake Ellis Reid
Editor-in-Chief

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CONTENTS

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THE DIGITAL BROADBAND MIGRATION AND THE FEDERAL TRADE COMMISSION: BUILDING THE COMPETITION AND CONSUMER PROTECTION AGENCY OF THE FUTURE

WILLIAM E. KOVACIC*

INTRODUCTION

I am grateful to Phil Weiser and the Silicon Flatirons Center for the opportunity to discuss the role of the Federal Trade Commission (FTC) in the formulation of public policy for the Internet. I approach the topic in a somewhat awkward position. At the time of this conference, my

* Commissioner, U.S. Federal Trade Commission, and Professor, George Washington University Law School (on leave). From March 2008 to March 2009, the author served as Chairman of the FTC. The views expressed here are the author's alone.

tenure as the FTC's chairman is the equivalent of an hour-to-hour lease, terminable at will. My wife and I recently visited a bank to purchase a certificate of deposit. To perform a required background check, the bank's representative asked, "Where do you work?" I said I was with the Federal Trade Commission. The next question was, "What is your position there?" The first answer that came to my mind was "precarious."

The imminent close of my time as FTC chairman means that I am less able to speak confidently about what the agency will do in the months and years ahead. Compared to other Commission members, the FTC chairman has relatively greater ability to guide the agency toward specific ends. Rather than focus upon specific policy initiatives, I will talk more about what I see to be institutional predicates for the FTC to formulate sound competition and consumer protection policies for the Internet.

I. THE FTC'S POLICY PORTFOLIO AND THE INTERNET

The FTC has a fairly extraordinary portfolio of policymaking responsibilities that affect the development of the Internet. Three areas stand out. First, the Commission is a competition policy agency. As such, it addresses a wide range of competition issues, including abuse of dominance, mergers, distribution practices, and agreements among rivals. It is the Commission's view, in light of *Brand X*,[1] that the agency has jurisdiction to address broadband-related matters, notwithstanding the common carrier exception to the Federal Trade Commission Act.[2] The second element of the FTC's policy portfolio is consumer protection. Over the past decade, the Commission had addressed a wide range of issues associated with advertising, marketing, and other activities that affect Internet-based commerce. A third area closely related to consumer protection is the field of privacy and data protection.

Two common characteristics link all three dimensions of the FTC's Internet portfolio. The first is the Commission's method of policymaking. To build a program, the FTC has used the complete portfolio of policymaking instruments entrusted to it. These include the prosecution of cases, the preparation of studies, the education of consumers and business organizations, the issuance of guidelines, and advocacy with other public institutions. This strategy reflects the agency's

1. Nat'l Cable & Telecomms. Ass'n v. Brand X Internet Servs., 545 U.S. 967 (2005). *See also Reconsidering Our Communications Laws: Ensuring Competition and Innovation: Hearing Before the S. Comm. on the Judiciary*, 109th Cong. 202 (2006) (prepared statement of the Federal Trade Comm'n) [hereinafter *Communications Competition Hearing*] (discussing FTC jurisdiction over broadband services), *available at* http://www.ftc.gov/os/2006/06/P052103CommissionTestimonyReBroadbandInternetAccessServices06142006Senate.pdf.

2. 15 U.S.C. § 45(a)(2) (1994).

awareness that the application of a wide range of tools often affords the best way to achieve good policy results. The search for the optimal mix of techniques continues each day, and a commitment to a process of experimentation, assessment, and refinement will help ensure that the FTC makes wise choices in the face of dramatic technological and organizational change associated with electronic commerce.

The second unifying characteristic is institutional multiplicity. For competition policy, consumer protection, and privacy, the FTC shares authority with a host of other public bodies. These include other federal agencies, state and local governments, and authorities located in other countries. The fact of multiplicity creates a special urgency for the FTC and its government counterparts to establish means of cooperation to address phenomena whose effective treatment requires concerted efforts across jurisdictional boundaries. Especially in the international arena, there is a need to engage other jurisdictions in discussions about the appropriate content of policy, the identification of superior processes for implementation, and the attainment of interoperability across nations with dissimilar laws and institutional frameworks.

In dealing with institutional multiplicity, one initially might assume that, because the actors are public institutions, they would recognize their common cause and tend naturally to work well together to achieve good policy results in areas of shared interests. Since leaving the academic tower of ivory in 2001 to see theory meet practice at the FTC, one of the greatest elements of my continuing education has been to see that cooperation across public institutions with overlapping authority rarely comes easily. As I discuss in more detail below, in the field of Internet commerce and other areas of policy, it will be useful for the United States to consider how existing institutional arrangements might be reconfigured.

II. ACHIEVING SUPERIOR INSTITUTIONAL DESIGN: THE IMPORTANCE OF LONG-TERM INVESTMENTS IN CAPABILITY

A central foundation for my views about future FTC policymaking for the Internet is a self-assessment exercise that the agency carried out in the second half of 2008.[3] A major motivation to undertake a self-study is a global pattern of exceptional institutional innovation and upheaval among agencies that do competition policy and consumer protection work. Called *The FTC at 100*, the FTC self-study had three dimensions. We conducted internal assessments, we held roundtables with a variety

3. BILL KOVACIC, THE FEDERAL TRADE COMMISSION AT 100: INTO OUR 2ND CENTURY (Jan. 2009), *available at* http://www.ftc.gov/ftc/workshops/ftc100/docs/ftc100rpt.pdf.

of observers in the United States, and we had extensive public consultations abroad. The exercise benchmarked the Commission with many of its foreign counterparts. With respect to various questions of agency organization and governance, it had become evident to me that many jurisdictions were looking more energetically than the FTC was at fundamental questions of how best to configure the mechanisms for carrying out regulatory responsibilities for the Internet and other areas of commerce. One of the most interesting sources of institutional innovation and reform consists of jurisdictions with a recent past of centralized economic control and whose competition and consumer protection systems are relatively new. Many of these jurisdictions started the process of building new competition policy and consumer protection frameworks without the path dependency and preconceptions that tend to beset older systems and limit their capacity to embrace innovations. The newer regimes ask important, basic questions about regulatory design and governance that older regimes might view as asked and answered.

As regulatory frameworks grow older, it can require a significant exogenous shock to stimulate change. The financial crisis may have provided the shock that stimulates a rethink of the existing distribution of financial services regulatory authority.[4] Numerous public bodies at the state and federal level—including the Federal Reserve Board, the Department of the Treasury, the Federal Deposit Insurance Corporation, the Securities and Exchange Commission, and the FTC—share responsibility for regulating the financial services sector. The FTC has seen firsthand the costs of the existing fragmentation of regulatory power and has spent an unfortunately large amount of its effort to determine the shape of existing jurisdictional boundaries.

The reassessment of financial services regulation eventually could lead legislators and other policymakers to ask questions about the wisdom of other regulatory frameworks that feature considerable fragmentation and shared authority. One question of keen interest to the FTC is whether the country should sustain two federal competition agencies, or have numerous public bodies at the federal and state levels share responsibility for evaluating the likely competitive effects of mergers involving firms in sectors such as energy and telecommunications. It is easy to assume that the existing distribution of authority is immutable, because congressional committees are unlikely to

4. One element of these reforms is a proposal to divest the FTC of its consumer protection duties in the field of financial services and create a new Consumer Financial Protection Agency. This measure is examined in William E. Kovacic, *The Consumer Financial Protection Agency and the Hazards of Regulatory Restructuring*, LOMBARD STREET, Sept. 14, 2009, http://www.ftc.gov/speeches/kovacic/090914hazzrdsrestructuring.pdf.

surrender the power and electoral benefits that come from overseeing specific regulatory agencies. Few committees will give up oversight responsibilities without getting something equivalent in trade. The financial crisis could upset assumptions about the durability of the status quo and raise basic questions about what the optimal regulatory framework for other areas of government policy—such as antitrust enforcement—might be.

The financial crisis had not emerged fully when I became FTC Chairman in late March 2008. Looking at the months ahead, I asked myself what I could do during a tenure that was likely to be relatively short. Having studied the experience of appointments to the FTC,[5] I knew one thing with great clarity: new presidents, whatever their party affiliation, tend to pick their own person to chair the Commission. With one exception since 1950 at the FTC, all new presidents with a vacancy on the Commission have brought in a new person from the outside. I understood that my expiry date would probably be about the 20th of January, 2009 and that my best-if-used-by date would be November 4, 2008. For me the question was, "What can you do in a year or less?" As a creature of habit from academia, I thought the FTC could do what universities do to prepare for review by an accrediting body: conduct a self-study. For a number of years I have believed that the FTC urgently needed a self-assessment to face the host of challenges coming the Commission's way. This belief drew force from watching one jurisdiction after another overseas ask basic questions about institutional design and effectiveness.

Careful attention to institutional considerations is long overdue. The overwhelming focus of discussion about regulation is the substance of policy rather than the means by which policy is developed and implemented. The physics of substantive policy routinely eclipses the engineering of implementation. The physics of regulation consists of intriguing questions of doctrine and its supporting conceptual framework. The papers deemed most publishable in academic journals dwell principally upon matters of theory. To affect policy, theory cannot be suspended in air. If theory is not grounded in the engineering of effective institutions, it will not work in practice. The engineering of policy making involves basic questions of implementation. It is one thing for the policymaking aerodynamicist to conceive a new variety of aircraft. It is another for the policy engineer to design and build it.

To have elegant physics without excellent engineering is a formula for policy failure. A problem with public administration in the United

5. On the history of appointments to the FTC from 1914 through the mid-1990s, see William E. Kovacic, *The Quality of Appointments and the Capability of the Federal Trade Commission*, 49 ADMIN. L. REV. 915 (1997).

States is that incumbent political leaders in regulatory agencies have too few incentives to invest in the engineering of institution building and implementation, which are the agencies' equivalent of durable infrastructure. There is strong incentive to engage in consumption and too little motivation to invest. In regulatory policymaking, consumption consists of engaging in activities that generate readily observable events for which one can claim credit. This can imbue policymaking with a highly short-term perspective. By contrast, investments in creating a strong institutional infrastructure generate returns that tend to extend mainly beyond the period of leadership of an individual political appointee, of which I am one. Given the choice between consumption and investment, the interior voice that urges incumbent leaders to consume easily can drown out the voice that calls for investment. Where there are long term policy needs and short term political appointees, it is a major challenge to create incentives that press the agency to examine its institutional arrangements regularly and pursue measures to improve them.

The need to focus on institutional arrangements and effectiveness assumes still greater importance for agencies, such as the FTC, that operate in highly dynamic environments characterized by rapid change in technology, business organization, and patterns of commerce at home and abroad. These forms of dynamism demand routine upgrades and experiments in the regulatory framework. The upgrades in the regulatory policy framework must take place on a recurring basis. A central characteristic of good regulatory design and performance involving the Internet is a norm that emphasizes continuous improvement. This includes identifying relevant commercial phenomena on a regular basis, upgrading the knowledge base of the agency on a routine basis, and always asking questions about what the appropriate institutional design should be. On the scorecard by which we measure the quality of regulatory agency decision making, if we ask what constitutes good agency leadership, a vital criterion is the demonstrated capacity of the regulatory authority to account for new commercial, political, and social phenomena and to adapt the agency to address them.

A positive modern trend among the world's competition and consumer protection authorities is a growing recognition that skill in implementation and the quality of institutional arrangements shape policy results. Instead of conferences that dwell exclusively upon the big issues of substance—what is the right standard for abusive dominance, what does net neutrality mean, and how might its specific operational criteria be designed—there is more discussion about the proper design of regulatory frameworks and how regulatory agencies can make things work effectively in practice. There is a very healthy inclination to elevate

questions about how to set priorities, how to structure operations, how to recruit and retain a capable professional staff, and how to measure effectiveness. This is producing a better balance between deliberations about questions of normative principles of policy on the one hand and matters of institutional infrastructure and management on the other.

Greater appreciation for the importance of institutional design and policy implementation may have the useful effect of spurring a redefinition of what constitutes a "good" regulatory agency. In scholarly papers and in casual conversation, students of regulation often discuss how well agencies are doing. There is no readily observable index by which one can see how the shares of the Federal Trade Commission or other regulatory bodies are trading. What do we mean when we say that a regulatory body is performing well, adequately, or deficiently? On my report card, a good agency consciously devotes effort to improving its institutional infrastructure. This requires capital investments in institutional capacity, a commitment that collides with the short-term orientation of much policymaking. An aphorism urged upon Washington officials is "to pick the low hanging fruit." This summons up images of fruit gatherers roaming about the Mall with baskets in search of easily reached tree limbs. Washington does not have a good aphorism that says it is the duty of agency leaders to plant trees. The trees of good policy can take years to grow, and the maturation process easily can outrun the tenure of the political appointee who will serve two, three, or four years. A policymaking culture that emphasizes short-term credit-claiming regards one who would plant trees as a fool. The consequence is an underinvestment in the kinds of capital improvements that improve agency performance over time.

One cannot readily design binding commands that compel leaders to make capital investments in agency capacity. A sustained commitment to institution-building arises instead from the establishment of norms (inside and outside the agency) that treat enhancements to institutional infrastructure and agency capacity as an essential duty of leadership. Such a norm presses regulators to describe in each budget cycle what steps the agency is taking today to make it a better institution five and ten years into the future.

III. THE FTC AT 100: CHARACTERISTICS OF GOOD AGENCY PRACTICE

The FTC self-study shed light upon a number of approaches that the Commission should take to strengthen the agency's institutional foundation and to improve its capacity to deliver good policy results. Sketched below are techniques that characterize good agency practice.

A. Clear Statement of Goals

One necessary foundation for effective agency performance is a clear definition of the agency's aims. Everything an agency does flows from the development of a clear statement of what the agency is about and what it means to do. It is a great challenge for any new set of leaders to state their aims clearly and to persuade the agency's staff that the stated aims are worth pursuing. The agency's administrative and professional staff have heard a sequence of political appointees offer their vision for the future. They are familiar with a wide array of slogans, clichés, and motivational techniques. The staff has heard them all. With each new group of political appointees, the staff seeks to learn the new vocabulary and re-flag existing projects to please the new regime. It is no small matter to overcome fears that each collection of new leaders takes some comfort from knowing they will not fully internalize the effects of choices taken during their tenure. It requires considerable effort to make a credible commitment to build durable norms and to identify goals that serve the public and the institution well over time.

The formulation and statement of goals have two elements. One is internal discussion, and the other is external consultation with academics, consumers, business officials, and other public officials. The statement of goals is not a one-shot endeavor. The agency's aims required reexamination and reformulation as conditions change. The clear statement and restatement of aims have a number of important advantages. They provide valuable guidance to the agency's staff, and they help affected firms organize their affairs to satisfy their obligations under the law. They facilitate debate over what the agency ought to be trying to achieve, and they set a baseline for measuring the results of the agency's activities. Maybe most importantly, the exercise of preparing a clear statement of aims forces the agency to define its purpose and to decide, among all of the choices available to it, what goals most warrant its attention.

B. Process to Set a Strategy

Good agencies have a conscious plan to set strategy. No responsibility of agency leadership is more important. When the FTC conducted interviews with other regulators for its self-study, it was striking to see how the tyranny of the daily routine tends to discourage planning and the forward-looking establishment of priorities. One head of a foreign competition agency said, "I'm so busy that I have no time to think, much less to plan." Many agencies operate with what might be called a fire department model of prioritization. The fire bell rings. The agency takes out the trucks, puts out the fire, returns to the station, and

waits for the bell to ring again. In this model, nobody has time to think about fire prevention—to determine what causes fires and to figure out how best to stop them from happening in the first place.

A good process of setting strategy forces the agency to consider which outlays of resources yield the best returns. The United Kingdom's Office of Fair Trading (OFT) has one of the best management approaches for measuring proposed projects according to their likely economic effects or their contribution to the development of doctrine. The OFT planning process compares anticipated returns of a project to its likely cost in staff and time. Project teams also are asked to provide practical tests by which the agency can tell whether expected gains are being realized in practice. OFT clearly communicates its planning framework to its staff and requires staff to relate proposed projects to the framework.

OFT takes individual projects and considers them as elements of an agency-wide portfolio. Individual matters are classified according to their likely risks and returns. Some matters pose relatively low risks and promise relatively small returns. Some present modest risks and offer modest returns. Others entail high risks but, if successful, are likely to generate substantial returns. By examining projects as parts of a portfolio, OFT is able to assess whether its program is balanced in two respects. It helps the agency assess whether its commitments are well matched to its capabilities to perform successfully, and it supplies a useful means of seeing whether the agency is taking acceptable political risks. In selecting projects, an agency can envision itself as either accumulating political capital or spending it. An agency can afford to incur deficits in political capital temporarily, but not chronically. If an agency runs deficits in political capital consistently over time, it will melt down and fail. Proposed projects must be measured by their impact upon the political capital account.

Strategic planning assumes special importance in the current context. The financial crisis has created enormous pressure to reduce public expenditures and to make wise choices among possible application of agency funds. The FTC is responsible for enforcing approximately fifty-five statutes. To do this the agency receives an annual appropriation of roughly $255 million, which supports the work of 1100 employees. The imperative to select good projects increases with the possibility that federal regulators in the years ahead will do well to protect existing budgets or, perhaps, obtain small increases. There is no surplus of capacity to cope with improvident program decisions that entail commitments which outrun our capabilities to deliver good results. Now more than ever a competition agency cannot rely on path dependence—a simple repetition of past patterns of behavior—to decide what it will do.

C. From Case-Centrism to Effective Problem Solving

The FTC self-study revealed a healthy movement on the part of many competition authorities from a case-centric approach to resource allocation toward a philosophy that emphasizes problem solving. The traditional focus of project selection has responded to the way in which many regulators bodies are evaluated. To a large degree, the popular measure of a competition agency is the number of cases it prosecutes: you are whom you sue. The commencement of a case is a readily measurable event, and cases often serve as a proxy for the more meaningful and difficult exercise of determining whether the agency's programs are improving economic performance. In a case-centric measurement scheme, there often is extra credit for the big case that gets prominent media coverage.

There are serious problems with a norm that treats the number of prosecutorial events as the chief index of an agency's worth. The agency can become the equivalent of an airline that measures effectiveness by its number of takeoffs. At the agency's airport, an observer would see a large display board labeled "Departures." If the observer asked, "Where is the board for arrivals?," the agency would reply, "We do not track arrivals. Instead, look at our impressive number of departures." For purposes of good public policy, one needs to monitor arrivals carefully. Are projects arriving on time? Are projects taking the agency where it is supposed to be going? Did the agency set out on a case with a clear idea of where it was going—the difference between departing Washington, D.C. and saying "Fly to Los Angeles" versus saying "Fly to the West Coast?"

An indifference to how projects come to earth—smooth touchdowns, hard landings, or smash-ups?—can afflict leaders with relatively short-term appointments if the agency is graded by the number of cases it initiates. If the policymaking world and the community of academics, consumer groups, and practitioners measure the agency and its leaders by the number of cases launched, agency leaders may be induced to give them what they want. This is a terribly short-sighted structure of incentives.

The FTC self-study identified an emerging, superior view about how agencies should approach the application of their authority. The appropriate measure of an agency's value is how well it solves competition policy problems, not merely how many cases it prosecutes. A problem-solving orientation asks two basic questions about each problem the agency faces. The first is to ask what is the best policymaking tool or collection of tools to address the problem. The best problem-solving approach may often involve a mix of techniques. In the case of serious fraud involving electronic commerce, it has become increasingly evident that the FTC's approach must draw upon several of its policy

instruments. One element is to assist executive branch prosecutors to bring criminal suits to imprison wrongdoers. A second ingredient is to develop education programs that encourage consumers to take stronger precautions against Internet-based fraud. A third method is to use the Commission's data collection and other research tools to gain a better understanding of how criminal actors formulate and implement illegal schemes involving the Internet.

For other issues that deeply involve the Internet, self-regulation can be a further useful supplement to the prosecution of cases and the development of research and public education programs. The FTC has prepared a further iteration of its Self-Regulation Guidelines for Behavioral Marketing.[6] The FTC did not issue these Guidelines as a comprehensive resolution of issues surrounding the use of online behavioral marketing. Instead, the Guidelines are one part of a dialogue about behavioral marketing and the latest step in an ongoing conversation about how self-regulation might facilitate the achievement of sound policy.

To recognize the value of a problem-solving, rather than a case-centric, policymaking approach is to see something about what will constitute the successful competition or consumer protection agency of the future. The successful agency will possess a broad, flexible portfolio of tools. The FTC ought to be a central participant in forming policy for the Internet and for a wide range of other challenging competition and consumer protection issues precisely because Congress has given the agency an unusually broad range of policy instruments.

In a number of key respects, the FTC's policy tools have no equivalent in the United States or abroad. For example, the Commission's Bureau of Economics has over eighty industrial organization economists with doctorates. Among other accomplishments, this team has done truly superior empirical research on many pressing issues of public policy, including recent pathbreaking work on mortgage disclosures.[7] The Commission also has the distinctive capacity to compel firms to provide information for the preparation of studies unrelated to the prosecution of individual cases. The application of this capacity has enabled the FTC to make significant contributions to public understanding of matters such as the food advertising directed

6. FTC STAFF REPORT: SELF-REGULATORY PRINCIPLES FOR ONLINE BEHAVIORAL ADVERTISING (Feb. 2009), *available at* http://www.ftc.gov/os/2009/02/p085400behavadreport.pdf.

7. JAMES M. LACKO & JANIS K. PAPPALARDO, BUREAU OF ECON., FEDERAL TRADE COMM'N, IMPROVING CONSUMER MORTGAGE DISCLOSURES: AN EMPIRICAL ASSESSMENT OF CURRENT AND PROTOTYPE DISCLOSURE FORMS (June 2007), *available at* http://www.ftc.gov/os/2007/06/p025505mortgagedisclosurereport.pdf.

toward children[8] and the interaction between producers of branded pharmaceuticals and manufacturers of generic equivalents.[9]

A further distinctive FTC capability is the joining up of the competition and consumer protection perspectives that are inherent in the Commission's mandate. For a number of matters involving the operation of the Internet, it can be valuable to bring both substantive disciplines to bear in deciding when and how policymakers should intervene. For example, in addressing subjects relating to privacy, the FTC's Bureau of Consumer Protection's experience in bringing cases, designing regulations, and conducting education programs has generated useful insights about the design of privacy protections. The agency's experience as a competition policy authority makes the agency sensitive to possibilities for rivalry among firms to elicit private initiative to satisfy consumer tastes concerning privacy, and it highlights the need to ensure that privacy related rules are not set in a way that endangers practices that bring significant benefits to consumers. The mix of competition and consumer protection duties creates a healthy dynamic tension inside the agency and increases our capacity to see all major dimensions of a problem and devise appropriate solutions.

The FTC has an excellent collection of capabilities to apply a sophisticated problem solving approach to difficult issues involving Internet commerce. This does not mean that the Commission or the larger community of competition policy and consumer protection specialists can assume that the agency has achieved an optimal regulatory design or that the distribution of regulatory authority in these areas across federal, state, and local institutions is ideal. There are many questions about the U.S. institutional framework for economic regulation that would benefit from debate.

Developments overseas suggest that one question worth considering is whether the results of collective decision making by a multi-member commission are superior to those achieved from a regulatory body headed by one individual. Many foreign counterparts to the FTC are governed by a single official or a team consisting of a chief executive and a chief operating officer. That is the configuration of the UK's Office of Fair Trading. The OFT's leaders are advised by an external board consisting of academics, practitioners, consumer representatives, and government officials drawn from the United Kingdom and abroad. A potential

8. FEDERAL TRADE COMM'N, MARKETING FOOD TO CHILDREN AND ADOLESCENTS: A REVIEW OF INDUSTRY EXPENDITURES, ACTIVITIES, AND SELF-REGULATION (July 2008), *available at* http://www.ftc.gov/os/2008/07/P064504foodmktingreport.pdf.

9. FEDERAL TRADE COMM'N, GENERIC DRUG ENTRY PRIOR TO PATENT EXPIRATION: AN FTC STUDY (July 2002), *available at* http://www.ftc.gov/os/2002/07/genericdrugstudy.pdf.

benefit of having a unitary governance mechanism is an increase of accountability. The head of an institution with a unitary governance framework may be more likely to internalize the costs and benefits of decisions taken during the official's tenure. The unitary framework also eliminates the circumstance in which one member of a governing board acts in a manner that diminishes the value of the partnership but advances the individual's interests.

Comparative experience also raises serious questions about procedural conventions governing the operation of the federal multi-member commissions. The Government in the Sunshine Act,[10] for example, severely reduces the opportunities for collective discussion and consultation that are assumed to be the strengths of decision making by a college rather than by a single executive. For a broad range of matters, the Sunshine Act forbids a quorum of commission members (for a five member body, the quorum is three) from discussing agency business without the prior issuance of a public notice that such conversations will take place and, in many instances, without making the conversation open to the public.

It is difficult to imagine a measure that is better calculated to diminish agency effectiveness than forbidding spontaneous conversations among a plurality of members of the board. At the FTC, conversations about FTC cases or broader policy issues are permitted if only two commissioners participate. For instance, if a third member of the commission appears in the cafeteria and joins two colleagues who are discussing FTC business over lunch, the conversation about Commission work immediately ceases and discourse turns to topics of culture, sport, or holiday plans. Consequently, discussions about agency matters take place in bilateral conversations between commissioners, with the inevitable misinterpretation and loss of meaning that takes place as information is relayed in a chain of seriatim encounters, two-by-two, among the five. Another accepted circumvention of the Sunshine Act is to have the advisors of the commissioners meet as a group to discuss what the board's collective preferences might be. Rather than encourage private face-to-face discussions among the five board members, the multi-member federal commissions rely heavily on the insane alternative of having their staffs collectively and privately perform key functions of debate and consensus building.

When the strictures of the Sunshine Act are explained to the FTC's foreign counterparts, there is an evident disbelief that a nation nominally would choose to avail itself of the benefits from collective decision making and then proceed to disable, or severely encumber, the process of

10. 5 U.S.C. § 552b (1994).

collective discussion that for most tribunals is an essential means by which the benefits of governance by college are realized. A rethink of this debilitating limitation is an appropriate part of a larger assessment about how the FTC and other federal regulatory commissions might improve effectiveness. If existing limits on spontaneous private discussions involving a plurality of commission members are not relaxed, there is considerable merit to abandoning the collective governance model and replacing it with a unitary executive.

D. Effective System of Internal Quality Control

The FTC self-study underscored the importance of strong quality control as an element of good agency practice. Foreign agencies with competition and consumer protection responsibilities are using a variety of means to test the legal theory and factual support for proposed cases and administrative regulations. Some have designated staff to participate on "scrutiny panels" or to serve as "devil's advocates" to test the work of the case handling teams. A key focus of these measures is to avoid a tendency to underestimate the quality of conceptual arguments and facts that an opponent will raise in litigation.

Beyond attaining an accurate view of an opponent's likely litigation positions, the effort to build robust, internally driven quality control techniques is to set policy and process in the right place—to do the right things and to do things the right way. The enhancement of internal quality control mechanisms reflects an awareness that an agency will not achieve good policy results consistently if it relies principally on outsiders to come in from time to time and exhort the agency to do this, that, or the other thing. External assessments can help guide the design of an internal quality control and usefully supplement the agency's own internal measures.[11] Yet the urgency to test theories, facts, programs, and processes must come foremost from within.

E. Investments in Building Knowledge

The most important input to what competition and consumer protection agencies do is knowledge. Agencies rise or fall according to how well they understand commercial developments and stay attuned to

11. An excellent example of this form of external assessment is the framework that Paul Malyon and Bernard J. Phillips have developed in recent years under the auspices of a project sponsored by the Competition Committee of the Organization for Economic Cooperation and Development. Malyon and Phillips have constructed an evaluation tool that assists competition authorities to examine their management processes and, based on the results of extensive interviews with agency officials and employees and outside observers, to construct an action plan for improvements. The competition authorities of Hungary, Mexico, and Portugal have participated in this exercise.

current thinking in business strategy, economics, law, and public administration. The commercial environment that the agencies oversee and the intellectual disciplines on which they rely feature high levels of dynamism and increasing complexity. A recurring criticism of public policy making that involves the Internet and other dynamic commercial developments is that the knowledge base of the government agencies is the equivalent of a bicycle and the rate of change in the industry resembles a Porsche. From this perspective, the agency cyclists struggle in vain to catch up. On a good day, they feebly get their arms around developments that took place five years ago. Policy is set on the basis of stale knowledge, new developments rush onward, and the agency never achieves the capacity to addresses current problems effectively.

A competition policy or consumer protection agency resembles a high technology company whose well-being depends upon the quality of its research and development programs. Imagine a conversation between the executives of a pharmaceutical company and investment analysts. Suppose the analysts ask the chief executive to describe the firm's R&D program. What conclusions would the analysts form if the CEO said the firm has fired its scientists, shuttered its laboratories, abandoned plans to develop new drugs, and chosen to focus solely on turning out its existing products as fast as it can? That is a formula for going out of business.

To cope with change and complexity, the agency must obtain regular, substantial additions to its base of knowledge. Without routine upgrades, an agency is prone to misdiagnose problems, select harmless or perverse cures, or find itself trapped in analytical models that once represented the state of the art but have become threadbare. The successful agency of the future is one that invests heavily in building knowledge and in refreshing its intellectual capital. These investments are the public administration equivalent of research and development.[12] These outlays do not occur spontaneously or by accident. Good agency practice requires a conscious process of building R&D outlays into every budget cycle. Regulators should be pressed to explain what part of their budgets are being spent on making their agencies smarter.

R&D for competition policy and consumer protection can take several forms. One method is to convene public consultations in the form of hearings or workshops. In these proceedings, an agency asks knowledgeable outsiders to share their views about important developments in commerce and in academic disciplines central to the

12. During his tenure as FTC Chairman from 2001–2004, Timothy Muris underscored the need for the FTC and similar institutions to invest in "competition policy research and development" and to make these expenditures a routing element of the agency's budget process. Timothy J. Muris, *Looking Forward: The Federal Trade Commission and the Future Development of Competition Policy*, 2003 COLUM. BUS. L. REV. 359.

agency's work. These proceedings do not necessarily seek to identify definitive policy making paths. In many instances, they serve to teach the agency what it must know to apply its authority wisely.

Since the early 1990s, the FTC has made external consultations a more central element of its portfolio of activities.[13] This reflects the Commission's recognition that the only way for the agency to stay current is to use its policy instruments to improve its understanding of the commercial and intellectual environment in which it operates. This highlights another respect in which case-centric measures of agency effectiveness give false signals about what an agency should do. In a case-centric world, the incentive to make substantial R&D investments goes down the drain. In any period, an agency faces the question of how much to consume (i.e., bring new cases or issue new rules) and how much to invest (e.g., undertaking projects that improve the agency's base of knowledge or its administrative infrastructure and thus increase its capacity to select the optimal mix of policy measures). If it embraces case-centrism as the measure of its worth, an agency will emphasize current consumption and slight investments in capability.

Another approach to building knowledge is to engage the skills of institutions outside the agency. The FTC cannot accumulate the capability it needs with its own resources alone. One promising way for the FTC to augment its own efforts is to form partnerships with academic research centers. In 2008 the agency initiated a prototype with Northwestern University, which has a superb complex of researchers in business, economics, and law who specialize in topics closely related to the FTC's responsibilities. The FTC program with Northwestern could become a platform that the agency can duplicate elsewhere in the United States and abroad. One can look forward to a day when the FTC has links with institutions such as the Department of Economics at the University of Toulouse, the Centre for Competition Policy at the University of East Anglia, the faculties of economics and law at Oxford University, the London School of Economics, the National University of Singapore, and any number of other leading research centers. Through partnerships with academic research centers, the FTC can learn about state of the art developments in theory and empirical research and, by reviewing current Commission initiatives, can seek to encourage researchers to study topics related to the agency's work. To this end, the FTC might make greater efforts to make agency data accessible to researchers who have an interest in doing applied work related to competition law and consumer protection. Without these kinds of

13. *More Than Law Enforcement: the FTC's Many Tools—A Conversation with Tim Muris & Bob Pitofsky*, 72 ANTITRUST L.J. 773, 774–80 (2005) (discussing FTC's expanded use of public consultations).

collaborations, the FTC and its counterpart agencies overseas are unlikely to keep up with the demands that developments in commerce and in the intellectual framework of competition and consumer protection place upon government authorities to strengthen their pool of knowledge.

F. Recruiting and Retaining Human Capital

As suggested above, increased cooperation with external institutions can help the FTC expand its capabilities and improve its effectiveness. Even with these and other forms of collaboration, the public agencies can prosper only if they succeed in recruiting and retaining a high quality staff. At some point, the United States will have to confront the political and social hypocrisy by which its citizens and elected officials demand Mercedes-like performance from public institutions and insist on paying nothing more than Chevrolet prices to get it. In no area of our experience as consumers do we expect there to be no general link between the quality of what we are willing to pay and what we get. On what basis might one reasonably expect that this relationship is largely or completely irrelevant in the field of public administration?

The current recession has raised the FTC's personnel retention rates and made public service a more attractive career option for many individuals. No agency can count on national economic distress to preserve and enhance its human capital indefinitely. As economic conditions improve, the economic enticements of the private sector again will hammer at the fragile structure of civil service compensation schemes. Even amid conditions of economic crisis, there are many skills necessary to agency effectiveness that cannot be had on the cheap. For example, good information technology specialists remain in high demand. The FTC and its foreign counterparts depend ever more heavily on their communications infrastructure and electronic data sets to conduct routine operations and improve productivity. An agency can suffer grievously if it does not sustain and enhance its information technology systems. How long will a superb information technology officer remain with the Commission if the civil service salary ceiling remains at about $150,000—or perhaps $20,000 more with a Senior Executive Service bonus?

Public agencies are no different from any number of other institutions whose quality of performance is a function of their human capital. A major reason for the FTC's progression from near death in 1969[14] and from a severe legislative pummeling in the late 1970s and

14. William E. Kovacic, *The Federal Trade Commission and Congressional Oversight of Antitrust Enforcement*, 17 TULSA L. REV. 587, 592–602 (1982) (discussing critical assessments

early 1980s[15] to a position in the front ranks of the world's public agencies is that the overall quality of its personnel improved dramatically. One major enhancement was the development of a larger number of highly skilled teams to prepare and litigate the agency's cases. Despite these improvements, the FTC and many other public agencies lack the depth of skills that private sector institutions such as law firms can assemble. The Commission resembles a sports team with an excellent first team and a substantial number of skilled players on the bench. But the roster is thinner than one would like in several areas, and the departure of certain valued performers could cause a drop off in performance.

The FTC's position is not unique among competition and consumer protection authorities. If one makes the safe assumption that salaries for civil servants are not about to rise significantly, agencies will have to find novel ways to attract and keep the human talent they need to perform effectively. Several strategies come to mind. One way is to give agency employees a better experience by devoting extensive attention to individual professional development. Another is to cooperate more extensively with the academic community to establish internships for students, to recruit promising graduates, and to encourage faculty members to spend time in the agencies as visiting scholars. If substantial turnover is to be an inevitable, chronic condition, the agencies must build methods to retain institutional memory and other forms of important knowhow when people leave. Agencies can develop an electronic repository of research memoranda, checklists used to perform interviews and conduct investigations, and other practical tools that can be used by others and need not be reconstructed from scratch. Staff can establish and maintain data sets that track activity and permit managers and case handlers to obtain a clear, accurate profile of what the agency has done and to identify the nature and status of existing matters. Many of these endeavors require the agency to make regular capital outlays for information systems.

G. Constructing and Improving Networks with Other Institutions

The FTC self-study underscored a point that many agencies have come to realize in the course of working in legal environments where many public agencies share responsibility for specific functions. Individual initiative will not enable competition and consumer protection agencies to carry out their mandates successfully. The performance of

of FTC issued by Ralph Nader's consumer organization and by a blue ribbon commission of the American Bar Association).

15. *Id.* at 664–71 (describing congressional proposals from late 1970s and early 1980s to curtail FTC authority).

national competition policy and consumer protection systems will degrade over time if agencies do not improve their capacity to cooperate effectively with other institutions that have the same or similar mandates.

A number of foreign jurisdictions are realizing that it can be a tremendous source of national economic advantage to improve the design of regulatory institutions, either by reordering the assignment of regulatory responsibility or by strengthening cooperation among existing institutions. This advantage consists of achieving the existing level of regulatory performance at a lower cost or improving regulatory results at the same cost. If the United States complacently regards the existing configuration of competition policy and consumer protection regulatory authority as immutable and fails to engage existing institutions in more substantial collaborative programs, the nation will fall behind other jurisdictions that are experimenting actively with institutional reforms to achieve superior policy solutions.

The present configuration of competition policy authority is a striking example of the problem. In recent years, three jurisdictions—France, Portugal, and Spain—have consolidated their two national competition agencies into a single entity. Brazil's legislature is poised to adopt legislation that will consolidate most functions performed by the three national bodies with competition policy authority into a single institution. These developments ought to be a stimulus for Americans to ask whether the existing distribution of policy making and prosecutorial power is sensible. What benefits does the country gain from having two federal antitrust agencies? Is it sensible for sectoral regulators at the national and state levels to conduct reviews of mergers and impose conditions that go beyond remedies attained by the federal antitrust authorities? Should state governments have competence to enforce the national competition laws and conduct proceedings parallel to those undertaken by the Department of Justice and the FTC? Is the existing form of private rights of action well conceived?

A closely related question of institutional design is the wisdom of maintaining jurisdictional boundaries that were set in the first half of the 20th century. The FTC has advocated the abandonment of the common carrier exception to its jurisdiction to account for the transformation of the telecommunications sector in the past forty years.[16] The Commission has developed substantial expertise in dealing with false advertising and the litigation of claims involving unfair or deceptive acts or practices. This expertise usefully could be brought to bear upon a range of matters

16. *See Federal Trade Commission Reauthorization: Hearing Before the S. Comm. on Commerce, Sci. & Transp.*, 110th Cong. (2008) (prepared statement of the Federal Trade Comm'n), *available at* http://www.ftc.gov/os/testimony/p034101reauth.pdf; *Communications Competition Hearing*, *supra* note 1.

involving telecommunications services providers, but the common carrier exception precludes this.

If the answer to all of these queries is to leave the status quo in place, then it is incumbent upon the public agencies with competition or consumer protection duties to spend more effort than they do today to achieve a greater convergence of approaches and to see how collaboration can permit them to achieve results that exceed the grasp of single agencies acting alone. One place to start is to create a domestic competition network and a domestic consumer protection network to engage the public authorities in the kind of discussions and cooperation that U.S. agencies pursue with their foreign counterparts.[17] There is no forum in which the U.S. public institutions assemble regularly to discuss what they do and consider, as a group, how the complex framework of federal, state, and local commands might operate more effectively. At best, the U.S. public authorities perform these network building functions in piecemeal fashion at bar association conferences and other professional gatherings. There also are bilateral discussions involving some public bodies.[18] These measures are useful, but they are not good substitutes for the establishment of a more comprehensive framework of interagency regulatory cooperation. The U.S. competition agencies spend more time seeking to develop effective mechanisms for cooperation with foreign authorities than they devote to the integration of policymaking across federal and state agencies domestically.

Good examples of how to achieve greater levels of cooperation exist abroad. In the middle of this decade, the European Union (EU) created the European Competition Network (ECN) to coordinate the work of the national competition authorities of the EU member states and the European Commission's Competition Directorate (DG COMP). The ECN meets regularly to discuss matters of common concern and to promote information sharing and other forms of cooperation. The network has achieved considerable success in avoiding conflicts that might have arisen from the EU's decision to devolve greater levels of responsibility to the member states as part of a modernization of the EU's competition policy framework.

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17. *See* William E. Kovacic, *Toward a Domestic Competition Network*, *in* COMPETITION LAWS IN CONFLICT: ANTITRUST JURISDICTION IN THE GLOBAL ECONOMY 316 (Richard A. Epstein & Michael S. Greve eds., 2004) (describing value of establishing a domestic competition network).

18. These initiatives facilitate discussion about current law enforcement matters and the examination of larger policy issues. Since 2006, the FTC and many of the state attorneys general have convened an annual workshop to address topics of common interest. The workshops have addressed competition and consumer protection issues in the petroleum industry, the pharmaceutical industry, and the retailing sector. This recently developed custom will continue in the Fall of 2009, when the FTC, DOJ, and the states convene a workshop on energy issues.

As suggested above, government agencies in the United States would do well to emulate the European experience and create domestic networks for competition policy and consumer protection, respectively. A domestic competition network could begin with a memorandum of understanding adopted by the public agencies with competition policy duties, including the two federal antitrust agencies, sectoral regulators such as the Federal Communications Commission (FCC) and the antitrust units of the state attorneys general. The agreement might commit the participants to participate in regular discussions about matters such as the coordination of inquiries involving the same transaction or conduct, the development of common analytical standards, information sharing about specific cases, staff exchanges, and the identification of superior investigative techniques. Cooperation could progress toward the pursuit of joint research projects and the preparation of a common strategy to address various commercial phenomena. The network would be a platform for replicating activities that have become core elements of the ECN, such as interagency sharing of practical know-how and sector-specific experience, the development of common training exercises, and benchmarking of procedures across agencies.

The same approach could be applied to consumer protection. Shared concurrent authority is common for a variety of consumer protection matters involving the Internet and other aspects of commerce. For the Internet, the consumer protection portfolio is shared by, among others, the FCC, the FTC, state attorneys general, and state consumer protection offices. Focal points for collaboration within a domestic consumer protection network would include the development of common analytical techniques, coordination of investigations, and the preparation of common research projects.

H. Communication with External Constituencies

Effective internal and external communications are key ingredients of good agency performance. One dimension of effective communications is to communicate the agency's aims and intentions clearly to its own staff and to external audiences. Another element is education directed to consumers and to businesses. Consumer and business education programs can encourage precaution taking that reduces exposure to Internet fraud and spurs greater reporting of episodes of apparent misconduct.

Education programs can build upon what the FTC learns through the application of its research and data collection tools. As noted above, FTC researchers have done excellent work to examine how individuals absorb information and understand disclosures associated with various products and services. The work of the FTC's Bureau of Economics has

identified a number of ways in which disclosures involving mortgage transactions might be improved to enable consumers to make better choices among product alternatives. These efforts supplement the agency's litigation program, which challenges instances of misrepresentation and related misconduct involving the sale of financial services products. The mix of initiatives—research, consumer education, and litigation—is another illustration of the application of a multidimensional problem solving approach to address problems the FTC has encountered.

I. Ex Post Evaluation

A necessary element of the policy life cycle is a conscious process to assess whether specific agency initiatives achieved their intended aims. There is a great temptation to treat ex post evaluation as a luxury to be dispensed with in order to handle the press of new business. It is easier to issue a press release that gives assurances about the efficacy of a chosen course of action than it is to attempt to measure actual effects. Too often public agencies behave like a hospital that performs surgeries, discharges its patient, and declines to provide post-operative monitoring. Upon discharge, the patient asks the surgeon, "When do I come back to see you?" The surgeon replies, "Never. We have a press release that says we removed every malignant cell, we left every bit of healthy tissue in place, and you are in great shape." No responsible hospital practices medicine in that manner, and the same should go for competition or consumer protection agencies. The measurement of outcomes can be difficult, but difficulty does not excuse a failure to try.

An ex post evaluation program ought to have three basic elements.[19] The first is to test the results of the agency's substantive initiatives—to assess the impact of cases, rules, education programs, and advocacy. Agencies can avail themselves of a growing body of experience concerning the design of evaluation techniques. Means to this end include reviews conducted by agency insiders, consultations with outside experts, and peer review exercises performed by representatives from other competition authorities.

The second is to evaluate the agency's procedures and management methods. For example, by measuring the time required for matters to progress through the agency's investigation and decision making processes, it may be possible to identify ways to accelerate the disposition of individual matters without diminishing the quality of the agency's

19. For a more comprehensive discussion, see William E. Kovacic, *Using Ex Post Evaluations to Improve the Performance of Competition Policy Authorities*, 31 J. CORP. L. 503 (2006).

analysis.

The third approach is to conduct periodic reviews of the institutional framework through which the agency develops and applies competition and consumer protection policy. An important element of good administrative practice is to embrace a norm that treats periodic assessment as an essential foundation for agency improvement. A culture that regards routine assessment and refinement has to be built from within and not imposed by outsiders.

One focal point for this type of assessment is the U.S. framework for privacy. A review could consider whether the country should take the disparate elements of privacy oversight and create a uniform data protection regime. Or should the country leave existing industry specific and activity specific privacy commands in place and construct a new, overarching statute that would cover conduct not subject to existing oversight? A third possibility is to rely mainly on the application of Section 5 of the FTC Act to fill in the interstices in the system. Whatever path is taken, the process of reform should be the result of a well-considered deliberative assessment and not merely a quick response to crisis.

CONCLUSION: A REPORT CARD ON GOOD ADMINISTRATIVE PRACTICE

What do we mean when we speak of a competition or consumer protection authority as being a "good' agency? By what standards should we measure whether the Federal Trade Commission is performing its responsibilities properly with respect to Internet-related issues or other matters subject to its oversight?

One valuable way to measure the FTC or any other public regulatory authority is to assess the quality of its institutional infrastructure. Good agency performance does not take shape in a vacuum. Policy travels across an infrastructure of institutions, and the strength of the institutional framework and operational methods determines whether agencies can deliver superior policy results.

The FTC's self-study identified a number of institutional characteristics for successful competition policy and consumer protection agencies. Good competition and consumer protection agencies (1) clearly and coherently specify their goals, (2) devise and apply a conscious, thoughtful mechanism for selecting strategies to attain their aims, (3) measure themselves not by the number of cases they prosecute but by their capacity to solve problems by recourse to a broad, flexible portfolio of policy tools, (4) develop rigorous internal quality control systems, (5) invest heavily in building knowledge, increasing human capital, and enhancing the infrastructure of information systems, and (6) routinely

engage in ex post evaluation exercises to determine how specific initiatives turned out and to identify the need for refinements of the agency's analytical approach, statutory powers, and institutional design.

Doing these things well requires incumbent agency leadership to make capital investments whose benefits may come to pass mainly during the tenure of future appointees. A telling sign of a good leader is the intensity of commitment to take actions today that generate positive externalities for one's successors. For an agency, the aim is to create a norm that discourages individual credit-claiming in the short term and emphasizes contributions to the long-term success of the institution.

One person whose ideas helped inform the FTC's self-study is Fred Hilmer, who played a formative role in the modern development of Australia's competition and consumer protection system and now serves as the Chancellor of the University of New South Wales. Among other duties, Chancellor Hilmer teaches executive MBA classes. He tells his students that the success their companies are experiencing today probably are rooted in long-term investments that their predecessors made five or ten years ago. He advises them, upon returning to their offices, to pose the following question to themselves every day: "What have I done to make the lives of leaders who follow me better off five or ten years from now?" That is good advice for public officials, as well.

GLIMMERS AND SIGNS OF INNOVATIVE HEALTH IN THE COMMERCIAL INTERNET

SHANE GREENSTEIN*

INTRODUCTION

What are the signs of healthy behavior in an innovative industry?

This seemingly simple question isn't so simple to answer in a quickly evolving industry such as the Internet. Commercial behavior resides inside a complex value chain, which is a set of interrelated activities that produces a final product for end users. No single firm controls the value chain, and the quality, price, and user experience arise from the complex interactions between those participants. Moreover, over time many parts of this value chain have undergone innovative improvements, and no reasonable observer expects those improvements to cease tomorrow.

There is no agreement about which criteria observers and policy makers should use to assess the performance of the commercial Internet.

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Ever since the commercial Internet first emerged, there have been arguments about how to best organize its value chain to achieve maximum value for the most users. Disagreements have not diminished with time. If anything, this debate has grown shrill as the number of commercial interests and business commentators have grown.

This essay makes a novel contribution to this topic. It identifies patterns of healthy commercial behavior indicative of an innovative industry, and illustrates how to observe signs of such behavior in information technology markets, such as the Internet. Stated broadly, the essay identifies healthy behavior that correlates with desirable market-wide outcomes, such as improvement in products, lower prices, new capabilities, or other innovations that lead to productivity improvements among business users.

This essay highlights four signs of the healthy innovative behavior:

- economic experiments
- vigorous standards competition
- entrepreneurial invention
- the absence of unilateral bargaining

Unlike most prior writing in this area, the essay is not motivated by any normative proposal for governing the Internet value chain, such as net neutrality or reasonable network management, or any specific proposal for legal or regulatory reform. To be sure, the reasoning in the essay will have some implications for some aspects of these proposals, but that is not its primary purpose.

This essay is written in the spirit of aspirations to develop a "third way" for addressing infrastructure policy issues in the Internet. A third way seeks to nurture innovation by avoiding lengthy and protracted fights in agency hearings and courtrooms—avoiding events that sustain uncertainty about the value of commercial investments, sometimes for years at a time. Such sustained uncertainty damages the interests of *every* industry participant in a fast moving market, both users and suppliers.

A third way would rely on dispute resolution mechanisms that operate much faster, such as negotiations and guidelines.[1] This third way would employ arbitration and administrative resolution to disputes, avoiding the slow tools of regulatory command and control. It would avoid, in particular, an extremely damaging event that is all too common in regulatory processes for telecommunications in the United States—the slow and sometimes discursive processes associated with regulatory ping-pong between federal agency decisions and court-ordered remedies and

1. *See* Phil Weiser, *Institutional Design, FCC Reform, & the Hidden Side of the Administrative State* (Univ. Colo. Law Legal Studies, Research Paper No. 09-01 2009).

appeals.

If such "a third way" emerges, it also will aspire to reduce uncertainty. How does it do that? Such a process aspires to be predictable, saving all parties the trouble of adjudication in any but the rarest circumstances. To achieve predictability, the administrators will publish transparent guidelines for all relevant participants.

That is where this essay makes a contribution. Guidelines necessarily require a conceptual framework and benchmark for recognizing innovative behavior. The benchmark must help regulators quickly recognize when a market action does or does not contribute to a healthy innovative outcome. This essay proposes a framework for building such a benchmark.

At present, the closest any policy statements get to such a benchmark in the United States are the four Internet principles issued by the Federal Communication Commission (FCC). In their most recent restatement by the outgoing chairman of the FCC, Kevin Martin, the four principals are:

> Consumers are entitled to access the lawful Internet content of their choice; Consumers are entitled to run applications and services of their choice, subject to the needs of law enforcement; Consumers are entitled to connect their choice of legal devices that do not harm the network; Consumers are entitled to competition among network providers, application and service providers, and content providers.[2]

These principles are intended to signal the direction of future policy without committing the agency to specific actions. As noted by many observers, the principles aspire to contain both generality and flexibility in the face of inevitable change in the industry.[3] Yet, that also explains what I regard as their primary drawback. They are rather open-ended and curt in comparison to the efforts of other federal agencies to offer policy guidelines.

In my view, that curtness undermines their ability to reduce uncertainty by signalling what a federal regulator regards as healthy and unhealthy innovative behavior. They also fail to reduce regulatory delay

2. Appropriate Framework for Broadband Access to the Internet over Wireline Facilities, *Policy Statement*, 20 FCC Rcd. 14,986 (2005), *available at* http://www.publicknowledge.org/pdf/FCC-05-151A1.pdf/ [hereinafter *Policy Statement*]; *cf. Net Neutrality FCC / FTC,* CYBERTELECOM, *available at* http://www.cybertelecom.org/ci/neutralfcc.htm (past statements by ex-Chairman Michael Powell).

3. Footnote 15 of the *Policy Statement, supra* note 2, states, "Accordingly, we are not adopting rules in this policy statement. The principles we adopt are subject to reasonable network management," begging the question, "What is the definition of reasonable network management?" *See, e.g.,* Isen.blog, http://www.isen.com/blog/2005/08/how-martins-fcc-is-different-from.html (Aug. 7, 2005, 17:07 EST); *Net Neutrality FCC / FTC, supra* note 2.

because they are inviting regulatory hearings followed by court interpretation, triggering the usual damaging ping-pong.

One comparison with a standard benchmark of competition policy in the United States can illustrate why I perceive the four principles as open-ended and curt. In 1968 the Department of Justice and Federal Trade Commission first issued a set of very detailed merger guidelines, revising them most recently in 1997, and issuing extensive commentary on them again in 2006.[4] While the guidelines do not commit the DOJ or FTC to specific actions in specific mergers, these have become a benchmark for firms and agencies, helping firms anticipate likely DOJ and FTC responses to proposed mergers. This makes the process more predictable, which helps all parties plan, and it reduces negotiation costs for all participants.[5]

By comparison, do the four principles provide a similar level of guidance? It is not even close. The four principles cover only a narrow range of actions. There have been only a few examples to illustrate how the FCC intends to employ these principles, involving Madison River and Comcast. There are many plausible circumstances not covered, and in which the principles do not help market participants forecast whether their own decisions will generate close regulatory scrutiny or not. Such open-endedness seems particularly damaging for innovative behavior because, said simply, there are few indications about when commissioners and staff will view innovative behavior as healthy or not.

These concerns motivate focusing on identifying the behavioral signs of innovative health. I perceive there would be a gain for policy from clarifying benchmarks that any observer, even querulous lawyers on opposite sides of a policy issue, could use to assess the state of health of an innovative market, such as the Internet.

In Section I, I review the broad motivation behind the essay's core question. Section II provides an analysis of the four signs of innovative health. Section III discusses some implications of this approach for events involving dominant firms in which the FCC did or did not apply the four principles, such as disputes involving Comcast, and another between Sprint and Cogent.

I. THE VALUE CHAIN FOR THE INTERNET

The complexity and evolution of the Internet's value chain

4. DEP'T OF JUSTICE, ANTITRUST DIVISION, MERGER ENFORCEMENT GUIDELINES, http://www.usdoj.gov/atr/hmerger.htm.

5. DEP'T OF JUSTICE AND FTC, HORIZONTAL MERGER GUIDELINES, http://www.usdoj.gov/atr/public/guidelines/hmg.htm. *See also,* DEP'T OF JUSTICE AND FTC, COMMENTARY ON THE HORIZONTAL MERGER GUIDELINES, http://www.ftc.gov/os/2006/03/CommentaryontheHorizontalMergerGuidelinesMarch2006.pdf.

motivates the core question behind this essay. It is worthwhile to understand this motivation in some depth. The structure of the Internet value chain has evolved in a direction that will give rise to numerous policy issues into the foreseeable future.

The value chain for Internet services appears to be perpetually in transition. To paraphrase the economist, Bruce Owen, the players have only reached the fifth inning of a nine-inning ball game and there is no rain delay in sight.[6] That evolution raises a challenge for any regulatory framework: it makes it quite difficult to assess the general factors encouraging behavior that leads to innovative outcomes.

Indeed, ever since the Internet commercialized many of its participants have maintained a strong sense about their exceptional nature, as if innovation within the existing value chain for the Internet defied established archetypes of innovation. For example, the Internet did not arise as a consequence of one single breakthrough invention from one single genius, à la Edison and the light bulb.

That view raises a rather deep economic question about whether innovation within the Internet can be assessed with the same economic concepts used elsewhere in innovative markets, such as computing. This essay will largely argue that it can be.

The truth about the early development of the commercial Internet is less exciting than this attitude of exceptionalism would suggest. It involved a vastly dispersed set of actors. The Internet developed slowly and through a rather mundane process, accumulating capabilities over time from an enormous number of contributors. As such, it fits an archetype that scholars of innovation label as "Collective Invention."[7] For example, the creation, refinement, and improvement of e-mail prior to 1990 involved contributions from more than fifty different people over two decades, and that application was one new application among many.[8]

More specifically, the Internet initially accumulated capabilities over time in a government project hidden from mainstream view. Technical success generated interest and use, spread technology among researchers, and gained economic value by growing capabilities in a community that did not recognize its economic value for non-researchers.[9]

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6. Bruce Owen, *Broadband Mysteries*, *in* BROADBAND: SHOULD WE REGULATE HIGH-SPEED INTERNET ACCESS? 9–38 (Robert W. Crandall & James H. Alleman eds., Am. Enter. Inst. Press 2003).

7. *See*, *e.g.*, Robert C. Allen, *Collective Invention*, 4 J. ECON. BEHAVIOR & ORG. 1, 1–24 (1983); Peter B. Meyer, *Episodes of Collective Invention* (U.S. Bureau of Labor Statistics, Working Paper No. 368, 2003), *available at* http://ssrn.com/abstract=466880.

8. Craig Partridge, *The Technical Development of Internet E-mail*, 30 IEEE ANNALS OF THE HISTORY OF COMPUTING 3-29 (2008).

9. *See, e.g.*, JANET ABBATE, INVENTING THE INTERNET (MIT Press 2000); Shane Greenstein, *Wild Ducks and Inconspicuous Accumulation: Innovation in the Government-Sponsored Internet* (Kellogg Sch. of Mgmt., Working Paper, March 2009), *available at*

Once commercialized, the Internet began to accumulate more capabilities and functions, as a range of firms began to use pieces of the Internet to enhance services provided to paying customers. Over time, "the Internet" became a label for not only the Internet, but also for all the applications that accumulated around the Internet, used pieces of the Internet, and commercialized new functions for the Internet, which cumulatively delivered an enormous array of services to a wide range of users.

Three factors in particular altered the discussion about the value chain in the last decade. First, the predominant access mode for the Internet changed. Second, several leading businesses organized several different platforms to alter the potential value chains for users and developers. Third, the predominant contractual framework for governing transactions was never completed.

Each one of these factors raises further questions about the presence of market power and its distortion on innovative outcomes. Each factor also raises questions about the ability of a savvy observer to assess the innovative health of the Internet.

I describe each of these factors in turn and explore why they motivate the core question of this essay.

A. Broadband

In the 1990s the model Internet Service Provider (ISP) was a dial-up charging $20 a month on average.[10] By the turn of the millennium this industry had generated over $10 billion in revenue,[11] which was quite impressive for an economic activity so young. At a broad level, however, it supported only applications that could tolerate some delay in the delivery of data. That restriction on the value of output rendered moot many arguments about how to best govern the value chain. Subsequent developments brought those arguments to the forefront.[12]

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http://www.kellogg.northwestern.edu/faculty/greenstein/images/research.html.

10. Tom Downes & Shane Greenstein, *Universal Access and Local Commercial Internet Markets*, 31 RES. POLICY 1035–1052 (2002); Tom Downes & Shane Greenstein, *Understanding why Universal Service Obligations May be Unnecessary: The Private Development of Local Internet Access Markets*, 62 J. URBAN ECON. 2–26 (2007); Shane Greenstein, *Innovation and the Evolution of Market Structure for Internet Access in the United States*, *in* THE INTERNET AND AMERICAN BUSINESS 47 (William Aspray & Paul E. Ceruzzi eds., 2008) [hereinafter *Evolution of Market Structure for Internet Access*]; Shane Greenstein, *Building and Developing the Virtual World: The Commercial Internet Access Market*, 48 J. INDUS. ECON. 4 (2000).

11. Shane Greenstein & Ryan McDevitt, *The Broadband Bonus: Accounting for Broadband Internet's Impact on U.S. GDP.* (NBER, Working Paper No. 14758, 2009), *available at* http://www.nber.org/papers/w14758.

12. *See* JONATHAN E. NUECHTERLEIN & PHILIP J. WEISER, DIGITAL CROSSROADS: AMERICAN TELECOMMUNICATIONS POLICY IN THE INTERNET AGE (2005); *see also*,

The predominant mode of access changed in a short period. In September 2001, approximately 45 million U.S. households accessed the Internet through a dial-up connection, whereas only 10 million used a broadband connection.[13] By March 2006, a sharply contrasting picture emerged: approximately 47 million households (and growing) had broadband connections, whereas 34 million (and declining) used dial-up.[14] According to the latest survey of the Pew Internet and American Life Project, in April, 2009, less than 10% of U.S. households had dial-up Internet connections, and 63% of U.S. households had broadband.[15]

Consistent with the increasing adoption of broadband by households and its higher monthly prices on average, the total revenue in access markets grew. So, too, did the fraction of revenue going to broadband.[16]

Simple economic factors determined the growing trend to broadband internet serve. Dial-up became available first and diffused to more than half of U.S. households. Thereafter broadband emerged as a higher quality and more expensive alternative, albeit one available in only a few places and from a limited set of providers, if any. Over time, however, broadband became more reliable and more widely available, which enabled many households to upgrade their Internet service.

Today, most urban households face a duopoly of wire-line choice: (1) an offering from a local cable franchise, and (2) an offering from a local telephone company. In some locations, they also may face options for wireless providers, which potentially may convert the duopoly into a more competitive supply. In many suburban areas (less dense settings) households face that duopoly or only one wire-line provider. To the contrary, one wire-line provider services households in many rural settings or isolated small cities, where households lack alternatives to

Evolution of Market Structure for Internet Access, *supra* note 10, at 47–104 (Those arguments had antecedents in the open access movement, but became reformulated as broadband diffused. They were reformulated principally in the form of the "net neutrality" movement. As noted earlier, the FCC policy's ambiguity about the meaning of 'reasonable network management' left open many issues.); *see e.g.,* George Ou, *A Policy Maker's Guide to Network Management*, THE INFO. TECH. AND INNOVATION FOUND. (2008) (a review and analysis of various definitions and their implications), *available at* http://www.itif.org/files/Network_Management.pdf.

13. NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION (NTIA), A NATION ONLINE: ENTERING THE BROADBAND AGE (2004), *available at* http://www.ntia.doc.gov/reports.html.

14. John Horrigan, *Home Broadband Adoption*, PEW INTERNET & AM. LIFE PROJECT (2007) *available at* http://www.pewinternet.org/Reports/2007/Home-Broadband-Adoption-2007/ Data-Memo/Findings.aspx?r=1.

15. John Horrigan, *Home Broadband Adoption*, PEW INTERNET & AM. LIFE PROJECT (2009) *available at* http://www.pewinternet.org/Reports/2009/10-Home-Broadband-Adoption-2009.aspx?r=1.

16. Greenstein & McDevitt, *supra* note 11.

dial-up internet service except through a satellite provider and/or other wireless ISP.

As a cause for both celebration and concern, broadband firms inhabit a position of monopoly or duopoly in a key part of the value chain. On the one hand, broadband's position reflects the ascendency of a superior product and service in replacing dial-up, an economic improvement over the near past. On the other hand, it raises concerns about the presence of market power and the incentives to make future improvements.

At a broad level, most texts in standard industrial economics stress the issues with this situation.[17] While society benefits from giving incentives to firms to create superior products and services, rewarding firms with monopoly power comes at a cost to society, presuming firms with high market share possess market power. Such firms may face weaker incentives to innovate than firms in any more competitive market structure.[18] Net neutrality advocates also have expressed a related concern that the retail market power will be used to shape the incentives of others in the value chain in adverse ways.[19]

Broadband's ascendency into the majority of households gave rise to another issue because it enabled a range of applications to blossom. Generally speaking, four types of rather different uses share the same capacity: (1) browsing and e-mail, which tend to employ low bandwidth and tolerate delay; (2) video downloading, which can employ high bandwidth and can tolerate some delay; (3) voice-over IP and video-talk, which tend to employ high bandwidth and whose quality declines with delay; and (4) peer-to-peer applications, which tend to use high bandwidth for sustained periods of time, and can tolerate delay, but, in some applications (e.g., Bit-Torrent) can impose delay on others.[20]

That range of uses and applications today also raises cheers and concerns. The Internet has evolved from a mere e-mail network for technically skilled users during its first decade into an e-mail or instant

17. *See* KIP VISCUSI, JOSEPH HARRINGTON & JOHN VERNON, ECONOMICS OF REGULATION AND ANTITRUST 4 (2005); *see also* DENNIS CARTON & JEFFREY PERLOFF, MODERN INDUSTRIAL ORGANIZATION (2004).

18. *See* Richard Gilbert, *Looking for Mr. Schumpeter: Where are we in the Competition-Innovation Debate*, 6 INNOVATION POL'Y & ECON. 159–215 (2006); *see also*, Jonathan Baker, *Beyond Schumpeter versus Arrow: How Antitrust Fosters Innovation*, 74 ANTITRUST L.J. 575, 575–602 (2007). While this broad point is generally accepted, there is considerable debate surrounding many aspects related to its general applicability and about what policy can/should do to foster competitive incentives aimed at raising innovation incentives.

19. *See e.g.,* LAWRENCE LESSIG, CODE AND OTHER LAWS OF CYBER SPACE (1999); LAWRENCE LESSIG, CODE, VERSION 2.0 (2006); Tim Wu & Christopher Yoo, *Keeping the Internet Neutral?: Tim Wu and Christopher Yoo Debate*, 59 FED. COMM. L.J. 575, 581 (2007); Ou, *supra* note 12.

20. *See* Ou, *supra* note 12.

messaging communications network for some, a gaming network for others, a source of news for others, and a distribution channel for video and musical entertainment for others. For others still, it is the principal media for engaging with geographically dispersed communities of friends.

While that diversity of applications wrings additional productivity out of the same capital supporting the network, it comes with a potential drawback: the use of one application affects the productivity of another. In part this is due to capacity constraints at bottleneck positions in the network; there are few backbone pathways to support browsing in isolated positions. Contributing to these constraints are geographically localized negative externalities (e.g., many modern peer-to-peer applications employ all available bandwidth, diminishing the quality of other applications in the same cable network that cannot tolerate delay).

The market for Internet access could become more complex over time. Options vary in speed, quality, and price. There have been data services from the major cellular carriers (e.g., Verizon, AT&T, and others) for several years, particularly for e-mail delivery to laptops. The most popular mechanism in the recent past was a simple device for delivery of e-mail (e.g., a BlackBerry). More complex devices have gained popularity (e.g., iPhones and smart phones), and these have download speeds that begin to approach the low end of wire-line broadband speeds.

Technological optimists forecast even faster download speeds from next generation wireless carriers (e.g., WiMax or LTE). There is still considerable uncertainty about how many of these services the market will support, about what price and sales levels will prevail, and, accordingly, what scale of deployment these prices and sales levels will support.

The pace and level of change suggest that the provision of Internet access has not stopped evolving, nor will they soon. In the best of all worlds the prior gains are permanent and the most worrisome concerns are temporary.

Why does this evolution pose a quandary for a regulator? It is not worrisome if the multiplicity of access choices erodes market power of any individual actor. It is worrisome if some actors retain market power, and use it to discourage innovations that do not serve their interests. The questions are central to any innovation policy for the Internet. What relevance will market power have to innovation policy in the Internet? Does limiting the distortions of market power provide justification for government intervention? If so, what type of action, and what are its limitations?

More to the point, in a setting where market power might or might not be present, and might or might not be employed for purposes that

run afoul of policy sensibility, private actors gain little insight into the thinking of public policy makers who publically commit to only four sentences. Surely private firms benefit from knowing how to anticipate the norms and standards employed by regulators to recognize the signs of healthy and unhealthy behavior in a situation that is changing so much.

B. Platforms

Well-designed standards and platforms hold one of the keys to the successful accumulation of functionality over time. Consider this brief overview about how platforms have changed over time, and how those changes altered the ability of a savvy observer to assess the innovative health of the Internet.

By way of background, typical use of Internet-related services requires successful execution of a set of technically interrelated activities coming from many independent firms. The failure or reduction in performance of any of these activities can lead to inferior outcomes for many users. Focusing solely on such technical action, however, misses a key dimension of how firms address the challenges. Even the simplest of activities in this value chain, such as sending e-mail, involves many participants, and efficient delivery of services depends on advanced agreement about how their business activities will interrelate. To reduce the uncertainty about how such services interoperate, commercial firms take one of two approaches: either they negotiate arrangements in advance with all relevant participants, or, if that fails, they do it all themselves.

In the parlance of business language, firms either negotiate standards with others so the task performs smoothly, or they offer a platform that accomplishes the task. Platforms are a standard bundle of components and designs around which vendors build services. Platform strategies played an important role in computing before the commercialization of the Internet.[21] Many firms naturally organized their strategic approach for commercial opportunities on the Internet with similar approaches.

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21. *See e.g.*, Timothy Bresnahan & Shane Greenstein, *Technical Progress and Co-Invention in Computing and In the Use of Computers*, BROOKINGS PAPERS ON ECON. ACTIVITY: MICROECONOMICS 1–78 (1997); Timothy Bresnahan & Shane Greenstein, *Technological Competition and the Structure of the Computer Industry*, J. INDUS. ECON. 1–40 (1999); *see also*, ANNABELLE GAWER & M.A. CUSUMANO, PLATFORM LEADERSHIP: HOW INTEL, MICROSOFT AND CICSO DRIVE INDUSTRY INNOVATION (2002); Annabelle Gawer & R. Henderson, *Platform Owner Entry and Innovation in Complementary Markets: Evidence from Intel*, 16 J.ECON. & MGMT. STRATEGY 1, 1–34 (2007); DAVID EVANS, ANDREI HAGIU, & RICHARD SCHMALENSEE, INVISIBLE ENGINES: HOW SOFTWARE PLATFORMS DRIVE INNOVATION AND TRANSFORM INDUSTRIES (2007); ANNABELLE GAWER, PLATFORMS, MARKETS AND INNOVATION (Edward Elgar ed., forthcoming Dec. 2009).

Ever since the emergence of the Internet, several leading businesses organized different platforms to alter the potential value chains for users and developers. There are proprietary platforms, open source platforms, and business platforms, all of which interoperate to provide services and some of which compete at the same time.

As with the rise of broadband, the rise of platforms on the Internet is a source of both celebration and consternation. While platforms perform functions that firms and/or users value, their presence usually suggests that some firms/users are better off with them than without. At the same time, large or dominant platform leaders (usually) possess market power, thereby raising questions about whether those firms use their discretion in ways that lead to more innovation.

The list of important platforms today is long. To illustrate this observation, I highlight two proprietary platform providers, Microsoft and Intel, and one non-proprietary platform, open source communities.

Perhaps the best known of the commercial platform providers is Microsoft, which develops and sells an operating system branded as Windows. It organizes the computing platform around the personal computer, as well as many Intel-based servers. To produce and deliver this product Microsoft engages with a multiplicity of actors, users (e.g., businesses and households), original equipment manufacturers (OEMs, *e.g.*, Dell, HP, and others), and application developers (e.g., software vendors). The operating system allows all of them to interact with one another for more efficient delivery of services.

Microsoft's platform strategy for the Internet over the last decade has been shaped by its lucrative position selling Windows for PCs and for server functions. This has led the firm to offer a mix of supporting functionality for the Internet. For example, in the early 1990s it offered TCP/IP compatibility in Windows as means to enhance the features of its networking software. In the mid 1990s it offered a browser, partly as a gateway towards developing a broader array of Web services, and partly for defensive purposes, because it matched browsers offered by others, notably Netscape at that time. Microsoft eventually won a rather confrontational war with Netscape for market share, and continues to hold a leading position in browser usage.

Microsoft has not, however, had as much success in other aspects of its commercial Internet ventures. Despite considerable resource commitments, its MSN division has never yielded enviable success. Its attempt to build an advertising-supported set of applications—including a recent attempt to buy Yahoo![22]—also has not yielded big advances.

22. Peter Henserson & Braden Reddall, *TIMELINE: Microsoft Attempt to Buy Yahoo!*, REUTERS, May 4, 2007, *available at* http://www.reuters.com/article/topNews/idUSGOR47298420080504.

Despite a leading position in enterprise computing, it has not yet found a successful transition to cloud computing applications, such as experienced by salesforce.com, for example. Only its investments in Xbox now generate revenues in excess of operating costs,[23] as well as a significant amount of Internet gaming traffic, but it will be considerable time before it generates enough profit to recoup the billions of dollars in losses spent developing the platform in the first place, if ever.

Intel is another prominent platform provider whose strategy arose from its lucrative position in PC markets. Intel's historical platform strategy had some similarities to Microsoft's. It too stands at the middle of a large ecosystem, interacting with a range of firms, providing leadership that drives towards the standard hardware design and specification used in most desk top computers, lap tops, and net books. Its behavior also differs from Microsoft's for a simple reason; Intel interacts much more with hardware than software firms. While Intel offered the most widely used microprocessor for personal computers, it feared losing leadership in new and growing markets for integrated circuits, especially processors. It developed a faster microprocessor and invested heavily in creating demand for platforms that used it. The latter motivated Intel to invest in a wide range of activities, some of them far afield from microprocessor manufacturing.

For example, Intel designed an input-output bus for PCs, even though, until that point, it had never been in that business. Intel also designed PC motherboards and virtually gave away the design to others, as a way to foster improvements that aided its microprocessors.[24] Intel helped design and sponsor USB and corresponding USB standards, including funding the testing for conformance.[25] It also branched into sponsoring a Wi-Fi standard for laptops under the Centrino label, helping to design further upgrades to the underlying technical standard, which was designed by IEEE committee 802.11, and helping to fund conformance-testing organizations as well.[26] More recently, it has invested heavily in designing and supporting another 802 wireless standard, known as Wi-Max. In addition, Intel has worked hard to develop a position as a microprocessor provider for standard designs of

23. Erick Schonfeld, *Microsoft Lost Nearly $500 Million on the Web Last Quarter,* TECHCRUNCH, January 22, 2009, *available at* http://www.techcrunch.com/2009/01/22/microsoft-lost-nearly-500-million-on-the-web-last-quarter/.

24. GAWER & CUSUMANO, *supra* note 21.

25. Jeffrey K. MacKie-Mason & Janet S. Netz, *Manipulating Interface Standards as an Anticompetitive Strategy*, *in* STANDARDS AND PUBLIC POLICY 231 (Shane Greenstein & Victor Stango eds., 2007); Intel.com, Intel Helped Make It Easier to Connect Devices to PCs, http://www.intel.com/standards/case/case_usb.htm.

26. Shane Greenstein, *Economic Experiments and Neutrality in Internet Access*, 8 INNOVATION POL'Y & ECON. 59 (2006).

smart phone devices.

Another organizational form for developing an interrelated platform of services involves the use of open source institutions, that is, employing some variation on the General Public License (GPL) for code or a Creative Commons license for copyrighted material. While intellectual property often receives the most attention, it is not the key factor for most commercial firms. Open source differs sharply from platforms organized by Microsoft or Intel in the responsibility and activities of management by raising transparency for developers about the features of the code and its evolution. In some organizations, open source has an additional function: it substitutes participatory/collective decision making for unilateral decision making at a single firm.

In some respects, the open source movement is not new at all as an institution for platform development and support. Transparency and wide participation have played a role in the development of key protocols and standards for the Internet, known as TCP/IP, which are employed by most Internet users. These are maintained by the Internet Engineering Task Force (IETF), who maintains a set of fully documented and accessible processes for making documented code available. It invites wide participation in the design of new protocols and standards. It was not called "open source" when it started, but the processes strongly resemble the modern transparent processes with wide participation (more below).[27]

Another important platform emerges from the Web standards maintained by the World Wide Web Consortium (W3C). It, too, has a transparent process, but it employs a different model for decision making and participation. The W3C requires firms to pay for their membership, and Tim Berners-Lee and his staff retain some authority to make decisions unilaterally after consultations with the membership.

A better known example of these open source platforms is Linux. The changes to this open source project hint at how commercialization and open source have both recently changed. Linux began as a volunteer project by Linus Torvalds, but today has firm support for a consortium operated by Torvalds. This consortium supports a range of businesses operated by many firms, including IBM, Red Hat, and others.

More broadly, open source platforms now appear in many commercial ventures on the Internet. A range of other business models have emerged for platform development around open source, including businesses organized by MySQL (for databases) and Mozilla and Webkit (for the Firebox, Safari, and Chrome browsers). The same could be said

27. Scott Bradner, *The Internet Engineering Task Force*, *in* OPEN SOURCES: VOICES FROM THE OPEN SOURCE REVOLUTION 47 (Chris DiBona, Sam Ockman & Mark Stone eds., 1999).

for a range of Web 2.0 efforts, such as Facebook, YouTube, and Flickr, which do not use the GPL but instead employ licenses designed by the Creative Commons.

Taking a "snapshot" of the structure today, we can see the infrastructure supports a rather complex value chain involving the interoperability of many different commercial platforms. This is an enormous evolution: the present arrangement looks nothing like the Internet of the early 1990s, when it first commercialized.

Today many observers believe Google has the most effective platform on the Internet.[28] Its search engine is the most popular in English,[29] as well as in many other languages. That supports a very lucrative ad-placement business. Many other firms also expend considerable resources optimizing their web pages to appear high on Google's search results, so, like any important platform, Google's actions have become central to the economic prosperity of others.[30] Some observers believe this will only continue, as its popularity will allow Google to develop a range of products supporting its search business.

Other prominent platforms include those provided by Cisco (networking equipment), Research In Motion (BlackBerry), Apple (iPhone, iPod), Yahoo! (search, news, mail), Oracle (enterprise databases), E-Bay (auctions), as well as many others. These examples are only a few among many prominent commercial platforms shaping development of the Internet. It is necessarily a short list and may not have the relevant platforms for policy in the near future. Each one of these platforms deserves a longer description, and the reader should be clear that the absence of that here is due to space constraints, not their lack of importance.

Platforms add an additional layer of decision making to the provision of services. That comes with a benefit, to be sure. It lowers coordination costs, and it can smooth transactions between participants with long term relationships. But platforms also come with some strings attached. Once they exist the firms with commercial interests in their continuance will take action to make sure they do not easily go away. Growth tends to agglomerate the successful platforms, but they also

28. RANDALL STROSS, PLANET GOOGLE: ONE COMPANY'S AUDACIOUS PLAN TO ORGANIZE EVERYTHING WE KNOW (2008); Sarah Lacy, *The New Bulls-Eye on Google*, TECHCRUNCH, Feb. 18, 2009, http://www.techcrunch.com/2009/02/18/the-new-bulls-eye-on-google/.

29. Erick Schonfeld, *March ComScore Search Numbers Offer a Sign of Hope for Google*, TECHCRUNCH, Apr. 14, 2009, http://www.techcrunch.com/2009/04/14/march-comscore-search-numbers-offer-a-sign-of-hope-for-google/ (reporting that the 2009 estimates from ComScore place Google at 63.7% of all searches done in the U.S., which is over 9 billion searches).

30. STROSS, *supra* note 28.

stand in the way of complementary entry which holds the potential to oppose the commercial interests of the present platform leaders.

Aphoristically, the Internet has been called a "network of networks" since it first began to diffuse to the general public. Yet, distilling the Internet to that aphorism is misleading; it does not reflect how commercial behavior shaped the evolution of technology in the last decade and a half. Leading firms and their business partners view the commercial Internet through the same lens they view activities in the rest of computing. For them, the commercial Internet is a "network of platforms."

In sum, firms do not make investment decisions aimed in general directions. Rather, they make investments aimed at advancing their own platform strategies. Firms do not merely defend themselves against entry by a new competitor. They develop sophisticated approaches to find out which other platforms may pose a threat to their existing profitable businesses. Platforms are a central strategic determinant of the direction a firm takes.

Which of these behaviors will not raise alarms and which will? This ongoing evolution of platforms poses a thorny question to regulators: how can they recognize signs of healthy and unhealthy platform behavior in an innovative industry when platforms play such an important role? Once again, the questions are central to any innovation policy for the Internet. Once again, surely private firms benefit from knowing how to anticipate the norms and standards employed to recognize the signs of healthy and unhealthy behavior in markets where most dominant firms employ platform strategies.

C. Contractual Incompleteness

Contractual incompleteness has become a central feature of the Internet value chain. Incompleteness refers to the absence of contracts governing regular transactions or, if such contracts exist, to contracts that lack fully specified terms for all contingencies. The maturation of the Internet value chain has not yet diminished this incompleteness much, and there are no signs of change.

To many economists, such an observation is only a philosophical statement. In this essay it is also an observation with pragmatic relevance to innovation policy. It provides both justification for government intervention, as well as a limitation to it. This justification is quite distinct from the two already discussed, both of which stress the role of market power.

Contractual incompleteness arises for many reasons. The Internet involves an extraordinarily large number of parties, which renders multi-lateral negotiations impractical. There are so many players, in part,

because the value chain supports an extraordinarily multi-purpose network, as earlier noted. Said simply, today many parties take action and their actions influence one another. There is just no practical way to get all these participants—or even their representatives—in the same room at the same time to work out a deal by horse-trading one set of economic concerns for another.

For example, even if one set of Skype users might be willing to pay another set of Bit-Torrent users to change their behavior, there is no practical way to get them all in the same room at the same time to negotiate and sign that deal. That incompleteness might further motivate another market participant, for example, an ISP, to take further action, though I will defer that discussion until later.

Incompleteness also arises where all parties may recognize the potential for technical change to generate new applications that alter circumstances, requiring renegotiation of prior contracts whose terms are no longer relevant. Yet, many pairs of parties in this setting may fail to come to agreement for numerous reasons. Even if the recognition exists, the parties may fail to negotiate a solution due to a lack of the type of trust and mutual assumptions that usually support renegotiating commercial transactions in the face of such contractual incompleteness.

Most interesting, contractual incompleteness inhibits negotiations, as it may be impossible to consummate a deal. The relevant party may not even exist yet (if they will be entrepreneurial start-ups) and, thus, lack representation in even a basic form, such as a trade-group or related commercial organization.[31]

Legal ambiguities for innovative activities also can play a role. While contractual obligations govern some of the routine activities, it may be more difficult to erect similar obligations for new activities. For example, contracts govern the handoff of data from one backbone carrier to another, or from one Web application to an edge-caching site, such as Akamai's, or to a content-delivery network, such as Amazon's. In contrast, a looser contractual foundation governs another set of interrelated activities. For instance, when an advertising-sponsored Web application sends data to a user, the ISP delivers it without alteration, because participants await legal rulings. YouTube was founded in an era when there were multiple plausible definitions for a precise, legal, and safe harbor for copyrighted material for user-supplied video. These definitions still remain ambiguous, though court cases continue to refine them into a tighter domain.

31. *See* Bruce M. Owen & Gregory L. Rosston, *Local Broadband Access: Primum Non Nocere or Primum Processi? A Property Rights Approach*, *in* NET NEUTRALITY OR NET NEUTERING, SHOULD BROADBAND SERVICES BE REGULATED? 163 (Bruce M. Owen & Gregory L. Rosston eds., 2006).

Between contractual incompleteness and legal ambiguities, an efficient bargaining solution—a so-called Coasian bargaining solution—fails to arise. Indeed, such failure is endemic to the setting. The very thing that makes the Internet economically successful—the accumulation of innovation that supports a wide set of applications for many participants, including entrepreneurs—gives rise to conditions that make it harder for Coasian solutions to arise.

The lack of a Coasian bargaining solution can provide an economic justification for a potential role for government regulators in specific circumstances: to settle disputes when many participants have a stake in the solution but private parties fail to account for these externalities; or, related, to define "default" terms of commercial relationships that many partake in, when the default remains undefined; or, related, to mandate terms of standards employed by participants in the value chain when they otherwise cannot or do not come to such standards on their own.

Note, however, this argument implies a limitation on that role. It covers only those activities that firms could not already settle themselves through contracting, those without externalities, or those which necessarily involve unanticipated circumstances. To be sure, however, that is not necessarily a substantial limitation if it involves participants who are not even in a market yet, such as entrepreneurs.

Once again, another limitation on decision making also is implied. The arguments for intervention presume the existence of a well-developed set of insights about how to recognize a problem in the Internet value chain.[32] As it turns out, some arguments against intervening also presume a problem can be recognized.[33] That too motivates looking more closely at how such recognition takes place.

In short, the evolution of the Internet value chain gives rise to many of the conditions that stand in the way of a Coasian agreement. That also implies that the evolution necessarily stands in the way of making an assessment about whether the situation merits intervention or not. Once again, the questions are central to any innovation policy for the Internet. Once again, private firms benefit from knowing how to anticipate the norms and standards employed to recognize failure of a Coasian solution, i.e., the signs of healthy and unhealthy behavior in an innovative industry such as this.

II. COMMERCIAL BEHAVIOR AND THE INTERNET

Four signs of innovative behavior are examined here: economic

32. *See* LESSIG, *supra* note 19; Wu & Yoo, *supra* note 19; Ou, *supra* note 12.

33. *See* Wu & Yoo, *supra* note 19; Ou, *supra* note 12; *see* Bruce M. Owen, *Antecedents to Net Neutrality*, REGULATION, Fall 2007, at 14.

experiments, standards competition, entrepreneurial invention, and the absence of one-sided bargaining. All four play a role in the accumulation of new functionality in services on the Internet, and all four could continue to play a role in the future if the structure enables them to.

A. Economic Experiments

An economic experiment is a market-oriented action designed to help a firm learn or resolve uncertainty about an unknown economic factor. Usually such lessons cannot be learned in a laboratory or controlled environment, either because they involve learning about the nuances of market demand or learning about sets of procedures for providing new services at a lower cost.[34]

Economic experiments vary in purpose. Some experiments focus on learning about the profitability of incremental changes in business processes, whereas others seek to learn about the restructuring of organizations and the profitability that may result from the simultaneous alteration of many processes or about the profitability of restructuring the relationship among many organizations within an industry.

Internet markets have been full of economic experiments in the last fifteen years. That was especially so in the latter part of the 1990s, when firms took a wide variety of bets to learn about unknown aspects of customer demand and the costs for meeting them using Web technologies. These experiments covered all parts of the value chain for delivering services—Internet access, client-server platforms, contracting among business partners, and so on. Carriers conducted them and so did content providers.[35]

To be sure, not all experiments work out. Indeed, if the learning occurs as part of a risky business venture, many of them should not. And, accordingly, history is littered with illustrations. In Internet application markets some of these firms survived (e.g., Google, Amazon, E-Bay), and some of these did not (e.g., WebVan, Pets.com). So it goes.

Against that backdrop it is pleasing to see that recent behavior looks similar. Some firms involved in the Web 2.0 movement (Facebook, Friendster, Digg, and others) and this decade's frontier businesses (Salesforce.com and YouTube, for example) will make it, while others

34. *Economic experiments* pertain to any market experience that alters knowledge about the market value of a good or service. Nathan Rosenberg, *Economic Experiments*, *in* EXPLORING THE BLACK BOX: TECHNOLOGY, ECONOMICS, AND HISTORY 87 (Nathan Rosenberg ed., 1994); Scott Stern, *Economic Experiments: The Role of Entrepreneurship in Economic Prosperity*, *in* UNDERSTANDING ENTREPRENEURSHIP: A RESEARCH AND POLICY REPORT 16 (2005). Firms engage in economic experiments to reduce uncertainties about market value.

35. *See* Greenstein, *supra* note 26 (examining the role of economic experiments in the evolution of Internet access).

won't. For example, most VCs today are convinced that there will be little further entry of new businesses into Web 2.0 and the future will involve exit of many of the entrants of the last few years. So it goes again. As long as many firms are trying to learn, then the industry looks healthy in this respect.

While some experiments do not succeed, many do. A successful business continues to operate and brings new goods and services to users. Indeed, while many can recall the failures of the dot-com boom, it should be pointed out that success rates for new firms during this era were comparatively high, leaving a long string of very valuable activities in place.[36] In addition, many of the lessons learned endure, handed out as free advice from one manager to the next, benefiting a new generation of businesses.

Note how this assessment differs from the common approach and orientation of Wall Street analysts.[37] By definition, economic experiments are risky learning exercises, designed to teach a firm (or set of firms or set of VCs) about something unknown but relevant to the value chain for delivering services. It is not unusual to observe a little messiness, and there is no particular reason to anticipate the learning to yield immediate profitability. In fact, the learning is usually expensive and the benefits come later, so immediate profitability is rare.

Wall Street's short run values typically do not reward experimentation, regardless of the potential long term gains from such lessons. Consider FiOS, Verizon's program to bring fiber to residences. Many technologists think Verizon is late to the party and many stock analysts remain skeptical about the potential for large financial returns from FiOS.[38] Many analysts also remain skeptical about whether FiOS will generate steady returns, much like a utility's revenue.[39]

Using this emphasis on economic experiments, however, one might

36. Brent Goldfarb & David A. Kirsch, *Small Ideas, Big Ideas, Bad Ideas, Good Ideas: "Get Big Fast" and Dot Com Venture Creation*, *in* THE INTERNET AND AMERICAN BUSINESS 259 (William Aspray & Paul E. Ceruzzi eds., 2008); Brent D. Goldfarb, David Kirsch & Michael D. Pfarrer, *Searching for Ghosts: Business Survival, Unmeasured Entrepreneurial Activity and Private Equity Investment in the Dot-Com Era* (Robert H. Smith School, Research Paper No. RHS 06-027, 2005), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=825687.

37. I am using "Wall Street" as a generic term for a common style of analysis that emphasizes only firm profits of a single firm in the short term, neglecting the collective progress of a community of market participants whose activities ultimately shape user experience.

38. Saul Hansell, *Verizon's FiOS: A Smart Bet or a Big Mistake?*, N.Y. TIMES, Aug. 18, 2008, at C1; Saul Hansell, *A Bear Speaks: Why Verizon's Pricey FiOS Bet Won't Pay Off*, N.Y. TIMES, Aug. 19, 2008; Craig Moffett, *Network Upgrades Are for Ninnies*, BROADBAND DSL REPORTS, Aug. 19, 2008, http://www.dslreports.com/shownews/97086; DSLReports.com, Op-Ed, *Investor: Fios Is Doomed*, BROADBAND DSL REPORTS, Dec. 15, 2006, http://www.dslreports.com/shownews/80296.

39. Hansell, *supra* note 38; Moffett, *supra* note 38.

say, "Good for Verizon." That is precisely the type of disagreement that should arise if a firm's management undertakes a risky economic experiment. Profitable today or not, pushing the envelope will teach Verizon's management, as well as competitors like AT&T, quite a lot, and maybe that will help it lower costs or develop better targeted marketing next year.

Economic experiments also depart from another Wall Street bias for assessing the progress of innovation in terms of one firm's profitability. For purposes of public policy, it is often a poor idea to focus on one firm's success or failure to assess the benefits of learning. It is often more sensible to take a view of economic experiments taking place in an entire market, focusing instead on whether a community of suppliers or users are benefiting in the long run.

For example, this was the most insightful way to understand the earliest commercial experience with Wi-Fi, or IEEE standard 802.11b, between 1999 and 2001. During this early period of diffusion, many firms and users learned about the value of the short-range data transmission. The technology was defined, but the business case was not. Examining any single firm's experience would have yielded a rather pessimistic assessment, which was a distinctly uninformative way to understand what was happening.

While homes and enterprises explored the gains from installing wireless routers, so, too, did a completely unanticipated set of actors: coffee shops, cafés, and other hot spots. At the time all actors were trying to learn about which implementations created value and which did not. Lessons were shared in many public forums. It was a collective economic experiment, and it was generally beneficial for many users, though it was hard to identify any particular firm for whom it was super.[40]

What is an example of unhealthy experimentation? Here's one: Microsoft's lack of new releases for Internet Explorer 6.0 at the start of this decade. Microsoft deployed little new for five years, spending most of its energy and time responding to every new call for security patches, as well as dealing with the publicity nightmare that came with having its product panned so widely by so many technical experts.[41] After spending so much money to win the dominant position on browsers from

40. *See Evolution of Market Structure for Internet Access, supra* note 10.

41. *See* Martin LaMonica, *Gates Admits IE Failings, Looks to an AJAX Future*, ZDNET, Mar. 21, 2006, http://news.zdnet.co.uk/internet/0,1000000097,39258532,00.htm; *Internet Explorer 6 with Windows XP SP2*, N.Y. TIMES, http://nytimes.com.com/browsers/internet-explorer-6-with/4505-3514_7-31214886.html; CNET Reviews, http://reviews.cnet.com/4520-3514_7-5020542-1.html (last visited Apr. 2009); WinPlanet Windows Software Reviews and Downloads, http://cws.internet.com/file/11714.htm (last visited Apr. 2009); Software Informer, http://internet-explorer.software.informer.com/6.0/ (last visited Apr. 2009).

Netscape, this outcome was unnecessary, as there was no lack of capability or resources. It came from a company famous for its disciplined approach to a "three-version strategy," which deliberately takes a loss on an early version of a product in order to learn from economic experiments. It was as if all such capabilities were forgotten.

The Internet Explorer example illustrates the potential costs and benefits from having only one party conduct experiments. As to the costs, if that party has reasons not to conduct experiments, then it leaves users and third-party programmers with no alternatives. If new ideas have no channel into that one party, then all its partners and users lose from the foregone opportunity. Indeed, according to one observer, in Microsoft's case, this outcome partly resulted from the absence of market discipline after the collapse of the coalition built around Netscape, which permitted an especially bitter internal struggle for strategic direction for Internet services to permeate Microsoft's decisions, to the detriment of other firm goals, such as product development.[42] As to the benefits, only the appearance of Firefox a few years ago seemed to rouse Microsoft's managers and programmers from their internal squabbles to focus on making progress users could measure. I am pleased these days to see more activity, reversing past trends. There appear to be more new experiments coming out of the WebKit community (e.g., Safari, Chrome), as well as from Opera and others. Accordingly, some of the good ideas from these new initiatives have found their ways into the design of later releases of Internet Explorer.

The orientation of communications policy towards protecting or nurturing economic experiments has varied over time for two principle reasons. First, and broadly stated, advocates for policies to nurture experimentation generally bear a high burden of proof in public discourse, as they must argue about a future that has not yet occurred. They must argue that change in a policy will give rise to experimental behavior that has not yet arisen (or will diminish), while their opponents argue that such experimental behavior has no connection to policy.

For example, the recent debates about the need for a "Carterfone" policy in wireless technology divide precisely on these lines. One side argues that a change in policy will bring about more experimentation and the other argues that present policy encourages experimentation that

42. DAVID BANK, BREAKING WINDOWS: HOW BILL GATES FUMBLED THE FUTURE OF MICROSOFT (2001) (recounting the internal debates and fights leading up to the browser wars and beyond them); *see also* Timothy Bresnahan, Shane Greenstein & Rebecca Henderson, *Schumpeterian Competition within Computing Markets and Diseconomies of Scope* (Kellogg Sch. of Mgmt., Working Paper, 2008), *available at* http://www.kellogg.northwestern.edu/faculty/greenstein/images/research.html (providing one interpretation of these events, as a by-product of the costs of organizational diseconomies of scope between the Internet and Windows business).

would diminish if the policy changed.[43] Both points are logical, but cannot be proven without trying one policy that precludes the other.

Second, while some policies nurture the blossoming of economic experiments, that role may be unapparent until after the experiments blossom.[44] Such themes run throughout review of FCC intervention in the Internet's growth, for example. Many nurturing policies, such as policies for third party access providers, became established for reasons connected to historical events unrelated to the Internet.[45] Some, such as the policies that resulted from the *Computer Inquiries,* were in place for reasons connected to their role encouraging new entry in information technology equipment markets, but nobody had the Internet specifically in mind, and had they done so, policy makers may have made different choices.[46] In either case, such unintended consequences from prior policies make it difficult to give forward-looking advice.

I want to acknowledge these difficulties, and then restate the reason it is essential to nurture economic experiments in spite of the challenges. Said succinctly, nobody wants to see some of the Internet's biggest firms turn into Microsoft's browser division, sitting on its laurels with a buggy piece of software, slowly making upgrades, lacking any competitor to push it outward, and fighting an internal corporate fight at its own leisure, to the exclusion of other concerns. Experiments are a sign of progress; lack of them is a sign of stagnation.

B. Vigorous Standards Competition

Bleeding-edge technologies often cannot deploy on a wide scale without some routines or processes, and/or coordination of activities across many firms. Thus, the ratification of new standards generally acts as a leading indicator of impending technological progress and serves as another sign of a healthy innovative industry. While new standards and upgrades to existing standards may not arrive at a regular rate, a slow pace for development or a slow arrival of new standards should set off alarms.[47]

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43. *See* Tim Wu, *Wireless Carterfone*, 1 INT'L J. COMM. 389 (2007); Christopher Yoo, *Network Neutrality, Consumer, and Innovation*, 25 U. CHI. LEGAL F. 179 (2008).

44. *See* Jason Oxman, *The FCC and the Unregulation of the Internet* (Office of Plans & Policy, Working Paper No. 31, 1999), *available at* http://www.fcc.gov/Bureaus/OPP/working_papers/oppwp31.pdf; Greenstein, *supra* note 26.

45. Oxman, *supra* note 44.

46. Robert Cannon, *Where Internet Service Providers and Telephone Companies Compete: A Guide to the Computer Inquiries, Enhanced Service Providers, and Information Service Providers*, *in* COMMUNICATIONS POLICY IN TRANSITION, THE INTERNET AND BEYOND 3 (Benjamin M. Compaine & Shane Greenstein eds., 2001).

47. Lest this sound far-fetched, these ideas have been operationalized by frontier researchers. For example, this is the spirit of the exercise undertaken by Simcoe, in his study of new standards developed at the IETF. His principle finding concerns the slowing pace of

To be sure, this benchmark is particularly challenging to put into practice, because some standards are more important than others. The protocols known as TCP/IP have played a central role for decades, for example, and any alteration to them receives considerable attention, deservedly more attention than other standards. The same is so for protocols which govern the Web, as well as those standards that govern upgrades to Ethernet.

Those examples are a bit misleading, however, as they give a false sense of certainty to the enterprise of designing standards. As it turns out, there are often multiple solutions to the same problem. That may be due to differences of opinion about what the true problem is, or about how to best solve it. It shows up as different proposals for "standards." As it happens, many proposals for standards often do not get deployed or put into widespread use. In other words, new standards frequently get deployed in environments where their ultimate success remains uncertain long after development.[48]

Consider the following illustration. The deployment of Wi-Fi was far from assured. The release of 802.11b in early 1999, which eventually become widely deployed, came less than two years after the first beta release of a standard for 802.11 in 1997.[49] The first release contained multiple problems that simple field experiments revealed, generating two later descendants, given the labels "a" and "b." For numerous reasons "b" got deployed first in 1999. Though a fixed version of "a" came soon after, its availability did not determine deployment. It never deployed as widely to equipment firms. Most had largely already started to deploy "b."[50]

Another, more current example, and one more representative of the complexity and uncertainty pervasive in a standards fight, can be found in the market for "unified communications." These are a series of standard designs for making the e-mail, voice-mail, and other communications applications work more seamlessly with each other. Both Microsoft and IBM have begun to address an enterprise's communications processes by

development. Timothy Simcoe, *Delay and De Jure Standardization: Exploring the Slowdown in Internet Standards Development*, *in* STANDARDS AND PUBLIC POLICY 260 (Shane Greenstein & Victor Stango eds., 2007); Tim S. Simcoe, *Standard Setting Committees* (U. Toronto Joseph L. Rotman Sch. Mgmt., Working Paper, 2008). *See also* Iain M. Cockburn & Megan MacGarvie, *Entry, Exit, and Patenting in the Software Industry* (Nat'l Bureau of Econ. Research, Working Paper No. W12563, 2006); Iain M. Cockburn & Megan MacGarvie, *Patents, Thickets, and the Financing of Early-Stage Firms: Evidence from the Software Industry* (Nat'l Bureau of Econ. Research, Working Paper No. W13644, 2007) (investigating his principle finding concerns the slowing pace of development).

48. See URS VON BURG, THE TRIUMPH OF ETHERNET: TECHNOLOGICAL COMMUNITIES AND THE BATTLE FOR THE LAN STANDARD (2001) (documenting a similar case involving the early Ethernet standards).

49. *A Brief History of WiFi*, THE ECONOMIST, Jun. 10, 2004, at 26; Greenstein, *supra* note 26.

50. Greenstein, *supra* note 26.

offering distinct solutions.

These solutions do not arise out of the ether. They involve the integration of scores of standards into a platform upon which users customize their unique needs. Both IBM and Microsoft have had some success in developing and selling their solutions, but both have a long way to go towards an ideal. As in the above example, we can see that often no single firm can resolve a problem for every circumstance. Moreover, users may differ in whether they favor one solution or another.

Here is another illustration concerning one of the most interesting recent developments—the emergence of platforms at the edges of wireless networks. Microsoft has invested in organizing developer networks for wireless phones within its CE environment, using its platform experience as a guide. Meanwhile, Apple exported to the iPhone its experience organizing multiple providers of applications on its iPod platform and its Mac platform. Google's effort with the Android represents one alternative method for organizing the platform, and Nokia's recent efforts to develop its own music services and mapping services another. Research In Motion, the maker of BlackBerry, has organized yet another approach.

Once again, this competition among distinct platforms, with standards embedded in the platform that may not be explicit, can be interpreted as competition between bundles of standards. It is far from apparent which design offers the right solution for most users. Even the most sagacious observer cannot forecast how this competition will evolve in the next three years. In light of that intractable uncertainty, the availability of many options benefits users.

This is not to say, however, that standards competition only multiplies options. Occasionally such competition comes with substantial and durable costs. For example, there may be multiple problems that require distinct solutions, but these are inconsistent with one another, i.e., choosing one precludes another. In the face of uncertainty about the value of various alternatives or their technical efficacy, premature commitment to one standard can impose significant costs on later users. For example, Internet insiders will recognize that this is the present issue hindering different QoS proposals. Some serve to aid one goal but deter another.[51]

In short, because standards are extraordinarily important and valuable in introducing innovation to the value chain, their development and rollout anticipates new services and inventive activity. There also are often multiple solutions to similar problems, so competition between

51. See Ou, *supra* note 12.

standards proxies for multiple solutions for users.

Similar to the observation about economic experiments, this argument is headed towards a seemingly counter-intuitive observation: while this activity may be confusing to all but an insider, this messiness is a sign of good health. This may seem an especially surprising conclusion to any participant in standards processes. Any reasonably thorough case study of the processes behind the design of a standard will emphasize the frustration, confusion, and utter plethora of loose ends, even with ample funding and a functional certification process. Most participants in standards committees come out of the experience with nothing good to say about it.

All this is true, but somewhat irrelevant. More to the point, standards competition beats the alternative.

Think of one of Winston Churchill's famous quotes: "It has been said that democracy is the worst form of government except all those other forms that have been tried from time to time."[52] Similarly, there is only one saving grace for existing standards processes: standards designed in the absence of competition are usually much worse. A monopolist's tendency towards orderly, infrequent, and simplified standards leads an industry down about as unhealthy an innovative path as it can go.

If a firm with market power designs a new standard it will face strong incentives to roll it out slowly to protect a firm from cannibalizing monopoly rents. Sometimes this strategy is obvious. Consider this illustration from ancient history: in the days when IBM controlled a large part of the mainframe market it could not bring itself to abandon Extended Binary Coded Decimal Interchange Code (EBCDIC), its standardized proprietary language, or, for that matter, to help others migrate up from EBCDIC to the many other superior languages available. Despite plenty of improvements IBM could have made, its managers refused to deploy them, preferring instead to exploit locked-in users.[53]

Monopolies also face strong incentives to have a "quiet life," to paraphrase Sir John Hicks.[54] That is, monopolies may exert less effort when they choose standards, or design them to castrate user choices in such a way that leads to less inconvenience for the monopolist at the expense of the user (e.g., trimming product line breadth, or trimming away complex attributes of the product). It is less succinct an observation

52. ROBERT RHODES JAMES, 7 WINSTON S. CHURCHILL: HIS COMPLETE SPEECHES 1897–1963, at 7566 (Robert Rhodes James ed., Simon & Schuster 1983) (1974).

53. Gerald Brock, *Competition, Standards and Self-Regulation in the Computer Industry*, *in* REGULATING THE PRODUCT: QUALITY AND VARIETY 91 (Richard Caves & Marc Roberts eds., 1975).

54. John Hicks, *Annual Survey of Economic Theory: The Theory of Monopoly*, 3 ECONOMETRICA 1, 8 (1935).

than Hicks' might have preferred, but here it is: a self-interested firm faces strong incentives not to dissipate its profits (through interrupting its quiet life) if doing so serves customers in ways that do not generate additional revenue.

That may seem rather abstract, but consider this illustration from the good old days of the AT&T monopoly over residential customer premise equipment. Until the mid-1970s, most households faced a limited menu of (over-engineered and excessively rigid) choices for handset designs. Well engineered or not, there were too few choices in comparison to what a competitive market would have done. Eliminating the monopoly hold over designs led to more than one provider and over time showed just how badly the monopoly had done.

With multiple providers, each provider of customer premise equipment matched the offerings of its nearest rivals. In a short time the heated and urgent competitive behavior familiar to consumer electronics eventually overtook the market, leading to a plethora of choices at a range of prices. Compared with the choices found in just Target or Walmart today, it is remarkable that anyone in the past thought such a limited choice was a good idea.[55]

In other words, in the absence of restraining limitations on discretion, monopolies design selfish standards. An antidote to the selfish standards of monopolies is competition between standards. Indeed, it may be the best antidote. I say that even though very precise economic reasoning suggests no such conjecture can ever hold under all circumstances.[56]

An intriguing counter-example raised against this proposition is the rise of Global System for Mobile communications (GSM) in Europe, the first digital cellular standard to be put into wide use, the deployment of which led to a blossoming of designs for the European handset market. On the surface this experience seems to suggest that government-mandated standards (in a seemingly monopoly position) can sufficiently

55. Indeed, at one time, vocal and powerful participants *did* publically agree to limit customer premise equipment from third parties. From the time these debates first arose, AT&T's lawyers advanced a general argument. This stressed the potential harm an unauthorized attachment might cause to the network. The FCC initially accepted this argument in *Hush-A-Phone Corp. v. United States*, 238 F.2d 266, 269 (D.C. Cir. 1956), which the DC District Court subsequently reversed. Thereafter, and in many related cases, the FCC showed skepticism towards arguments related to potential harm from unauthorized attachments, though AT&T did persist in advancing them. *See* CYBERTELECOM FEDERAL INTERNET LAW & POLICY: AN EDUCATIONAL PROJECT, CUSTOMER PREMISES EQUIPMENT PART 68: CPE, http://www.cybertelecom.org/ci/cpe.htm.

56. See Joseph Ferrell, *Should Competition Policy Favor Compatibility?*, *in* STANDARDS AND PUBLIC POLICY 372 (Shane Greenstein & Victor Stango eds., 2006) and Joseph Ferrell & Phil Weiser, *Modularity, Vertical Integration, and Open Access Policies: Towards a Convergence of Antitrust and Regulation in the Information Age*, 17 HARV. J.L. & TECH. 85 (2003), for a review of these arguments.

nurture a competitive equipment industry.

The surface view is extremely misleading, and misinterprets the actual sequence of events. Upon close examination the rise of GSM is not a counter example at all. It rather supports the proposition that competition generates a variety of designs and variety helps. That is, GSM's design should be interpreted in light of the competition taking place between equipment firms at the time.

By the time the GSM standard was designed and proposed, most participants in the United States anticipated the beginning of competition between CDMA and TDMA, which would come at the expense of analog systems, supported by a flourishing equipment industry led by the U.S.-based Motorola. European equipment firms were secondary in commercial leadership. In this context, had the European regulators continued to adopt digital standards that already existed in the U.S. cellular market or coordinated their efforts with their U.S. counterparts,[57] they would have adopted either CDMA, TDMA, or both, or left the choice up to the market participants, as the US did. In any of those choices Motorola's existing advantages would have continued to have some effect, as it had considerable experience supplying for the U.S. and European market. Instead, adopting a new standard, such as GSM, wiped the technological slate clean, giving all firms—American, European, and Asian—a new opportunity at the new market. It did not wipe away all incumbency advantages, which, arguably, still arose from experience with distribution and branding. It only eliminated the advantage that came from familiarity with analog technologies or designs.

As it turned out, Motorola was quite late in organizing its products for GSM based equipment and lost considerable market share to Nokia and others during the initial rollout of GSM. Seen in this light, GSM was the product of healthy competition between standards, catching an incumbent flat-footed. Moreover, Europe today benefits from the 3G that came about only because CDMA had the chance to develop in the US, a byproduct of economic experiments in different countries.

Back to the main point: competition between standards also tends to beat monopolies because it makes the design process more transparent. *Transparent* processes are those in which policies let participants know what change is imminent. It informs others openly

57. Histories of these events exist in various places. *See, e.g.*, GSMWorld.com, History, http://www.gsmworld.com/about-us/history.htm (last visited Apr. 2009); Privateline Telecommunications Expertise, GSM History (Jan. 15, 2006), http://www.privateline.com/mt_gsmhistory/02_gsm_history/; Ravings, Rantings, etc.: Clancy's Blog, GSM—history, services, architecture, http://blogs.ibibo.com/takeonlife/gsm-history-services-architechture (Feb. 6, 2007).

and vocally. In other words, these are processes participants' actions make known—sometimes well in advance—when their change will diminish the returns on others' innovative investments.

Such transparency is one of the reasons why standards processes have become a leading indicator of the imminent release of bleeding edge technologies. Interested parties monitor the designs (because they can), and know that their near rivals do the same (because the data is available to anyone). All those parties plan to match each other along the dimension of the standard and differentiate along the dimensions in which each has competitive advantage. Competition ensues once the standard is upgraded from its beta to an endorsed and official standard.

Transparency is a feature found quite frequently in sponsored open source projects, but it is not unique to that setting. It can be found in standards processes. It is thought to have great importance in interdependent value chains. Other firms will not make long-term investments if they cannot understand at a fine level of detail how their software must interact with another's.

Open source observers find that transparency can lead to more participatory decision making for standards.[58] *Participatory* processes are those in which sponsoring organizations invite comment, discussion, and input from others affected by their actions. Such organizations solicit input through public forums, e-mail lists, blogs, community sites, and a range of other activities.

Standards organizations vary considerably in their policies for encouraging or discouraging participation. For example, some organizations require fees, some require participants to meet certain technical qualifications, and others will allow any observer to attend, though not vote.

Wide participation is also found quite frequently in open source projects, particularly those without sponsorship. Wikipedia, though non-profit, is perhaps the best-known example of an online project that encourages wide participation. The Firefox browser community has quite diverse participation from numerous corners. So, too, does Linux. In both the latter cases, most participants are quite technically skilled.

However, wide participation is probably the least common attribute among standards consortia sponsored by commercial private firms. Most managers prefer to retain decision-making authority, guarding investment decisions in the name of stockholders. There is concern that giving up such discretion risks having participants take investment in directions that do not serve firm interests.[59]

58. Joel West & Siobhan O'Mahoney, *The Role of Participation Architecture in Growing Open Sourced Communities*, 15 INDUS. AND INNOVATION 145 (Apr. 2008).

59. *Id.*

Accommodating wide participation normally comes at a cost, such as slower decision making and more onerous managerial challenges coming to consensus. That is one reason why Tim Berners-Lee established the W3C with a less participatory structure than found in the IETF, where he had personally experienced the drawbacks of slow decision making when he first tried to standardize the core inventions behind the World Wide Web.[60]

Competition between standards is not what Wall Street analysis values. By definition, competing standards raise the risks for those with stakes in past standards (which might become obsolete) or it raises risks for those who will face competitors or entrepreneurial entrants employing new standards. Once again, it is not unusual to observe a little messiness, and there is no particular reason to anticipate the new standards to yield immediate profitability.

Contemporary Internet infrastructure contains signs of vigorous standards competition. For example, Wi-Max and LTE vie today for next generation wireless data markets. One or both technologies, as implemented and deployed by commercial firms, might very well turn out to be an unprofitable flop, but until we know that for sure, they provide potential competition for the community of firms and researchers interested in developing high-speed data transmission in the near future. That fuels a sense of urgency and gets the government bureaucracies behind wireless telephony to move quickly when they otherwise might not have. The threat can be sufficient to generate earlier investment than later investment.

While competition among standards tends to broadly yield good outcomes for all users and firms, there is an important exception. From time to time the rollout of a new standard involves a "coalition" of firms who have signed up for one design, opposing another "coalition" who has signed up for another. Such coalitions emerged in the HD DVD versus Blu-Ray fight, the Wi-Fi versus Home-RF fights, and the 56K Flex versus X2 fights, which are among many examples from the last decade. In fights between coalitions, the battle is good for everyone, except, perhaps, those in the losing coalition of a big standards battle. The losing coalition may expend considerable resources for which its members do not gain returns.

Though more complex, a similar dynamic exists in competition between organizations for control of governance over standards. Competition between groups, organizations, and communities is a good thing in general, even if specific participants lose out on occasion.

60. See TIMOTHY BERNERS-LEE & MARK FISCHETTI, WEAVING THE WEB: THE ORIGINAL DESIGN AND ULTIMATE DESTINY OF THE WORLD WIDE WEB (2000), for a description of this frustration.

Competition between organizations is different than competition between designs, however: competition between organizations may involve competition between alternative designs of standards, but it often involves competition between commitments to different processes in the future for upgrading the standards as well. The latter involves choices between commitments by specific communities of managers, technologists, and/or sponsoring firms.

The history of the Internet itself provides the best illustration of this lesson.[61] Development of TCP/IP as a foundation for a national network occurred in the presence of an alternative process and model for the same activity, organized by the International Organization for Standardization (ISO). Competition between organizations led to development of data exchange standards sooner than otherwise would have occurred had the ISO made the decision all by itself. The reverse is also true. Competition from ISO generated urgency within the communities of the Internet Architecture Board (IAB) and eventually the IETF to organize their myriad ideas and implement them quickly.

Looking more closely, this competition stressed more than merely different designs, which illustrates why competition between groups is not perfectly analogous to competition between technologies. Throughout the latter part of the 1980s there were two processes for determining standards. One process existed at the ISO, and it emphasized committee consensus in advance of deployment, with committees comprising representatives of all major stakeholders. Another existed among the descendants of the Defense Advanced Research Projects Agency (DARPA), organized around activities at the IAB, who established the IETF midway through the decade. Their process stressed bottom-up suggestions and demonstrating workable solutions before adoption.[62]

As it turned out, a bottom-up process centered in the United States made considerably more pragmatic progress, but even that was due to more than just its bottom-up nature. Even from its earliest days, IETF leadership did its best to aid the process it governed. First, it tried to provide editorial guidance and support for the entire process. That resulted in remarkably clear and comprehensive documentation (particularly from some contributors who were not practiced at clarity and thoroughness).

Second, the IETF also helped coordinate and sponsor "plugfests"

61. ABBATE, *supra* note 9.

62. *See* Andrew L. Russell, *'Rough Consensus and Running Code' and the Internet-OSI Standards War*, 28 IEEE ANNALS OF THE HISTORY OF COMPUTING, July–Sept. 2006, at 48; *cf.* William J. Drake, *The Internet Religious War*, 17 TELECOMM. POL'Y 643 (Dec. 1993); ABATTE, *supra* note 9.

where vendors could test their interoperability of actual implementations. In principle, these fests were used to verify the existence of "running code" before advancing a proposal for an RFC to a final draft. Those efforts provided the administrative glue to accumulate technical suggestions from many disparate corners.[63]

In these examples we see the benefits of messy clashes between organizations over their domains of expertise and even over the proper processes for making technical progress. It infuses decisions with a healthy tension concerning multiple options. It might be irritating for the participants involved, but the sniping results from a healthy diversity of opinion in the face of opportunity.

In sum, these clashes beat any outcome likely to arise in the presence of monopoly provision of standards.

Just as with unfettered experimentation, competition between standards and between the organizations that sponsor them yields a benefit. It may lead to innovative entrants, or it may enhance the products of one particular firm. It forces incumbents to react, or, even better yet, anticipate the entrant and innovate in advance. This fosters incentives to lower prices and to sponsor more innovative products sooner, thereby benefiting users.

C. Inventive Entrepreneurialism

Entrepreneurial initiatives involve an organization in a risky and challenging business in pursuit of a new economic opportunity. These firms are the "participant" that makes the first intrepid attempts at deploying, distributing, or servicing a new good to a wide range of customers with the intent of making a profit. Small start-ups take entrepreneurial action and so do large firms. Sometimes small businesses that take such risks are bought by large organizations, such as Cisco, IBM, or Microsoft. Sometimes small start-ups go public and grow into large firms themselves.

While the addition of more and more entrepreneurs (after some point) does not always make a situation better, their complete absence is a sign of poor innovative health. The presence of entrepreneurs provides the simplest benchmark.

It might be tempting to use the presence of start-ups funded by venture capitalists or angel investors as a measure of the presence of entrepreneurship. That is not precise or even accurate in today's markets. To be clear, while most start-ups involve entrepreneurs, not all entrepreneurs must have venture funding. Entrepreneurship also arises inside small divisions of corporations, or stems from corporate funding of

63. *See* Bradner, *supra* note 27.

spin-offs and other corporate ventures. In other words, not all innovation comes from start-ups and venture capitalists.

Indeed, there are good reasons why entrepreneurship inside large firms does not resemble entrepreneurial actions undertaken by small firms. If large firms go after the same business opportunities as small and medium firms, it is not surprising that they will take heterogeneous approaches to the same opportunity. For example, small firms may have the advantages of dexterity and surprise, while the large have the advantages of established brands, distribution channels, and strong feedback networks with existing users. The large firm will tailor its actions to its advantages.

The following is also true: both VC-funded entrepreneurs and all other kinds tend to be present at the same time in the same settings chasing the same opportunities. And so the low points are most informative: the absence of any start-ups is a pretty reliable signal of hostile environment for innovative, entrepreneurial young firms.[64]

Recent history reinforces this point. The increasing presence of entrepreneurs in communications markets has been one of the sweetest developments in the last two decades. It has brought rapid change to many sub-markets. Today we take for granted our access to e-mail, instant messaging, IP-enabled video conferencing, picture sharing, amateur-video sharing, online mapping, accessible hosted CRM applications from any location, mobile push e-mail, and a host of other utilities that no non-technical individual can understand. In virtually every case of radical change the events did not arise solely from the actions of incumbent firms with existing businesses. At some point, entrepreneurial actions got involved.

Three benefits are affiliated with the presence of a variety of entrepreneurs in comparison to their complete absence. Entrepreneurs have incentives to differentiate from incumbent firms who over-commit to one technological forecast about direction of change.[65] A related benefit has to do with overcoming inadequacies in establish organizations. Even if established firms have *incentives* to pursue a portfolio of technical directions, they may fail to act on them due to the

64. In this sense the argument here overlaps with that found in ROBERT W. FARLIE, KAUFFMAN INDEX OF ENTREPRENEURIAL ACTIVITY 1996–2007 (2008), www.kauffman.org/pdf/KIEA_041408.pdf, which measures entrepreneurial activity across different locations in the US, using self-reported decisions to open a self-owned business from the Current Population Survey.

65. This theme runs throughout a large range of studies. *See* Rebecca Henderson, *Underinvestment and Incompetence as Responses to Radical Innovation: Evidence from the Photolithographic Alignment Equipment Industry*, 24 RAND J. ECON. 248 (1993); Rebecca Henderson & Kim Clark, *Architectural Innovation: The Reconfiguration of Existing Product Technologies and the Failure of Established Firms*, 35 ADMIN. SCI. Q. 1 (1990).

absence of internal champions for a new technical direction, or the protection of rents flowing to internal champions.[66] Once again, entrepreneurs view such situations as opportunities. Third, when it is unclear which of several technical directions is most valuable, society gains from pursuing a variety of the least cost alternatives. Entrepreneurship can foster investments from distinct firms with different cost structures, each of them facing heterogenous incentives to invest in the technology.

The best historical illustration of these ideas comes from the development of the Internet itself, as it transitioned from its academic origins into a commercial service.[67] Executives at many established firms, such as AT&T and IBM, simply *did not* invest in operations nurturing any commercial future for TCP/IP services, even into the early 1990s. Some entrepreneurs viewed that as an opportunity and acted according to their vision. Thus, the initial growth of the commercial Internet involved a mix of firms from a variety of backgrounds. They shared a vision that the Internet would grow.

Some, such as PSINet and UUNet, were entrepreneurial descendents from the NSFNet. Others, such as Netscape, involved personnel from university research laboratories and executives from prior entrepreneurial commercial ventures. Others, such as those at BBN and MCI, were entrepreneurial actors inside large enterprises, who came from quite distinct backgrounds and interests. Others still were small Internet Service Providers, descendents from the bulletin board industry, who saw opportunities to establish a new service for local customer base.[68]

Because entrepreneurs often are the first to perform an economic experiment with a newly designed standard, a market with thriving entrepreneurial activity often results from the same factors that encourage a healthy amount of economic experimentation and standards competition. Yet, other factors matter, too. Entrepreneurial activity also can increase and decrease for distinct reasons.

Three additional factors play a role in encouraging entrepreneurship: low development costs, fast speed to commercialization, and strong appropriability conditions as defined by the eco-system. These are important to recognize because pragmatic policy can shape these factors.

Development costs and speed to commercialization refer to two attributes of every young firm's experience, i.e., the expense before

66. *See* CLAYTON M. CHRISTENSEN, INNOVATORS DILEMMA, WHEN NEW TECHNOLOGIES CAUSE GREAT FIRMS TO FAIL (1997).

67. *See, e.g.,* ABBATE, *supra* note 9; Greenstein, *supra* note 26.

68. Greenstein, *supra* note 26.

shipping the first major release and the amount of time it takes. Both of these are usually measured from the time a young firm first gets its funding, or its founders assign full-time managerial responsibility to somebody for the development of a product, whichever comes first.

To give a sense of scale to this discussion in Internet markets consider this example: Netscape was founded in April 1994 and sought to ship its first beta browser in four months. In fact, it took slightly longer. The first beta browser shipped in November 1994, its official product in February 1995. That effort involved several million dollars for a few months of development work and initial distribution.[69] That was at the high end of software development costs. A typical application firm in the late 1990s was expected to burn through several million dollars in a couple years. A typical software firm was expected to launch its first product in less than year, perhaps more if the product was particularly complex.

In comparison most examples of young software firms from this decade are astoundingly inexpensive until they scale up. Using open source software, modern startups have tended to work just as fast or faster, and with considerably less expense. For example, YouTube went from founding to first service in less than three months, entirely financed on the credit cards of one of the founders.[70] They did not bring in millions of dollars of working capital from any venture capitalist—in this case, Sequoia Capital—until they needed to scale their server equipment and support personnel to accommodate their spectacular growth.

That is not an isolated example. In general, it is quite common for the software firms of the Web 2.0 movement to burn no more than a few hundred thousand dollars a year and operate with less than a couple dozen employees. Many programmers with Web 2.0 startups boast about their ability to survive on "ramen profitability"—just enough revenue to buy ramen noodles for a couple founders for a while until it finds a service with wide appeal.[71] Even after funding, many firms can

69. MICHAEL CUSUMANO & DAVID YOFFIE, COMPETING ON INTERNET TIME, LESSONS FROM NETSCAPE AND ITS BATTLE WITH MICROSOFT (1998).

70. David Greising, *YouTube Founder Rides Video Clips to Dot-Com Riches*, CHICAGO TRIBUNE, Oct. 15, 2006; Scott Woolley, *Video Fixation*, FORBES, Oct. 16, 2006.

71. This phrase is due to Paul Graham. The earliest use appears to be from an essay dated May 2005, in an essay "Hiring is obsolete." He states,

> Like everything else in technology, the cost of starting a startup has decreased dramatically. Now it's so low that it has disappeared into the noise. The main cost of starting a Web-based startup is food and rent. Which means it doesn't cost much more to start a company than to be a total slacker. You can probably start a startup on ten thousand dollars of seed funding, if you're prepared to live on ramen. The less it costs to start a company, the less you need the permission of investors to do it. So a lot of people will be able to start companies now who never could have before.

The phrase "ramen-profitability" emerged from those origins, and has diffused into wider use.

accomplish amazing tasks with few permanent staff. I have toured numerous start-ups that operate with less than ten employees, and they intend to stay that way until they get their product into mass markets, at which point they will expand to less than a few dozen.

In other words, modern Web start-ups generally face low development costs, and anticipate a small scale for a long period of their earliest development, prior to scaling for a mass market. They all dream of reaching a mass market quickly, to be sure. If they do not it is not their end. They can survive and experiment for a long period.

Generalizations about the level of entrepreneurship that signal a healthy level of such activity are hard to make, not surprisingly. Some determinants of development costs and speed are outside the control of any participant. Those need to be distinguished from determinants of development costs and speed within the control of some participants.

Here is an example of determinants outside the control of entrepreneurs. Level3 entered the backbone market in the late 1990s at high expense, burning through hundreds of millions of dollars a year (maybe billions) while it built thousands of miles of new lines for its national network.[72] While Level3 initially was able to receive top dollar in revenue for its new all-IP infrastructure, its example was not followed by any other entrant.

Indeed, once the contract prices fell for backbone services in 2000-01,[73] no large new entry was observed in the backbone market except Cogent (which began service in 1999). Cogent largely did not build its own network. Instead, it put together its network from the assets of previously bankrupt firms,[74] vaguely reminiscent of how Cornell

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See Josh Quittner, *The New Internet Startup Boom: Get Rich Slow*, TIME, Apr. 9, 2009.

72. The company's own web site boasts of something similar. It says,

> During 1998, Level 3 raised $14 billion and was called the 'best funded start-up in history.' The company constructed 19,600 route miles, and built the world's first continuously upgradeable network fully optimized for internet protocol (IP). Over the next few years, explosive demand for bandwidth fueled growth in sales. By the end of 2000, Level 3 provided service to 2,700 customers.

Level 3 Communications, A Network Built to Support the Silicon Economics Cycle, http://www.level3.com/index.cfm?pageID=245 (last visited Apr. 2009). Other web sites aimed at investors say something similar but in less generous language. For example, as recounted on fundinguniverse.com, Level 3's executives "secured rights of way from railroad companies and ordered legions of employees to dig trenches and lay cable, efforts that quickly exhausted billions of dollars in capital." Fundinguniverse.com, Level 3 Communications, http://www.fundinguniverse.com/company-histories/Level-3-Communications-Inc-Company-History.html (last visited Apr. 2009).

73. Greg Rosston, *The Rise and fall of Third Party High Speed Access*, 23 INFO. ECON. & POL'Y 21, 29 (2009).

74. On their company history web page they state:

> Although debuting at the height of the telecom industry, Cogent soon found vast market wealth eradicated and many other ISPs thrown into a state of turmoil. In a survival of the fittest competition, Cogent became the consolidator in a

assembled Western Union back in his day. The basic economics of entry suggest that new building is not justified when prices fall, capacity goes unused, and growth can be achieved through restructuring. Simply stated, the costs are too high to merit building a new frontier start-up, no matter how good they are. (Constructing a new firm from existing assets bought at fire-sale prices, apparently, is a different matter.)

Here is an example of determinants within the control of some participants. For the last decade Intel has released prototype designs for the inside of the PC and endorsed specific implementations. That action has reduced the costs of designing some components and speeded the development of others. It has fueled considerable entrepreneurial activity.[75]

Selective withholding of information also can serve strategic purposes that delay entrepreneurial competition. Intel was accused of actions, in particular of withholding technical information from other participants in a quid pro quo for licensing of its intellectual property, which generated an FTC investigation.[76] Outsiders frequently accused Microsoft of using its position to make its own life easier, such as documenting for Microsoft's use but not necessarily for any others', and not documenting code so the company could alter it to its advantage.[77]

Three aspects of these types of allegations deserve notice. First, they are extremely difficult to prove in court (at least in ways that lawyers and judges find satisfying). Second, once leveled, these allegations take on a life of their own, and continue on in many distorted forms in (on-line)

> consolidating market. Over three brief years, Cogent completed 13 acquisitions of other flailing providers. Whether it was an entire company or just select assets, Cogent was able to acquire valuable network assets, customers, peering relationships and building access agreements for pennies on the dollar.

Cogentco.com, Cogent Communication History, http://www.cogentco.com/us/about_history.php (last visited Apr. 2009).

75. *See, e.g.*, GAWER & CUSUMANO, *supra* note 21; Gawer & Henderson, *supra* note 21.

76. *In re* Intel Corp., 128 F.T.C. 213 (1999).

77. One developer suggests the following:

> Why [not document part of the internal subsystem for Win32], one might ask? Well, the official reasoning is that it allows Microsoft to tune and modify the system call layer at will, improving performance and adding features without being forced to provide backward compatibility application binary interfaces . . . . The more nefarious reasoning is that it allows Microsoft applications to cheat, and call directly into the undocumented Win32 subsystem system call interface to provide services that competing applications cannot. Several Microsoft applications were subsequently discovered to be doing just that, of course . . . . These days, this is less of a problem, as there are several books that document this system call layer . . . . But it left a nasty taste in the mouths of many early Windows NT developers (myself included).

Jeremy Allison, *A Tale of Two Standards, in* OPEN SOURCES 2.0: THE CONTINUING EVOLUTION 47 (Chris DiBona, Danese Cooper & Mark Stone eds., O'Reilly Media, Inc. 2006) (2005).

communities that mistrust the leading firm who stands accused. Third, such allegations usually presume the dominant firm could have acted differently, i.e., in a manner more considerate to the interests of other entrepreneurs, without much cost.

Internet insiders will recognize a familiar outline in the debate over Comcast's throttling of Bit-Torrent traffic. Many accusations have been leveled at Comcast for throttling traffic. When the behavior was first discovered, it unleashed more than a bit of torrent of speculation in online discussion groups about the extent of the action and the competitive motivation.[78] Not only did the lack of advance notification leave many parties suspicious about Comcast's policies, but it left observers puzzled about why it never dawned on management to issue a press release before taking action. Comcast's secrecy fueled rumors, and it came across as unnecessarily inconsiderate to users, entrepreneurs, and other on-line participants.

The final attribute of every young firm's experience is something called a*ppropriability conditions*. It refers to the ease with which entrepreneurs can retain exclusive rights over their inventions or other unique assets, usually through one of several strategies to prevent imitation: secrecy, patents, copyright, first mover advantages, or some combination of those. If conditions are weak, then entrepreneurs expect to lose quickly their unique advantages to others

Appropriability conditions are controversial for reasons related to the discussion about withholding information. They partly depend on the tenor of interfirm relationships in the competitive ecosystem constructed by leading incumbent firms. This factor has received attention by many others, so this discussion will remain brief.

For example, some incumbent firms, such as Cisco, have made it very clear that they intend to purchase other small start-ups who reach the frontier in an area Cisco considers important. That is regarded as a quite inviting setting for start-ups. Similarly, during its heyday in the late 1990s, AOL was known for its willingness to sign a reasonable deal with just about any start-up who had a service to offer for its platform. Venture capitalists also took note of these positions and started firms accordingly.

In contrast, for many years Microsoft was known to prefer internal growth over acquisitions, usually in a fast-follower strategy, *i.e.*, basing development on the lessons learned through the economic experiment

78. *See, e.g.*, PETER ECKERSLEY, FRED VON LOHMANN & SETH SCHOEN, PACKET FORGERY BY ISPS: A REPORT ON THE COMCAST AFFAIR, ELECTRONIC FRONTIER FOUNDATION, Nov. 28, 2007, http://www.eff.org/files/eff_comcast_report2.pdf; *Comcast Throttles BitTorrent Traffic, Seeding Impossible*, TORRENT FREAK, Aug. 17, 2007, http://torrentfreak.com/comcast-throttles-bittorrent-traffic-seeding-impossible.

conducted by other firms. That did not deter entry in application software, but it motivated firms to start young companies with no planning for acquisition, and to expect the potential for imitation from the very firm with whom they had to partner in order to reach users. More recently, Microsoft has changed its stance about acquisitions, particularly in areas related to cloud computing, and that has raised a number of questions among VCs about funding firms in related areas.

The legal environment also shapes appropriability conditions. This, too, has received much attention from others, so for this discussion I will keep my observations brief. For example, the changing legal and regulatory conditions of the late 1990s adversely affected the basic costs and viability of a wide range of CLEC business plans. To say the least, the environment went from friendly to hostile in a few years, and, not surprisingly, entry of young start-ups declined as a result.[79]

As noted earlier, large firms and incumbent firms can be entrepreneurial, too. That is why some entrepreneurial actions by large firms, though otherwise puzzling, may have a silver lining. For example, Nokia continues to struggle to find new initiatives beyond hardware design, whether it involves buying Navteq or starting new music services that anger its carrier partners. In light of the relevance of entrepreneurship, we should salute them. As the provider of almost half the smart phones in the world[80] and close to 40% of all cell phones, Nokia has considerable clout. Yet it refuses to stand still. It continues to restructure, a sign of taking entrepreneurial risks in advance of new opportunities in new markets.

As another example, Cisco's attempt to get into video conferencing by purchasing Webex seems strategically incongruent, because it involves integrating a large software firm into one that specializes in equipment markets. Yet, the merger also introduces the company to a wide range of new opportunities and challenges related to developing tele-presence. Even if I am skeptical that Cisco will gain a return on its investment in Webex, I am interested to see what it makes of its entrepreneurial action and this departure from prior strategic action.

Once again, established firms with market power do not tend to benefit from entrepreneurial inventiveness that threatens their economic rents. That raises concerns that dominant firms will attempt to shape development costs, entry speeds, and appropriability conditions to serve

79. NUECHTERLEIN & WEISER, *supra* note 12, at 15–16, 69–114 (examining the tension between the competitive goals of the Telecommunications Act of 1996 and the unavoidability of economies of scale); *see also* Greenstein & Mazzeo, *Differentiated Entry into Competitive Telephony*, 54 J. INDUS. ECON. 323–350 (Sept. 2006).

80. Kevin O'Marah, *Feasting on a Content Economy: Nokia Bites Apple*, AMR RESEARCH, June 30, 2008, http://www.amrresearch.com/content/View.aspx?compURI=tcm:7-37691.

its own strategic priorities. For example, established firms would rather buy out an entrepreneurial inventor than see it become an independent company and potentially compete.

Once again, Wall Street analysts may stress different factors than those that benefit society at large or users. In part that is because the value of many start-ups may be privately held for some time, not evaluated by any stock market pricing, as with established firms. In addition, as with a multiplicity of economic experiments and the regularity of standards competition, there are general benefits to buyers from competition between start-ups and established firms that Wall Street does not necessarily value. Even when such start-ups have only small chances of success in the long term, such competition enlarges buyer choice, multiples opportunities for learning, and enhances urgency at the established organizations.

More broadly, just as with unfettered experimentation and competition between standards, entrepreneurial inventiveness yields benefits at the level of the market even if the benefits are small at the level of the firm. Such entrepreneurship will serve a purpose in the plans of innovative entrants. It will generate reactions from other competitors or imitators. Once again, this fosters incentives that ultimately lead to lower prices and more innovative products, and sooner. Users benefit from that, and policy can encourage it.

D. Absence of Unilateral Bargaining

Negotiation shows up in every firm's life. From some of the above examples, it is easy to see why: suppliers complain about growing costs and suggest alternatives, technologists suggest alternative methods for accomplishing a task, programmers complain about the poor quality of code and seek to push out release dates, stockholders demand higher profits, buyers complain about tight budgets and threaten to choose another option. Managers caught between such complaints must constantly negotiate with many participants. More to the point, managers inside the Internet value chain have an especially difficult task because the addition of technical interrelatedness adds one more layer of complexity to an already tough negotiating task.

In a network with a high degree of technical interrelatedness, there are general gains to all parties from bringing routines into business processes and activities, much like there are gains to adopting standards and platforms to coordinate activities. While there may be no better way to reduce complexity, adopting such routines may require negotiation between multiple parties.

Such negotiation offers no guarantee of success. Many outcomes are possible. Occasionally both parties want an agreement, but just as often

one party will desire it more than the other. Alternatively, one party may have an ability to generate a better deal than the other, and sees bargaining as an opportunity to generate a strategic advance or gain additional revenue. As a general rule, the structure of bargaining sometimes can work out to a Goldilocks equilibrium that is just right—not too hot and not too cold—but more often it does not. One firm gets too powerful or another prominent bargainer loses its way.

In the extreme, bargaining becomes one-sided, with one party asking for something while the other refuses to provide it or only agrees to it at a high cost. The simplest manifestation of this extreme situation arises when the more powerful party declares a "take-it-or-leave-it" offer, leaving other parties no choice.

Given such a range of possible outcomes, how can we tell what signifies a healthy market? In short, the absence of one-sided bargaining.

That said, it is not as simple as it sounds. The presence of one-sided bargaining by itself is not bad. That is, the absence of one-sided bargaining is a sign of health, while the presence of one-sided bargaining is a sign of potential illness, which might have adverse consequences that might spread. The key question is whether the parties who receive such take-it-or-leave-it offers have access to reasonable alternatives. This will take some explaining.

Let me illustrate the role of negotiations with a comparatively uncontroversial example. Intel has a series of agreements with numerous OEMs about putting the Intel Inside and Centrino brands on their products to signal to users that the laptop includes a Wi-Fi compatible motherboard and antennae designed by Intel. In addition, Intel often includes certain compensation for the marketing expenses of putting the Intel copyrighted jingle inside a commercial.

A breakdown of negotiations can arise from one-sided bargaining, but this example illustrates that breakdowns can occur for other reasons as well. A few years ago Dell refused to carry the Centrino branded systems, and, accordingly, did not receive the quid pro quo compensation. Both parties went on their merry way for many years. Dell continued to carry both Intel products, but after that incident began to more prominently distribute designs with AMD chips. At the same time Intel reached deals with every other major OEM, and succeeded in making Centrino a feature of the majority of notebooks in use.

What does this example illustrate? First, that Intel's market power had its limits with Dell. It eventually reached a point in its negotiation with Dell where Intel gave Dell a take-it-or-leave-it offer and, indeed, Dell chose to leave it (unlike virtually everyone else in the industry). Second, as long as Dell had plenty of other options, the losses to Dell or society at large were not too large. Indeed, there might have been gains,

since Dell's choices translated into more buyer options beyond the Centrino.

One-sided bargaining can have some serious consequences, however. Some years ago there was a proposal to let all Internet participants simply negotiate compensation between them, so that Google/Yahoo/Disney would negotiate with Comcast/Time-Warner/Verizon, and every other possible combination. Intel's example suggests the problem with such a proposal: imagine the uproar among users in the locations where such negotiations failed to come to resolution and no other close substitutes existed. It would be far worse than the brief uproar last year among Yankee fans who could not get local baseball telecasts due to a negotiation breakdown between Major Leagues Baseball, the Yankees, and a local cable provider.

Indeed, this did happen a few years ago when negotiations broke down between Cogent and Sprint.[81] However, the situation was easy to misunderstand and misinterpret. In this case, the absence of market power reduced the policy concerns affiliated with the breakdown of bargaining, albeit some policy concerns still remained. That requires explanation.

Specifically, Cogent and Sprint were exchanging traffic through a third party and, like other backbone firms, sought to connect directly in a peering arrangement that bypassed the third party.[82] That is not a trivial step. First, it required the building of appropriate lines and equipment, which cost money. Second, as with other peering, it required measuring traffic directly to verify that traffic was sufficiently symmetrical back and forth. The two firms negotiated an agreement for building the connection and the terms for breach—that is, what type of traffic experience would justify ending the peering.

After building this connection, Cogent stated that it was satisfied with the traffic flow, while Sprint stated it was not. There was no dispute about the symmetry of the traffic back and forth, but there was a disagreement about its level. Sprint argued that Cogent did not provide enough traffic to justify a peering relationship.[83]

After declaring Cogent could no longer peer with it, Sprint did not immediately de-peer. Rather, it unilaterally declared that the two companies were in a paying relationship, as Sprint would do with any small ISP. Sprint then began to send bills to Cogent. Cogent argued that it had met the conditions for peering, and that Sprint's claims were

81. Scott Woolley, *The Day the Web Went Dead*, FORBES.COM, Dec. 2, 2008, http://www.forbes.com/2008/12/01/cogent-sprint-regulation-tech-enter-cz_sw_1202cogent.html.

82. *Id.*

83. Woolley, *supra* note 81.

disingenuous attempts to make money. In essence, Cogent refused to pay, and both companies put considerable spin on events.[84]

This standoff went on for many months until Sprint's management decided to shut down its side of the peering.[85] That action had consequences for users on both networks who did not multi-home, i.e., did not use more than one backbone firm. One set of exclusive Sprint users could not reach another set of exclusive Cogent users.[86]

To make a long story short, users of both carriers were angry. Cogent publically blamed Sprint's decision to de-peer, and, for reasons not made public, after a few days Sprint's management gave in, reversing the de-peering.[87] Soon after the two firms came to a long-term agreement whose details were not disclosed publically.[88] In other words, as of this writing, this negotiating tactic hurt users, but it is unclear which firm won the negotiation. It is not clear how much money changed hands (or will change hands).

The Sprint-Cogent case suggests four lessons. First, any outcome depends on the circumstances surrounding the use of the tactic. No generality could hold for all circumstances. Second, user (dis)satisfaction plays a role in those negotiations, but it is not the only determinant. Third, any rule about interconnection will have tactical consequences for users. For example, a must-carry rule for interconnection would simply have narrowed the set of actions Sprint could take.

The fourth lesson is more subtle. Several news stories tried to make an inference about the managerial style of Cogent's CEO, Dave Schaffer, since this is not the first negotiation breakdown his firm has encountered. That focus misses the forest for the trees. The personality of a CEO is not the point. Only his entrepreneurial vision is, because at the heart of this example lies a potential competition policy issue.

Specifically, Cogent has a "entrepreneurial" distinct vision about how to attract customers and serve their needs. To execute that vision Cogent necessarily must interact or exchange traffic with the very firms with whom it competes. It is not hard to interpret negotiation breakdown initiated by an incumbent firm as a tactic to discourage an entrepreneurial vision and deter an economic experiment by an entrant. In general, competition policy issues always arise any time an existing firm can shape the costs of an entrepreneurial entrant. If further

84. *Id.*

85. *Id.*

86. Numerous computer scientists and networking experts have pointed out to me that both Sprint and Cogent could have adjusted their routing tables in advance to prevent users from being cutoff. Hence, there is a sense in which both parties played brinkmanship and bear responsibility for imposing costs on their users.

87. Woolley, *supra* note 81.

88. *Id.*

investigation reveals that Sprint possessed market power, their refusal to interconnect would be especially disturbing.

In other words, if Sprint were found to have market power, then its attempts to bargain over interconnection are potentially more problematic.[89] Its actions could be interpreted as an attempt to shape competition.

One tactical gain from market power, for example, is the ability to ignore customer complaints at the retail level while pursuing other tactical goals, say, at the wholesale level, where interconnection takes place. It appears that Sprint's capitulation to its user base is, however, evidence that Sprint's management does not have the ability to ignore its users for very long.

I raised this example for a reason. In short, one-sided negotiations and bargaining breakdowns are, by themselves, insufficient to conclude definitively there is a problem. In the presence of market power, however, it is much more likely a sign of lack of innovative health.

Now consider the lessons from negotiated arrangements that are a bit more one-sided, and happened in the presence of market power. These days Apple offers a standard contract to all application developers for the iPhone about how their services will be sold, requiring them to sign non-disclosure agreements as a condition for inclusion on the Apple Web page where applications are sold.

What dispute arose? Developers complained that the non-disclosure agreement was too tight, even for firms whose applications were ultimately rejected. This made headlines when Apple "clarified" its policies, announcing that even the non-disclosure letter was subject to the non-disclosure agreement.[90] Apple argued that anything done by a developer for Apple could not be shared with others, even if Apple refused it for the iPhone after review. After considerable uproar on blogs and developer list serves,[91] Apple relented on this provision, but it continued to argue that it had a right to protect its innovations through use of these agreements.[92]

Once again, Apple made a take-it-or-leave-it offer and imposed conditions on others. The negotiation breakdown was not necessarily symptomatic of a problem, however, as long as alternatives existed. In

89. Because events suggest that Sprint in fact lacked market power, I am not concluding that Sprint acted in an attempt to shape competition.

90. *See, e.g.*, Arnold Kim, *Apple Extends Non-Disclosure to App Store Rejection Letters*, MACRUMORS.COM, Sept. 23, 2008, http://www.macrumors.com/2008/09/23/apple-extends-non-disclosure-to-app-store-rejection-letters/.

91. *Id.* (receiving over 1,000 negative ratings and over 400 comments).

92. Gregg Keizer, *Apple Drops iPhone NDA Gag Order*, COMPUTERWORLD, Oct. 1, 2008, http://www.computerworld.com/action/article.do?command=viewArticleBasic&articleId=9116007.

this case, however, not many alternatives existed for reaching Apple iPhone users. If a developer wanted to reach the Apple user-base they had to distribute through Apple's outlets and accept the condition. No other avenue for reaching them existed. Apple controlled them all.

If other devices are substitutes for the Apple iPhone, then this situation is less worrisome. If developers wanted to reach users through alternative devices for mobile computing, they had to reach deals with those device providers. Initially few existed, but increasingly announcements are being made about new entry. As some gain market share, the situation may change.

These examples illustrate several general points. Breakdown happens for many reasons, and those should be considered distinct from the reasons shaping one-sided negotiations, which can look similar. One-sided negotiations, in contrast, involve one party with enough bargaining power to make a take-it-or-leave-it offer that others have no choice but to accept.

What factors mitigate the public policy issues in Apple's case? Generally speaking, suppliers in young markets get wider licenses from a court just because they produce for a nascent set of users for new devices and services. For many good reasons there is a general presumption that no firm introducing a new product has market power at the early stage of growth, as it is subject to competition from established brands with established distribution channels and large market share.

So why does Apple get any scrutiny at all? Questions arose here because Apple is unique. The attention is a testament to Apple's unusual recent success commercializing small devices, such as the iPod, and its rather unique place today as a firm that every developer expects to succeed with users, even with a new product, unlike just about every other firm.

Perhaps a more famous example of one-sided bargaining came from Microsoft in the mid 1990s. While I do not mean to single out Microsoft in the use of one-sided negotiations, several circumstances contribute to a disproportionate number of examples in the essay from Microsoft's conduct in the 1990s. First, due to the antitrust trial,[93] many of its internal memos became public, providing a unique and well-documented window on how such negotiations were conducted. Second, Bill Gates was remarkably adept at pressing his negotiating advantages when he had them. His behavior provides good illustrations of how one-sided negotiations can become. Third, and similar to the Apple example, many developers wanted access to the users of Windows. However, in this case, the alternatives were quite limited, and, so, courts had no issue

93. United States v. Microsoft Corp., 147 F.3d 935 (D.C. Cir. 1998).

concluding that Microsoft's attempts to make access more or less difficult for those developers had real consequences.[94] The user base for Windows was large, so the stakes were quite high for many developers if they faced even a small degree of problems.[95]

For instance, prior to the rollout of Windows 95, Microsoft began to dictate conditions to its application developers. It started mildly, with design specifications that application providers were required to comply with, such as specifications for pull-down menus, and other processes that had to follow the available APIs. Most firms acquiesced to these for lack of any alternative, and some grumbled about it at the time.

The more controversial dictates started showing up closer to the rollout of the system. Perhaps the most interesting and dramatic example of bargaining arose in the deal between Apple and Microsoft. The newly returned Steve Jobs took over Apple when it was in a dire financial position, and one avenue for a quick infusion of cash was to settle a patent dispute with Microsoft. Microsoft, in turn, was willing to settle the dispute quickly only as part of a comprehensive deal that included Apple making Internet Explorer the default browser for the Mac.[96]

Transcripts of Microsoft e-mail (made public later) showed that Gates and other Microsoft executives discussed how to hint to Jobs that it was possible for a delay in the release of Word for the Mac, a threat to gain movement from Jobs, since such a delay could hurt Apple's slumping sales. In retrospect, even a hint of this delay to Jobs was remarkable, since the development of Word was (actually) proceeding in a timely manner. After the fact, it is difficult to know what role such a threat played in addition to all the factors at work.[97] As it turned out, Jobs accepted the deal for Internet Explorer and his own customers booed him soundly at a convention when he initially announced it.[98] It surely was not the way for a newly returned CEO to curry favor with customers, but he was over a barrel at the time.

Still, for sheer unpleasantness, the negotiation between Compaq

94. United States v. Microsoft Corp., 87 F. Supp. 2d 30 (D.D.C. 2000).

95. *Compare* Daniel Rubinfeld, *Maintenance of a Monopoly:* U.S. v. Microsoft, *in* THE ANTITRUST REVOLUTION: ECONOMICS, COMPETITION, AND POLICY 476, 476–501 (John E. Kwoka, Jr. & Lawrence J. White eds., 2008), *with* Timothy F. Bresnahan, *The Economics of the Microsoft Case* (2009) (unpublished manuscript), *available at* http://www.stanford.edu/~tbres/Microsoft/The_Economics_of_The_Microsoft_Case.pdf; *with* WILLIAM H. PAGE & JOHN E. LOPATKA, THE MICROSOFT CASE: ANTITRUST, HIGH TECHNOLOGY, AND CONSUMER WELFARE (2007).

96. John Markoff, *Microsoft Comes to the Aid of a Struggling Apple*, N.Y. TIMES, Aug. 7, 1997, at A1, *available at* http://www.nytimes.com/1997/08/07/business/microsoft-comes-to-the-aid-of-a-struggling-apple.html.

97. *See* BANK, *supra* note 42, at 12.

98. *See, e.g.*, Peter Burrows et al., *Is This Apple's New Plan?,* BUS. WK., Aug. 25, 1997, http://www.businessweek.com/archives/1997/b3541160.arc.htm.

and Microsoft has no equivalent. Compaq had heard from many customers who wanted Netscape browsers, and featured it prominently. As a reward for listening, Microsoft publicly roughed up Compaq. In 1996, for example, an employee at Compaq removed the Internet Explorer icon from shipped versions of computers. The employees viewed this as part of a range of actions to keep the icons less confusing, orienting them toward business obligations and toward the applications users wanted. Microsoft believed Compaq had a business obligation to display Internet Explorer, and it sent a letter to Compaq threatening to cut off its operating system license in sixty days if a removed Internet Explorer icon was not put back on all new systems[99] and the dispute did not come to resolution.[100]

Compaq capitulated on the dispute quickly. At the time it left everyone in the industry with the strong impression that Microsoft chose to make an example of Compaq, demonstrating the drawbacks to being a business partner that did not play by Microsoft's rules.

Why did it leave that impression? Because of the way negotiations took place. That dispute could have (and should have) been settled with a few phone calls to the right senior executives, or, at most, arbitration.[101] That did not happen in part because Microsoft's executives urgently wanted to keep their browser available in competition with Netscape, and they did not want to give the appearance of ceding even a temporary disadvantage. As was frequently pointed out in public forums, this was but one of several alleged strong-arm tactics that most computer company executives refused to discuss in public for fear of retaliation from Microsoft.[102] Similarly, no senior executive at Microsoft ever apologized, nor disavowed the action, nor did the firm ever give back any of the strategic gains it reaped from the action, which left the impression that the negotiating method was not an accident.

As it happened here, in time the executive team at Microsoft concluded that it had not been sufficiently strict with its business

99. Letter from Don Hardwick, Group Manager, OEM Sales Div., Microsoft Corp., to Celeste Dunn, Vice President, Consumer Software Business Unit, Compaq (June 6, 1996), http://www.usdoj.gov/atr/cases/exhibits/650.pdf.

100. United States v. Microsoft Corp., 84 F. Supp. 2d 9, 59–60 (D.D.C. 1999).

101. Indeed, it was apparently settled through a few phone calls, but only after the threatening letter had been sent, which makes one wonder how much of the public discussion was simply making the best of it by putting lipstick on a pig. Thereafter, the Netscape and Internet Explorer icons appeared on both desktops for a short period, but Compaq renegotiated its contracts with others. *See* Declan McCullagh, *Compaq: It Was All a Big Mix-Up*, WIRED, Feb. 16, 1999, http://www.wired.com/politics/law/news/1999/02/17938; *see also Microsoft*, 84 F. Supp. 2d at 59–60.

102. Rajiv Chandrasekaran, *Jabs at Company Figure into Trial*, WASH. POST, Jan. 27, 1999, at E01, *available at* http://www.washingtonpost.com/wp-srv/business/longterm/microsoft/stories/1999/jabs012799.htm.

partners, which motivated taking further action, accordingly to Judge Jackson's recounting of events.[103] Thereafter, Microsoft inserted clauses into operating system licenses, which included restrictions on OEMs, including restrictions on the "out of the box" experience for users when they first fired-up their systems. Those same contractual restrictions later were used to prevent OEMs from adding help screens for users of the Netscape browser, among other issues that helped Microsoft's competitive aims—albeit, by driving up OEM service expenses.[104]

Why are one-sided negotiations a bad sign for the innovative environment? They reveal one big problem: using their negotiating leverage, managers at the firm doing the dictating can find leeway to justify actions that make their own lives better or easier, even when it comes at the expense of others. That can become a detriment to innovation, especially when one-sided negotiations begin to serve defensive purposes of the dominant firm to the detriment of others. It can restrict the conduct of economic experiments and hinder the realization of competitive benefits from unfettered standards competition.

In the above examples, Microsoft tried to reduce Netscape's ability to distribute its products and made it difficult for users to find alternatives. It appears we can recognize unhealthy negotiations for innovative entrants when established firms prevent distributors from installing help screens for their users through contracting clauses, and when distributors complain about restrictions that limit users' options to modify their products.

To be sure, it is difficult to assess whether one-sided negotiation contributes to a negative outcome in general. While such open questions cannot be resolved entirely in a short essay such as this, consider three key questions as a start for diagnosing any specific example: (1) Does a firm dictating conditions possess market power and employ it in its bargaining behavior? (2) Are non-innovative tactics being employed to shape innovative behavior by others? (3) Are users being restricted for reasons that have any relationship to a product's merits and functionality?[105]

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103. *See Microsoft*, 84 F. Supp. 2d at 59–62.

104. After the introduction of these restrictions Hewlett Packard sent a letter to Microsoft with the strongly worded lines:

> We must have the ability to decide how our system is presented to our end users. If we had a choice of another supplier, based on your actions in this area, I assure you [that you] would not be our supplier of choice. I strongly urge you to have your executives review your decisions and to change this unacceptable policy.

Id. at 62.

105. *See, e.g.*, Shane Greenstein, Market Structure and Innovation: A Brief Synopsis of Recent Thinking for the Federal Trade Commission, Testimony for the Federal Trade

As illustration, consider the first screen restrictions (on help screens) that Microsoft employed on OEMs. The answer to the above questions would be yes, yes, and no, suggesting they are too one-sided and unhealthy. Not surprisingly, even while the appellate court reviewing Judge Jackson used dozens of pages to admonish his talking to reporters, its members could not bring themselves to alter his ruling about the use of first screen restrictions. That is, these were among the provisions the appellate court cited as violations of antitrust law.[106]

The epilogue to this episode is informative. As it turned out, the bright light of the court's inquiry turned into a partial antiseptic—albeit it was a slow acting one from the viewpoint of those wanting strong action taken against Microsoft.[107] Publicity about these actions had an effect on developers, who have increasingly moved to open source platforms. In 2006, several years after the antitrust trial, Microsoft took public action to counter developer defections.

Microsoft publicly declared that it had adopted a set of principles that bound the firm to remain consistent in its actions over time.[108] This action directly addressed one of the issues that perennially arose in the 1990s—accusations that Microsoft's employees altered APIs or other firm technologies in self-interested ways that discriminated between business partners.[109] This was thought to be a policy that application

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Commission Hearings on *Competition and Intellectual Property Law in the Knowledge Based Economy,* Washington, D.C. (2002) (transcript available at http://www.ftc.gov/opp/intellect/shanemitchell.pdf); Bresnahan, Greenstein, and Henderson, *supra* note 42; Phil Weiser, *Regulating Interoperability: Lessons from AT&T, Microsoft and Beyond* (Working Paper), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1344828.

106. As further illustration of these questions, consider the negotiating breakdown between Sprint and Cogent. Focusing on Sprint's action, how would the questions come out? No, maybe, no. Indeed, Sprint capitulated to Cogent precisely because it lacked market power, which also is why it was not a situation of one-sided negotiations.

107. Timothy F. Bresnahan, *The Economics of the Microsoft Case* (Working Paper), *available at* http://www.stanford.edu/~tbres/Microsoft/The_Economics_of_The_Microsoft_Case.pdf.

108. Microsoft, Windows Principles: Empowering Choice, Opportunity, and Interoperability, http://www.microsoft.com/About/CorporateCitizenship/US/PromotingInnovation/WindowsPrinciples.mspx; *see also* Weiser, *supra* note 105, at 11.

109. One among the many provision seems particular aimed at these concerns:

> 1. APIs. Microsoft provides the developer community with a broad range of innovative operating system services, through documented application programming interfaces (APIs), for use in developing state-of-the-art applications. The U.S. antitrust ruling requires that Microsoft disclose all of the interfaces internal to Windows called by "middleware" within the operating system, such as the browser, the media player, and so forth. In this way, competitors in these categories will know that they can plug into Windows to get services in the same way that these built-in Windows features do. This has worked well, and Microsoft will continue to disclose these interfaces even after the U.S. antitrust ruling expires. In fact, we will go further, extending our API commitment to the benefit of all software developers. Going forward, Microsoft will ensure that all the interfaces within Windows called

developers would find encouraging, since it relieved concerns about the potential waste of time and effort out of negotiations. In 2008 Microsoft announced another set of principles for remaining consistent in its interoperability designs, and these reinforced the earlier points.[110]

Notice a key subtlety: Microsoft committed to consistency. *Consistent* policies from a firm are those that change slowly at most, allowing for the planning of others. They are changed without caprice, without an ad hoc approach, and without seemingly arbitrary timing, in other words, without actions that necessarily diminish the returns on others' innovative, long-term investments.

Consistency has great importance in interdependent value chains. Other firms will not make long-term investments if they fear not making a return on that investment due to changes by others, which are out of their control. Entrepreneurs will not take action if they fear conditions will change arbitrarily on them later, or systemically to their disadvantage. Firms will not undertake costly economic experiments if they cannot assure themselves that other firms won't interfere with the conditions that support learning from their market experience.

In adopting a commitment to consistency, Microsoft did not give up its rights to retain secrets (e.g., remain less than transparent) nor to give up its right to retain managerial discretion (e.g., exclude participation from outsiders) after engaging with business partners. Instead, Microsoft committed to not arbitrarily alter or apply what was decided unilaterally by management, inviting business partners (i.e., especially developers and OEMs) to inquire whether they receive treatment similar to another partner of Microsoft's (i.e., another developer's competitor).[111]

Will consistency lead to fewer take-it-or-leave-it offers? It depends on one's view. Many books have been written about the managerial preference of Bill Gates, and many of Microsoft's practices arose from his preferences.[112] His recent retirement suggests the firm would display less variance in its contracting activities in any event. In that case, the answer would seem to be yes.

Once again, this viewpoint differs from the standard approach on

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> by any other Microsoft product, such as the Microsoft Office system or Windows Live, will be disclosed for use by the developer community generally. That means that anything that Microsoft products can do in terms of how they plug into Windows, competing products will be able to do as well.

Id.

110. Microsoft, Interoperability Principles: Open Connections, Standards Support, Data Portability, http://www.microsoft.com/interop/principles/default.mspx; *see also* Weiser, *supra* note 105, at 11–12 .

111. *Id.*

112. *See, e.g.*, BANK, *supra* note 42.

Wall Street. That view typically stresses the profitability of being a leading firm and the benefits to employees working there—up to a point. For example, IBM in the 1970s had a great market position in large enterprise computing. Working there paid better than anything else in computing, albeit every veteran of that era talks about how internal politics consumed the organization.

More recently, working at Microsoft's Windows or Office division or Intel's microprocessor division has had its benefits, since those divisions have been awash in billions. That enabled these companies to fund some rather ambitious internal projects, which was fun for many employees, although more fun for those managers who won the internal debates than those who lost.

The focus on Microsoft's profitability, or on IBM's in the prior era, is simply too narrow a frame for thinking about the role of negotiations in shaping industry-wide innovative activity. The innovative health of many participants requires a broader vision and analysis, looking beyond the consequences of actions benefiting the largest incumbent firm.

In conclusion, the absence of one-sided bargaining is a sign of health. Absence of one-sided negotiation indicates that no firm has largely shaped the actions of others. Such actions do not need to be unhealthy, and can arise for a variety of reasons. But it can be unhealthy when dominant firms face incentives to shape the behavior of innovative entrants and competitors in ways that benefit only the dominant firm. Such actions have the potential to limit innovative behavior. Particularly worrisome is a firm with market power imposing constraints which undermines economic experimentation, standards competition, and entrepreneurial entry.

III. HEALTHY INNOVATIVE COMPETITION FROM DOMINANT FIRMS

If this essay has any broad lessons, they are these two observations: First, it is myopic for policy to cede full discretion over innovation in an evolving value chain to any firm who happens to have market power today, whether it is Microsoft, Comcast, or whomever. Second, it also is myopic to cede full discretion over policy to slow moving regulation and court decisions, particularly when courts do not have reason to consider the range of policies to nurture long term investments by innovative actors in a complex and interrelated value chain.

What is an alternative to such myopic policy? A third way, one that offers clear and predictable policy guidelines, coupled with administrative processes for quick resolution of disputes. This essay has stressed that such a regulatory policy would consist of more than just four sentences. It would stress four signs of innovative health as part of transparent and

consistent guidelines that private actors could use to anticipate policy.

This section will illustrate the steps such reasoning might take, and how it could apply the four principles, but will not develop a full argument. That is, I briefly will consider behavioral analysis consistent with examining the health of an innovative market. For that purpose I will illustrate the issues raised during negotiations between Cogent and Sprint, and those raised by Comcast after it throttled Bit-Torrent traffic.

First, consider Cogent's negotiation breakdowns with other firms, particularly Sprint. The breakdowns generally were short, but had consequences for users nonetheless.

Let's start with the four principles. This breakdown deprived some users of full access to the Internet, violating any strict interpretation of the first of the FCC's principals, i.e., access to the lawful Internet. A strict interpretation of the first of the four principles might require firms to interconnect under all circumstances, removing de-peering as a negotiating tactic. That policy would seem to be motivated by a desire to protect the user experience.

That is problematic, in my view, because this behavioral rule got to the right answer for the wrong reasons, and, thus, sets a policy precedent with little value for others. As pointed out above, it misses several key insights about what those negotiations entailed, and what curtailing them would effect.

Rather, these events raise issues in the competition policy for interconnection between an entrepreneurial firms and an established firm. In my view all parties behaved in ways that did not facilitate a path towards a Coasian solution. Non-participants in decision making were hurt by the actions of the parties involved. Government intervention was, thus, merited.

The four principles fail to draw attention to many of the relevant competition policy issues in this case. For example, de-peering by an incumbent firm could be a tactic in discouraging a new entrant's entrepreneurial behavior, or in discouraging an economic experiment. The key question is: Would the guidelines be implemented differently if they were preserving economic experiments or preventing incumbent firms from discouraging entrepreneurial entry? In my view this example illustrates that the answer is certainly yes.

As a second example, consider Comcast's unilateral declaration to throttle P2P applications on its lines with resets. The FCC eventually intervened, arguing that Comcast could not single out a specific application for such action. Comcast has responded with new proposals for ways to manage its traffic.

As it played out, one striking feature about this event was the willingness of all parties to act without asking for anyone else's

permission. P2P users acted as if they could run any application, irrespective of its consequences for others, even when it degraded the quality of service for neighbors during peak-load time periods. Comcast acted as if it had full discretion to manage its data over its facilities without informing anyone, even its own customers.

Using the analysis above, I would interpret this behavior as symptomatic of the lack of fully specified contracts (for the issues under dispute) between parties who (it would seem) actually have a contract. In other words, the development of P2P applications put both parties in a situation unanticipated by their original contract, which required a renegotiation of its terms.

In my view all parties behaved in ways that did not facilitate building trust between them, and, thus, their behavior departed very far from anything that positively contributed to a path aimed towards a Coasian solution. Once again, government intervention was, thus, merited.

To be sure, the basic economics of incomplete contracting partially favors giving discretion to Comcast's management. Management could internalize the externality one user imposes on others—managing traffic for many users' general benefit. That is, P2P applications, like Bit-Torrent, can impose large negative externalities on other users, particularly in cable architectures during peak-load time periods. Such externalities can degrade the quality of service to the majority of users without some sort of limitation or restriction.

That does not imply, however, that Comcast has unfettered discretion to manage the situation. There is at least one additional incomplete contract to consider, that between Comcast and other providers of applications presently in the market. Arguably, there is a public policy issue regarding those innovative entrepreneurs who are not in the market at present, but might be in the near term. It would be quite difficult for Comcast and future entrants to reach a Coasian bargain—some of them do not even exist yet! In brief, Comcast's actions also have consequences for long-run innovative incentives by other application providers.

In that sense, Comcast's behavior had many less appealing aspects, such as its lack of transparency, and the lack of participation from others in decision making, as well as its virtually one-sided negotiating stance with all other application providers and lack of clear statements about its own actions,[113] until the FCC intervened.[114] Moreover, the firm's initially

113. ELECTRONIC FRONTIER FOUNDATION, PACKET FORGERY BY ISPS: A REPORT ON THE COMCAST AFFAIR, http://www.eff.org/wp/packet-forgery-isps-report-comcast-affair.

114. Formal Complaint of Free Press and Public Knowledge Against Comcast

inflexible public stance appeared to be aimed at shaping the willingness of others to experiment. Arguably, if it persisted, it would also shape proposals for new applications using new standards, and entrepreneurial initiatives whose businesses depended on Comcast's actions. It is not obviously healthy for innovation to give Comcast's management unchecked discretion to make take-it-or-leave-it offers to providers of any application its management believes harms users.

Here, once again, the FCC's principles fall short of being guidelines. They do not direct attention towards the salient issues in several new areas of application development or an analysis that takes into account the signs of innovative health. An entrepreneur's returns on investments will depend on their ability to transmit data over Comcast's lines. The key question is: does the lack of rules for Comcast's behavior encourage or discourage entrepreneurship in new applications? In my view this example illustrates that the absence of a clear limitation to Comcast's discretion reduces investment incentives for any entrepreneur who anticipates putting their application over Comcast's lines.

Both these examples illustrate one additional aspect in which the FCC principles fall short of being guidelines. Both cases raise general issues that are likely to arise again, perhaps with different participants, perhaps in different locations. In neither case do the FCC principles translate into clear, positive behavioral guidelines for the firms under scrutiny. While there are implications for what not to do, there is scant, positive guidance for what to do.

Imagine the discussion taking place within the management at Comcast and Cogent, or any other firm who wants to learn lessons from watching the actions of these firms. When making their tactical strategies, they surely must be asking: What sort of behavior will generate a positive/negative policy response? By what norms for consistent, transparent, and participatory decision making, if any, will this firm's actions be judged? They had little information from which to forecast policy.

Consistency and transparency are virtues for policy making. If only the FCC elaborated on their meaning in publically available guidelines, these firms could anticipate what potential issues their own actions might trigger. That is the benefit of guidelines that go beyond four sentences. Guidelines remove impediments to anticipating the reaction of policy makers to a firm's actions. That might not improve the quality of decision makers, but almost certainly it will reduce the likelihood of running afoul of well reasoned guidelines, clearly articulated in advance. That has to improve the quality of managerial action.

Corporation for Secretly Degrading Peer-to-Peer Applications, *Memorandum Opinion & Order*, 23 FCC Rcd. 13,028 (Aug. 20, 2008).

INNOVATIONS IN THE INTERNET'S ARCHITECTURE THAT CHALLENGE THE STATUS QUO

CHRISTOPHER S. YOO*

INTRODUCTION

Despite having received sustained attention from both policymakers and academic commentators for the past several years, network neutrality shows no signs of retreating from the forefront of the policy debate. It has remained a central focus for Congress,[1] the Federal Communications Commission (FCC),[2] and both presidential candidates during the last election.[3] As President, Barack Obama has effectively ensured that network neutrality will remain at the top of the policy agenda by including provisions in the stimulus package requiring that the FCC

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1. *See The Internet Freedom Preservation Act of 2008: Hearing on H.R. 5353 Before the Subcomm. on Telecomm. and the Internet of the H. Comm. on Energy & Commerce*, 110th Cong. (2008); *Net Neutrality and Free Speech on the Internet: Hearing Before the Task Force on Competition Policy and Antitrust Laws of the H. Comm. on the Judiciary*, 110th Cong. (2008).

2. *See* Formal Complaint of Free Press and Public Knowledge Against Comcast Corp. for Secretly Degrading Peer-to-Peer Applications, *Memorandum Opinion & Order*, 23 FCC Rcd. 13,028 (2008); *En Banc Hearing on Broadband Network Management Practices Before the FCC* (Feb. 25, 2008), http://www.fcc.gov/realaudio/mt022508v.ram.

3. *See* Lee Gomes, *Debugging Obama-McCain*, FORBES, Oct. 13, 2008, at 72.

formulate a national broadband plan and through requiring that grants made by the National Telecommunications and Information Administration comply with the network neutrality principles articulated by the FCC in 2005.[4]

Although pinning down a precise definition of network neutrality has proven elusive,[5] the most common position appears to be that network providers should route traffic without regard to the source or content of the packets, the application with which the packets are associated, or the sender's willingness to pay. In the words of leading network neutrality proponent Lawrence Lessig, "Net neutrality means simply that all like Internet content must be treated alike and move at the same speed over the network."[6]

Some commentators have questioned whether this description of network neutrality represents an accurate description of the Internet's past.[7] Indeed, it would be surprising if any two similar packets would be treated exactly alike when traveling through a network consisting of more than thirty thousand autonomous systems that each determine their terms of interconnection through arms-length negotiations. There are, however, some systematic changes in the architecture of the Internet that have largely been overlooked by both commentators and policymakers. These changes are largely the result of network providers' attempts to reduce cost, manage congestion, and maintain quality of service.

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4. American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, § 6001(j)–(k), 123 Stat. 115, 515–16.

5. *See* Rachelle B. Chong, *The 31 Flavors of Net Neutrality: A Policymaker's View*, 12 INTELL. PROP. L. BULL. 147, 151–55 (2008) (identifying five distinct versions of network neutrality); Eli Noam, *A Third Way for Net Neutrality*, FIN. TIMES, Aug. 29, 2006, http://www.ft.com/cms/s/2/acf14410-3776-11db-bc01-0000779e2340.html (identifying seven distinct versions of network neutrality).

6. *See, e.g.*, Lawrence Lessig & Robert W. McChesney, *No Tolls on the Internet*, WASH. POST, June 8, 2006, at A23.

7. *See, e.g.*, Robert W. Hahn & Robert E. Litan, *Portioning Bit by Bit: The Myth of Network Neutrality and the Threat to Internet Innovation*, MILKEN INST. REV., 1st Qtr. 2007, at 28, 31–33; Jonathan E. Nuechterlein, *Antitrust Oversight of an Antitrust Dispute: An Institutional Perspective on the Net Neutrality Debate*, 7 J. ON TELECOMM. & HIGH TECH. L. 19, 36–37 (2009); Douglas A. Hass, Comment, *The Never-Was-Neutral Net and Why Informed End Users Can End the Net Neutrality Debates*, 22 BERKELEY TECH. L.J. 1565, 1576–77 (2007); Kai Zhu, Note, *Bringing Neutrality to Network Neutrality*, 22 BERKELEY TECH. L.J. 615, 634–36 (2007); Michael Grebb, *Neutral Net? Who Are You Kidding?*, WIRED, May 31, 2006, http://www.wired.com/news/technology/internet/0,71012-0.html; ANDREA RENDA, I OWN THE PIPE, YOU CALL THE TUNE: THE NET NEUTRALITY DEBATE AND ITS (IR)RELEVANCE FOR EUROPE 9-11 (2008), *available at* http://shop.ceps.eu/downfree.php?item_id=1755; Craig McTaggart, *Was the Internet Ever Neutral?*, 34 RES. CONF. ON COMM'N, INFO. & INTERNET POL'Y 1, 4–14 (2006), *available at* http://web.si.umich.edu/tprc/papers/2006/593/mctaggart-tprc06rev.pdf; David Clark, Written Statement to the En Banc Public Hearing on Broadband Network Management Practices (Feb. 25, 2008), *available at* http://www.fcc.gov/broadband_network_management/022508/clark.pdf ("The Internet is not neutral and has not been for a long time.").

Part I frames the subsequent developments by describing the architecture and business relationships that defined the early Internet. Part II analyzes the architectural changes that have made the Internet's topology increasingly heterogeneous, including the emergence of multihoming, secondary peering, private networks, and content delivery networks. Part III describes the changes in ways that networks interconnect and price their services, focusing on the emergence of peer-to-peer applications and pricing innovations that go beyond the traditional bipartite distinction between peering and transit. Far from representing some network provider's efforts to promote its self interest at the expense of the public, as some network neutrality proponents have suggested, these changes have the potential to yield substantial benefits both to individual consumers and to society as a whole.

I. THE ARCHITECTURE OF THE EARLY INTERNET

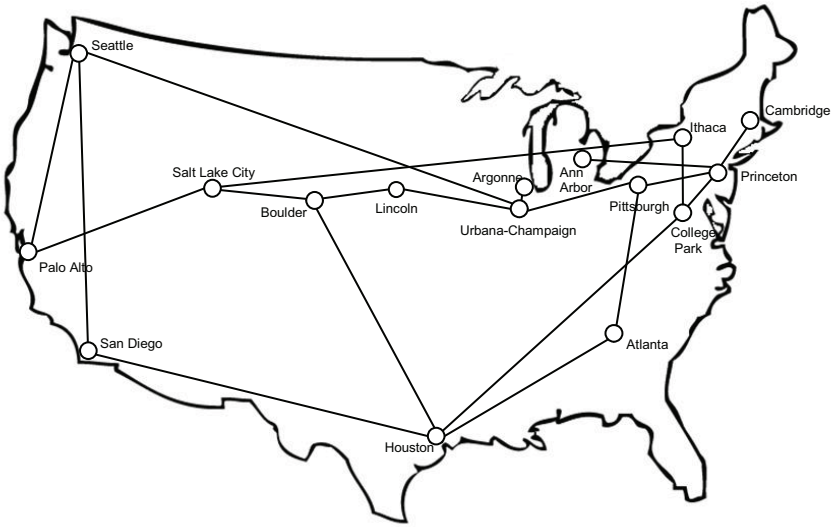
This Part reviews the architecture of the early Internet. Section A reviews the tripartite hierarchical structure that characterized its topology. Section B describes the peering and transit relationships that governed the way individual networks interconnected with one another.

A. The Topology of the Early Internet

When the Internet first emerged, its topology and the business relationships comprising it were relatively simple. As is widely known, the Internet evolved out of the NSFNET backbone, which was created in 1986 and eventually decommissioned in 1997 to provide universities all over the country access to federally funded supercomputing centers located in five universities. The primary architects of the NSFNET decided to give it a tripartite structure. At the top was the NSFNET backbone, which at its peak connected sixteen research facilities across the country. At the bottom were the campus networks run by individual universities. In the middle were regional networks (typically operated by university consortia or state-university partnerships) that linked the campus networks to the major computing centers.[8]

8. MERIT NETWORK, INC., NSFNET: A PARTNERSHIP FOR HIGH-SPEED NETWORKING, FINAL REPORT 1987–1995, at 11–12 (1996), *available at* http://www.merit.edu/documents/pdf/nsfnet/nsfnet_report.pdf; Juan D. Rogers, *Internetworking and the Politics of Science: NSFNET in Internet History*, 14 INFO. SOC'Y 213, 219 (1998).

Figure 1: The NSFNET Backbone circa 1992-1993

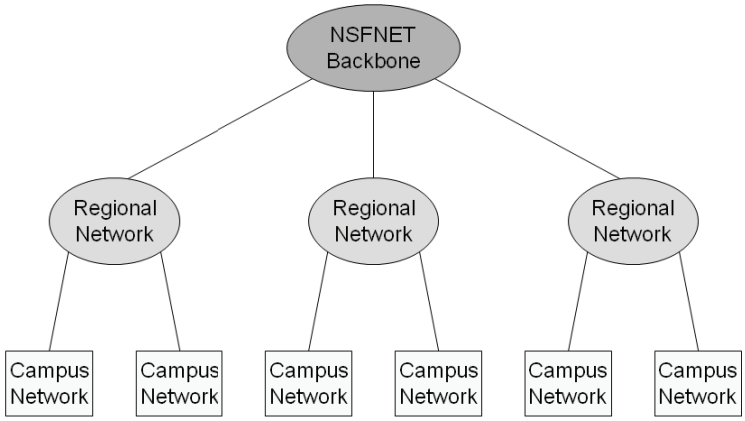


Every packet had to travel through a parallel path traversing each level of the hierarchy. For example, traffic originating on one campus network would have to connect to the regional network with which it was associated, which handed off the traffic to the NSFNET backbone, which in turn handed it off to the regional network that served the destination campus network. The result was to create a series of parallel hierarchies through which all traffic had to traverse.

The network retained this same basic architecture when it was privatized during the mid-1990s. The NSFNET backbone at the top of the hierarchy was replaced by a series of private backbone providers that interconnected with one another at four public network access points (NAPs) established by the NSF. The campus networks at the bottom of the hierarchy were replaced by last-mile providers that transported traffic from local distribution facilities maintained in individual cities (which in the case of digital subscriber lines (DSL) is usually called a central office and in the case of cable modem systems is usually called a headend) to end users' residences and places of business. The regional networks evolved into regional Internet service providers (ISPs) that transported traffic between the NAPs served by backbone providers and the central offices and headends maintained by last-mile providers.

The privatization of the Internet did not change the hierarchical nature of the basic architecture. Each regional ISP still connected to a single backbone, and each last-mile provider still connected to a single regional ISP. Indeed, the early versions of the protocol employed by the backbones (known as border gateway protocol or BGP) would not

Figure 2: The NSFNET Three-Tiered Network Architecture



support more complex topologies.[9]

The one-to-one relationship conferred a number of advantages. This architecture constituted a "spanning tree" that connected all of the nodes with the minimum number of links.[10] Furthermore, the fact that the path between any two nodes was unique greatly simplified determining the path along which traffic should be routed. That said, tree architectures are also subject to a number of drawbacks. The uniqueness of the path connecting any two nodes means that the failure of any link or node in the network will inevitably disconnect part of the network. Even when all network elements are operating properly, if the rate at which traffic arrives exceeds any particular element's capacity to route the traffic, that network element will become congested and the quality of service provided will deteriorate.[11] In addition, the hierarchical structure made each network participant completely dependent on the players operating at the level above them, which in turn provided backbones with a potential source of market power.[12]

9. Christopher S. Yoo, *Network Neutrality and the Economics of Congestion*, 94 GEO. L.J. 1847, 1860–61 (2006) [hereinafter Yoo, *Economics of Congestion*]; Christopher S. Yoo, *Network Neutrality, Consumers, and Innovation*, 2008 U. CHI. LEGAL. F. 179, 195–96 (2008) [hereinafter Yoo, *Consumers and Innovation*].

10. Daniel F. Spulber & Christopher S. Yoo, *On the Regulation of Networks as Complex Systems: A Graph Theory Approach*, 99 NW. U. L. REV. 1687, 1696 (2005).

11. *Id.* at 1699–700.

12. *See* Stanley Besen et al., *Advances in Routing Technologies and Internet Peering Agreements*, 91 AM. ECON. REV. (PAPERS & PROC.) 292 (2001).

B. Business Relationships on the Early Internet: Peering and Transit

The early Internet was also characterized by relatively simple business relationships. End users typically purchased Internet access through some form of all-you-can-eat pricing, which allowed them to consume as much bandwidth as they would like for a single flat rate. Relationships between network providers typically fell into two categories. Tier-1 ISPs entered into *peering* relationships with one another, in which they exchanged traffic on a settlement-free basis and no money changed hands. The primary justification for foregoing payment is transaction costs. Although the backbones could meter and bill each other for the traffic they exchanged, they could avoid the cost of doing so without suffering any economic harm so long as the traffic they exchanged was roughly symmetrical. Such arrangements would not be economical with when the traffic being exchanged by the two networks was severely imbalanced. Thus tier-1 ISPs will not peer with other networks that are unable to maintain a minimum level of traffic volume. In addition, peering partners typically require that inbound and outbound traffic not exceed a certain ratio. Networks that cannot meet these requirements must enter into *transit* arrangements in which they pay the backbone to provide connectivity to the rest of the Internet.[13]

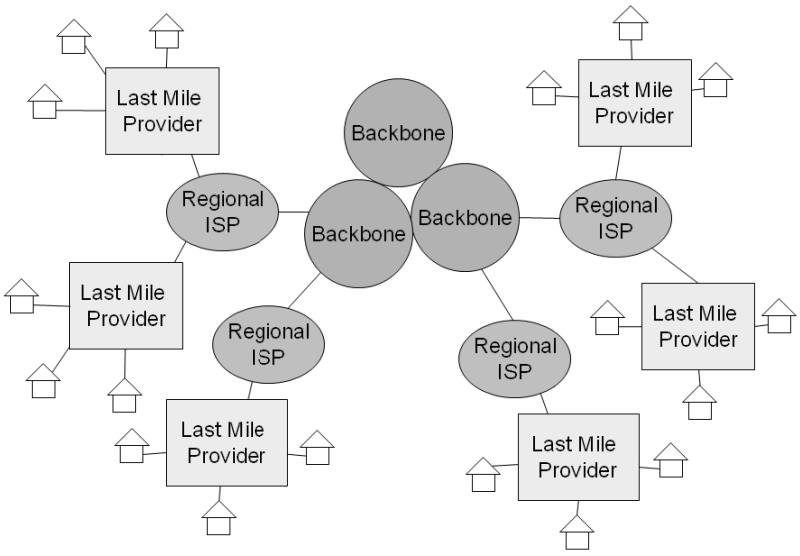
Most early analyses focused on the financial terms of these arrangements.[14] What is often overlooked is that interconnection agreements performed two distinct functions. Network providers enter into interconnection agreements not only to send and receive traffic. They also enter into interconnection agreements to announce to the rest of the Internet where the IP addresses that they control are located.

Consider this from the perspective of a small network, *A*, which serves a small number of its own customers and purchases access to the rest of the Internet through another ISP. The transit agreement between *A* and the ISP would not only require the ISP to receive traffic sent by *A* and to deliver traffic bound to *A*. It would also require the ISP to announce to the rest of the Internet how to reach the IP prefixes associated with *A's* customers. In addition, *A* can maintain a very simple routing table. It need only keep track of the prefixes of the customers that it serves. For all other IP addresses, *A* can enter a "default route" into its routing table that directs all other traffic to the other ISP.

13. Yoo, *Economics of Congestion*, *supra* note 9, at 1877; Michael Kende, *The Digital Handshake: Connecting Internet Backbones* 5 (FCC Office of Plans and Policy Working Paper No. 32, 2000), *available at* http://www.fcc.gov/Bureaus/OPP/working_papers/oppwp32.pdf; Peyman Faratin et al., *The Growing Complexity of Internet Interconnection*, 72 COMMC'NS & STRATEGIES 51, 55–56 (2008).

14. *See, e.g.*, Kende, *supra* note 13, at 5.

Figure 3: The Architecture of the Early Internet



The existence of default routes creates a potential problem, however. If none of the routing tables involved in a particular routing session contained the location of the destination, by default the networks would simply hand the packets back and forth, and the packets would never reach their final destination. The only way to avoid these problems is for one or more network providers to maintain routing tables that map the entire Internet without employing any default routes. Thus, tier-1 ISPs are defined not only by the fact that they engage in settlement-free peering with one another, but also by the fact that they maintain routing tables that contain no defaults.[15] Peering contracts also include a number of other requirements to guard against free riding and to ensure the proper functioning of the network.[16]

II. THE EVOLUTION OF THE INTERNET'S TOPOLOGY

Over the past decade, ISPs have begun to enter into a more complex set of interconnection arrangements that violate the strict tripartite hierarchy that characterized the early Internet. In addition, content providers have begun to experiment with a variety of ways to locate their content closer to end users. Both types of changes have

15. Paul Milgrom et al., *Competitive Effects of Internet Peering Policies*, *in* THE INTERNET UPHEAVAL 175, 179–80 (Ingo Vogelsang & Benjamin M. Compaine eds., 2000).

16. Faratin et al., *supra* note 13, at 54.

significant policy implications that have largely been overlooked in the policy debate.

A. Private Peering, Multihoming, and Secondary Peering

One of the first problems to emerge in the early Internet was congestion in the NAPs, which often caused throughput times and network reliability to degrade. Some estimate that congestion in the NAPs caused packet loss at times to run as high as 40%.[17] As the NAPs became increasingly congested, backbones began to find it advantageous to exchange traffic at private interconnection points.[18]

In addition, regional ISPs have begun to connect to more than one backbone, a practice known as *multihoming*, in part to protect against service outages and in part to limit their vulnerability to any exertion of market power by a backbone.[19] Regional ISPs that did not have sufficient volume to peer with the tier-1 backbones also began to find that they did have sufficient volume to peer with other regional ISPs, a practice known as *secondary peering*. Enabling regional ISPs to exchange traffic on a settlement-free basis reduced the costs borne by end users. In addition secondary peering would often shorten the number of hops needed for particular packets to reach their final destination and make them subject to bilateral (as opposed to multiparty) negotiations, both of which should increase networks' control over quality of service.[20] Secondary peering and multihoming also made the network more robust by creating multiple paths through which network nodes could interconnect. In fact, as much as seventy percent of the nodes in the Internet can now communicate with one another without passing through the public backbone.[21] This had the additional benefit of weakening the market position of the top-tier backbones, since any breakdown in the business relationship would not necessarily disconnect the ISP from the network and the ability to route along different paths places a natural limit on the backbones' ability to engage in supracompetitive pricing.[22]

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17. *See InterNAP Wakes Up Transmission Quality*, RED HERRING, Apr. 21, 1999, http://redherring.com/Home/1744; *see also* Kende, *supra* note 13, at 6 (citing reports that packet loss in the NAP located in Washington, D.C., ran as high as 20%).

18. Kende, *supra* note 13, at 6–7; Faratin et al., *supra* note 13, at 62.

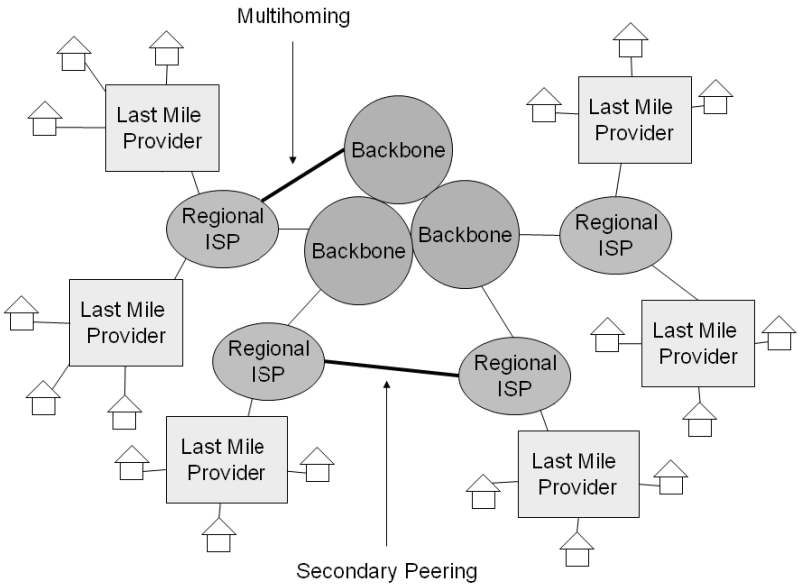
19. *See* Nicholas Economides, *"Net Neutrality," Non-Discrimination, and Digital Distribution of Content Through the Internet*, 4 I/S: J.L. & POL'Y FOR INFO. SOC'Y 209, 220 (2008).

20. *See* OECD, WORKING PARTY ON TELECOMMUNICATIONS AND INFORMATION SERVICES POLICIES, INTERNET TRAFFIC EXCHANGE: MARKET DEVELOPMENTS AND MEASUREMENT OF GROWTH 21–22 (2006), http://icttoolkit.infodev.org/en/Publication.3081.html; Faratin et al., *supra* note 13, at 55–56.

21. *See* Shai Carmi et al., *A Model of Internet Topology Using* k*-Shell Decomposition*, 104 PROC. NAT'L ACAD. SCI. 11,150, 11,151 (2007).

22. *See* Besen et al., *supra* note 12, at 294–95.

Figure 4: The Emergence of Multihoming and Secondary Peering



The emergence of interconnection relationships that deviate from the strict hierarchy that characterized the early Internet represents a substantial deviation from network neutrality. For example, assume that an end user is downloading content from both CNN.com and MSNBC.com. Assume further that the end user's regional ISP has a secondary peering relationship with the regional ISP serving CNN.com, but does not have a secondary peering relationship with the regional ISP serving MSNBC.com. The absence of a secondary peering relationship means that traffic from MSNBC.com will have to pay transit charges, while traffic from CNN.com will not. The result is that traffic that is functionally identical will end up paying different amounts. The differences in topology may also allow the traffic from CNN.com to maintain greater control over the quality of service.

The presence of multiple routes between these two points also complicates routing decisions. The presence of multiple paths connecting two points naturally means that someone must decide along which path to route the traffic. Although most networks choose routes that minimize the number of hops, networks may sometimes find it beneficial to route traffic in order to satisfy other requirements of their interconnection relationships. For example, a network may seek to enhance efficiency by balancing the loads between the two links. Multihomed entities can also monitor the quality of service provided by each connection and route the most delay-sensitive traffic along the link

with the lowest latency.[23]

In addition, transit contracts call for customers to pay a flat fee up to a predetermined peak volume (known as the committed rate) and pay additional charges for any volume that exceeds that level. For the same reason that consumers with two mobile telephones have the incentive to use up all of the prepaid minutes on both lines before incurring any additional per-minute charges, multihomed entities have the incentive to utilize all of their committed rate before paying additional fees. This lowers overall transit cost, but requires diverting some traffic along a path that is longer than the one stored in the routing tables.[24] For similar reasons, a network may intentionally route traffic over a more costly path if doing so will help it maintain its traffic within the ratios mandated by its peering contract.[25] Again, the effect is to introduce significant variance in the speed with which similarly situated packets will arrive at their destination and the cost that similarly situated packets will have to bear. This variance results not from anticompetitive motives, but rather from networks' attempts to minimize costs and ensure quality of service in the face of a network topology that is increasingly heterogeneous.

B. Server Farms and Content Delivery Networks

Large content providers have begun to employ other means to reduce cost and manage latency. One solution is to forego maintaining a single large server and instead to deploy multiple points of presence in carrier hotels across the country. Doing so allows these content providers to avoid paying transit charges to reach the public backbone and instead transmit their traffic through secondary peering arraignments with tier-2 ISPs. Greater reliance on private networks also gives the content providers greater control over network security and performance.[26] Indeed, a recent study indicates that Google, Yahoo!, and Microsoft have been able to use server farms to bypass the backbone altogether for roughly a third of their traffic and to keep their number of hops for traffic that had to pass through the backbone to no more than one or

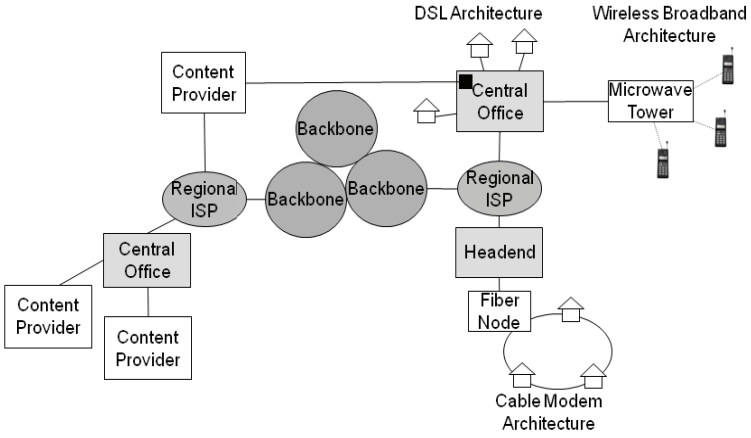
23. Fanglu Guo et al., *Experiences in Building a Multihoming Load Balancing System*, IEEE INFOCOM CONF., 2004, *available at* http://www.ieee-infocom.org/2004/Papers/26_4.PDF.

24. INTERNAP NETWORK SERVS. CORP., ECONOMICS OF MULTI-HOMING AND PREMISE-BASED OPTIMIZATION 10 (2008), *available at* http://internap.com/pdf/white-papers/WP_FCP_Economics_of_MultiHoming_0208.pdf.

25. Faratin et al., *supra* note 13, at 64–65.

26. *See* Stephanie N. Mehta, *Behold the Server Farm! Glorious Temple of the Information Age!*, FORTUNE, Aug. 1, 2006, *available at* http://money.cnn.com/magazines/fortune/fortune_archive/2006/08/07/8382587/index.htm; R. Scott Raynovich, *Google's Own Private Internet*, LIGHT READING, Sept. 20, 2005, http://www.lightreading.com/document.asp?doc_id=80968.

Figure 5: Caching and Content Delivery Networks



two.[27]

On other occasions, content providers are distributing their data through content delivery networks (CDNs) such as Akamai and Limelight. CDNs in effect substitute storage for long-distance networking capacity by maintaining a network of local caches across the Internet. When an end user sends a request for a webpage hosted by a CDN, that query is redirected to the cache. CDNs are thus able to use storage to serve multiple queries for the same content without using significant network resources. The geographic dispersion of the caches usually dictates that the file will be served by a location closer than would be possible if all of the content were stored in a central server, which minimizes cost and latency. The distributed nature of the caches also provides protection against denial of service attacks and allows the CDN to redirect queries to other caches when particular caches are overly congested.[28]

CDNs represent an innovative way to deal with the increasing complexity of the Internet. The problem is that they are nonneutral. CDNs work best for static content; they are less well suited to interactive content that changes dynamically. More to the point, CDNs are commercial services; thus greater reliability and quality of service are available only to those who are willing to pay for them.[29]

To the extent that CDNs use the public backbone to deliver the

27. *See* Phillippa Gill et al., *The Flattening Internet Topology: Natural Evolution, Unsightly Barnacles or Contrived Collapse?*, PASSIVE AND ACTIVE MEASUREMENT CONF. (2008), *available at* http://www.hpl.hp.com/techreports/2008/HPL-2008-47.pdf.

28. Yoo, *Economics of Congestion*, *supra* note 9, at 1872; Yoo, *Consumers and Innovation*, *supra* note 9, at 199, 214–15.

29. Yoo, *Economics of Congestion*, *supra* note 9, at 1882–83.

content to their caches, they are best regarded as an overlay to the existing network. Increasingly, however, CDNs and server farms are bypassing the public backbone altogether and connecting to their caches through private networks, in the process transforming CDNs into a fundamentally different architecture.[30]

All of these developments represent innovative solutions to adjust to the realities of the Internet. The differences in topology means that traffic that is otherwise similar may travel through the network at different speeds, with different costs, and with different levels of quality of service.

III. THE EVOLUTION OF BUSINESS RELATIONSHIPS

The evolution of the Internet has not been restricted to topology. Network participants have also been experimenting with an increasingly broad range of business arrangements. As I discuss in Section A, some of these innovations have been driven by the increasing significance of peer-to-peer technologies. Section B discusses the emergence of alternative business arrangements known as partial transit and paid peering.

A. The Growing Importance of Peer-to-Peer Architectures

One of the primary forces causing business relationships to change is the growing importance of applications using peer-to-peer technologies. The traditional Internet employed what is known as a client-server architecture, in which files are stored in large computers at centralized locations (servers) and end users (clients) request files from those computers. The relationship is generally regarded as hierarchical. In addition, the amount of data uploaded by clients is very small relative to the amount of data downloaded by servers. In the classic example of the World Wide Web, client traffic consists solely of uniform resource locators (URLs), the short bits of code identifying a particular website address. Server traffic, which consists of the data comprising the requested website, is much larger. For this reason, the technologies that took the early lead in broadband deployment (cable modem service and DSL) adapted an asymmetric architecture, allocating a larger proportion of the available bandwidth to downloading than to uploading. Newer technologies, such as fiber and wireless broadband, follow the same pattern.[31]

Peer-to-peer technologies follow a very different approach. Edge computers in a peer-to-peer architecture are not divided into those that

30. *See* Dave Clark et al., *Overlay Networks and the Future of the Internet*, 63 COMMC'NS & STRATEGIES 109, 123–25 (2006).

31. Yoo, *Consumers and Innovation*, *supra* note 9, at 191.

host files and those that request files. Instead, computers simultaneously perform both functions. Because this relationship is regarded as less hierarchical than client-server relationships, the computers in this architecture are known as *peers* and communications between them are known as *peer-to-peer*. Peer-to-peer is thus not synonymous with file sharing or user-generated content, as is often mistakenly assumed. On the contrary, many peer-to-peer applications (such as Vuze) support commercial broadcast services, and many platforms for user-generated content (such as YouTube) employ centralized servers. The real significance of the term peer-to-peer lies in the nature of the network architecture.

It is not yet clear what proportion of network traffic will follow each architecture. For example, peer-to-peer traffic had consistently outstripped client-server traffic for several years leading up to 2007. In 2007, however, client-server traffic staged a comeback, thanks primarily to the expansion of streaming video services like YouTube, and exceeded peer-to-peer traffic 45% to 37%.[32] Many industry observers now predict that although peer-to-peer will remain important, it will decline as a percentage of total Internet traffic over the next several years.[33] Even so, it is clear that peer-to-peer traffic is likely to remain a more important component of network traffic than it was during the Internet's early years.

The growing importance of peer-to-peer technologies is causing significant congestion in certain areas of the network and is putting pressure on the traditional approach to pricing network services. The emergence of end users as important sources of data is putting severe pressure on the limited bandwidth allocated to upload traffic. In addition, unlike in a client-server architecture, where end users usually only generate traffic when a person is seated at the keyboard, edge computers in a peer-to-peer architecture can generate traffic for as long as the computer is left running. The result is that the lion's share of upload traffic is generated by a small number of superheavy peer-to-peer users. As few as five percent of end users may be responsible for generating more than 50 percent of all Internet traffic.[34]

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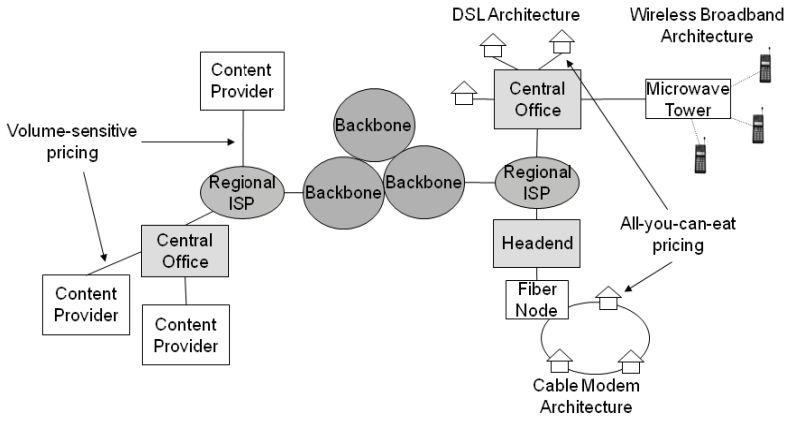
32. *See* Press Release, Ellacoya Networks, Inc, Ellacoya Data Shows Web Traffic Overtakes Peer-to-Peer (P2P) as Largest Percentage of Bandwidth on the Network (June 18, 2007), (on file with the author), *available at* http://www.ellacoya.com/news/pdf/2007/NXTcommEllacoyamediaalert.pdf.

33. CISCO SYS., INC., CISCO VISUAL NETWORKING INDEX: FORECAST AND METHODOLOGY 2008–2013, at 1–2, 5–6 (June 9, 2009), http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-481360.pdf.

34. *See* Steven Levy, *Pay per Gig*, WASH. POST, Jan. 30, 2008, at D1; DAVID VORHAUS, YANKEE GROUP, CONFRONTING THE ALBATROSS OF P2P 1 (May 31, 2007); Comments of CTIA – The Wireless Association, in the *Petition to Establish Rules Governing Network Management Practices by Broadband Network Operators*, WC Docket No 07-52, 12 (Feb. 13,

Figure 6: The Traditional Approach to Internet Pricing



The most recent generation of peer-to-peer technologies can exacerbate congestion still further. In the first generation of peer-to-peer technologies, each end user stored the entirety of the files they hosted. As a result, anyone requesting those files was limited by the total bandwidth and the level of congestion associated with the network connection attached to that end user's computer. Technologies such as BitTorrent follow a different approach. Instead of storing entire files in one location, BitTorrent divides each file into pieces and distributes them at multiple locations around the Internet. When a BitTorrent user requests a file, the software then retrieves the various pieces from multiple computers at the same time. Reducing the amount of bandwidth required from any one peer improves download performance. BitTorrent also dynamically reallocates requests for pieces away from the slowest connections and toward the fastest connections, thereby placing the heaviest burden on those peers with the fastest connections.

The congestion caused by peer-to-peer technologies weighs heaviest on last-mile technologies that share bandwidth locally, such as cable-modem and wireless broadband systems. For example, cable modem technology requires that subscribers share bandwidth with the other households operating through the same neighborhood node. As a result, cable modem customers are significantly more vulnerable to the downloading habits of their immediate neighbors than are telephone-based broadband systems, which offer dedicated local connections.

2008), http://gullfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&*id*_document=6519841180.

Service can slow to a crawl if as few as fifteen of the five hundred or so users sharing the same node are using peer-to-peer applications to download files.[35]

The classic economic solution to congestion is to set the price of incremental network usage equal to the congestion costs imposed on the network by that usage. However, determining the congestion cost imposed by any particular user at any particular time can be quite complex. Subscribers that use large amounts of bandwidth can contribute very little to network congestion if they confine their usage to hours when network usage is low. Conversely, a subscriber that only uses small amounts of bandwidth may nonetheless impose significant congestion costs on the network if they generate traffic at peak times. The contribution of any particular usage cannot be determined simply by counting the number of bits being transmitted. The overall impact of any particular increase in network usage can only be determined in light of other subscribers' Internet usage.[36] Thus it may make sense to charge different amounts to users who are using the Internet to access the same content or application if a sufficient number of other users sharing the same bandwidth are using the network at the same time.

The growth of peer-to-peer technologies has also heightened the pressure on the models that network providers have used to price their services. As noted earlier, the traditional approach charges content and application providers prices that increase with the peak bandwidth consumed, while end users are charged on an unmetered, all-you-can-eat basis. The fact that every download had to pass through one link that charged on a volume-sensitive basis allowed this pricing approach to serve as a reasonable approximation of efficient congestion pricing. For example, one hundred downloads of a 700 megabyte movie would generate 70 gigabytes of traffic from the server, which in turn would be reflected in the price paid by the content provider to its ISP.

The situation is quite different under peer-to-peer architecture. In that case, the movie could be downloaded once from the server, and the remaining ninety-nine downloads could be served by other end users running the same peer-to-peer software. Because end users are provided with service on an all-you-can-eat basis, the additional ninety-nine downloads served by the peer-to-peer network do not generate any additional revenue. The only revenue received by the network is for the

35. *See* James J. Martin & James M. Westall, *Assessing the Impact of BitTorrent on DOCSIS Networks*, IEEE BROADNETS, Sept. 2007, *available at* http://people.clemson.edu/~jmarty/papers/bittorrentBroadnets.pdf; *see also* Leslie Ellis, *BitTorrent's Swarms Have a Deadly Bite on Broadband Nets*, MULTICHANNEL NEWS, May 8, 2006, http://www.multichannel.com/article/CA6332098.html.

36. Yoo, *Economics of Congestion*, *supra* note 9, at 1868–69.

initial 700 megabyte download. Thus, in a peer-to-peer architecture, the amounts that content providers pay under the traditional pricing regime no longer serve as a workable approximation of the total traffic they impose on the network. Moreover, the failure to charge network participants prices that reflect their incremental contribution to congestion causes excessive consumption of network resources that ultimately harms consumers.

It thus comes as no surprise that the network providers that are most subject to local congestion are experimenting with other means for managing the congestion caused by peer-to-peer applications. For example, Time Warner has recently experimented with bandwidth caps and other forms of metered pricing. Although many network neutrality proponents have no objection to metered pricing,[37] recent attempts to impose metered pricing and bandwidth caps have met such a hostile reaction from the network neutrality community that the network providers had to back down.[38] That said, metered pricing is far from a panacea. As I have discussed in greater detail, true congestion-based pricing would vary from moment to moment based on the volume of traffic introduced into the network by other users. Not only would such a pricing regime challenge consumers' ability to process the relevant information; the distributed nature of the Internet means that no one entity has the information needed to formulate such policies. As a result, other network providers have turned to proxies that are strongly associated with high-volume activity, which most importantly includes a ban on operating a server as required by peer-to-peer technologies.[39]

37. *Net Neutrality: Hearing Before the Senate Committee on Commerce, Science & Transportation*, 109th Cong 55, 58, 74 (2006) (statement of Prof. Lawrence Lessig), *available at* http://www.gpo.gov/fdsys/pkg/CHRG-109shrg605/pdf/CHRG-109shrg605.pdf; Tim Wu, *Network Neutrality, Broadband Discrimination*, 2 J. ON TELECOMM. & HIGH TECH. L. 141, 154 (2003).

38. For criticism of Time Warner's January 2008 attempt to impose metered pricing, see Catherine Holahan, *Time Warner's Pricing Paradox: Proposed Changes in the Cable Provider's Fees for Web Could Crimp Demand for Download Services and Hurt Net Innovation*, BUS. WK., Jan. 18, 2008, http://www.businessweek.com/technology/content/jan2008/tc20080118_598544.htm; Posting of Marvin Ammori to Save the Internet, Time Warner Goes Back to the Future, http://www.savetheinternet.com/archive/2008/01/25/back-to-the-future-time-warner-broadband-plan-recalls-aols-walled-garden/ (Jan. 25, 2008); Posting of Lynn Erskine to Save the Internet, Time Warner Metered Pricing: Not the Solution, http://www.savetheinternet.com/blog/2008/01/17/time-warner%e2%80%99s-metered-pricing-not-the-solution/ (Jan. 17, 2008); Posting of Fred von Lohmann to DeepLinks, Time Warner Puts a Meter on the Internet, http://www.eff.org/deeplinks/2008/01/time-warners-puts-meter-internet (Jan. 22, 2008). For criticism of Time Warner's January 2009 attempt to impose bandwidth caps, see Press Release, Free Press, Free Press Wary of Internet Caps (Feb. 4, 2009), http://www.freepress.net/node/47855; Press Release, Public Knowledge, Public Knowledge Statement on Time Warner Halt to Broadband Caps (Apr. 16, 2009), http://www.publicknowledge.org/node/2100.

39. Yoo, *Economics of Congestion*, *supra* note 9, at 1871.

Although this would constitute a violation of network neutrality by discriminating against a particular type of application, even network neutrality proponents acknowledge that such a restriction represents a good proxy for bandwidth-intensive activity.[40]

B. The Emergence of Partial Transit and Paid Peering

Network providers have also begun to enter into business relationships that go beyond peering and transit relationships that dominated the early Internet. Some are driven by the emergence of secondary peering relationships discussed above.[41] Before such relationships existed, a tier-2 or tier-3 ISP would have to buy transit from a tier-1 ISP that had obtained access to all of the IP addresses that it did not serve. In other words, a tier-2 or tier-3 ISP's transit relationships would cover the entire Internet (except for its own customers).

The advent of secondary peering reduces the scope of transit services that the ISP needs to purchase. In short, the ISP no longer needs to buy transit to the entire Internet. The secondary peering relationships already provide it with the ability to reach those customers served by its secondary peering partners. As a result, these ISPs have begun to purchase *partial transit* that covers less than the entire Internet (i.e., those portions of the Internet not already covered by its secondary peering relationships). In addition, an ISP with inbound traffic that far exceeds its outbound traffic may run the risk of having traffic ratios that put it in violation of its peering contract. Under these circumstances, it may attempt to cover its deficit in outbound traffic by selling partial transit contract that covers only outbound traffic, but not inbound traffic. Alternatively, it may reduce its inbound traffic by buying partial transit for inbound traffic.[42]

Another interesting development is the emergence of *paid peering*.[43] Paid peering involves all of the same aspects as conventional peering relationships. Peers announce to the rest of the Internet the addresses that their peering partners control, maintain a sufficient number of interconnection points across the country, and maintain the requisite total volume and traffic ratios. The key difference is that one peering

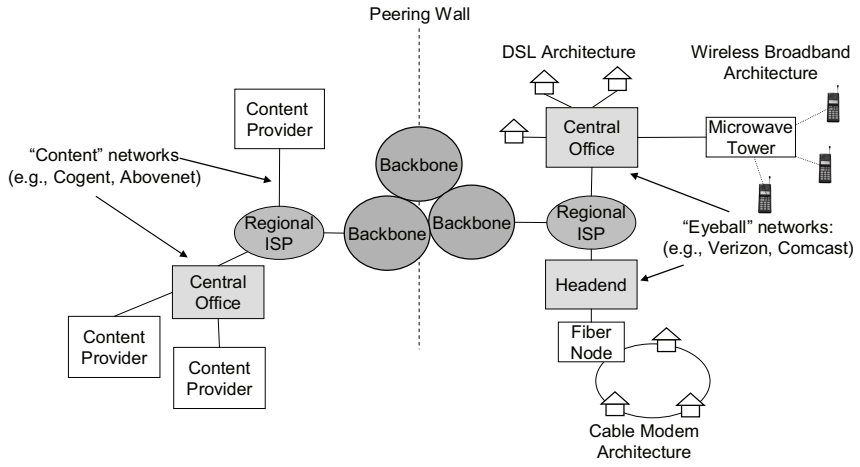
40. Brett M. Frischmann & Barbara van Schewick, *Network Neutrality and the Economics of the Information Superhighway: A Reply to Professor Yoo*, 47 JURIMETRICS J. 383, 409 (2007).

41. *See supra* Part II.A.

42. Faratin et al., *supra* note 13, at 60–61.

43. For earlier discussions, see Christopher S. Yoo, *Network Neutrality after* Comcast*: Toward a Case-by-Case Approach to Reasonable Network Management*, *in* NEW DIRECTIONS IN COMMUNICATIONS LAW AND POLICY: THE WAY FORWARD 55, 71–76 (Randolph J. May ed., 2009) [hereinafter Yoo, *Toward a Case-by-Case Approach*]; Yoo, *Consumers and Innovation*, *supra* note 9, at 222–27.

Figure 7: Paid Peering and the Economics of Two-Sided Markets



partner pays the other partner for its services.

Paid peering is driven by both supply-side and demand-side considerations. Starting first with the supply side, settlement-free peering arrangements between tier-1 ISPs with similar traffic volumes make sense only if both networks have similar costs. Over time, backbones have begun to serve two different types of last-mile networks: those that primarily serve content and application providers (such as Cogent and Abovenet), which some commentators call "content networks," and those that serve end users (such as Comcast and Verizon), which some commentators call "eyeball networks."[44] The costs of the first type of network (connecting content and application providers) are quite low, typically only requiring a single high-speed line to a small number of business locations. The costs of the second type of network (connecting end users) are considerably higher, requiring the wiring and upgrading of equipment in entire neighborhoods. The presence of such asymmetric costs provides a substantial impetus for cash to flow from networks serving content and application providers to networks providing connections to end users.[45]

These supply-side considerations are reinforced by demand-side considerations associated with the economics of two-sided markets, which illustrates the potential benefits of allowing network providers to charge differential prices to both end users and content and application providers.[46] Conventional economics has long recognized the existence of

44. *See* Faratin et al., *supra* note 13, at 58.
45. *See id.* at 58–59.
46. For a more technical discussion, see Yoo, *Consumers and Innovation*, *supra* note 9, at

"network economic effects," which cause a network to increase in value as the number of users connected to it increases. To use a classic example, the value of a telephone network to a particular consumer depends on more than just the services provided and the price charged, as is the case with most goods. It also depends on the number of other subscribers connected to the network. The more people you can reach through the network, the more valuable it becomes.

The benefits created by the network economic effect for telephone networks arise with respect to a single class of customers. When a market is two sided, instead of bringing together a single class of similarly situated users, networks bring together two completely different classes of users. In those cases, the value is determined not by the number of users of the same class, but rather the number of users of the other class. A classic example is broadcast television, which brings together two groups: viewers and advertisers. Advertisers gain no benefit (and if anything suffer a detriment) from belonging to a network with a large number of other advertisers. The value of the network for advertisers is instead determined solely by the number of viewers, i.e., the size of the other class of users.

The literature suggests that social welfare would be maximized if the network provider were permitted to price discriminate on both sides of the two-sided market. It also suggests that the prices paid by those on each side of the market can differ widely and that in many cases, it is economically beneficial for one side to subsidize the other side of the market. The fact that the Internet has become increasingly dominated by advertising revenue paid to content and application providers suggest that it may be socially beneficial for content and application providers to subsidize the prices paid by end users. An advertiser's willingness to pay for an ad on any particular website depends on the number of end users viewing that website. Under these circumstances, the optimal solution may be for the website owner to subsidize the total number of end users by making payments to the network provider to help defray their costs of connection. The costs of subsidizing more users would be more than offset by the additional revenue generated by the fact that advertisers can now reach more potential customers. In the case of broadband, this would be both economically efficient and would be a boon to consumers both in terms of providing service in more geographic areas and in reducing the prices that consumers pay.[47]

These dynamics are again well illustrated by broadcast television.[48] In many ways, broadcast television and the Internet are analogous. The

222–27.

47. *See id.* at 225–26.

48. *See* Yoo, *Toward a Case-by-Case Approach*, *supra* note 43, at 73–75.

movie studios that create television programs play a similar role to content and application providers. Television networks aggregate programs and deliver them nationally in much the same manner as content networks and backbone providers. Local broadcast stations provide last-mile connectivity that is quite similar to the role played by eyeball networks. In addition, the revenue structure is quite comparable, in that television networks receive advertising revenue in much the same manner as content and application providers. Furthermore, the cost structure is somewhat similar in that connecting individual homes is much more costly than distributing programming nationally.

For decades, the standard business arrangement has been for television networks to subsidize the operations of local broadcast stations by paying them to be members of their television networks. The industry's revenue and cost structure make such arrangements quite logical. The cost of paying these broadcast stations to affiliate with a network is more than offset by the increase in advertising revenue made possible by the fact that the network is now able to reach a larger audience. Broadcast television thus represents a prime example of when firms operating on one side of the market find it economically beneficial to subsidize end users on the other side of the market.

Furthermore, the magnitude of the affiliation fees that the networks pay to broadcast stations is anything but uniform. The precise amount varies with the relative strength of the network and the relative strength of the broadcast station. Stronger broadcast stations receive more, while weaker ones receive less. Equally interesting is the fact that in recent years, the cash flow has begun to vary in its direction as well as magnitude, with weaker stations having to pay rather than be paid to be part of the television network. The dynamic nature of this pricing regime benefits consumers by providing incentives for networks to invest in better quality programming and by providing an incentive for stations to provide better carriage.

The two-sided market analysis reveals the potential drawbacks of preventing network providers from charging differential prices. As a general matter, pricing flexibility makes it easier for network providers to recover the costs of building additional bandwidth. Granting network providers pricing flexibility with respect to content and application providers should reduce the percentage of the network costs borne by consumers. Conversely, preventing network providers from exercising pricing flexibility with respect to content and application providers would simply increase the proportion of the network costs that providers must recover directly from end users. This simultaneously raises the prices paid by consumers and decreases the likelihood that the capital improvements

will ever be built.[49] Charging content and application providers differential prices thus has the potential to increase social welfare and can reduce, not increase, the burden borne by consumers.

CONCLUSION

It is all too easy to forget that the Internet is not a monolith with a brooding omnipresence overseeing the entire system. Instead, it is a collection of autonomous systems that determines the terms of interconnection through a series of arms-length negotiations between individual networks. Given the Internet's essence as a network of networks, it should come as no surprise that no two packets will pay the same amount for the same service.

The developments that I have outlined in this article have made such differences even more likely. The network no longer adheres to the rigid and uniform hierarchy that characterized the early Internet and its predecessor, the NSFNET. Packets can now travel along radically different paths based on the topology of the portion of the network through which they travel. This is the inevitable result of reducing costs and experimenting with new structures. At the same time that network providers are experimenting with new topologies, they are also experimenting with new business relationships. Gone are the days when networks interconnected through peering and transit and imposed all-you-can eat pricing on all end users. That fairly simple and uniform set of contractual arrangements has been replaced by a much more complex set of business relationships that reflect creative solutions to an increasingly complex set of economic problems. Again, these differences mean that the service that any particular packet receives and the amount that it pays will vary with the business relationships between the networks through which it travels. Although many observers reflexively view such deviations from the status quo with suspicion, in many (if not most) cases, they represent nothing more than the natural evolution of a network trying to respond to an ever-growing diversity of customer demands. Imposing regulation that would thwart such developments threaten to increase costs and discourage investment in ways that ultimately work to the detriment of the consumers that such regulation is ostensibly designed to protect.

49. *See Wall Street's Perspective on Telecommunications: Hearing Before the S. Comm. on Commerce, Science, and Transportation*, 109th Cong. 13–16 (2006) (testimony of Craig E. Moffett, Vice President and Senior Analyst, Sanford C. Bernstein & Co.), *available at* http://www.gpo.gov/fdsys/pkg/CHRG-109shrg589/pdf/CHRG-109shrg589.pdf.

THE SHAKY FOUNDATIONS OF THE REGULATED INTERNET

JAMES B. SPETA*

INTRODUCTION

This is a true story: In 1972, a group purporting to represent all television viewers in the Chicago area petitioned the Federal Communications Commission to forbid the construction of the Sears Tower,[1] on the ground that, if built, it "would throw 'multiple ghost images' on television receivers in many areas of the Greater Chicago Metropolitan Area."[2] Against the argument that (surely) the FCC had no authority to regulate the building of skyscrapers, petitioners relied on the relatively recent Supreme Court decision in *United States v. Southwestern Cable Co.*,[3] in which the Court held that the Commission could forbid cable television companies from importing distant broadcast signals—even though the Communications Act nowhere mentioned cable television.[4] The court in the Sears Tower case summed up the petitioner's theory:

* Professor, Northwestern University School of Law.

1. Just re-named the "Willis Tower." Also true. *See* http://www.willistower.com/propertyprofile.html.

2. Ill. Citizens Comm. for Broad. v. FCC, 467 F.2d 1397, 1398 (7th Cir. 1972).

3. 392 U.S. 157 (1968).

4. Reflecting that they rarely originated their own programming at the time, the systems were known as "community antenna" television. *See id.* at 159, 161–62.

> The Act's provisions apply not only to "persons engaged in communications or transmission" and "radio stations" but also "the communications in themselves." [Therefore], if the "communications" are within the FCC's power to regulate, so are all activities which "substantially affect communications," in this case, the construction of a very tall office building.[5]

The FCC rejected the claim that it had jurisdiction over the Sears Tower,[6] and the Seventh Circuit also had little trouble concluding that the idea was "far too broad."[7]

The FCC's recent *Comcast* decision[8] raises some of the same questions as this little-remembered episode. Whatever may have been the truth or merit of the Internet as "unregulated"[9]—or even as "unregulable"[10]—those days are officially over. In the *Comcast* decision, the Federal Communications Commission accepted all of the broadest arguments for its regulatory authority over the Internet. In doing so, however, the *Comcast* order reveals a conundrum. On the one hand, if accepted, the FCC's broadest theories give it unlimited authority to regulate the Internet, nearly as broad as the theory that the FCC could control buildings to prevent interference with broadcasters. On the other hand, a more limited FCC authority does not address purely Internet issues, such as that involved in the decision—possible cable carrier discrimination against Internet video. I do not wish to overstate the parallels to the Sears Tower case, for several reasons. First, skyscrapers are not engaged in communications, and the Internet is, of course, a communications medium. Surely this matters to the FCC's regulatory authority. In fact, the FCC could (except that it has decided that it would be bad policy to do so) easily find that Internet transmission was common carrier service[11]—and all dispute over its regulatory authority would disappear.[12] Second, regulation of pieces of the Internet is of

5. *Ill. Citizens Comm. for Broad.*, 467 F.2d at 1399.

6. Apparently, a similar notion arose in 1967, around the construction of the World Trade Center in New York, and the FCC held hearings on the construction's effects on television reception. One FCC Commissioner was prompted to write that the FCC had no authority over building issues. *Id.* at 1400–01.

7. *Id.* at 1400.

8. Formal Complaint of Free Press and Pub. Knowledge Against Comcast Corp., *Memorandum Opinion & Order*, 23 FCC Rcd. 13,028 (2008) [hereinafter *Comcast Order*].

9. *See* Jason Oxman, *The FCC and the Unregulation of the Internet* (FCC Office of Policy and Plans Working Paper No. 31, 1999), *available at* http://www.fcc.gov/Bureaus/OPP/working_papers/oppwp31.pdf.

10. *See* John Perry Barlow, *A Declaration of the Independence of Cyberspace*, EFF, Feb. 8, 1996, http://homes.eff.org/~barlow/Declaration-Final.html.

11. *See* James B. Speta, *A Common Carrier Approach to Internet Interconnection*, 54 FED. COMM. L.J. 225, 269–71 (2002) [hereinafter Speta, *A Common Carrier Approach*].

12. The FCC has undoubted authority to impose nondiscrimination requirements such as those imposed in the *Comcast* order and generally desired by network neutrality advocates

course nothing new. Many countries regulate the whole Internet, at least within their own borders.[13] Even in the United States, many Internet activities are subject to specific legislation and regulation (and of course to much general legislation). What is new with the *Comcast* decision is the FCC's assertion of plenary authority over any aspect of even pure Internet transmission services. Although the holding of the decision—that a cable Internet provider may not selectively and surreptitiously degrade certain applications carried over its system—seems narrower, the FCC's description of its Internet authority knows no limit.

This is noteworthy because a limited notion of even potential Internet regulation held sway for more than 40 years, beginning with the FCC's articulating a distinction between "basic" and "enhanced" services.[14] Under this model, the FCC maintained that it had *some* regulatory authority over enhanced (now "information" and "Internet") services, but it also maintained that its regulatory authority was limited—that it did not extend to the agency's nearly plenary authority over common carriers and spectrum licensees. This was consistent with the Supreme Court's definition of the agency's "ancillary jurisdiction" as only that regulatory power "necessary to" the FCC's other, more affirmatively-granted, regulatory powers. The *Comcast* decision—or at least the language of that decision—blows the doors off any notion of the FCC's limited role over Internet services.

This article assesses the FCC's jurisdictional contentions as a roadmap for, as this panel was named, looking at the future of regulatory institutions for the Internet. This may seem like an old fight, especially measured in Internet time. In an earlier article, I argued that the FCC had no authority to regulate the Internet.[15] The Supreme Court has since written that it does, although without any exposition.[16] The project for now is to assess whether a principled delimitation—principled boundaries—can be found for the FCC's regulatory jurisdiction.[17]

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under 47 U.S.C. § 202(a) (requiring common carriers to provide service on a nondiscriminatory basis) and § 201(b) (its general rulemaking authority for Title II).

13. *See generally* JACK GOLDSMITH & TIM WU, WHO CONTROLS THE INTERNET? ILLUSIONS OF A BORDERLESS WORLD (2008).

14. *See generally* Robert Cannon, *The Legacy of the Federal Communications Commission's Computer Inquiries*, 55 FED. COMM. L.J. 167 (2003).

15. James B. Speta, *FCC Authority to Regulate the Internet: Creating It and Limiting It*, 35 LOY. U. CHI. L.J. 15, 22–26 (2003) [hereinafter Speta, *FCC Authority to Regulate*].

16. *See* Nat'l Cable & Telecomms. Ass'n v. Brand X Internet Servs., Inc., 545 U.S. 967 (2005); *see infra* notes 68–69 and accompanying text.

17. Even those who contend that the Communications Act already grants to the FCC broad authority to regulate Internet carriers acknowledge that the FCC's regulatory jurisdiction must be bounded by something—that the Act cannot be read to give the FCC plenary jurisdiction to adopt any regulations of Internet carriers. *See* Philip J. Weiser, *Toward a Next Generation Regulatory Strategy*, 35 LOY. U. CHI. L.J. 41, 63 (2003) ("In order to withstand judicial scrutiny, the Commission must develop a limiting standard to contain the

Why re-till this ground now? I believe that adequate formalist grounds exist: "It is axiomatic that an administrative agency's power to promulgate legislative regulations is limited to the authority delegated by Congress."[18] Indeed, given that the Constitution vests legislative authority in the Congress, one might say that adherence to the rule of law requires that any agency lawmaking trace its origins back to a statute delegating that authority.[19] More importantly, good Internet policy requires it. If, as many are coming to believe, some structure is needed for the resolution of Internet policy issues, those structures need a solid legal basis. Even if one is focused on efforts largely led by the industry itself (which I think is the right approach), those structures eventually require the backstop of law. As Professor Philip Weiser, who has done the most detailed work on these co-regulatory models, has written, "the ability of the agency to adjudicate disputes effectively may well prove critical to empowering" private solutions in the first place.[20] That even any voluntary effort will be shaped by the possibility of government action is simply a corollary of a broader point, that regulation's potential scope inevitably affects behaviors in the market: firms will modify their behaviors to forestall more active regulatory attention. Although Congressional attention is always possible, the costs of new legislation are higher than the cost of agency action. Confirmed FCC authority, even if unexercised, would therefore have a greater expected effect on market behavior than the always-present potential for new legislation. In other words, both those who desire greater Internet regulation and those who oppose it should attend to the FCC's statements concerning its power in this realm.

While timely, I do not here intend to review all of the debate over the FCC's regulatory powers—either in general or in relation to the *Comcast* order.[21] Much has been written about the FCC's so-called

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reach of its authority over the Internet.") [hereinafter Weiser, *Regulatory Strategy*].

18. Bowen v. Georgetown Univ. Hosp., 488 U.S. 204, 208 (1988).

19. Thomas Merrill makes essentially this argument in support of his "exclusive delegation" reading of Article I's vesting clause. Thomas W. Merrill, *Rethinking Article I, Section 1: From Nondelegation to Exclusive Delegation*, 104 COLUM. L. REV. 2097 (2004). A statute is not the only possible source for agency lawmaking, for it is possible that some executive branch lawmaking could be traced to an independent source of authority in article II, but the FCC's authority to regulate the Internet does not implicate that possibility. *See id.* at 2101.

20. Philip J. Weiser, *The Future of Internet Regulation* 37 (Colorado Legal Studies Research Paper Series, Working Paper No. 09-02, 2009), *available at* http://ssrn.com/abstract=1344757 [hereinafter Weiser, *Internet Regulation*].

21. Other recent articles addressing the FCC's regulatory authority in the *Comcast* order include Susan P. Crawford, *Transporting Communications*, 89 B.U. L. REV. 871 (2009); Barbara Esbin & Adam Marcus, *"The Law Is Whatever the Nobles Do": Undue Process at the FCC*, 17 COMMLAW CONSPECTUS 535 (2009); Andrew Gioia, Note, *FCC Jurisdiction over ISPs in Protocol-Specific Bandwidth Throttling*, 15 MICH. TELECOMM. & TECH. L. REV. 517

ancillary authority in general[22] and, as noted, about how that ancillary authority might be exercised over the Internet.[23] And the parties have and will argue the *Comcast* decision. I wish to focus on the broader conundrum: choosing between the type of incredibly broad regulatory jurisdiction the FCC claims in the order, and a narrower, more doctrinally sound theory, but one that does not necessarily address the needs of good Internet policy.

This article has four pieces. First, I review the FCC's *Comcast* decision and argue that it offers a wholly untenable view of the FCC's Internet jurisdiction. If that decision were taken on its terms, the FCC would have at least as much power to regulate Internet services as it does common carrier services—and perhaps more. That notion is inconsistent with any prior notion of the agency's "ancillary" jurisdiction as a jurisdiction that merely provides a supporting role to common carrier and spectrum regulation. Second, I consider whether the *Comcast* order can nevertheless support a narrower version of the FCC's Internet authority, one that is consistent with the law on ancillary jurisdiction. For contrast, I also examine the FTC's claim to Internet jurisdiction. Third, I ask whether either of these visions—the broad or the narrower version of the FCC's Internet jurisdiction—accord with good Internet policy, or at least with a range of good Internet policy choices.

Last, I conclude with my vision for the FCC in the Internet age (or, perhaps more accurately, my broader agenda for Congressional action to create an FCC agenda for the Internet age). I believe that the FCC should and will play an important role in the Internet age, although I also agree with several of the vigorous critiques of its behavior in recent years.[24] I necessarily reject, then, proposals to abolish the FCC and replace it with either antitrust-only enforcement or with a new, even broader innovation agency. I believe that adding *some* Internet jurisdiction to the FCC's powers makes sense; but I also believe that the FCC should not have general "innovation" authority, authority that might extend to markets (such as content and applications) where it has

(2009); Aaron K. Brauer-Rieke, Note, *The FCC Tackles Net Neutrality: Agency Jurisdiction and the Comcast Order*, 24 BERKELEY TECH. L.J. 593 (2009).

22. *See, e.g.*, Thomas G. Krattenmaker & A. Richard Metzger, Jr., *FCC Regulatory Authority over Commercial Television Networks: The Role of Ancillary Jurisdiction*, 77 NW. U. L. REV. 403 (1982); Mark D. Hoffer, *The Power of the FCC to Regulate Cable Pay-TV: Jurisdictional and Constitutional Limitations*, 53 DENV. U. L. REV. 477 (1976); Joseph R. Fogarty & Marcia Spielholz, *FCC Cable Jurisdiction: From Zero to Plenary in 25 Years*, 37 FED. COMM. L.J. 113 (1985).

23. *See* Speta, *FCC Authority to Regulate*, *supra* note 15; Weiser, *Internet Regulation*, *supra* note 20; Jim Chen, *The Authority to Regulate Broadband Internet Access Over Cable*, 16 BERKELEY TECH. L.J. 677 (2001).

24. *See* PHILIP J. WEISER, REFORMING THE FCC, FCC REFORM AND THE FUTURE OF COMMUNICATIONS POLICY (2009), http://fcc-reform.org/f/fccref/weiser-20090105.pdf.

no historic role or expertise. I also believe that Congress should relieve the FCC of the burdens that come from much of its broadcast regulation, so that it might focus on the future of communications—the Internet.

I. THE COMCAST ORDER'S VISION OF FCC INTERNET REGULATION

A. A (Very) Little Communications Act Set-up

As is well-known, the substantive provisions of the Communications Act are grouped into three titles, each of which is centered on a particular kind of service: Title II covers interstate common carriers (telephone and telegraph companies); Title III covers spectrum licensees (largely broadcasters); and Title VI covers cable television companies. Each of these titles contains a grant of rulemaking authority.[25] Title I, at the beginning of the Act, states the purpose of the Commission and describes its organization and operation. Title I also includes a general rulemaking grant, saying that "[t]he Commission may perform any and all acts, make such rules and regulations, and issue such orders, not inconsistent with this chapter, as may be necessary in the execution of its functions."[26]

This general rulemaking grant could be read very broadly or very narrowly. The broad reading looks to sections 1 and 2 of the Act. Section 1 states that the FCC is established "[f]or the purpose of regulating interstate and foreign commerce in communication by wire and radio;"[27] section 2 states that "[t]he provisions of this chapter shall apply to all interstate and foreign communications by wire or radio."[28] Section 4 thus could be read as giving the FCC regulatory authority over all "communications by wire or radio." The narrow version is to conclude that Title I's rulemaking authority is merely a procedural provision, not giving the agency any substantive lawmaking authority. The section in which it appears (section 4),[29] after all, merely describes the FCC's structure and procedure. And no penalty provision in the Communications Act is linked to the FCC's Title I rulemaking provision. Starting from first principles of administrative law and attending to the convoluted history of the Act, Professors Thomas Merrill and Kathryn Tongue Watts argued (in my view correctly) that

25. 47 U.S.C. §§ 202(b), 544 (2008).
26. 47 U.S.C. § 154(i) (2008).
27. 47 U.S.C. § 151 (2008).
28. 47 U.S.C. § 152(a) (2008).
29. *See generally* 47 U.S.C. § 154 (2008).

Title I does in fact confer only "procedural rulemaking powers,"[30] and not the authority to act with the force of law.[31]

Our brief review of the FCC's authority, however, must start elsewhere, for the Supreme Court has, since the *Southwestern Cable* decision in 1968, held that Title I gives the FCC an "ancillary jurisdiction" to act generally in the communications field but has cabined that authority short of the broadest version over all communications.[32] The decision's holding is that the FCC could regulate cable companies' carriage of broadcast programming, even though cable companies were nowhere mentioned in the Communications Act. In supporting this expansion of the FCC's powers, the *Southwestern Cable* decision relied, in part, on language from the Court's earlier (1943) *National Broadcasting Co.* case.[33] There, the Court said that, in passing the Communications Act, "Congress was acting in a field of regulation which was both new and dynamic. . . . In the context of the developing problems to which it was directed, the Act gave the Commission not niggardly, but expansive powers,"[34] and the Court affirmed regulations designed to limit the relationship between broadcasters and networks. But *NBC* itself is not really an ancillary jurisdiction case, for all of the FCC's regulations were directed to broadcast licensees themselves. In *Southwestern Cable*, the Court for the first time affirmed FCC regulation of an entity that was not a common carrier or a spectrum licensee.

The cases following *Southwestern Cable* seem to me to establish four important principles to govern the FCC's ancillary jurisdiction.

First, the FCC does have some regulatory authority over those who provide "communications by wire or radio,"[35] even if the providers are

30. Thomas W. Merrill & Kathryn Tongue Watts, *Agency Rules with the Force of Law: The Original Convention*, 116 HARV. L. REV. 467, 517–519 (2002).

31. *Id.*

32. *See generally* Krattenmaker & Metzger, *supra* note 22.

33. Nat'l Broad. Co. v. United States, 319 U.S. 190 (1943).

34. *Id.* at 219; *see* United States v. Sw. Cable Co., 392 U.S. 157, 173 (1968) (quoting this language).

35. The mission statement for the FCC reads:

> For the purpose of regulating interstate and foreign commerce in communication by wire and radio so as to make available, so far as possible, to all the people of the United States, without discrimination on the basis of race, color, religion, national origin, or sex, a rapid, efficient, nationwide, and world-wide wire and radio communication service with adequate facilities at reasonable charges, for the purpose of national defense, for the purpose of promoting safety of life and property through the use of wire and radio communication, and for the purpose of securing a more effective execution of this policy by centralizing authority heretofore granted by law to several agencies and by granting additional authority with respect to interstate and foreign commerce in wire and radio communication, there is hereby created a commission to be known as the "Federal Communications Commission", which shall be constituted as hereinafter provided, and which shall execute and

not common carriers, spectrum licensees, or cable television providers. In the three ancillary jurisdiction cases to reach the Supreme Court, the Supreme Court found that the FCC could regulate (to some degree) cable television services, notwithstanding that those services were not (then) mentioned anywhere in the Communications Act's specific provisions.[36] The Merrill-Watts argument suggests that these cases were wrongly decided,[37] and I have suggested that they may be inconsistent with more modern and well-developed administrative law (a point I elaborate on below[38]). But the Supreme Court has never questioned the cases.

Second, as a corollary, the FCC does not have jurisdiction over entities that are not communications carriers (meaning entities that do not transmit communications by wire or radio), even if their activities may *affect* communications by wire or radio. Thus, the Seventh Circuit held that the FCC could not block the building of the Sears Tower in Chicago just because its presence would create a transmission shadow, interfering with television reception by many thousands in the Chicago area.[39] More recently, the D.C. Circuit struck down the FCC's attempt to require digital televisions and digital television recorders to incorporate and follow a "broadcast flag" that would have prevented the copying of programs on digital over-the-air television.[40] The FCC's theory was that copy protection was necessary to ensure that high-quality programming was made available to broadcast television, which furthered the general goal of promoting broadcasting. The D.C. Circuit disagreed. Even

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enforce the provisions of this Act.

47 U.S.C. § 151 (2008). Congress further intended that the authority of the FCC would apply broadly:

> The provisions of this Act shall apply to all interstate and foreign communication by wire or radio and all interstate and foreign transmission of energy by radio, which originates and/or is received within the United States, and to all persons engaged within the United States in such communication or such transmission of energy by radio, and to the licensing and regulating of all radio stations as hereinafter provided; but it shall not apply to persons engaged in wire or radio communication or transmission in the Canal Zone, or to wire or radio communication or transmission wholly within the Canal Zone. The provisions of this Act shall apply with respect to cable service, to all persons engaged within the United States in providing such service, and to the facilities of cable operators which relate to such service, as provided in title VI.

Id. § 152(a).

36. *See supra* notes 33–34 and accompanying text.

37. *See* Merrill & Watts, *supra* note 30; *see also* Merrill, *supra* note 19, at 2169 (calling the ancillary jurisdiction cases "spectacular breaches" of the principle that agencies can act only with power delegated to them by Congress).

38. *See* Speta, *FCC Authority to Regulate*, *supra* note 15, at 25 n.56; *see also infra* notes 101–10 and accompanying text.

39. *See supra* notes 1–2 and accompanying text.

40. Am. Library Ass'n v. FCC, 406 F.3d 689, 691–92 (D.C. Cir. 2005).

though "communications by radio" includes "instrumentalities, facilities, apparatus, and services (among other things, the receipt, forwarding, and delivery of communications) incidental to such transmission,"[41] the D.C. Circuit held that the broadcast flag rule operated *after* the transmission was complete and was outside the FCC's power to regulate communications entities.[42] While the court acknowledged the FCC's power to set standards for the reception of broadcasts (e.g., radio and television standards),[43] the court said that the FCC does not have the power to regulate equipment except in the equipment's receiving function. Similarly, the D.C. Circuit held that FCC mandatory video-description rules regulated content and not communications and were therefore outside the agency's ancillary authority.[44]

I think of these first two requirements as a statement of the FCC's *general* jurisdiction, derived from the broadest provisions of Title I. Thus, the first section of the Communications Act states that the FCC was created "[f]or the purpose of regulating interstate and foreign commerce in communication by wire and radio."[45] And section 2 says that "[t]he provisions of this chapter shall apply to all interstate and foreign communication by wire or radio."[46] In other words, the FCC's ancillary jurisdiction *only* arises over those entities that transmit communications by wire or radio.[47] The third and fourth principles governing ancillary jurisdiction define the limits of the FCC's authority to regulate communications entities generally.

Third, the FCC's authority over entities engaged in

41. 47 U.S.C. § 153(33) (2008).

42. *Am. Library Ass'n*, 406 F.3d at 691–92.

43. The FCC does not, as a practical matter, need the authority to mandate the manufacture of televisions that can decode broadcast signals. It has the authority to set transmission standards, and manufacturers who want to sell televisions that can receive such signals will need to manufacture sets that receive the signals. Nevertheless, the FCC has frequently exercised authority to set receiver requirements.

44. MPAA v. FCC, 309 F.3d 796, 804 (D.C. Cir. 2002) ("Both the terms of § 1 and the case law amplifying it focus on the FCC's power to promote the accessibility and universality of transmission, not to regulate program content. . . . To regulate in the area of programming, the FCC must find its authority in provisions other than § 1.").

45. 47 U.S.C. § 151 (2008). The provision, however, cuts back on the breadth of this statement by saying that "there is created a commission to be known as the 'Federal Communications Commission,' which shall be constituted as hereinafter provided, and which shall execute and enforce the provisions of this chapter." *Id.* Section 151 has never been read as its own grant of regulatory authority.

46. 47 U.S.C. § 152(a) (2008). Again, this section has not been read as an independent grant of regulatory authority.

47. Professor Thomas Krattenmaker and Richard Metzger argued that the FCC's ancillary jurisdiction should also include entities that "use" transmission facilities, at least as a fundamental part of their business. This argument was made to ensure that the FCC had the authority *directly* to regulate broadcast networks (and not merely to indirectly regulate them as conditions on the licensees themselves). *See* Krattenmaker & Metzger, *supra* note 22.

"communications by wire or radio" who are not common carriers, spectrum licensees, or cable television providers is limited to such regulations "necessary to ensure the achievement of the Commission's statutory responsibilities."[48] Those statutory responsibilities must be found in the substantive titles of the Act, and they must entail FCC authority to act with the force and effect of law. This encompasses two important limitations. First, Title I, standing alone, does not give the agency regulatory power: The Court made this clear in *FCC v. Midwest Video Corp.* (*Midwest Video II*): "[W]ithout reference to the provisions of the Act directly governing broadcasting, the Commission's jurisdiction under § 2(a) would be unbounded. Though afforded wide latitude in its supervision over communication by wire, the Commission was not delegated unrestrained authority."[49] Other cases have echoed the same view.[50] Second, as a more general corollary, the FCC's ancillary authority does not flow merely from *policies* announced in the Communications Act. Rather, the FCC's ancillary authority flows from policies that the FCC has been given legal authority to implement. And because Title I does not itself grant regulatory authority over all communications carriers, the FCC's ancillary authority over those carriers (i.e., those not common carriers or spectrum licensees) must flow from regulatory authority that *is* granted over common carriers, spectrum licensees, and cable television and must protect or further those specifically-enumerated regulatory powers.[51]

This second limiting principle is evident in each of the Supreme Court's ancillary jurisdiction cases and in the leading court of appeals cases. Thus, in *Southwestern Cable*, the Court noted that "[t]he Commission has . . . been granted authority to allocate broadcasting zones or areas, and to provide regulations 'as it may deem necessary' to prevent interference among the various stations."[52] The FCC's rules forbade cable television systems from importing distant signals, because the practice would practically eliminate the effect of its rules setting local

48. FCC v. Midwest Video Corp., 440 U.S. 689, 706 (1979).

49. *Id.* (citation omitted).

50. In the Sears Tower case, the Seventh Circuit said of *Southwestern Cable* that "[t]he Court appeared to be treading lightly even where the activity at issue easily falls within [Title I]." Ill. Citizens Comm. for Broad. v. FCC, 467 F.2d 1397, 1400 (7th Cir. 1972). The D.C. Circuit said of the Supreme Court's decisions: "In each of these decisions, the Court followed a very cautious approach in deciding whether the Commission had validly invoked its ancillary jurisdiction, even when the regulations under review clearly addressed 'communication by wire or radio.'" Am. Library. Ass'n v. FCC, 406 F.3d 689, 702 (D.C. Cir. 2005).

51. This is, perhaps, the key dividing line, for the FCC's theory is, essentially, that section 4(i) gives it regulatory authority so long as it can trace the exercise of that regulatory authority to a policy in the Act itself. *See Comcast Order*, *supra* note 8, ¶ 15 at 13,035 (stating that the Commission has regulatory authority because of the articulation of a "national Internet policy").

52. United States v. Sw. Cable Co., 392 U.S. 157, 174 (1968).

areas for broadcasters.[53] Similarly, in *United States v. Midwest Video Corp.* (*Midwest Video I*),[54] the most controversial of the Court's cases, the FCC required large cable systems that carried local broadcast channels to also provide locally originated cable programs.[55] The plurality said that "[t]he goals specified [of increasing local programming] are plainly within the Commission's mandate for the regulation of television broadcasting."[56] Of course, Chief Justice Burger's concurrence is even narrower, and he said that "[c]andor requires acknowledgment, for me at least, that the Commission's position strains the outer limits of even the open-ended and pervasive jurisdiction that has evolved by decisions of the Commission and the courts."[57] He found the regulation permissible because it only applied where the cable system took a broadcasting signal:

> Those who exploit the existing broadcast signals for private commercial surface transmission by CATV—to which they make no contribution—are not exactly strangers to the stream of broadcasting. The essence of the matter is that when they interrupt the signal and put it to their own use for profit, they take on burdens, one of which is regulation by the Commission.[58]

This theory is much narrower than the plurality's; it essentially says that the FCC could forbid the carriage of broadcast signals on cable (a seemingly uncontroversial proposition) and, as such, it can also impose conditions.

Fourth, because the exercise of ancillary authority must further the policies of the Act's substantive provisions, the FCC cannot use its ancillary authority to contradict specific provisions or general policies found in the Act. This was a central point of *Midwest Video II*.[59] There, the Court relevantly held that, because the Communications Act forbade the Commission to treat broadcasters as common carriers,[60] the Commission could not require cable television companies to offer part of their capacity on a common carriage basis.[61] This also confirms both aspects of the third principle, for if Title I gave the FCC the authority to regulate communications by wire, a specific prohibition on treating broadcasters as common carriers should not prohibit common carrier

53. *See id.* at 175–76.
54. 406 U.S. 649 (1972).
55. *Id.* at 653.
56. *Id.* at 668.
57. *Id.* at 676 (Burger, C. J., concurring).
58. *Id.*
59. FCC v. Midwest Video Corp., 440 U.S. 689 (1979).
60. 47 U.S.C. § 153(10) (2008) ("[A] person engaged in . . . broadcasting shall not . . . be deemed a common carrier.").
61. *FCC v. Midwest Video Corp.*, 440 U.S. at 707–09.

rules for cable operators. Similarly, *Midwest Video II* rejects the argument that the Commission has ancillary jurisdiction just because "rules promote statutory objectives."[62]

In short, the test for the FCC's ancillary jurisdiction is usually stated as having two parts: (1) that the FCC seeks to regulate communications by wire or radio, and (2) that the regulation furthers the FCC's recognized substantive powers over common carriers, spectrum licensees, or cable television.

B. The Comcast Order

Before the *Comcast* order itself, the FCC had previously asserted ancillary jurisdiction to regulate certain Internet services, but the issue had not been tested in court. For example, the FCC required the providers of VOIP "to contribute to the Universal Service Fund."[63] In part, the FCC asserted its ancillary jurisdiction to do so.[64] The D.C. Circuit, however, affirmed the rule based only on the FCC's authority to require universal service contributions from "[a]ny other provider of interstate telecommunications . . . if the public interest so requires."[65] Similarly, the FCC preempted state regulation of VOIP services and in part relied on its ancillary authority, because it did not (in that order) decide whether VOIP was a telecommunications service or an information service.[66] But in affirming the FCC's order the Eighth Circuit did not address the FCC's ancillary jurisdiction to regulate VOIP, a necessary predicate to its ability to preempt state regulation if VOIP is an information service.[67] Similarly, the FCC has routinely asserted its authority to regulate information services—should it need to do so.[68] Notably, however, in almost every instance, the FCC's assertion came in orders in which it did not actually regulate.

As a contrast to the FCC's unreviewed assertions of ancillary authority over Internet services, the Supreme Court has written that the Commission has at least some ancillary jurisdiction to regulate Internet services, although the question really was not presented to the Court. In *Brand X*, the Court upheld the FCC's decision to treat cable Internet

62. *Id.* at 702.

63. *See* Vonage Holdings Corp. v. FCC, 489 F.3d 1232, 1235 (D.C. Cir. 2007).

64. *Id.* at 1236.

65. *Id.* at 1241 (citing 47 U.S.C. § 254(d) (2002)) (noting that the court was not addressing the FCC's ancillary jurisdiction theory).

66. *See* Minn. Pub. Utilities. Comm'n v. FCC, 483 F.3d 570, 577–78 (8th Cir. 2007).

67. *See id.*

68. *See, e.g.*, Appropriate Framework for Broadband Access to the Internet over Wireline Facilities, *Policy Statement*, 20 FCC Rcd. 14,986, 14,986–88 (2005) (asserting that the FCC "has jurisdiction necessary to ensure that providers of telecommunications for Internet access or Internet Protocol-enabled (IP-enabled) services are operated in a neutral manner").

access service as an "information service" and not as a "telecommunications service."[69] Responding to the argument that all facilities-based providers of information services should be treated as common carriers, the Court said the FCC's previous policy of doing so (at least in large part) was not enshrined in the Communications Act itself. But the Court also added that "the Commission remains free to impose special regulatory duties on facilities-based ISPs under its Title I ancillary jurisdiction. In fact, it has invited comment on whether it can and should do so."[70]

With this background, we can turn to the *Comcast* decision. As an initial matter, the Commission is surely right that Comcast and other Internet companies provide "communications by wire" (or radio)[71] and are therefore within the agency's "general jurisdiction."[72] At this first level, the issue is closer to the FCC's regulation of cable than of skyscrapers or digital video recorders. As already noted, the FCC probably could regulate much Internet service as common carrier service.[73] In several earlier cases, the courts have affirmed the FCC's use of ancillary authority to preempt state regulation of services that the FCC had previously treated as a common carrier service, such as customer premises equipment and inside wiring.[74]

The *Comcast* decision therefore turns on the FCC's description of how its Internet regulation meets the third and fourth criteria described above, namely how the regulation furthers the FCC's regulatory powers. In brief, the FCC's decision faces the difficult choice of appropriate breadth—either too broad or too narrow. Largely, the FCC's decision is simply too broad: it claims the power to both regulate the price and quality of Internet services, and it does not otherwise provide a limit on the FCC's Internet regulation. And the decision does not offer a narrower theory of its jurisdiction that would allow it to control Internet

69. Nat'l Cable & Telecomms. Ass'n v. Brand X Internet Servs., 545 U.S. 967, 970–71 (2005).

70. *Id.* at 996. A second reference to ancillary jurisdiction in *Brand X* does not provide any clues to the possible scope of the FCC's regulatory authority, but is merely a summary: "Information-service providers, by contrast, are not subject to mandatory common-carrier regulation under Title II, though the Commission has jurisdiction to impose additional regulatory obligations under its Title I ancillary jurisdiction to regulate interstate and foreign communications, see §§ 151–161." *Id.* at 976.

71. 47 U.S.C. § 153 (2008) (defining these terms).

72. *See supra* notes 35–37 and accompanying text.

73. The consequences of that decision would be that Title II's economic regulation would apply—including tariff-filing, rate-setting, and other requirements. The FCC could forebear from such requirements, under authority granted by the Telecommunications Act of 1996. *See* 47 U.S.C. §§ 160–161 (2008). But, forbearance can occur only after the FCC determines the state of competition in a market, which the FCC may be reluctant to do. *See id.* § 160(b).

74. *See, e.g.*, Computer & Commc'ns Indus. Ass'n v. FCC, 693 F.2d 198 (D.C. Cir. 1982).

video service.

The FCC's broadest, most significant claim is that the Communications Act itself demonstrates Internet policies that allow the Commission to regulate.[75] The FCC does not (in this regard) assert that some section of the Act gives it the express power to regulate Internet carriers. Rather, the agency makes what might be called a second-order ancillary jurisdiction argument. Instead of tracing its ancillary authority to a provision of the Act that grants it the power to similarly regulate common carriers, broadcasters, or cable companies, the FCC claims that, in certain sections of the Communications Act, Congress has set out specific policies concerning the Internet and that its ancillary jurisdiction can be exercised in pursuit of those goals.

At one level, this is an appealing argument, for one could see the court-imposed restrictions on ancillary jurisdiction as motivated by nondelegation doctrine concerns.[76] If the FCC did have unfettered jurisdiction to regulate all communications companies, the problem would arise that the statute gives the FCC no direction on *how* to regulate—except of course in its specific provisions in Titles II, III, and VI, which is why the courts have tied ancillary jurisdiction to these substantive titles. As Justice Brennan's plurality opinion in *Midwest Video I* said: "The conclusion [that Congress intended the FCC to have authority over communications generally] did not end the analysis [in *Southwestern Cable*], for § 2(a) does not in and of itself prescribe any objectives for which the Commission's regulatory power over CATV might properly be exercised."[77] The *Midwest Video II* Court put it more strongly: "Though afforded wide latitude in its supervision over communication by wire, the Commission was not delegated unrestrained authority. The Court regarded the Commission's regulatory effort at issue in *Southwestern* as consistent with the Act because it had been found necessary to ensure the achievement of the Commission's statutory responsibilities."[78]

Even apart from these precedents, I think it difficult to read the very few instances in which the Act mentions the Internet into a general delegation by Congress to the FCC to regulate the Internet. At the threshold, these provisions do not, of course, instruct the FCC to regulate the Internet. More importantly, the policies are either so broad

75. *See Comcast Order*, *supra* note 8, ¶¶ 12–21 at 13,033–36.

76. The nondelegation doctrine, if one exists (see generally Eric A. Posner & Adrian Vermuele, *Interring the Nondelegation Doctrine*, 69 U. CHI. L. REV. 1721 (2002); Merrill, *supra* note 19), maintains that the Constitution limits Congress's ability to make broad, unconditional, and undirected delegations of legislative authority to the executive and administrative agencies.

77. United States v. Midwest Video Corp., 406 U.S. 649, 661 (1972).

78. FCC v. Midwest Video Corp., 440 U.S. 689, 706 (1979).

as to be directionless (rebutting the idea that Congress was instructing the FCC to regulate) or so particular that they could not support a broad authority for the FCC. As many commentators have noted, Congress in passing the 1996 Act did not address the Internet.[79]

The most conspicuous place in which the Internet appears in the Communications Act derives from the Communications Decency Act, that part of the 1996 Act that sought to regulate Internet indecency.[80] The content provisions were, of course, struck down in *Reno v. ACLU*,[81] but the CDA's immunity for online service providers remains intact and is codified in section 230 of the Communications Act.[82] In this section, the *Comcast* order found a "national Internet policy,"[83] which Title I's general rulemaking gave it authority to implement. Section 230(b) does, in fact, make several policy statements concerning the Internet:

> It is the policy of the United States—
>
> (1) to promote the continued development of the Internet and other interactive computer services and other interactive media;
>
> (2) to preserve the vibrant and competitive free market that presently exists for the Internet and other interactive computer services, unfettered by Federal or State regulation;
>
> (3) to encourage the development of technologies which maximize user control over what information is received by individuals, families, and schools who use the Internet and other interactive computer services;
>
> (4) to remove disincentives for the development and utilization of blocking and filtering technologies that empower parents to restrict their children's access to objectionable or inappropriate online material; and
>
> (5) to ensure vigorous enforcement of Federal criminal laws to deter and punish trafficking in obscenity, stalking, and harassment by means of computer.[84]

The FCC's reliance on these policy statements, however, has two

79. *E.g.*, John C. Roberts, *The Sources of Statutory Meaning: An Archaeological Case Study of the 1996 Telecommunications Act*, 53 SMU L. REV. 143, 149 (2000) ("Indeed, since the 1996 Act was developed by House and Senate committees in 1994 and 1995, it almost completely failed to anticipate the Internet and the impact that Internet-based telecommunications services would have on this complex web of technological and industrial development.").

80. *See generally* Robert Cannon, *The Legislative History of Senator Exon's Communications Decency Act: Regulating Barbarians on the Information Superhighway*, 49 FED. COMM. L.J. 51 (1996).

81. 521 U.S. 844 (1997).

82. 47 U.S.C. § 230 (2006).

83. *Comcast Order*, *supra* note 8, at 13,034 (¶ 13).

84. 47 U.S.C. § 230(b).

difficulties. First, nothing in section 230 grants the FCC any regulatory authority to do anything: that section merely grants immunities to online service providers if they block and screen (or if they do not block and screen) user-generated content.[85] As I have already noted, the FCC's ancillary authority must be ancillary to regulatory authority that the Act otherwise gives to it: it cannot merely be ancillary to a general policy expressed somewhere in the Act.[86]

Second, section 230(b) itself states the purpose "to preserve the vibrant and competitive free market that presently exists for the Internet and other interactive computer services, unfettered by Federal or State regulation."[87] It is hard to believe that Congress intended this section, which explicitly states that the Internet should be "unfettered by Federal . . . regulation," to give the FCC the authority to regulate the Internet.[88]

In fact, one of the fundamental problems with the FCC's theory, both in its use of section 230 and more generally, is that the policies stated are so broad and encompassing that the FCC would have the authority to adopt nearly any conceivable Internet regulation. Section 230(b)'s breadth is evident. But the Commission also relies on section 1 of the Act itself,[89] which the decision says "directs the Commission 'to make available, so far as possible, to all the people of the United States . . . a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges.'"[90] Setting aside the rhetorical sleight of hand—the section does not "direct" the Commission to do these things, but rather says that the Commission

85. *Id.* § 230(c).

86. The FCC did not rely on section 201(b), as interpreted by the Supreme Court in *AT&T Corp. v. Iowa Utilities Board*, 525 U.S. 366 (1999), for regulatory authority to implement § 230(b). The issue in that case was the FCC's power to make rules to implement the local competition provisions of the Telecommunications Act of 1996. *Id.* at 370. The Court held that section 201(b), which says that "[t]he Commission may prescribe such rules and regulations as may be necessary in the public interest to carry out the provisions of this chapter," included the authority to make rules for intrastate telecommunications (which previously had been outside the Commission's jurisdiction). *Id.* at 377–86. The Court reasoned that, by placing the 1996 Act within the Communications Act, Congress triggered section 201(b)'s regulatory authority. *Id.* Professors Merrill and Watts have already shown that this reading is based on what is probably an improper codification of a 1938 amendment to the Act. *See* Merrill & Watts, *supra* note 30, at 482–83. But one need not find *Iowa Utilities Board* to be incorrect to recognize that its reasoning would not apply here. The 1996 Act indisputably brought local telecommunications within federal regulation (that is, brought the subject within the Communications Act). But, as discussed in the text, nothing in the Act indicates a desire for FCC regulation of the Internet.

87. 47 U.S.C. § 230(b)(2).

88. *Id.*

89. 47 U.S.C. § 151 (2006).

90. *Comcast Order*, *supra* note 8, ¶ 16 at 13,036 (quoting 47 U.S.C. § 151 (2006)).

is established for these "purposes"[91]—the interpretation simply wipes away any limits on the FCC's ancillary powers, for nearly anything could be said to make communications "efficient" in the language of section 1 or "to promote the continued development of the Internet" in the language of section 230.

This catch-22 is revealed by other aspects of the order. For example, citing section 1, the Commission said that "we find that exercising jurisdiction over the complaint would promote the goal of achieving 'reasonable charges,'" reasoning that "free" Internet video (which the order makes more available) "should result in downward pressure on cable television prices."[92] Similarly, relying on section 706,[93] the FCC said that it had authority to "prohibit[] network operators from blocking or degrading consumer access to desirable content and applications" because such actions would "increase[] consumer demand for high-speed Internet access and, therefore, increase[] deployment to meet that demand."[94] Taken together, the FCC has said that it has authority both to control the economics and quality of Internet service (because any aspect could affect its price or consumer demand). This is nothing short of unfettered authority to regulate any aspect of the Internet—even to re-create the rate-setting and other economic regulation characteristic of common carrier regulation.

The FCC's alternative bases for regulatory authority seem at the outset more promising, because they rely on more specific sections of the Act, but ultimately they suffer the same difficulty. In order to link them up to the particular action the FCC took (of regulating the Internet carrier's delivery of a video service), the FCC has to offer a theory that gives it essentially unlimited authority over the Internet. Noting the possibility that some DSL providers could offer that service on a Title II basis, the FCC said that Comcast's disabling some peer-to-peer sessions could shift some traffic to DSL service "increasing the costs of its Title

91. 47 U.S.C. § 151.

92. *Comcast Order*, *supra* note 8, ¶ 16 at 13,036.

93. *See* Telecommunications Act of 1996, Pub. L. No. 104-104, § 706, 110 Stat. 56, 153 (1996) (codified as amended at 47 U.S.C. § 157). The section generally states that "[t]he Commission and each State commission with regulatory jurisdiction over telecommunications services shall encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans." The FCC did not contend that section 706 itself gave it regulatory authority. *See Comcast Order*, *supra* note 8, at 13,038 ¶ 18 & n.81. Because that section specifically requires a study and then specifies a particular course of action—Commission action to "remov[e] barriers to infrastructure investment" if the study reveals that advanced telecommunications capability is not being adequately deployed—the section could not support a broader authority. Telecommunications Act of 1996 § 706. *Cf.* Motion Picture Ass'n of Am. v. FCC, 309 F.3d 796, 802 (D.C. Cir. 2002) (holding that specific Congressional instructions on video description regulation precluded inference that FCC had broader, discretionary authority).

94. *Comcast Order*, *supra* note 8, ¶ 18 at 13,039.

II-regulated competitors with whom it interconnects."[95] The Commission said this implicated its Title II authority to ensure that "[a]ll charges" are "just and reasonable."[96] The problem again is that nearly everything affects the interconnected Internet: increasing the amount of traffic on non-Title II carriers could increase the traffic on Title II carriers (increasing the amount they pay for transit, as the FCC suggests) or it could decrease the amount of traffic by taking away customers (reducing their revenues and hurting capital recovery). Last, in relying on the Act's statements that the Commission should encourage market entry for entrepreneurs[97] and the general purposes of the cable Title,[98] the FCC has not identified a particular regulatory power from which its ancillary jurisdiction flows.[99]

When all of these pieces are considered together, the *Comcast* order rests on a number of theories of FCC regulation that give the agency the authority to regulate the Internet in virtually any way. The FCC claims authority to determine the price and quality of Internet services, including the quality of content services. The FCC also claims the authority to regulate traffic flows handled by those who are not common carriers, because such traffic flows could affect Internet traffic being carried on a common carrier basis by other carriers. At its broadest, the FCC claims the authority to take steps to "promote" Internet service and to make it "efficient."

Recent Supreme Court administrative law cases suggest a reluctance to find such a broad delegation of authority to an administrative agency without more explicit statutory instruction. The clear administrative law trend is to treat the question of agency authority—whether Congress has in fact delegated to an administrative agency the power to act with the force and effect of law—as a question for the courts to decide without giving deference to the agency's own views. In *United States v. Mead Corp.*, for example, the Court said *Chevron* deference applies to agency interpretations only after the court has satisfied itself that "Congress delegated authority to the agency generally to make rules carrying the force of law."[100] And two cases confirm the Supreme Court's reluctance to find expansive agency authority in the absence of a clear statement by

95. *Id.* ¶ 17 at 13,038.

96. 47 U.S.C. § 201(b) (2006).

97. 47 U.S.C. § 257 (2006); *Comcast Order*, *supra* note 8, ¶ 20 at 13,041.

98. 47 U.S.C. § 521 (2006); *Comcast Order*, *supra* note 8, ¶ 21 at 13,042.

99. Section 257 says, specifically, that the Commission's actions must be "pursuant to its authority under this chapter (other than this section)." 47 U.S.C. § 257. As a result, the FCC would have to trace this policy through a Title II authority in order to satisfy the requirements of ancillary jurisdiction. Similarly, the cable section is entirely a "purposes" section. 47 U.S.C. § 521.

100. United States v. Mead Corp., 533 U.S. 218, 226–27 (2001).

Congress. In *Gonzales v. Oregon*, the Court held that "Congress did not delegate to the Attorney General authority to carry out or effect all provisions of the [Controlled Substances Act]."[101] In so doing, the Court remarked that "the Attorney General claims extraordinary authority" including "unrestrained" power to criminalize physician conduct.[102] And the Court thought it "would be anomalous for Congress to have so painstakingly described the Attorney General's limited authority" over individual physician registration and then to have also granted broad authority in ambiguous terms.[103] The Court made a similar point in *FDA v. Brown & Williamson Tobacco Corp.*,[104] when it held that the FDA did not have authority to regulate tobacco and cigarettes even though the statute gave it lawmaking authority over all "drugs"—defined as "articles (other than food) intended to affect the structure or any function of the body"[105]—and all "devices"—defined in similarly broad terms.[106] The Court identified a number of statutes that seemed to assume that the FDA did not have authority to regulate tobacco. But more fundamentally, the Court noted that "[c]ontrary to its representations to Congress since 1914, the FDA has now asserted jurisdiction to regulate an industry constituting a significant portion of the American economy."[107] The Court simply found it impossible to believe, without clear evidence, that Congress intended the agency to have such significant power.

Without a doubt, the FCC's *Comcast* decision is the sort of jurisdiction-expanding decision to which the courts should not defer.[108] In fact, this episode shares much in common with both *Gonzalez* and *Brown & Williamson*. In *Gonzales*, the Court thought it significant that the statute specifically mentioned actions that the Attorney General was empowered to take, and inferred from this statutory evidence that the Attorney General did not have broader authority. The few mentions of the Internet in the Communications Act support similar inference. As noted, section 230, which articulates a vague Internet policy, grants the

101. Gonzales v. Oregon, 546 U.S. 243, 259 (2006).

102. *Id.* at 262.

103. *Id.*

104. FDA v. Brown & Williamson Tobacco Corp., 529 U.S. 120 (2000).

105. *Id.* at 126.

106. *Id.* (defining device to include "an instrument, apparatus, implement, machine, contrivance, . . . part, or accessory, which is . . . intended to affect the structure or any function of the body").

107. *Id.* at 129.

108. Tom Merrill suggests that an agency's opinion on its own jurisdiction should receive *Skidmore* deference. *See* Merrill, *supra* note 19, at 2174–75. But *Skidmore* deference depends on the agency's opinion being consistent, long-standing, and logically reasoned. *See* Skidmore v. Swift & Co., 323 U.S. 134, 139–40 (1944). The FCC's opinion does not meet these standards for deference.

FCC no authority and shows no awareness that the FCC would implement that policy in any manner.[109] Section 706, on advanced telecommunications capability, enumerates a very limited number of steps the FCC could take—all deregulatory actions directed to telecommunications and not to information services.[110] The universal service section does give the FCC the authority to raise funds from services that begin to substitute for traditional telecom services, but this is a very limited grant of authority (and one which would not be necessary if the FCC otherwise had plenary authority over the Internet).[111] In *Brown & Williamson*, the Court found it significant that several bills that would have given the FDA express authority over tobacco had failed to pass Congress. Here, net neutrality legislation has been repeatedly proposed, but has yet to pass.

II. A NARROWER, DOCTRINALLY-SOUND FCC INTERNET JURISDICTION

One could conclude that the FCC simply has no authority to regulate Internet carriers, at all. But that would ignore the Supreme Court's statements in *Brand X*, and only the Supreme Court is free to call its own statements *dicta*. And arguments that the FCC has no authority over anything that Internet carriers do runs head-long against the ancillary jurisdiction cases which say that the FCC does have some regulatory authority over entities engaged in communications by wire or radio, even if those entities are not otherwise mentioned in the Act.

What is needed, then, is a doctrinally sound, more narrowly-tailored view of the FCC's ancillary jurisdiction over Internet carriers. Internet carriers are those entities providing "communications by wire or radio" that the FCC has classified as providing information services. A cable company, broadband over power line, or any wireless company providing Internet access service would qualify, but content and applications providers would not. The FCC's ancillary authority should be recognized in circumstances where the Internet carrier is providing or carrying a service regulated by the Communications Act. I mean this in the technical sense of a common carrier, broadcast, or cable service, and not in the broader sense of a service similar in functionality to common carrier, broadcast, or cable service.[112] It would not be sufficient that the Internet regulation involve voice, or video, or another service (such as

109. *See supra* notes 80–83 and accompanying text.

110. *See supra* notes 93–94 and accompanying text.

111. *See supra* notes 63–64 and accompanying text.

112. As noted, it is this broader sense that Professor Weiser proposes. *See* Weiser, *Regulatory Strategy, supra* note 17; Weiser, *Internet Regulation, supra* note 20, and accompanying text.

text chat) that was identical to or a substitute for common carrier, broadcast, or cable service.

A few operational examples should make clear the scope of this rule. For a first example, the FCC would have jurisdiction over Internet carriers' treatment of what it calls "interconnected VOIP"—voice over Internet protocol services that interconnect with the traditional common carrier service (the public switched telephone network).[113] I would restrict this to interconnected VOIP services where the subscriber takes a traditional telephone number—that is, where there is clearly Title II traffic being delivered to the Internet carrier for completion of a telephone call—and not just to those VOIP services that allow out-calling. But the FCC would not have any authority (under ancillary jurisdiction) to regulate non-interconnected VOIP—services such as voice GChat, AIM chat, or packet8 that are solely on-the-Internet voice connections.[114]

For a second example, the FCC would have jurisdiction over Internet carriers' real-time transmission of broadcast programming and their offering of cable television service. To the extent that broadcast streams are being placed onto Internet carriers' facilities, the analogy to Supreme Court cases upholding jurisdiction over cable television would be clear. But this would not give the FCC jurisdiction over the Internet carriers' treatment of other video services, such as YouTube or even sites that host previously-aired broadcast content. In the cable television cases, cable television systems took advantage of their copyright exemption to carry broadcast programs without permission,[115] upsetting the FCC's ability to set territories for and ensure the health of broadcasters.[116] By contrast, previously-broadcast content available on the Internet (at sites such as Hulu.com)—at least the *legal* content—is provided through contractual agreement with the content-providers; broadcasters can and do protect their interests through negotiation with the content providers. Additionally, to the extent that a broadband provider offers a "cable service," as Verizon's FIOS and AT&T's U-verse products do, the FCC would have authority to regulate, although ancillary jurisdiction would probably not be necessary as these services meet the statutory definition

113. *See* 47 C.F.R. § 9.3 (2006) (defining Interconnected VOIP).

114. This is the decision the FCC made explicit in the *Free World Dialup* order: Petition for Declaratory Ruling that pulver.com's Free World Dialup is Neither Telecomms. Nor a Telecomms. Serv., *Memorandum Opinion & Order*, 19 FCC Rcd. 3307 (2004).

115. *See* Teleprompter Corp. v. CBS, Inc., 415 U.S. 394 (1974) (cable television systems do not infringe copyright by carrying broadcast programs).

116. *See* United States v. Sw. Cable Co., 392 U.S. 157, 175 (1968) ("The Commission has reasonably found that . . . [cable] importation of distant signals into the service areas of local stations may also 'destroy or seriously degrade the service offered by a television broadcaster,' . . . and thus ultimately deprive the public of the various benefits of a system of local broadcasting stations.").

of cable services.[117]

This, more limited ambit for the FCC's ancillary jurisdiction actually fits with most of the FCC's current policy and with the precedents. Consider VOIP: on policy grounds, the FCC has made the distinction between interconnected VOIP and non-interconnected VOIP. Under CALEA, the FCC has held that interconnected-VOIP providers must engineer their services to allow law-enforcement wiretapping. In fact, the FCC interpreted the term "telecommunications" to include VOIP for purposes of CALEA, even though it has held that, under the Communications Act more generally, VOIP is not telecommunications.[118] The FCC has also held that interconnected VOIP services must make universal-service fund contributions, while non-interconnected VOIP need not.[119]

Similarly, each of the ancillary jurisdiction cases arises from circumstances in which the regulation applied to the carriage of a common carrier, broadcast, or cable service by a communications provider. *Southwestern Cable* and *Midwest Video I* & *II* concerned regulations of, or conditions on, cable television providers' retransmission of broadcast streams. At this time, cable companies did little more than carry broadcast transmissions, and several of the opinions speak as if the cable regulations are tied to the use of real-time broadcast content. For example, the court in *Southwestern Cable* commented:

> CATV systems receive the signals of television broadcasting stations, amplify them, transmit them by cable or microwave, and ultimately distribute them by wire to the receivers of their subscribers. CATV systems characteristically do not produce their own programming, and do not recompense producers or broadcasters for use of the programming which they receive and redistribute.[120]

Chief Justice Burger's concurring—and controlling—opinion in *Midwest Video I* makes the same point: "CATV is dependent totally on broadcast signals and is a significant link in the system as a whole and therefore must be seen as within the jurisdiction of the Act."[121]

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117. *See* 47 U.S.C. § 522(6) (2006) (defining cable service).

118. *See* Am. Council on Educ. v. FCC, 451 F.3d 226 (D.C. Cir. 2006) (affirming the FCC's decision).

119. *See* Vonage Holdings Corp. v. FCC, 489 F.3d 1232 (D.C. Cir. 2007).

120. *Sw. Cable Co.*, 392 U.S. at 161–62.

121. United States v. Midwest Video Corp., 406 U.S. 649, 675 (1972) (Burger, C.J., concurring); *see also id.* at 676 ("Those who exploit the existing broadcast signals for private commercial surface transmission by CATV—to which they make no contribution—are not exactly strangers to the stream of broadcasting. The essence of the matter is that when they interrupt the signal and put it to their own use for profit, they take on burdens, one of which is regulation by the Commission.").

Similarly, if one looks at the specific facts and context of the ancillary jurisdiction cases, one sees that FCC authority has been upheld only where the FCC is asserting regulatory authority over something that is adjunct to a service that the FCC has express statutory authority to regulate.[122] This sort of common-law exercise—of looking at the actual scope of the FCC's authority in context—is particularly important given the varying (and occasionally ambiguous) manner in which the test for ancillary jurisdiction has been framed. Thus, for example, several courts of appeals have affirmed the FCC's ancillary jurisdiction to regulate broadcast networks, but the Commission's rules really were directed at the regulated broadcast licensee's offering of broadcast programming.[123] Another allowed ancillary jurisdiction over a telephone company's provision of cable television service, which of course also involved retransmission of broadcast signals.[124] The D.C. Circuit upheld the FCC's preemption of state regulation of customer premises equipment (CPE), which the FCC had just deregulated. CPE had previously been a Title II service, was physically connected to the Title II telephone network, and FCC preemption was designed to prevent "any misallocation of costs between an entity's competitive and monopoly services [which] would allow the carrier to justify higher rates for its monopoly services."[125] Later FCC preemption of inside wiring (also only used to convey Title II services and attached to the Title II network) was similarly upheld.[126] Ancillary authority to create a universal service fund was also affirmed, but was probably unnecessary, as funding universal service had long been an element of Title II ratemaking.[127] Finally, the FCC used (and the court approved) ancillary jurisdiction to order common carriers that provided enhanced services to do so through a

122. By the "ancillary jurisdiction" cases, I mean the cases in which this theory was expressly discussed. One can slice the cases somewhat differently by, for example, looking for cases that rely on the FCC's authority under section 4(i), 47 U.S.C. § 154(i), but do not describe the theory as one of "ancillary jurisdiction." *See, e.g.*, Lincoln Tel. Co. v. FCC 659 F.2d 1092, 1107–09 (D.C. Cir. 1981). There, the court cites to 4(i) as the FCC's source of authority to fill a gap left by section 205. But in this case (as in other section 4(i) cases), the FCC is pointing at another statutory section that gives it express authority to regulate. These cases, therefore, do not stand for an expansion of FCC authority to pursue "goals" or "policies."

123. *See* Mt. Mansfield Television, Inc. v. FCC, 442 F.2d 470, 479–82 (2d Cir. 1971) (prime time access and financial and syndication regulations); CBS, Inc. v. FCC, 629 F.2d 1, 25–27 (D.C. Cir. 1980) (applying equal time rules to networks). In fact, networks are arguably within the text of the Communications Act, for several sections speak of "chain broadcasting." *See Mt. Mansfield Television*, 442 F.2d. at 481; *CBS*, 629 F.2d at 27; *see also generally* Krattenmaker & Metzger, *supra* note 22.

124. General Tel. Co. v. U.S., 449 F.2d 846, 854 (5th Cir. 1971) (also concluding that § 214 gave the FCC express authority to regulate).

125. Computer & Commc'ns Indus. Ass'n v. FCC, 693 F.2d 198, 213 (D.C. Cir. 1982).

126. Nat'l Assoc. of Regulatory Util. Comm'rs v. FCC, 880 F.2d 422, 429–30 (D.C. Cir. 1989).

127. *See* Rural Tel. Coal. v. FCC, 838 F.2d 1307, 1315 (D.C. Cir. 1988).

separate subsidiary; in this case, the common carriers' own enhanced services were clearly adjunct to their Title II services.[128]

In fact, I believe that it also makes sense of the Supreme Court's statement in *Brand X*.[129] In the particular passage, the Supreme Court was responding to an argument that the FCC had earlier regulated the provision of enhanced services by facilities-based providers of such services. The FCC did do so, but that regulation was imposed on common carriers that both used their facilities to provide enhanced services and provided the raw transport necessary for others to do so.[130] In other words, the FCC's regulation of facilities-based enhanced service providers grew out of those companies' common carrier services, and the common carriers' own enhanced services were similarly "adjunct" to their common carrier services. The FCC wanted to ensure that common carriers did not subsidize their enhanced services with common carrier revenues or deny common carrier services to their competitors. In short, the FCC regulation controlled common carrier services, and the Supreme Court's statement about the FCC possibly regulating Internet access service should be read in the same limited manner.[131]

Under this view, the FCC's authority to enter orders such as the one in *Madison River Telephone Co*. would be confirmed. There, a consent decree ordered a local telephone company to cease interrupting the delivery of VOIP calls on its DSL service.[132] The FCC relied on both its Title II and its ancillary jurisdictions. But it is not clear that Title II jurisdiction would have been enough, because Madison River's actions were most likely on its non-common-carrier DSL service,[133] and Title II jurisdiction itself applies only to common carrier services. Title II does not apply to non-common carrier services, even if provided by entities

128. GTE Serv. Corp. v. FCC, 474 F.2d 724, 730–31 (2d Cir. 1973).

129. *See supra* note 69 and accompanying text.

130. *See generally* Cannon, *supra* note 14, at 177–78 ("Telephone companies had both the ability and the incentive to act in an anticompetitive manner. They sat in an unusual place in the market of being both supplier and competitor to the data processing services. The Commission expressed misgivings about whether permitting telephone companies to enter the data processing market was prudent, questioning whether telephone companies should be permitted into this market at all."); *see also id.* at 192 (discussing restrictions imposed in the *Computer II* proceedings).

131. To be sure, the statement is "dicta" because the question of the FCC's ancillary authority to regulate was not before the Court, but only the Supreme Court is allowed to call its statements dicta.

132. Madison River Commc'ns, LLC and Affiliated Co., *Order*, 20 FCC Rcd. 4296 (2005).

133. *See* Declan McCullagh, *Telco Agrees To Stop Blocking VoIP Calls*, CNET NEWS, March 3, 2005, http://news.cnet.com/Telco-agrees-to-stop-blocking-VoIP-calls/2100-7352_3-5598633.html (describing Madison River's actions as "port-blocking" on its Internet access service).

that are also common carriers.[134] But the FCC has adequate ancillary jurisdiction under this narrower theory, because the interrupted VOIP service was interconnected VOIP service—that is, it is an extension of the dominant common-carrier telephone service.

One objection to this theory is that it does not actually limit the FCC's jurisdiction over Internet services. Recall that in the *Comcast* order, the FCC said that it allowed Internet services to be provided on a Title II basis and, as a result, some Internet traffic handled by common carriers (as common carrier service) might interconnect with non-common carrier Internet service. Under this theory, then, one could argue that the FCC has jurisdiction over all Internet services because they interconnect with common carrier Internet services. For two reasons, I am not moved by this objection. First, it is not at all clear that any Internet access services are provided on a common carrier basis. The *Comcast* order does not provide any reference for the claim, other than to orders that say that carriers *could* offer Internet service in that manner. Given how hard the major DSL companies pushed to have their services re-classified as information services, it is hard to believe that they would choose common carrier status.

Second, such a broad theory of ancillary jurisdiction should collapse on itself, because it would deny the consequences of the FCC's initial classification decision. The FCC has consistently held that its regulatory powers under Title I are less extensive than the public utility regulation under Title II.[135] If the FCC's ancillary authority were as broad as it has claimed, then the distinction between its regulatory powers under the two Titles would evaporate, as would any consequence from the differing classification of the services. But we know that the Communications Act recognizes the existence of both telecommunications (common carrier) services and information services—and differentiates between the two. Information services are, at least, defined in Title I,[136] although no regulatory authority in the Act expressly attaches to the definition. Title II imposes traditional utility regulation on telecommunications services. And one definitional provision says that "[a] telecommunications carrier shall be treated as a common carrier . . . only to the extent that it is engaged in providing telecommunications services."[137] At a minimum, this provision indicates Congressional desire to limit the extent of regulatory authority over information services to something short of

134. *See, e.g.*, Sw. Bell Tel. Co. v. FCC, 19 F.3d 1475, 1481 (D.C. Cir. 1994) (if an "entity is a private carrier for that particular service, . . . the Commission is not at liberty to subject the entity to regulation as a common carrier," even if it also offers common carrier services).

135. *See supra* note 69.

136. 47 U.S.C. § 153(20) (2006).

137. *Id.* § 153(44).

common carrier regulation.

The FCC has similarly maintained that it has limited regulatory authority over information services. For example, in the *Computer II* decision the FCC recognized that pushing "enhanced services" outside of the common carrier definition also denied to the agency some regulatory authority, "while those who provide basic services would continue to be regulated, enhanced service vendors would not be subject to rate and service provisions of Title II of the Communications Act."[138] More recently, in the IP-enabled services notice, the Commission noted the difference between common carrier regulation and the alternative of ancillary-regulation:

> Various regulatory obligations and entitlements set forth in the Act—including a prohibition on unjust or unreasonable discrimination among similarly situated customers and the requirement that all charges, practices, classifications, and regulation applied to common carrier service be "just and reasonable"—attach *only* to entities meeting this [common carrier] definition.[139]

III. THE POLICY GROUNDS

I want now to examine whether either of these visions of regulatory authority over the Internet is sensible as a policy matter. Both a maximalist vision of Internet regulation and a minimalist vision are present in the debate. On the one hand, Professor Lawrence Lessig has called for a new innovation agency with broad powers over the Internet. On the other, a number of commentators have long suggested eliminating the FCC and, by extension, sector-specific regulators for the Internet. In my view, the FCC has an important role to play, a role that should be both confirmed and strictly delimited by new legislation.

So far, I have framed the question as one of Internet regulation as communications regulation; but that, of course, is only one part of the picture. Internet "regulation" could occur in a number of different ways—giving the FCC some general jurisdiction over the Internet is only one model. One could have case-specific legislation addressing particular Internet issues as they arise, following on the current treatment of wiretapping, privacy, and universal services issues, in which the statutes contained language broad enough to include non-legacy communications platforms such as the Internet. Alternatively, one could be content with

138. Amendment of Section 64.702 of the Commission's Rules & Regulations (Second Computer Inquiry), *Final Decision,* 77 FCC 2d 384, 430 (1980).

139. IP-Enabled Services, *Notice of Proposed Rulemaking,* 19 FCC Rcd. 4863, 4879 (2004) (emphasis added); *see also id.* at 4892 ("The Act distinguishes between 'telecommunications service[s]' and 'information service[s],' and applies particularly regulatory entitlements and obligations to the former class but not the latter.").

only general legislation applied to the Internet, such as the use of antitrust to address any competition problems that arise on the Internet.

In fact, the Federal Trade Commission responded to the FCC's classifying the Internet as an information service by asserting that it had "jurisdiction over most broadband Internet access services."[140] The Federal Trade Commission Act exempts from its ambit only "common carriers subject to the [Communications Act of 1934]."[141] The FTC therefore maintains that the Act, and its general prohibitions on unfair and deceptive practices and unfair competition, applies to any "broadband Internet access service offered as an information service rather than on a common carrier basis."[142] The FTC has brought a number of cases against Internet access providers for deceptive marketing and billing practices.[143] And the FTC has used its merger-review authority to consider conditions in a number of cases involving Internet access providers (in fact imposing them in one merger).[144]

FTC and general antitrust jurisdiction over broadband competition issues has both attractions and difficulties. The antitrust authorities are a separate center of power, and, to the extent that the FCC is not addressing competition problems, those authorities could provide additional oversight. Antitrust authorities addressed the problems of the integrated Bell System, and one of the premises of that litigation was that the FCC had been unable and unwilling to control AT&T.[145] The FTC and the Department of Justice's antitrust division are also agencies of more general jurisdiction; perhaps they will be less susceptible to capture by particular industry segments or less likely to regulate simply to continue their existence.[146] On the other hand, as I and others have

140. *Reconsidering Our Communications Laws: Ensuring Competition and Innovation: Hearing Before the S. Comm. on the Judiciary*, 109th Cong. 204 (2006) (prepared statement of the Federal Trade Commission) [hereinafter *FTC Statement*] (discussing FTC Jurisdiction over Broadband Internet Access Services).

141. 15 U.S.C. § 45(a)(2) (2006); *see also id.* § 44 (2006).

142. *FTC Statement*, *supra* note 140, at 205.

143. *See id.* at 205–8.

144. *See id.* at 206–8.

145. *See* United States v. Am. Tel. & Tel. Co., 524 F. Supp. 1336, 1359 (D.D.C. 1981) ("There is also the consideration that, as several witnesses (including the former chief of the FCC's Common Carrier Bureau) have testified, that agency may realistically be incapable of effectively regulating a company of AT&T's size, complexity, and power.").

146. *See* James B. Speta, *Modeling an Antitrust Regulator for Telecoms*, *in* ANTITRUST AND REGULATION IN THE EU AND US: LEGAL AND ECONOMIC PERSPECTIVES (François Lévêque & Howard Shelanski eds., 2009) (forthcoming) [hereinafter Speta, *Modeling an Antitrust Regulator*]; *see also* RAYMOND L. GIFFORD, REGARDING "RECONSIDERING OUR COMMUNICATIONS LAWS: ENSURING COMPETITION AND INNOVATION" 4 (2006), http://www.ftc.gov/os/comments/broadbandwrkshop/527031-00022.pdf (testimony of Raymond L. Gifford) ("[A]s an agency of general jurisdiction, the FTC is less prone to interest-group capture and the intense rentseeking that besets the FCC and Congress. The FTC's mandate extends across the economy. Accordingly, narrow interest groups—be they

previously written, antitrust doctrine may not be able to tackle all of the problems that we want communications regulation to cover—even if we limit the scope of problems to competition problems.[147] Courts have not been particularly sympathetic to essential facilities claims nor to attempts to impose limits on oligopolistic markets;[148] these are, in fact, two of the scenarios that may arise in the broadband Internet.

A sensible scope for the FCC's jurisdiction, to my mind, involves supplementing the Commission's current jurisdiction to ensure that it has sufficient authority to address serious broadband issues, while cabining it in a way that does not give it the kind of plenary jurisdiction that the Commission has claimed in the *Comcast* decision. Additionally, I believe that the FCC's jurisdiction ought to be limited in ways that acknowledge the changing communications landscape and that allow it to focus more directly on the core mission.

A. A Supplemented (But Still Narrow) Internet Jurisdiction

The FCC's ancillary jurisdiction over the Internet, as I have described it, does not address some of the more significant issues for the Internet in coming years. In 2002, I argued that the Internet was already seeing a number of interconnection disputes, including disputes over peering, open access, instant messaging, and reciprocal compensation.[149] Phil Weiser has more recently identified some continuing interconnection and service disputes, such as the Cogent/Sprint dispute over interconnection pricing, which led the parties to stop exchanging traffic.[150] Some such disputes are likely in the future, so long as the possibilities for strategic action remain available.[151]

In order to address disputes such as these, the FCC needs an authority directed to Internet interconnection issues. Acknowledging that the FCC has already claimed such authority in the *Comcast* order,[152] I believe that the Act contains two significant gaps. The first gap, of course, is the omission of authority over Internet carriers. The second gap is a theory of what the FCC should do with Internet carriers. Not only the *Comcast* order, but most proposals for FCC regulation of the Internet seem to suggest a very broad, general jurisdiction for the FCC in the Internet age.[153]

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self-professed 'consumer' groups or industry—will find it much more difficult to 'capture' the FTC's regulatory agenda.").

147. Speta, *Modeling an Antitrust Regulator*, *supra* note 146.

148. *Id.*

149. Speta, *A Common Carrier Approach*, *supra* note 11, at 229–42.

150. Weiser, *Internet Regulation*, *supra* note 20, at 2–3.

151. *Id.*; *see also* Speta, *A Common Carrier Approach*, *supra* note 11, at 226–30.

152. *See Comcast Order*, *supra* note 8, and accompanying text.

153. *See generally* Weiser, *Regulatory Strategy*, *supra* note 17 (calling for FCC regulation of

Professor Lawrence Lessig has also proposed a broad regulatory agency for the Internet, although he says that it should not be the FCC.[154] Lessig sees an irredeemable "culture of favoritism"[155] at the FCC, largely protecting established interests and helping to maintain, not destroy, monopoly power. He proposes a new "Innovation Environmental Protection Agency . . . with a simple founding mission: 'minimal intervention to maximize innovation.' The iEPA's core purpose would be to protect innovation from its two historical enemies—excessive government favors, and excessive private monopoly power."[156] These principles, it seems to me, are uncontroversial in general. Lessig does seem focused on Internet carriers and not on giving regulatory authority over applications and content providers or other parts of the Internet.[157] The question, of course, with this proposal is: how far does it go?

I do not think that the FCC needs to be demolished in order for good regulatory policy to prevail, although I will concede that much of its behavior, historically and especially recently, has ranged from impeding competition to the simply bizarre.[158] But I believe that a significant part of the problem, especially historically, has been the very wide mission and very broad discretion granted to the Commission. Under the "public interest" standard, for example, the courts permitted the Commission to articulate policies intended alternatively to reduce or to enhance competition among providers.[159] I worry that an agency with as broad a portfolio as "enhancing innovation" will similarly lack direction and fall victim to some of the same problems. As even the debates over network neutrality show, parties are able to muster arguments for innovation on both sides.[160] If one did want to move the center away from the FCC, a

all Internet services that substitute for traditional communications).

154. Lawrence Lessig, *Reboot the FCC*, NEWSWEEK, Dec. 23, 2008, http://www.newsweek.com/id/176809.

155. *Id.*

156. *Id.*

157. *See id.* (The two examples that he gives—of network neutrality and spectrum allocation—are classic carrier regulation issues.).

158. *See, e.g.*, WEISER, *supra* note 24.

159. For example, in *FCC v. RCA Communications, Inc.*, 346 U.S. 86, 93–94 (1953), the Supreme Court said both that "the comprehensive regulation of communications embodied in the Federal Communications Act of 1934 contradicts the notion that national policy unqualifiedly favors competition in communications" and that:

> [T]he fact that there is substantial regulation does not preclude the regulatory agency from drawing on competition for complementary or auxiliary support. Satisfactory accommodation of the peculiarities of individual industries to the demands of the public interest necessarily requires in each case a blend of private forces and public intervention.

160. To be sure, each side generally focuses on different loci of innovation. Network neutrality advocates argue that such rules promote innovation at the application and content

more realistic scenario would be to deny the FCC jurisdiction over Internet services and to rely on the FTC's general competition and unfair and deceptive practices authority. Both of these statutory provisions, while broad, have well-established substantive content. My own view, however, is that, appropriately delimited, the FCC is the most appropriate institution. The FCC has institutional expertise, experience, and a structure that can be reformed.

To turn, then, to the delimitation itself: I have already said that the FCC's current ancillary jurisdiction allows it to regulate Internet carriers when they are interconnected with and carry common carrier or broadcast (or cable television) services.[161] Congress should expand the FCC's jurisdiction to cover Internet carriers providing any two-way public service, meaning a service that the Internet provider offers generally to the public. This tracks the first part of the definition of common carrier service, and ensures that the agency does not expand regulation to wholesale data services generally. I would limit this jurisdiction to the retail level—to services as they are offered to the consumer public—again to keep the regulation off of the wholesale level. Although a few incidents have cropped up with peering and transit, such as the Cogent/Sprint dispute, these are relatively few and the indications are that sufficient competition and carriage alternatives exist at these levels of the Internet.

This authority would not extend to a purely private data-transport arrangement, such as might exist between a carrier and a large business or educational customer. The FCC essentially deregulated the large-customer common carrier market in the 1990s, by first allowing the development of custom tariffs[162] and then eventually using its detariffing authority to eliminate economic regulation of this submarket.[163] Today, no basis exists for extending FCC regulation to this large-customer data market. The market is reasonably competitive, with several nationwide networks capable of providing service and competing vigorously. Moreover, the consumer-protection concerns are absent. Although a company may make Internet access available to its employees through such arrangements, that Internet access is a company service and not comparable to an individual's home Internet service. Increasingly, companies are limiting employee Internet access, and the FCC would have no expertise to supervise those limits.

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levels; opponents argue that rules could reduce innovation among carriers.

161. *See supra* notes 62–74 and accompanying text.

162. Competitive Telecomms. Ass'n v. FCC, 998 F.2d 1058 (D.C. Cir. 1993).

163. Policy & Rules Concerning the Interstate, Interexchange Marketplace, Implementation of Section 254(g) of the Communications Act of 1934, as amended, *Second Report & Order*, 11 FCC Rcd. 20,730 (1996), *aff'd*, MCI WorldCom, Inc. v. FCC, 209 F.3d 760 (D.C. Cir. 2000).

Defining the FCC's authority as limited to "two-way" maintains a distinction between Internet services and those provided as the equivalent of contemporary mass media services. This may be a dying distinction, as even multi-channel video services may transition to pure IP services. Except to the extent that it considers market structure in making spectrum allocations (and it should move away from doing so), the FCC's authority over media should be drastically reduced. The FCC's time is not well used in regulating indecency in the media, even if such regulation continues to be constitutional. Without denying the importance of keeping inappropriate content away from minors, technological and market mechanisms combined with parent supervision probably do a good enough job. And, despite intermittent calls for new statutory action, the Supreme Court has struck down all attempts at Internet content regulation.[164] The FCC's indecency docket is simply too time-consuming and too political to justify its continuation. And, in my view, the FCC's structural media regulation makes less and less sense as traditional mass media occupies less and less of the news and information market.

B. Substantive Provisions

Establishing the agency's subject-matter jurisdiction is only the first step; equally important is providing adequate substantive direction to the agency. The *Comcast* order's ancillary jurisdiction theories largely founder on the lack of substantive direction in the Communications Act for Internet regulation.[165] A "public interest" mandate would inject too much uncertainty into the market, uncertainty not justified by any existing competition or consumer protection concerns. But I think that the agency's substantive powers can be appropriately described.

The FCC should have the authority to enjoin "unfair competition" by Internet carriers upon a showing that the Internet carrier has the power and the incentive to impede competition. The use of the antitrust-equivalent language from the FTC Act is intentional. FCC Internet regulation should be directed to instances in which evidence and sound theory demonstrate that a carrier's practice creates a competition problem. This would not simply re-create the authority of the FTC or the antitrust division, for the FCC would be permitted to act on the basis of a predictive record, at least in some regards.[166] And FCC authority

164. Reno v. ACLU, 521 U.S. 844 (1997).

165. *See supra* notes 83–89 and accompanying text.

166. *See* Time Warner Entm't Co. v. FCC, 240 F.3d 1126, 1133 (D.C. Cir. 2001) ("Substantial evidence does not require a complete factual record—we must give appropriate deference to predictive judgments that necessarily involve the expertise and experience of the agency.").

would allow it to effectively supervise the private-sector led processes that need to take the lead in developing standard practices for the Internet, the arena in which the FCC's institutional expertise of engineering and economics should prove most useful.[167]

In fact, a rough (but not, of course, universal) consensus is emerging that future Internet regulation should proceed largely on a case-by-case basis, and largely as a back stop to private standard-setting or other coordination mechanisms.[168] The FCC could, of course, participate in private efforts without being granted regulatory authority. But, without true regulatory authority, the FCC could address strategic behavior only through moral suasion and publicity. These techniques are not, of course, meaningless. But regulatory authority is necessary to address significant competition issues.

A last issue is the extent to which the FCC would be permitted to adopt rules under this new regulatory authority over Internet carriers. The Commission has, at times, been criticized for proliferating rules that increase costs and stifle innovation.[169] The 1996 Act responded to this criticism by requiring a biennial review of rules and the elimination of any rules no longer necessary to protect consumers.[170] The mechanism has resulted in some rules being eliminated, although one could not say that the mechanism has resulted in the major deregulation that some of its supporters hoped for at the time.

Most administrative agencies do have the power to adopt rules, and I would continue this for the FCC, although subject to appropriate substantive burdens. Most competition problems arise from companies that exercise market power. In these cases, case-by-case adjudication would be appropriate, because the first step in any analysis would be a showing that the company to whom the order is directed has market power.[171] Rulemakings that establish standards for all carriers would only be appropriate in circumstances in which the FCC could show, with acceptable theory and evidence, that the market structure was likely to allow companies to maintain and exercise market power in an anticompetitive manner. The process that regulators in the European Union went through—of defining a large number of communications markets, gathering data, and determining market power on a case-by-case basis[172]—would not be necessary, for the FCC could decide to

167. *See supra* notes 17–20 and accompanying text.

168. *See, e.g.*, Weiser, *Internet Regulation*, *supra* note 20.

169. *E.g.*, Alden Abbott & Gordon B Grady, *The Liberalization of the Telecommunications Sector: A Rent-Seeking Perspective*, 8 EUR. J.L. & ECON. 63 (1999).

170. 47 U.S.C. § 161 (2009).

171. *Cf.* Frank H. Easterbrook, *The Limits of Antitrust*, 6384 TEX. L. REV. 1, 6 (1984) (saying that the existence of market power should be the first screen in any antitrust analysis).

172. J. SCOTT MARCUS, EUROPE'S NEW REGULATORY FRAMEWORK FOR

initiate rulemakings when competition problems presented themselves. But the EU process provides a reasonably good model of an evidence-driven, competition-law based analysis of communications markets.

C. The Comcast Order Redux

The implementation of this framework can be highlighted by applying it to the *Comcast* order. This framework also reveals other problems in the *Comcast* order beyond its jurisdictional deficits, and suggests a better mode for the FCC's proceeding in the future.

Under this framework, the FCC would have jurisdiction to address the practices at issue in the *Comcast* order. Comcast provides its Internet service to the public at large, and it is a two-way service by nature. And Comcast's interruption of certain peer-to-peer sessions certainly affects the Internet access service. The FCC would therefore have jurisdiction, if Comcast's practice constituted unfair competition. In fact, the FCC, in large part, told an unfair competition story in its order. The FCC wrote that Comcast intended to interrupt the peer-to-peer sessions because video being exchanged on peer-to-peer protocols competed with Comcast's own video services, especially its video-on-demand service. But the FCC did not make the findings that one would expect an unfair competition or antitrust analysis to make. For one, the FCC did not address whether Comcast has market power in either the Internet access or video delivery markets.[173] Without such market power, interrupting the peer-to-peer sessions probably cannot be explained as an anticompetitive strategy, for Comcast would not gain by denying consumers a service to which consumers want access[174]—unless there were offsetting benefits in quality of service. Comcast did allege that such benefits existed, particularly the management of system bandwidth. Cable systems have shared bandwidth among a certain number of customers, and Comcast alleged that peer-to-peer traffic from a small number of customers created congestion for the majority. Comcast also wrote that it implemented the peer-to-peer management scheme only when the level of peer-to-peer traffic threatened to create congestion. Such consumer benefits would be taken into account in an unfair competition analysis, and balanced against any anticompetitive effect.

ELECTRONIC COMMUNICATIONS IN ACTION 8–10 (2004), ftp://ftp.zew.de/pub/zew-docs/div/IKT04/Paper_Marcus_Invited.pdf.

173. *See* James B. Speta, *A Sensible Next Step on Network Neutrality: The Market Power Question*, 8 REV. NETWORK ECON. 113 (2009).

174. I am, of course, setting aside here Comcast's nondisclosure of its practices.

CONCLUSION

The FCC's *Comcast* order does not seek to regulate skyscrapers, or content, or electronics devices; its order is directed at a provider of communications by wire. But the order is inconsistent with the Communications Act, which gives the agency, at most, only limited authority over those communications providers who are not common carrier, spectrum licensees, or cable television providers. In order to link its authority to a practice that does not touch on the core services of the Communications Act, the FCC was forced to articulate a theory that would give it virtually unrestricted authority over Internet services. Because nothing in the Act hints at such broad authority, these theories are untenable. Instead, the FCC has authority over Internet carriers only to the extent they transport services central to the Act, such as carrying interconnected VOIP calls or live broadcast programs.

This limited jurisdiction is not the best structure for governing the Internet going forward. Congress should confer on the agency express authority to address unfair competition practices, when Internet carriers commit such practices on two-way public services. This limited jurisdiction would take advantage of the FCC's institutional history and expertise, while cabining it to an evidence-based approach to Internet regulation.

BEYOND TRADEMARK USE

STACEY L. DOGAN*

INTRODUCTION

For several years now, the question of "trademark use" has taken center stage in the debate over trademark liability of online intermediaries. Scholars,[1] courts,[2] trademark holders, and advocacy organizations[3] have all entered the fray, wrangling over whether a trademark use doctrine does, or should, play a gate-keeping role in online trademark disputes. Doctrinally, the debate addresses whether the Lanham Act places any limit on the types of "use" of trademarks that can

* Professor, Boston University School of Law. My thanks to Graeme Dinwoodie, Eric Goldman, Mark Lemley, and Mark McKenna for helpful comments, and to Jessica Lin for research assistance.

1. *See*, *e.g.*, Margreth Barrett, *Internet Trademark Suits and the Demise of "Trademark Use,"* 39 U.C. DAVIS L. REV. 371 (2006); Graeme B. Dinwoodie & Mark D. Janis, *Confusion Over Use: Contextualism in Trademark Law*, 92 IOWA L. REV. 1597 (2007); Stacey L. Dogan & Mark A. Lemley, *Grounding Trademark Law Through Trademark Use*, 92 IOWA L. REV. 1669 (2007) [hereinafter Dogan & Lemley, *Grounding Trademark Law*]; Stacey L. Dogan & Mark A. Lemley, *Trademarks and Consumer Search Costs on the Internet*, 41 HOUS. L. REV. 777 (2004) [hereinafter Dogan & Lemley, *Trademark Search Costs*]; Greg Lastowka, *Google's Law*, 73 BROOK. L. REV. 1327 (2008); Mark P. McKenna, *Trademark Use and the Problem of Source*, 2009 U. ILL. L. REV. 773 [hereinafter McKenna, *Trademark Use*]; Uli Widmaier, *Use, Liability, and the Structure of Trademark Law*, 33 HOFSTRA L. REV. 603 (2004); *cf.* Eric Goldman, *Deregulating Relevancy in Internet Trademark Law*, 54 EMORY L.J. 507 (2005); Jennifer E. Rothman, *Initial Interest Confusion: Standing at the Crossroads of Trademark Law*, 27 CARDOZO L. REV. 105 (2005).

2. *See*, *e.g.*, Rescuecom Corp. v. Google, Inc., 562 F.3d 123 (2d Cir. 2009); Australian Gold, Inc. v. Hatfield, 436 F.3d 1228 (10th Cir. 2006); Playboy Enters., Inc. v. Netscape Commc'ns Corp., 354 F.3d 1020 (9th Cir. 2004); Gov't Employees Ins. Co. v. Google, Inc., 330 F. Supp. 2d 700 (E.D. Va. 2004).

3. *See* Brief for Public Citizen as Amicus Curiae Supporting Affirmance, *Rescuecom*, 562 F.3d 123 (No. 06-4881-CV), *available at* http://www.citizen.org/documents/rescuecomamicus.pdf; Brief of Amicus Curiae Electronic Frontier Foundation in Support of Affirmance, *Rescuecom*, 562 F.3d 123 (No. 06-4881-CV), *available at* http://w2.eff.org/legal/cases/rescuecom_v_google/EFF_amicus.pdf.

subject one to a claim of infringement. The real conflict, however, has occurred at the normative level: whatever the Lanham Act says or does not say about trademark use, *should* trademark law limit the definition of infringement to situations in which the defendant has used the mark to brand its own products?

In the courts, the debate has played itself out primarily in a series of cases involving search engines. Most search engines sell keyword-based advertisements, in which advertisers place ads in response to particular keywords in search queries.[4] Sometimes, these keywords are protected trademarks. A string of trademark holders, chafing at the use of their marks to call attention to some third party's product, have filed infringement suits. Some of the suits target the advertiser, claiming that the keyword-based ads sow confusion over the source of the advertiser's products or services.[5] Others, however, argue that the search engine itself infringes by making these advertisements possible. These lawsuits raise the question of whether a party can commit direct trademark infringement by helping a third party market its product in potentially confusing ways, rather than using the mark as a brand for its own products or services.

The Second Circuit appears to have settled the issue, at least temporarily, in its recent opinion in *Rescuecom Corp. v. Google, Inc.*[6] The *Rescuecom* court held that the Lanham Act contains virtually no limitation on the type of "use" of a mark that can qualify as direct trademark infringement.[7] The case involved keyword advertising, but the court did not limit itself to the online context. Instead, in a highly textual interpretation, the court concluded that the "use" requirement for infringement depends only on whether a defendant directly employs a mark. The employment need not be visible to consumers, nor need it involve consumers in any direct way.[8] Indeed, the "use" can be directed at a party that does not itself experience any confusion about the source or sponsorship of anyone's products or services. In the Second Circuit, at least, the trademark use requirement for infringement is all but dead.[9]

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4. *See* Dogan & Lemley, *Trademark Search Costs*, *supra* note 1, at 802.

5. *See*, *e.g.*, Hearts on Fire Co. v. Blue Nile, Inc., 603 F. Supp. 2d 274 (D. Mass. 2009); Boston Duck Tours, LP v. Super Duck Tours, LLC, 527 F. Supp. 2d 205 (D. Mass. 2007).

6. 562 F.3d 123.

7. *Id.* at 132.

8. *See id.* at 129 (because Google is "recommending and selling" trademarks as keywords *to advertisers*, and because it "displays, offers, and sells Rescuecom's mark to Google's *advertising customers* when selling its advertising services. . . . Google's utilization of Rescuecom's mark fits literally within the terms specified by 15 U.S.C. § 1127.") (emphasis added). The advertising customers, of course, suffer no confusion about the source or sponsorship of their own products and services.

9. The *Rescuecom* panel made some wan attempts to distinguish, rather than overrule, another panel opinion in *1-800-Contacts* that had found a trademark use requirement in the

Although cloaked in terms of statutory interpretation, the *Rescuecom* opinion was clearly driven by normative concerns. In particular, the *Rescuecom* panel thought that adopting a trademark use requirement would immunize search engines from liability, even if they deliberately sowed confusion among consumers.[10] Judge Leval, who authored the opinion, has good company in this belief. Virtually all of the scholars who oppose a trademark use doctrine have voiced the same fear—that a trademark use requirement would give search engines (or, let's be honest, Google) *carte blanche* to adopt advertising practices that purposefully deceive consumers.[11]

This assumption, however, is mistaken. As Mark Lemley and I have explained, a trademark use requirement would not provide complete immunity from trademark liability for search engines or anyone else.[12] A use requirement would treat search engines differently than run-of-the-mill infringers based on their status as intermediaries, rather than sellers who brand their products under a protected mark. Confusing branding uses, under a trademark use approach, would constitute direct infringement. Intermediaries like Google could face liability for

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Lanham Act. *Id.* at 128–30. But the court made no bones about its rejection of the trademark use doctrine as a threshold requirement in infringement suits. *See id.* at 129 (concluding that Google's "use" of trademarks in the course of selling its own advertising could constitute "use" of those marks "in commerce" for purposes of the Lanham Act).

10. *See id.* at 130 ("If we were to adopt Google and its amici's argument, the operators of search engines would be free to use trademarks in ways designed to deceive and cause consumer confusion.").

11. *See*, *e.g.*, Lastowka, *supra* note 1, at 1330 ("Google's bid for the carte blanche freedom permitted by the trademark use doctrine should be rejected by courts."); *id.* at 1396 (suggesting that trademark use requirement would involve "[r]ejecting all claims based on a search engine's sale of placement under terms"); *id.* at 1396–97 ("[I]f Google were accorded *absolutely free reign* to index the results it offers in response to user queries, it is not hard to imagine ways that it could abuse its power to the detriment of both trademark owners and the public.") (emphasis added); Dinwoodie & Janis, *supra* note 1, at 1600 (contending that if courts adopted a trademark use requirement, "[a] defendant engaged in non-trademark use would ipso facto be immune from liability"); James Grimmelmann, *The Structure of Search Engine Law*, 93 IOWA L. REV. 1, 62 ("[A] rule that [deliberately deceptive] tactics are categorically immune from trademark scrutiny because search engine spamming is not trademark use seems perverse."). Mark McKenna, while unpersuaded that current trademark law embodies a trademark use requirement, nonetheless shares my belief that the courts should distinguish between direct and indirect liability, though he would use a different doctrinal vehicle to achieve that distinction. *See* Mark P. McKenna, *The Normative Foundations of Trademark Law*, 82 NOTRE DAME L. REV. 1839, 1892–93 (2007) ("[W]hatever laudable effect it might have, the trademark use requirement need not be a feature of a system intended to promote information transmission. Non-source designating uses also have the potential to interfere with information clarity."); McKenna, *Trademark Use*, *supra* note 1, at 819–21 (contending that direct infringement claims against a search engine require confusion over the source of the search engine's services—something unlikely in the keyword context).

12. *See*, *e.g.*, Dogan & Lemley, *Grounding Trademark Law*, *supra* note 1, at 1686–88, 1701 (noting availability of contributory infringement claims against search engines); Dogan & Lemley, *Trademark Search Costs*, *supra* note 1, at 812.

facilitating such infringement, but as contributory rather than direct infringers.

The distinction between direct and contributory infringement is neither semantic nor immunity in disguise. Unlike direct infringement, contributory infringement analysis requires consideration of the full context of an intermediary's "use" of a protected mark—including the likelihood that the intermediary's behavior will enable another to infringe, the intermediary's knowledge of such infringement, its efforts to reduce them, and the extent to which the intermediary's practices also enable non-infringing, information-facilitating behavior.[13] These factors—which are critical in assessing whether behavior promotes or impedes trademark law's goals—bear little relationship to the "likelihood of confusion" standard of existing trademark law. It simply makes no sense to apply direct infringement standards to intermediaries such as search engines. A trademark use requirement would allow the development of a distinct set of legal standards for search engines and other parties whose fault—if any—lies in helping others to infringe. In its absence, one of two things will happen: courts will either find intermediaries strictly liable for any infringement by their users, or they will muddy the waters of infringement analysis by importing factors that have little to do with its traditional focus. Either of these outcomes will pollute the integrity of trademark doctrine and disserve the ultimate goals of trademark law.

This essay makes two points. First, it reiterates why a trademark use doctrine offers the best hope for a rational and coherent framework for evaluating the trademark liability of intermediaries. Despite its sometimes caricature-like characterization, the trademark use requirement would cause virtually none of the bad things that its detractors claim. Indeed—and perhaps ironically—it would promote the very goal that it has been charged with obstructing: to import context into trademark liability analysis.[14]

Having fought the good fight for several years, however, I have to concede that the courts are not exactly flocking to the trademark use shores. Indeed, *Rescuecom* is only the latest in a series of decisions that

13. *See*, *e.g.*, Tiffany (NJ) Inc. v. eBay, Inc., 576 F. Supp. 2d 463, 501–18 (S.D.N.Y. 2008) (analyzing eBay's liability under contributory infringement standards for trademark infringement by users of its auction service).

14. Dinwoodie and Janis, the most prominent detractors of trademark use, celebrate the centrality of context in trademark analysis. *See* Dinwoodie & Janis, *supra* note 1, at 1605–06 ("[O]ur functional analysis of trademark law elevates contextual analysis over an unwise commitment to the purported determinacy of abstract concepts such as trademark use."); *id.* at 1621 (celebrating "contextual balancing approach" of infringement suits); *id.* at 1628 (contending that "[t]rademark use theory, by immunizing uses without regard to context, is unable to regulate potentially confusing uses").

reject the notion that direct infringement requires a defendant to brand its own products under a mark.[15] The second part of this essay therefore grapples with the increasingly likely reality of a world without a requirement of trademark use. If courts are unwilling to use contributory infringement doctrine as a platform to develop a law of intermediary liability, I contend that they must adapt direct infringement doctrine to accommodate the unique concerns raised by this new kind of defendant. I close with some tentative suggestions for how they might do so.

I. CORRECTING THE RECORD ON TRADEMARK USE

From the beginning, the debate over trademark use has featured a highly influential straw man: the specter of full immunity for search engines. According to its opponents, the trademark use doctrine would protect search engines from liability, even if they knowingly promoted confusion among consumers.[16] The confusion, opponents fear, might come in one of two forms. In the first type, search engines' failure to distinguish clearly between search results and ads could lead consumers to assume that paid advertisements represent neutral responses to their queries.[17] In the second type, consumers who appreciate the difference between search results and ads might nonetheless assume, wrongly, that a particular ad is sponsored by the trademark holder.[18] Both of these situations involve confusion of a sort, which a search engine could, in theory, deliberately promote. When faced with the choice between full immunity and potential liability, then, courts have unsurprisingly opted for the latter.

That choice, however, is a false one. A trademark use requirement would not fully immunize search engines from liability. But it would force courts to assess their liability under legal theories that match up with their behavior, rather than distorting the direct infringement standard to fit it.

If search engines are truly duping consumers about the difference between search results and ads, then that should indeed concern the courts;[19] but that concern has little to do with trademark law.[20] Indeed,

15. *See*, *e.g.*, Playboy Enters., Inc. v. Netscape Commc'ns Corp., 354 F.3d 1020 (9th Cir. 2004); Gov't Employees Ins. Co. v. Google, Inc., 330 F. Supp. 2d 700 (E.D. Va. 2004).

16. *See supra* note 11.

17. *See*, *e.g.*, Rescuecom Corp. v. Google, Inc., 562 F.3d 123, 131 (2d Cir. 2009) ("What Rescuecom alleges is that by the manner of Google's display of sponsored links of competing brands in response to a search for Rescuecom's brand name (which fails adequately to identify the sponsored link as an advertisement, rather than a relevant search result), Google creates a likelihood of consumer confusion as to trademarks.").

18. *See*, *e.g.*, *Playboy Enters.*, 354 F.3d at 1025–26 (noting evidence that consumers were confused when a search for PLAYBOY generated advertisements for adult-content websites).

19. Not everyone agrees that the law should address such behavior; Eric Goldman, for

trademark law is badly under-inclusive in addressing the harms from such behavior. As the Federal Trade Commission has recognized, deceptively blending advertisements and search results would likely violate the consumer protection provision of the FTC Act,[21] and would probably violate similar state statutes as well.[22] The false advertising provisions of the Lanham Act may also provide some relief against search engines that mislead the public as to the integrity of their search results.[23]

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example, suggests that the law need not concern itself with search engines that misrepresent the integrity of their search results, because market forces will discipline them. *See*, *e.g.*, Eric Goldman, *Search Engine Bias and the Demise of Search Engine Utopianism*, 8 YALE J.L. & TECH. 188, 197–98 (2006); Goldman, *supra* note 1, at 591. *But see, e.g.,* Oren Bracha & Frank Pasquale, *Federal Search Commission? Access, Fairness, and Accountability in the Law of Search*, 93 CORNELL L. REV. 1149, 1206–09 (2008) (arguing in favor of some regulation of search engines' relevancy determinations).

20. Indeed, the consumer advocacy organization Public Citizen filed an amicus brief in the *Rescuecom* case, emphasizing the consumer interest in a clear distinction between ads and search results, but arguing that consumer interests weighed *against* using trademark law to achieve this goal. *See* Brief for Public Citizen as Amicus Curiae Supporting Affirmance, *supra* note 3.

21. *See* Letter from Heather Hippsley, Acting Associate Director of Division of Advertising Practices, Federal Trade Commission, to Gary Ruskin, Executive Director of Commercial Alert (June 27, 2002), *available at* http://www.ftc.gov/os/closings/staff/commercialalertletter.shtm (responding to complaint by Commercial Alert about search engine practices, and noting "the need for clear and conspicuous disclosures of paid placement, and in some instances paid inclusion, so that businesses may avoid possible future Commission action"); *cf.* Andrew Sinclair, *Regulation of Paid Listings in Internet Search Engines: A Proposal for FTC Action*, 10 B.U. J. SCI. & TECH. L. 353, 357–59 (2004) (discussing under-inclusiveness of trademark law in addressing harm to consumers from undisclosed paid placements and other misleading practices by search engines, and proposing that FTC take action to address the issue); Alex W. Cannon, *Regulating Adwords: Consumer Protection in a Market Where the Commodity is Speech*, 39 SETON HALL L. REV. 291, 322–25 (2009) (discussing possible FTC regulation).

22. Many state consumer protection statutes, unlike the FTC Act, give competitors standing to sue for deceptive trade practices. *E.g.*, Heller v. Lexton-Ancira Real Estate Fund, Ltd., 809 P.2d 1016, 1022 (Colo. App. 1990); *cf.* D. Wes Sullenger, *Only We Can Save You: When and Why Non-Consumer Businesses Have Standing to Sue Business Competitors Under the Tennessee Consumer Protection Act*, 35 U. MEM. L. REV. 485, 492 (2005).

23. The Lanham Act provides a cause of action against:

> Any person who, on or in connection with any goods or services, . . . uses in commerce any word, term, name, symbol, or device, or any combination thereof, or any false designation of origin, false or misleading description of fact, or false or misleading representation of fact, which . . . is likely to cause confusion, or to cause mistake, or to deceive as to the affiliation, connection, or association of such person with another person, . . . shall be liable in a civil action by any person who believes that he or she is or is likely to be damaged by such act.

15 U.S.C. 1125(a). In some jurisdictions, parties other than the defendant's direct competitors may make claims, as long as they can establish that they will likely suffer harm from the misrepresentations. *See* Ortho Pharm. Corp. v. Cosprophar, Inc., 32 F.3d 690, 694 (2d Cir. 1994) (holding that "in order to establish standing to sue . . . a plaintiff must demonstrate a 'reasonable interest to be protected' against the advertiser's false or misleading claims"); Conte Bros. Auto., Inc. v. Quaker State-Slick 50, Inc., 165 F.3d 221, 233–35 (3d Cir. 1998) (holding that non-competition is relevant, but not dispositive, and a flexible test should be implemented

But the nature of the wrong—implicitly false representations made by a search engine about the nature of its information product—simply does not map to the multi-factor "likelihood of confusion" analysis of trademark infringement law.[24]

The second concern—that keyword-based advertising enables the placement of particular ads, for particular products, that confuse consumers about a product's source—does sound in trademark law. While it may make sense to hold search engines responsible for that confusion in some circumstances, the question is how to define those circumstances. At the heart of the trademark use debate lies a choice between two different doctrinal vehicles—direct infringement and contributory infringement—for evaluating a search engine's conduct in particular cases, and measuring that behavior against trademark law's normative goals. The contributory liability standard is better equipped for that task.

Doctrinal fit. Historically and doctrinally, the distinction between direct and contributory infringement exists for the very purpose of treating sellers engaged in "passing off" differently than parties whose fault lies in helping to perpetrate the sellers' deception.[25] It's not that the

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to determine standing).

24. Trademark law's likelihood of confusion analysis involves a contextual inquiry into the nature of the plaintiff's and defendant's trademarks, products, and marketing and sales devices. In the Second Circuit, for example, in deciding whether a defendant's "use" is likely to cause confusion, the fact-finder must consider "the strength of [the plaintiff's] mark, the degree of similarity between the two marks, the proximity of the products, the likelihood that the prior owner will bridge the gap, actual confusion, and the reciprocal of defendant's good faith in adopting its own mark, the quality of the defendant's product, and the sophistication of the buyers." Polaroid Corp. v. Polarad Elecs. Corp., 287 F.2d 492, 495 (2d Cir. 1961); *see also* Falcon Rice Mill, Inc. v. Cmty. Rice Mill, Inc., 725 F.2d 336, 346 (5th Cir. 1984) (stating that the likelihood-of-confusion test considers the two parties' "products, outlets, purchasers, and marketing methods"). This test has no meaning in the abstract; without reference to a particular party offering particular products under the mark, it gives courts no tools for deciding whether a defendant's use of a mark is likely to cause confusion over the source or sponsorship of unnamed products or services. To hold that a search engine's sale of keyword-based advertising, alone, creates a likelihood of confusion without inquiry into the nature of the resulting ads or products would run roughshod over the contextual likelihood of confusion standard. *See* Dogan & Lemley, *Trademark Search Costs*, *supra* note 1, at 828 ("Only a factual analysis of the text of the ad, the nature of the site and the reasons for using the mark, and the costs of finding what the consumer was actually looking for can support a finding of consumer confusion.").

25. Of course, trademark law no longer limits itself to cases of true "passing off," in which a seller attempts to pass off its goods as originating from the trademark holder. The law now protects against other forms of confusion, including confusion over sponsorship or affiliation between the trademark holder and the defendant's products or services. *See* Mark A. Lemley & Mark P. McKenna, *Irrelevant Confusion* (Stanford Pub. Law, Working Paper No. 1407793, 2009), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1407793 (noting and critiquing some of the excesses of this trend). But the expansion of direct infringement doctrine has not, at least until recently, extended to parties who have not themselves used marks in connection with their own products or services. *See* Dogan & Lemley, *Grounding*

second group deserves impunity; to the contrary, courts have long imposed liability against those who knowingly help others to confuse consumers about the source or sponsorship of their goods.[26] But the legal standards for direct and contributory infringement reflect the different position of these two types of defendants. The direct infringement standard simply doesn't fit the behavior of secondary infringers—parties who are not themselves selling products or services under a mark. But the contributory infringement standard does, and provides a perfectly adequate means of redress against culpable behavior.

The "likelihood of confusion" standard for direct infringement presumes that the defendant is selling products under the protected mark. The likelihood-of-confusion factors—which include a comparison of the two parties' marks, products, marketing channels, customers, and sales practices—involves a fact-intensive inquiry into consumer perceptions about the relationship between a defendant's product and a plaintiff's mark.[27] As tempting as plaintiffs find it to generalize about the risks of confusion from keyword advertising generally, proof of trademark infringement requires a more exacting analysis, focused on the risk of confusion from particular ads about particular products. For example, consider two different advertisements generated by the keyword TIFFANY®. One of the ads heralds, "TIFFANY JEWELRY HERE!" and leads to a website offering counterfeit jewelry products. The other advertisement announces, "WE'RE NOT TIFFANY, BUT WE HAVE GOOD JEWELRY CHEAP!" No one could seriously doubt that the first example constitutes infringement, and the second a perfectly legitimate non-confusing use of the mark. But who, in the first example, has infringed? Logic suggests that the advertiser—through the combination of its keyword purchase, its false statements, and the products offered at its site—has directly brought about confusion over the source of its products. The likelihood-of-confusion analysis, with its emphasis on seller-specific factors, confirms that instinct. There may well be a reason to hold the search engine legally responsible for that infringement, as discussed in more detail below.[28] Treating the search

Trademark Law, *supra* note 1, at 1670 (pointing out that, "before the recent spate of Internet-related cases, no court had ever recognized a trademark claim of the sort that trademark holders are now asserting. Trademark infringement suits have always involved allegations of infringement by parties who use marks in connection with the promotion of their own goods and services.").

26. *See* Dogan & Lemley, *Grounding Trademark Law*, *supra* note 1, at 1679–81 (discussing history of contributory infringement); *see also* 4 J. THOMAS MCCARTHY, MCCARTHY ON TRADEMARKS AND UNFAIR COMPETITION §§ 25:17–:21 (4th ed. 2009).

27. For a more detailed discussion, see Dogan & Lemley, *Grounding Trademark Law*, *supra* note 1, at 1678–79.

28. If, for example, the vast majority of keyword-based advertisements confuse consumers, courts might decide that search engines have an obligation to take steps to alleviate

engine as a direct infringer, however, ignores the fact that the context of the *advertiser's* behavior is what dictates the difference between legitimate and illegitimate uses of the mark.

The centrality of seller-specific context becomes especially critical in cases involving unauthorized but legally protected uses of trademarks. Trademark defenses often turn entirely on the context in which a consumer confronts a defendant's use of a protected mark. Descriptive fair use, for example, asks whether a defendant has used a term "descriptively, not as a mark, fairly, and in good faith," and often requires a visual examination of the mark as presented to the consumer.[29] Nominative fair use considers whether a defendant has used a mark accurately to refer to the plaintiff's product, and its relationship to what the defendant has to offer.[30] Parties that service or re-sell the trademark holder's product may use protected marks, as long as they don't deceive the public about any official affiliation or relationship with the trademark holder.[31] So may competitors engaged in comparative advertising.[32] All of

that confusion.

29. *See*, *e.g.*, KP Permanent Make-Up, Inc. v. Lasting Impression I, Inc., 543 U.S. 111, 124 & n.6 (2004) (suggesting that on remand, the court may decide that certain of defendant's uses of plaintiff's mark were descriptive and fair, while others—particularly stylized versions—were infringing).

30. *See*, *e.g.*, New Kids on the Block v. New Am. Publ'g, Inc., 971 F.2d 302, 308 (9th Cir. 1992) ("[W]here the defendant uses a trademark to describe the plaintiff's product, rather than its own, we hold that a commercial user is entitled to a nominative fair use defense provided he meets the following three requirements: First, the product or service in question must be one not readily identifiable without use of the trademark; second, only so much of the mark or marks may be used as is reasonably necessary to identify the product or service; and third, the user must do nothing that would, in conjunction with the mark, suggest sponsorship or endorsement by the trademark holder."); *cf.* Century 21 Real Estate Corp. v. Lendingtree, Inc., 425 F.3d 211, 222 (3d Cir. 2005) (adopting two-step approach for nominative fair use).

31. *Compare* Volkswagenwerk Aktiengesellschaft v. Church, 411 F.2d 350, 352 (9th Cir. 1969) (upholding decision that Volkswagen repair shop did not infringe by using VW marks, in light of the "prominent use of the word 'Independent' whenever the terms 'Volkswagen' or 'VW' appeared in his advertising," along with the size, style, and appearance of the marks in the ads, and the fact that defendant avoided stylized versions of the protected marks), *with* Volkswagenwerk Aktiengesellschaft v. Wheeler, 814 F.2d 812, 818 (1st Cir. 1987) (allowing infringement verdict to stand when defendants "did not clearly distinguish the products and services of [the trademark holder] from their own"). *See also* Champion Spark Plug Co. v. Sanders, 331 U.S. 125, 130 (1947) (seller of refurbished product may use the original manufacturer's mark to describe its product, "so long as the article is clearly and distinctively sold as repaired or reconditioned rather than as new"); Nitro Leisure Prods. v. Acushnet Co., 341 F.3d 1356, 1360–65 (Fed. Cir. 2003). Google recently liberalized its keyword advertising policy to allow resellers to use trademarks in the text of ads. *See* Posting of Dan Friedman to Inside Adwords, Update to U.S. Ad Text Trademark Policy, http://adwords.blogspot.com/2009/05/update-to-us-ad-text-trademark-policy.html (May 14, 2009, 15:38); Google.com, What is Google's U.S. Trademark Policy?, https://adwords.google.com/support/bin/answer.py?answer=145626.

32. *See*, *e.g.*, Calvin Klein Cosmetics Corp. v. Lenox Labs., Inc., 815 F.2d 500, 503 (1987) ("An imitator may use in a truthful way an originator's trademark when advertising that the imitator's product is a copy so long as that use is not likely to create confusion in the

these defenses involve a painstaking examination of the facts surrounding the seller's product, advertisement, presentation of the mark, and general sales practices.[33]

In short, neither infringement nor its defenses can meaningfully be evaluated in the abstract. In the keyword advertising context, evaluating the likelihood of confusion caused by a particular keyword-generated ad requires a contextual inquiry into a number of facts that have little to do with the search engine's sale of the trademark to the advertiser, and everything to do with the advertiser's product, statements, and other behavior.[34] Maintaining the law's focus on these factors—by treating the advertiser as the direct infringer—would result in more accurate, contextual, and reality-driven outcomes in these keyword suits.

Indeed, at least some of the nascent case law involving claims

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consumer's mind as to the source of the product being sold.").

33. In *Hearts on Fire Co. v. Blue Nile, Inc.*, 603 F. Supp. 2d 274, 279 (D. Mass. 2009), the plaintiff sued a competitor who engaged in keyword-based advertising. The court denied the defendant's motion to dismiss, explaining that the "surrounding context" of the keyword-based ads supported the trademark claims, at least against a motion to dismiss. *Id.* at 288. The court indicated, however, that:

> [T]he likelihood of confusion will ultimately turn on what the consumer saw on the screen and reasonably believed, given the context. This content and context includes: (1) the overall mechanics of web browsing and internet navigation, in which a consumer can easily reverse course; (2) the mechanics of the specific consumer search at issue; (3) the content of the search results webpage that was displayed, including the content of the sponsored link itself; (4) downstream content on the Defendant's linked website likely to compound nay confusion; (5) the web-savvy and sophistication of the Plaintiff's potential customers; (6) the specific context of a consumer who has deliberately searched for trademarked diamonds only to find a sponsored link to a diamond retailer; and, in light of the foregoing, (7) the duration of any resulting confusion.

Id. at 289. Several of these factors involve information specific to particular advertisers, rather than general attributes of keyword-based search. *See* Boston Duck Tours, LP v. Super Duck Tours, LLC, 527 F. Supp. 2d 205, 208 (D. Mass. 2007) ("[I]n light of the fact that the content of the advertisement at issue serves to distinguish the defendant from the plaintiff, this Court finds that consumer confusion is likely diminished rather than increased."). *Cf.* Case C-236/08, Google Fr. v. Louis Vuitton Malletier, 2009 WL 2997620, ¶ 46 (Sept. 22, 2009) (noting that claims against Google based on its keyword policy "do not concern the use of trade marks on the advertisers' sites, or the products sold on those sites . . . . Those are all independent uses, and the legality of each must be assessed on its own terms.").

34. It also requires resolution of some tricky legal questions, including the viability and scope of the dubious initial interest doctrine. *See generally* Jennifer Rothman, *Initial Interest Confusion: Standing at the Crossroads of Trademark Law*, 27 CARDOZO L. REV. 105 (2005); Dogan & Lemley, *Trademark Search Costs*, *supra* note 1, at 819–28; *cf. Hearts on Fire*, 603 F. Supp. 2d at 287 ("[T]he Court concludes that initial interest confusion can support a claim under the Lanham Act—but only where the plaintiff has plausibly alleged that consumers were confused, and not simply diverted."); *id.* at 287–88 ("In fact, in order for a plaintiff pleading initial interest confusion to prevail, that confusion must be more than momentary and more than a 'mere possibility.' As with any alleged trademark violation, plaintiffs must show a genuine and 'substantial' likelihood of confusion. The alleged confusion must be truly costly to the consumer.") (citations omitted).

against keyword *advertisers* reflects precisely this contextual, ad-specific focus. In *Mary Kay, Inc. v. Weber*, for example, the court rejected the claim that the purchase of keyword-based advertisements, alone, could constitute infringement without examining the text of the resulting ads and the content of the defendant's website.[35] After examining the ad and the site, however, the court found a genuine issue of material fact as to whether confusion was likely.[36] In *Designer Skin, LLC v. S & L Vitamins, Inc.*, the court found no infringement in the purchase of keyword-based ads by an unauthorized reseller of the trademark holder's products, concluding that the reseller had a legal right to use the mark in connection with its online sales.[37] And in *Hearts on Fire*, the court refused to dismiss a claim against a keyword advertiser because the context described in plaintiff's allegations suggested that consumers could well assume an association between the defendant and the trademark holder, and that "on arrival [at defendant's website] nothing there would immediately alert him to his mistake."[38]

As these cases demonstrate, the nature and doctrine of direct trademark infringement reflect a heavy emphasis on the circumstances, characteristics, and actions of the seller. Broad claims against search engines based on their sale of keyword advertisements do not fit comfortably into this framework. Courts cannot meaningfully evaluate whether a search engine's "use" alone causes confusion, without additional information about the actions of an intervening party—the direct infringer. A trademark use requirement would preserve existing conceptions of direct infringement, and avoid the distortions required to fit parties like search engines into the direct infringement mold.

Containing the definition of direct infringement does not—or at least should not—leave trademark holders without recourse against search engines. The doctrine of contributory trademark infringement allows claims against parties that help others to perpetrate infringement. Properly developed, it should provide relief against the kind of unscrupulous search engine behavior that the *Rescuecom* court, and many commentators, seem to fear. I suspect that one reason courts have been reluctant to adopt a trademark use requirement is their lack of confidence in the under-developed contributory infringement doctrine to police search engine malfeasance. The answer, however, is to add heft to that

35. 601 F. Supp. 2d 839, 855 (N.D. Tex. 2009).

36. "A reasonable juror," the court held, "could conclude that the Webers, through the language of their sponsored link advertisement, improperly suggested affiliation with Mary Kay." *Id.* at 858.

37. 560 F. Supp. 2d 811, 817–20 (D. Ariz. 2008). *But see* Australian Gold, Inc. v. Hatfield, 436 F.3d 1228, 1239–40 (10th Cir. 2006) (finding initial interest confusion based on advertiser's placement of ads keyed to name of product that it was reselling at its site).

38. 603 F. Supp. 2d at 288–89.

doctrine, rather than distorting the standard for direct infringement.

Although long a feature of trademark law,[39] contributory trademark infringement until recently received little attention from the courts. The Supreme Court summarized the doctrine in the *Inwood* case in 1982:

> [I]f a manufacturer or distributor intentionally induces another to infringe a trademark, or if it continues to supply its product to one whom it knows or has reason to know is engaging in trademark infringement, the manufacturer or distributor is contributorially responsible for any harm done as a result of the deceit.[40]

In the intervening years, the lower courts have developed a sparse, but increasingly coherent, approach to contributory infringement claims under both the "inducement" and the "continuing to provide" prongs of *Inwood*.

To satisfy the "inducement" requirement, a party must encourage the infringement and specifically intend it to occur. Post-*Inwood* courts have focused on the context of the relationship between the direct and contributory infringer, to "decide whether or not the [defendant] explicitly or implicitly encouraged the trademark violations."[41] But inducement does not apply to a mere failure to take precautions to ward off infringement before it occurs. The Supreme Court rejected a "reasonable anticipation" standard for contributory infringement in *Inwood*,[42] and courts have consistently required both intent and "affirmative acts" before imposing liability for inducement.[43]

Despite its demanding standard, this form of liability could well apply to the worst-case scenarios envisioned by courts and commentators. Suppose, for example, that a search engine's business model specifically contemplated and intended that its advertisers

39. *See* Dogan & Lemley, *Grounding Trademark Law*, *supra* note 1, at 1672–75.

40. Inwood Labs., Inc. v. Ives Labs., Inc., 456 U.S. 844, 854 (1982).

41. Mini Maid Servs. Co. v. Maid Brigade Sys., Inc., 967 F.2d 1516, 1522 (11th Cir. 1992).

42. 456 U.S. at 854 n.13.

43. *See* Perfect 10, Inc. v. Visa Int'l Serv. Ass'n, 494 F.3d 788, 807 (9th Cir. 2007) (dismissing contributory trademark infringement claims when plaintiff's "allegations . . . cite no affirmative acts by Defendants suggesting that third parties infringe [plaintiff's] mark, much less induce them to do so"); Hard Rock Cafe Licensing Corp. v. Concession Servs., Inc., 955 F.2d 1143, 1149 (7th Cir. 1992) (contributory infringement requires more than a "failure to take precautions against counterfeiting"); *Mini Maid*, 967 F.2d at 1522 ("In making these determinations of intent and knowledge, a district court should consider the nature and extent of the communication between [the defendant and the direct infringer] regarding the infringing acts; specifically, the court should decide whether or not the [defendant] explicitly or implicitly encouraged the trademark violations."); Optimum Techs., Inc. v. Henkel Consumer Adhesives, Inc., 496 F.3d 1231, 1243–44 (11th Cir. 2007) (noting absence of evidence of intentional inducement, and countervailing evidence that the defendant had taken steps to prevent infringement from occurring).

systematically deceive consumers about the source of their products and services.[44] In such circumstances, a court could conclude that the search engine's deliberate behavior rose to the level of inducement.[45] In such a case, the underlying facts relevant to inducement liability—unlike the direct infringement factors—speak directly to the culpability of the search engine in fostering confusion among consumers, rather than attributing to it any and all wrongdoing by its advertisers based on a vicarious imputation of seller-specific facts relevant to the likelihood-of-confusion test.

While inducement focuses on purposeful behavior by a defendant, the second form of *Inwood* liability applies to parties who continue to support another's infringement after learning of its existence. The Supreme Court addressed one variation of this behavior—a party's "continu[ing] to supply its product to one whom it knows or has reason to know is engaging in trademark infringement."[46] Subsequent courts have extended the Court's reasoning to other circumstances in which a defendant knowingly contributed to another's infringement. Thus, in *Hard Rock*, the court held that a party who continues to provide *services* to sellers with knowledge of their infringement can satisfy the *Inwood*

44. *See* Rescuecom Corp. v. Google Inc., 562 F.3d 123, 130 (2d Cir. 2009) (expressing concern about leaving search engines "free to use trademarks in ways designed to deceive and cause consumer confusion"). As Eric Goldman has pointed out, such a business model would probably not serve the search engine well over the long run, because customers and advertisers would look to more accurate and better-matched alternatives. *See* Goldman, *supra* note 1, at 536–37.

45. In *Mini Maid*, for example, the court instructed the district court to consider the underlying facts to decide whether the defendant intended to participate in the primary party's infringement:

> In making these determinations of intent and knowledge, a district court should consider the nature and extent of communications between a franchisor and its franchisees regarding the infringing acts; specifically, the court should decide whether or not the franchisor explicitly or implicitly encouraged the trademark violations. In addition, the court may wish to consider the extent and nature of the violations being committed. If the infringement is serious and widespread, it is more likely that the franchisor knows about and condones the acts of its franchisees.

967 F.2d at 1522 (citations omitted). Of course, the relationship between a franchisor and franchisee is more direct and intimate than that between a search engine and its advertisers, making the attribution of knowledge and intent more likely in the former case. But it's not inconceivable that a search engine could have the motive and means to promote passing off by advertisers in certain circumstances.

46. *Inwood*, 456 U.S. at 854. *Inwood* itself involved a defendant drug manufacturer who sold look-alike generic drugs through pharmacists, some of whom committed infringement by passing the drug off as the branded version. *Id.* at 848–49. The Supreme Court held that the manufacturer could commit infringement if it continued to supply the drugs to pharmacists after learning of their infringement, but found that the Court of Appeals had improperly reversed the district court's factual finding that the manufacturer lacked knowledge in that case. *Id.* at 855–59.

standard.[47] This reasoning could well apply to search engines if they "continued to provide" their advertising services to advertisers with the knowledge that the services were being used to infringe others' marks.[48] But the knowledge must be specific and substantial; mere generalized knowledge of the potentially infringing use of a service cannot justify a contributory infringement claim.[49]

In *Tiffany v. eBay*, for example, the court considered whether eBay had contributorily infringed by allowing its customers to sell fake Tiffany products on its site. The court held that eBay could, indeed, be a contributory infringer if it had continued to provide its auction service to sellers after learning that particular sellers were selling counterfeit goods. Its mere generalized knowledge of infringement using its service, however, was not enough to charge it with infringement, given the substantial quantity of legitimate Tiffany goods sold on eBay.[50] And because it had expeditiously responded to specific complaints when it received them, eBay had not continued to provide its service to parties with knowledge of their infringement, and therefore faced no liability.[51]

A similar analysis could well apply in the search engine context. If trademark holders gave search engines actual notice of infringing ads and the ads were deceptive on their face, the search engine's failure to take action could constitute infringement under the second prong of *Inwood*.[52]

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47. 955 F.2d at 1149; *accord* Fonovisa, Inc. v. Cherry Auction, Inc., 76 F.3d 259, 265 (9th Cir. 1996) (swap meet operator who had actual knowledge of counterfeit sales on its premises could face contributory trademark liability; "a swap meet can not [sic] disregard its vendors' blatant trademark infringements with impunity").

48. *See also* MCCARTHY, *supra* note 26, § 25:19 ("A defendant who supplies another with instruments by which another commits a tort is liable if he had knowledge that the other would commit a tort with the instrument.").

49. *See* Tiffany (NJ) Inc. v. eBay, Inc., 576 F. Supp. 2d 463, 510 (S.D.N.Y. 2008); Gucci Am., Inc. v. Hall & Assocs., 135 F. Supp. 2d 409, 420 (S.D.N.Y. 2001) ("[P]laintiffs bear a high burden in establishing 'knowledge' of contributory infringement."); Lockheed Martin Corp. v. Network Solutions, Inc., 985 F. Supp. 949, 962 (C.D. Cal. 1997) (requiring "unequivocal knowledge" of primary infringement, in case where defendant's involvement with the infringing acts was remote); *cf. Inwood*, 456 U.S. at 861 (White, J., concurring) ("The mere fact that a generic drug company can anticipate that some illegal substitution will occur to some unspecified extent, and by some unknown pharmacists, should not by itself be a predicate for contributory liability.").

50. *See Tiffany*, 576 F. Supp. 2d at 510 ("Were Tiffany to prevail on its argument that generalized statements of infringement were sufficient to impute knowledge to eBay of any and all infringing acts, Tiffany's rights in its mark would dramatically expand, potentially stifling legitimate sales of Tiffany goods on eBay.").

51. *Id.* at 515–18.

52. The *Tiffany* court appropriately adopted a high threshold for knowledge, insisting on specific and reliable notice of actual infringement. *See id.* at 510. As in the copyright context, search engines should be protected if they have a reasonable belief that the offending ads were protected as descriptive fair use, nominative fair use, or some other defense, or because they are unlikely to lead to confusion. *Cf.* Religious Tech. Ctr. v. Netcom On-Line Commc'n Servs., Inc., 907 F. Supp. 1361, 1374 (N.D. Cal. 1995) ("Where a BBS operator cannot reasonably verify a claim of infringement, either because of a possible fair use defense, the lack of

But absent such actual knowledge, the fact that a search engine allowed an advertiser to place a keyword-generated ad should not leave it strictly liable for any infringement that might follow.[53]

Protecting non-infringing uses. Beyond its analytical coherence, a contributory infringement approach offers another important advantage over direct infringement: it gives breathing space for socially beneficial, non-infringing uses of trademarks. Just as the risk of chill helped to push courts toward a secondary liability approach in copyright suits against online intermediaries,[54] so too should courts consider the risk of over-deterrence in deciding whether to hold search engines strictly liable for infringement enabled by their services.

Contributory infringement doctrine recognizes that perfectly legitimate third-party behavior can sometimes create opportunities for unscrupulous parties to infringe. When infringement ensues, courts have three choices: full immunity, strict liability, or something in between. Full immunity has drawbacks, both because it could insulate deliberate wrongdoing and because it might deprive the trademark holder of a least-cost-avoider means of avoiding future infringement.[55] At the other extreme, strict liability would over-deter, and give trademark holders effective control over non-infringing uses of the neutral service.[56] In the

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copyright notices on the copies, or the copyright holder's failure to provide the necessary documentation to show that there is a likely infringement, the operator's lack of knowledge will be found reasonable and there will be no liability for contributory infringement for allowing the continued distribution of the works on its system."). Because trademark holders have more limited rights than copyright holders (who need not establish likelihood of confusion), the law should protect defendants even more aggressively in the trademark context. *See Tiffany*, 576 F. Supp. 2d at 510 & n.37.

53. *Cf. Tiffany*, 576 F. Supp. 2d at 511 ("[G]eneral knowledge [of some counterfeit sales], however, does not require eBay to take action to discontinue supplying its service to all those who *might* be engaged in counterfeiting."). Unlike direct infringement, contributory infringement analysis allows for consideration of a host of factors that should be relevant in assessing intermediary liability. *Cf.* Ronald J. Mann & Seth R. Belzley, *The Promise of Internet Intermediary Liability*, 47 WM. & MARY L. REV. 239, 266 (2005) (advocating a least-cost-avoider approach to intermediary liability generally, under which, "because the analysis premises the imposition of responsibility on a determination that the intermediary is the least-cost avoider of the misconduct in question, a proper determination requires not only that the gatekeepers be able to detect offenses, but also that they be able to detect and prevent them economically"); *see also* Michael Grynberg, *Trademark Litigation as Consumer Conflict*, 83 N.Y.U. L. REV. 60, 77 (2008) (contending that trademark law too often focuses narrowly on potential confusion among a subset of consumers, while overlooking the countervailing consumer interests in allowing defendants to use marks for comparative and other purposes).

54. *See*, *e.g.*, *Religious Tech. Ctr.*, 907 F. Supp. at 1372–74.

55. *See*, *e.g.*, Mann & Belzley, *supra* note 53, at 249–50.

56. In *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417, 440–41 (1984), the Supreme Court used this rationale to reject a broad approach to contributory infringement in the copyright context:

> When a charge of contributory infringement is predicated entirely on the sale of an article of commerce that is used by the purchaser to infringe a patent, the public interest in access to that article of commerce is necessarily implicated. A finding of

search engine context, these non-infringing uses are significant, and serve the very competition-oriented function that lies at the heart of United States trademark law.[57] Comparative advertisers, critics, sellers of compatible products, and many others all have an interest in using trademarks to identify consumers who have an interest in the trademark holder's product, and to present them with information and choices that can make them better informed.[58] Chilling keyword advertising would reduce the availability of this data and would leave consumers worse off.

Contributory infringement offers an attractive middle ground. By requiring specific knowledge or intent, contributory infringement avoids the worst excesses of strict liability and reduces the risk that intermediaries will disable ads that promote, rather than frustrate, trademark law's information-related goals. At the same time, the existence of the doctrine gives intermediaries an incentive to respond to legitimate and persuasive notices of infringement. "Knowledge," of course, is highly contextual, and courts will have to decide what level of knowledge suffices for contributory infringement purposes.

In trademark, as in copyright, courts should give breathing room, and find no knowledge when the intermediary had a good faith belief that the advertiser's use was legal.[59] Indeed, the case for breathing space

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> contributory infringement does not, of course, remove the article from the market altogether; it does, however, give the patentee effective control over the sale of that item. Indeed, a finding of contributory infringement is normally the functional equivalent of holding that the disputed article is within the monopoly granted to the patentee.

57. *See* Dogan & Lemley, *Trademark Search Costs*, *supra* note 1, at 827–28 (discussing non-infringing uses of keyword-based advertisements).

58. *See* Stacey L. Dogan, *Trademarks and Consumer Information*, NOUVELLES APPROCHES EN PROPRIÉTÉ INTELLECTUELLE DANDS UN MONDE TRANSSYSTÉMIQUE [INTELLECTUAL PROPERTY AT THE EDGE: NEW APPROACHES TO IP IN A TRANSSYSTEMIC WORLD] 321, 331 (2007) ("Just as trademark-conveyed information about product characteristics makes a market more efficient by reducing the search costs of consumers, then, so could trademark-revealed information about consumer preferences promote efficiency by reducing sellers' costs of reaching people who might have an interest in their products."). Many scholars and advocacy organizations have described these benefits of keyword-based advertising, and the benefits to consumers from having access to information about competing products, complementary products, and non-commercial commentary regarding the trademark holder. *See*, *e.g.*, *id.*; Dogan & Lemley, *Grounding Trademark Law*, *supra* note 1, at 1697; Dogan & Lemley, *Trademark Search Costs*, *supra* note 1, at 809–10, 821–22; Goldman, *supra* note 1, *passim*; Brief of Amicus Curiae Electronic Frontier Foundation, *supra* note 3; Brief for Public Citizen as Amicus Curiae Supporting Affirmance, *supra* note 3.

59. *See supra* note 52. The Digital Millennium Copyright Act has arguably eliminated this breathing space, at least for intermediaries who seek the benefits of its safe harbor provisions. *See* 17 U.S.C. § 512; *see also* Mark A. Lemley, *Rationalizing Internet Safe Harbors*, 6 J. ON TELECOMM. & HIGH TECH. L. 101, 113–15 (2007) ("Notice and takedown therefore rewards overzealous copyright owners who use the DMCA mechanism to rid the Web even of legitimate content, secure in the expectation that ISPs will take everything down rather than risk their eligibility for the safe harbor."). Mark Lemley has argued that the Lanham Act contains a safe harbor provision that strikes the right balance between trademark holders and

is even stronger in trademark law than in copyright. Unlike copyright, which proscribes the mere act of copying, trademark claims require a showing that a use is likely to cause confusion as to source of sponsorship, and the scope of trademark defenses is quite broad to ensure that trademarks promote, rather than impede, the flow of information in markets.[60] Nonetheless, the risk of contributory liability would encourage intermediaries to respond to cases of obvious infringement. At the very least, then, a robust contributory infringement doctrine would give trademark holders some means of recourse against plainly deceptive keyword-based ads, without having to pursue every individual advertiser.

Skeptics may respond that contributory rather than direct infringement approach offers too much protection to search engines, and puts the onus on trademark holders to identify and give notice of violations of their rights. The alternative, however, would not only tax search engines, but would inevitably chill legitimate, pro-consumer, pro-informational uses of keyword advertising.

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In sum, the distinction between direct and contributory infringement is an enduring and appropriate one as a matter of doctrine and policy. By differentiating between those who infringe trademarks and those who facilitate infringement, the trademark use requirement would preserve that distinction, and keep trademark law true to its goal of promoting a fair and robust competitive process.

II. THE ALTERNATIVE: EVALUATING INTERMEDIARY LIABILITY UNDER A DIRECT INFRINGEMENT PARADIGM

Despite the advantages of a trademark use requirement, recent trends suggest that judges are not buying it. As a result, courts must now turn to the question of how, doctrinally, to assess the liability of search engines for infringement under the Lanham Act. Notwithstanding my strong preference for a trademark-use-based approach, I remain hopeful that even without that tool, courts can forge a path that recognizes the

intermediaries, by limiting plaintiffs to injunctive relief in cases in which the defendant is an "innocent infringer." *See id.* at 105–07. The provision applies only to parties who qualify as publishers of third-party content, however, and courts have rarely invoked it. Courts may well provide more robust protection to intermediaries by building breathing space directly into trademark infringement doctrine.

60. *See* Lockheed Martin Corp. v. Network Solutions, Inc., 985 F. Supp. 949, 965 (C.D. Cal. 1997) ("Because the property right protected by trademark law is narrower than that protected by copyright law, liability for contributory infringement of a trademark is narrower than liability for contributory infringement of a copyright."); *see also* Tiffany (NJ) Inc. v. eBay, Inc., 576 F. Supp. 2d 463, 510 & n.37 (S.D.N.Y. 2008).

unique role of search engines and other online intermediaries. Both the statute and the case law offer insights into how they might do so.

From a statutory perspective, even if the Lanham Act does not limit trademark claims to those who "use" marks as brands for their own products, the statute leaves no doubt that it reaches only "uses" that themselves are likely to lead to confusion.[61] If it's the defendant's use that subjects it to a trademark claim, in other words, it's that same use that must be examined for its confusing effects. Even in a world without a trademark use doctrine, the plaintiff must prove that the *defendant's* behavior has caused a likelihood of confusion—and not that it has played a mere but-for role in enabling someone else's infringing acts. In the search engine context, this means that plaintiffs must prove that trademark-triggered advertising by its very nature confuses consumers as to the source or sponsorship of resulting product ads. If these advertisements do not cause confusion across the board, then search engines have not infringed, even if an errant advertiser has placed a confusing ad. Search engines may well face liability for such ads, but as contributory rather than direct infringers.

The case law suggests that courts may well be up to the task of differentiating between direct and contributory infringement, even in the absence of a trademark use filter. Most recently, in *Rescuecom* itself, the Second Circuit identified the relevant inquiry as whether Google's general practice of generating keyword-based ads was inherently confusing to consumers, rather than whether it enabled placement of some confusing ads:

> What Rescuecom alleges is that by the manner of Google's display of sponsored links of competing brands in response to a search for Rescuecom's brand name (which fails adequately to identify the sponsored link as an advertisement, rather than a relevant search result), Google creates a likelihood of consumer confusion as to

61. In relevant part, the Lanham Act reads:

> Any person who, on or in connection with any goods or services, or any container for goods, uses in commerce any [mark] which . . . is likely to cause confusion, or to cause mistake, or to deceive as to the affiliation, connection, or association of such person with another person, or as to the origin, sponsorship, or approval of his or her goods, services, or commercial activities by another person . . . shall be liable . . . .

15 U.S.C. § 1125(a) (2006). It defines infringement of registered marks as:

> use in commerce [of] any reproduction, counterfeit, copy, or colorable imitation of a registered mark in connection with the sale, offering for sale, distribution, or advertising of any goods or services on or in connection with which *such use* is likely to cause confusion, or to cause mistake, or to deceive . . . .

Id. § 1114 (emphasis added). The structure of both of these provisions make clear that the defendant's use must actually cause the likelihood of confusion in order to constitute infringement.

> trademarks. If the searcher sees a different brand name as the top entry in response to the search for 'Rescuecom,' the searcher is likely to believe mistakenly that the different name which appears is affiliated with the brand name sought in the search and will not suspect, because the fact is not adequately signaled by Google's presentation, that this is not the most relevant response to the search.[62]

The court's emphasis on the risk of confusion from Google's own practices suggests that to prove its allegations, Rescuecom must establish that the act of selling keyword-based ads to advertisers results in a general likelihood of confusion among consumers. If, instead, confusion results from ambiguous or deceptive language in the text of a particular ad or its relationship to a misleading website, the advertiser would be the infringer, with Google's liability assessed under contributory infringement standards.

The district court decision in *Tiffany v. eBay* further supports the notion that courts can, and should, distinguish between acts committed directly by intermediaries and infringement that their business practices may enable.[63] In its trademark infringement claims, Tiffany complained about two different ways in which eBay allegedly contributed to confusion over the source of counterfeit Tiffany products available on its site. First, it contended that eBay had directly infringed by using the Tiffany mark in advertising its auction site to consumers and purchasing search engine advertisements keyed to the Tiffany mark.[64] Second, Tiffany complained that eBay had allowed sellers to continue to use its site, despite its knowledge that many of them were selling counterfeit Tiffany products.[65] The first claim, which focused on eBay's own use of the mark, sounded in direct infringement, while the second was treated under contributory infringement standards.

In addressing the direct infringement claim, the district court considered whether eBay had infringed through its own statements or practices using the Tiffany mark. eBay's advertisements, including those generated through Tiffany as a keyword, visibly presented the Tiffany mark to consumers.[66] Because eBay's auction site included much legitimate, but used, Tiffany jewelry, the court held that eBay had a right to use the Tiffany name to inform the public about products available on

62. Rescuecom Corp. v. Google Inc., 562 F.3d 123, 131 (2d Cir. 2009).

63. *Tiffany*, 576 F. Supp. 2d at 517.

64. *Id.* at 495 ("Tiffany argues that eBay has used Tiffany's marks by advertising the availability of Tiffany items on the website in several ways—on the eBay home page, through communications with sellers and buyers, and through lists of top search terms and popular brand names.").

65. *Id.* at 501–18.

66. *Id.* at 495–96, 500–01.

its site. Applying the nominative fair use doctrine,[67] the court concluded that (1) eBay could not adequately identify Tiffany products without the Tiffany mark; (2) eBay used only so much of the mark as necessary to identify those products; and (3) eBay did nothing else to suggest sponsorship or endorsement of its site, or the used products, by Tiffany.[68] The court, in other words, considered the context of eBay's own use of the mark, and concluded that eBay had a legitimate, non-infringing interest in access to the mark, and had used the mark for that purpose. The fact that third parties had co-opted eBay's business model for their own fraudulent purposes did not affect eBay's liability as a direct infringer, but factored into the contributory infringement claims discussed above.

The court's analysis in *Tiffany v. eBay* offers guidance for evaluating trademark claims against search engines. Doctrinally, the case confirms that direct infringement inquiries should focus on whether the defendant's own behavior caused confusion, rather than whether it enabled deceptive acts by others. In the keyword context, this means that plaintiffs must establish that the sale of keywords, in itself, causes confusion among consumers as to the source of products or services, without regard to the content of particular ads. And in evaluating such claims, courts should consider any applicable defenses, including nominative fair use. If the sale of trademark-based keywords has legitimate, non-infringing applications and the search engine has done no more than necessary to enable those applications,[69] then the nominative fair use doctrine should protect it.

To the extent that plaintiffs claim that particular ads generated by the AdWords program are infringing, however, courts should evaluate such claims under contributory infringement doctrine. In these cases, the search engine's own use may have contributed to the infringement, but the proximate cause of any alleged confusion was the advertiser's own behavior.

CONCLUSION

The recent trend away from a trademark use requirement is a cause for concern if it means an abandonment of the direct/contributory infringement distinction. Contrary to the fears of many courts and scholars, a trademark use requirement would not mean complete

67. The court relied principally on *New Kids on the Block v. News Am. Publ'g, Inc.*, 971 F.2d 302, 308 (9th Cir. 1992).

68. *Tiffany*, 576 F. Supp. 2d at 497.

69. The dastardly search engine posited by the Second Circuit and trademark use skeptics could well face liability under this standard, if it deliberately sowed confusion among consumers.

immunity for Google or other search engines, should they decide to commit evils against their customers. But it would treat them under different legal standards, as befits their role as contributors to someone else's infringement. Courts have had good reason to cling to the distinction between direct and contributory infringement over the last century. It has maintained the focus of infringement analysis on the likelihood of confusion caused by advertisers and sellers, while allowing trademark holders to reach others who knowingly enabled their deception. Just as importantly, the direct/contributory distinction preserves breathing space for third parties whose behavior makes infringement possible, but also facilitates legitimate, information-facilitating uses of marks.

The trademark use requirement offers the most coherent way to preserve the direct/contributory distinction. Yet even in its absence, the Lanham Act offers tools for treating different parties differently, depending on whether they directly caused confusion or merely enabled someone else to do so. Courts should use these tools to ensure that trademark law serves its goal of informing consumers, rather than depriving them of useful information.

WIKIPEDIA'S LABOR SQUEEZE AND ITS CONSEQUENCES

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INTRODUCTION

The Internet allows geographically dispersed individuals to voluntarily contribute their time and expertise towards socially productive tasks.[1] Wikipedia is a shining example of this phenomenon. By every measure, Wikipedia's success has been remarkable. In eight short years, powered solely by volunteer contributions, Wikipedia has developed a huge database of encyclopedic entries and become one of the most popular websites around.

However, user-generated content (UGC) sites are fragile, perhaps surprisingly so. Internet history is littered with once-successful UGC sites that ultimately fizzled out.[2] Can Wikipedia avoid the fate of those sites, or is it destined to join them?

Like many other UGC websites, Wikipedia allows everyone to contribute. Unlike many other websites, Wikipedia also allows just about everyone to edit or delete other people's contributions, an architectural feature I refer to as "free editability." By allowing entries to be improved by an unlimited labor force, free editability embraces the "wisdom of the crowds"[3] philosophy and theoretically should improve article quality.[4]

Instead, I think free editability is Wikipedia's Achilles' heel. Wikipedia attracts vandals and spammers who edit entries for unproductive purposes. Thus far, Wikipedia's volunteer editors have successfully defended against these threats, but future success is not guaranteed. First, as Wikipedia's popularity increases, so does its appeal to vandals and spammers, thus increasing the volume of malicious edits. Second, over time, Wikipedia's current editors will turn over, and I believe various obstacles—including Wikipedia's reliance on contributors who seek neither cash nor credit—will hinder the recruitment of replacements. This dynamic will create a labor squeeze because more

1. *See*, *e.g.*, YOCHAI BENKLER, THE WEALTH OF NETWORKS (2008), and the many commentaries of Benkler's book.

2. Examples include countless BBSs, USENET groups, dormant or dead email lists, message boards, MUDs, online games and websites, and even popular UGC websites such GeoCities, theglobe.com and JuicyCampus. For a post-mortem case study of a once-vibrant online community, see Amy Bruckman & Carlos Jensen, *The Mystery of the Death of MediaMOO, Seven Years of Evolution of an Online Community*, *in* BUILDING VIRTUAL COMMUNITIES 21 (Ann Renninger & Wesley Shumar eds., 2002).

3. *See* JAMES SUROWIECKI, THE WISDOM OF CROWDS: WHY THE MANY ARE SMARTER THAN THE FEW AND HOW COLLECTIVE WISDOM SHAPES BUSINESS, ECONOMIES, SOCIETIES AND NATIONS (2004).

4. *See* CASS R. SUNSTEIN, INFOTOPIA 151–52 (2006) (arguing that Wikipedia succeeds because "so many minds are involved"); Daniel R. Cosley, Helping Hands: Design for Member-Maintained Online Communities 6–7 (July 2006) (unpublished Ph.D dissertation, University of Minnesota), *available at* http://www-users.cs.umn.edu/~cosley/thesis/final.pdf (discussing the benefits of community-maintained sites); *cf.* Eric S. Raymond, *The Cathedral and the Bazaar*, http://www.catb.org/~esr/writings/cathedral-bazaar/cathedral-bazaar/ ("Given enough eyeballs, all bugs are shallow.").

anti-threat work will be borne by a reduced number of committed editors.

To maintain site credibility in the face of this labor squeeze, Wikipedia will reduce free editability over time by increasing the technological and procedural hurdles required to contribute to the site. With these high barriers, Wikipedia will achieve a defensible position against spammers and vandals, but only by changing its basic architecture.

As a result, this Essay explores how credible UGC and free editability conflict with each other.[5] It concludes that Wikipedia ultimately will have to choose between them.

I. MEASURING WIKIPEDIA'S SUCCESS

In 2005, Jimmy Wales said, "Wikipedia is first and foremost an effort to create and distribute a free encyclopedia of the highest possible quality to every single person on the planet in their own language."[6] The English-language version of Wikipedia[7] has made remarkable progress towards this goal. Wikipedia is one of the top ten most trafficked Internet destinations in the United States;[8] it has generated nearly three million English-language articles since 2001;[9] and its article quality has been compared favorably to the *Encyclopædia Britannica*,[10] the traditional gold standard of encyclopedias.

Along with its success, Wikipedia entries often show up as top Internet search results.[11] Until that changes,[12] Wikipedia's traffic will

5. *Cf.* JONATHAN L. ZITTRAIN, THE FUTURE OF THE INTERNET AND HOW TO STOP IT (2008) (discussing the tension between "generative" systems that facilitate user innovations and "appliancized" systems that provide greater security but sacrifice generativity). Zittrain treats Wikipedia as a laudatory example of a generative system that he apparently thinks can avoid becoming appliancized. *See id.* This Essay explains why I think Wikipedia will become more appliancized and less generative.

6. Posting of Jimmy (Jimbo) Wales to Wikipedia-l, http://lists.wikimedia.org/pipermail/wikipedia-l/2005-March/020469.html (Mar. 8, 2005, 19:16 UTC).

7. This Essay focuses on Wikipedia's English-language version, although its analysis generally applies to other Wikipedia versions as well.

8. *See* Alexa Top 100 Sites, http://www.alexa.com/topsites/countries/US (last visited Aug. 31, 2009) (ranking Wikipedia as the #7 site, ahead of eBay, AOL and Amazon.com); *see also* comScore Media Metrix Ranks Top 50 U.S. Web Properties for November 2008 (Dec. 16, 2008), http://ir.comscore.com/releasedetail.cfm?ReleaseID=354584 (ranking Wikimedia Foundation websites as the #9 property).

9. Wikipedia: Statistics, http://en.wikipedia.org/wiki/Special:Statistics (last visited July 26, 2009).

10. Jim Giles, *Internet Encyclopaedias Go Head to Head*, 438 NATURE 900, 900–01 (2005). *But see* Press Release, Encyclopedia Britannica Rips Nature Magazine on Accuracy Study (Mar. 24, 2006), *available at* http://corporate.britannica.com/press/releases/nature.html.

11. *See*, *e.g.*, Simson L. Garfinkel, *Wikipedia and the Meaning of Truth*, TECH. REV., Nov.–Dec. 2008, http://www.technologyreview.com/web/21558/ ("Wikipedia's articles are the first- or second-ranked results for most Internet searches."); Nicholson Baker, *The Charms of*

remain strong even if its credibility slips. Thus, Wikipedia's popularity is a lagging indicator of Wikipedia's credibility.

Rather than using Wikipedia's popularity as a success criterion, this Essay is more interested in Wikipedia as a vehicle to analyze the long-term viability of a freely editable website. Like many other wikis,[13] Wikipedia allows almost everyone to instantly publish entries and edit other people's entries—a configuration choice that is core to Wikipedia's identity and part of Wikipedia's motto. As the Wikipedia main page header says, "Welcome to Wikipedia, the free encyclopedia that anyone can edit."[14]

This architecture distinguishes Wikipedia from most other popular UGC websites, which often welcome contributions from everyone but restrict subsequent editing to the initial author or a group of editors designated by the site operator. Therefore, this Essay focuses on whether Wikipedia can retain its relatively unique architecture of free editability while remaining a credible publication.

Although this Essay focuses on Wikipedia's specific fate as an institution, I am considering Wikipedia as a case study of the inherent tensions between editability and credibility.[15] Wikipedia's idiosyncrasies reduce the generalizability of any insights, but it remains a useful analytical vehicle due to its popularity and its years of experience developing anti-threat systems. Further, given its prominence, Wikipedia's inability to retain free editability would be a troubling sign

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Wikipedia, 55 N.Y. REV. BOOKS 4, 6 (2008) ("[I]t's very often the first hit in a Google search."); *see also* Michaël R. Laurent & Tim J. Vickers, *Seeking Health Information Online: Does Wikipedia Matter?*, 16 J. AM. MED. INFORMATICS ASSOC. 471 (2009) (showing the high ranking of Wikipedia entries for health-related search queries).

12. For example, Google could change its algorithm to reduce Wikipedia's prominence in its search results. Indeed, there is some speculation that Google's "Caffeine" project does exactly that. *See* Posting of Nathania Johnson to SearchEngineWatch.com, Meet the New Google. Not That Much Different from the Old Google, http://blog.searchenginewatch.com/090810-232027 (Aug. 10, 2009, 23:20). Any dramatic decrease in Wikipedia's traffic could have uncertain effects on this Essay's analysis; it would abate some of the spam and vandalism incentives, but it may also reduce some contributors' interest in participating.

13. "A Wiki allows a group to edit text together. Wikis might be open, meaning that anyone can elect to write. Others require permission and a password. Still others allow some people to post and others only to edit." Beth S. Noveck, *Wikipedia and the Future of Legal Education*, 57 J. LEGAL EDUC. 3, 4 (2007); *see also* CLAY SHIRKY, HERE COMES EVERYBODY: THE POWER OF ORGANIZING WITHOUT ORGANIZATIONS 111–12 (2008).

14. Welcome to Wikipedia, http://en.wikipedia.org/wiki/Main_Page (last visited Sept. 23, 2009). *But see*, *e.g.*, Posting of Joseph Reagle to Open Communities, Media, Source, and Standards, Goldman on Wikipedia's Failure (i.e., "Labor Squeeze"), http://reagle.org/joseph/blog/social/wikipedia/goldman-labor-squeeze (Sept. 11, 2009) (free editability is a means to Wikipedia's end, not central to its identity).

15. *See generally* Paul Duguid, *Limits of Self-Organization: Peer Production and "Laws of Quality,"* 11 FIRST MONDAY 10 (2006), http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/1405/1323 (discussing how to measure UGC's "quality").

for the vitality of free editability as a site configuration option. After all, if Wikipedia—with its effectively unlimited labor supply embodying the wisdom of the crowds—cannot marshal the resources required to maintain free editability, who can? Thus, this Essay addresses challenges, currently facing Wikipedia, that any freely editable UGC site is likely to face.

II. THREATS TO WIKIPEDIA

Wikipedia's popularity and high visibility attracts troublemakers, including vandals.[16] Wikipedia defines vandalism as "any addition, removal, or change of content made in a *deliberate* attempt to compromise the integrity of Wikipedia."[17] Wikipedia's vandalism page lists about twenty different categories of vandalism and says that "[c]ommon types of vandalism are the addition of obscenities or crude humor, page blanking, and the insertion of nonsense into articles."[18]

Vandals are motivated by a variety of factors, including attention-seeking.[19] Wikipedia's combination of heavy traffic and free editability provides an easy outlet to satisfy that goal.

Wiki-vandalism is not currently pervasive or generally successful. A 2007 study indicated that between 3-6% of edits were vandalism, and the median time for correcting those errors was fourteen minutes.[20]

However, even a low rate of vandalism may create a significant

16. *See* Lior Strahilevitz, *Wealth Without Markets*, 116 YALE L.J. 1472, 1493–97 (2007) (discussing "The March of the Trolls"); PHOEBE AYERS ET AL., HOW WIKIPEDIA WORKS: AND HOW YOU CAN BE A PART OF IT 143–44 (2008).

17. Wikipedia: Vandalism, http://en.wikipedia.org/wiki/Wikipedia:Vandalism (last visited July 3, 2009) [hereinafter Wikipedia: Vandalism]. Like the definition of wiki-spam, vandalism has multiple definitions. *Compare* AYERS, *supra* note 16, at 209 ("*Vandalism* is, by definition, a change made to Wikipedia with the malicious intention of having a negative effect on the content.") *with* JOHN BROUGHTON, WIKIPEDIA: THE MISSING MANUAL 121 (2008) ("*Vandalism*—the destruction of content or the addition of useless or malicious content.").

18. Wikipedia: Vandalism, *supra* note 17. *See generally* Posting to Best Colleges Online, 25 Biggest Blunders in Wikipedia History, http://www.bestcollegesonline.com/blog/2009/02/10/25-biggest-blunders-in-wikipedia-history/ (Feb. 10, 2009, 01:39) (cataloging some prominent examples of Wikipedia vandalism).

19. Wikipedia: The Motivation of a Vandal, http://en.wikipedia.org/wiki/Wikipedia:The_motivation_of_a_vandal (last visited Sept. 23, 2009); AYERS, *supra* note 16, at 122 ("[S]ome of the very best and most heavily trafficked articles on Wikipedia receive the most vandalism, simply because they are so visible . . . .").

20. Wikipedia: WikiProject Vandalism studies/Study1, http://en.wikipedia.org/wiki/Wikipedia:WikiProject_Vandalism_studies/Study1 (last visited Dec. 29, 2008) [hereinafter Vandalism Study]. Another survey estimated that 42% of errors were corrected before any readers saw the erroneous information, rendering those errors inconsequential. *See* Reid Priedhorsky et al., Creating, Destroying and Restoring Value in Wikipedia (Nov. 2007) (unpublished paper), *available at* http://www-users.cs.umn.edu/~reid/papers/group282-priedhorsky.pdf.

workload for Wikipedia. The 2007 study also indicated that human Wikipedia editors, as opposed to anti-vandal robots, made 100% of the corrections,[21] which reinforces the fact that Wikipedia editors remain the principal defenders of the site's editorial integrity.[22] Given the high volume of total edits being made constantly, even a 3% vandalism rate still requires a lot of anti-vandalism labor hours.[23] This time is diverted from other productive tasks,[24] and this effort is borne by a fairly small corps of dedicated editors.[25]

In addition to vandals, Wikipedia attracts spammers seeking to reach Wikipedia's large audience for their commercial benefit.[26] Quantifying spamming activity at Wikipedia is difficult, in part because "wikispam" lacks a single well-accepted definition. Nevertheless, wikispam is unquestionably a serious concern for Wikipedia. For example, in 2006, Wikipedia's legal counsel described spamming activity as "overwhelming" and "out of hand" and encouraged users to "shoot on sight" if they see spammers.[27]

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21. Vandalism Study, *supra* note 20. However, a small sample size (only 31 incidents) may limit this finding's robustness.

22. *See* Howard T. Welser et al., Finding Social Roles in Wikipedia (2008) (unpublished paper), *available at* http://www.cs.cornell.edu/~danco/research/papers/wp-roles-welser-asa2008.pdf ("[A] large and organizationally important class of Wikipedian is the vandal fighter (counter vandalism editor).").

23. *See* Priedhorsky, *supra* note 20 (discussing the challenges posed by small rates of vandalism across a large volume of edits, and estimating the labor required to combat the problem).

24. BROUGHTON, *supra* note 17 ("For editors, fighting vandalism reduces the amount of time available to improve articles.").

25. *See* Bongwon Suh et al., *The Singularity Is Not Near: Slowing Growth of Wikipedia*, WIKISYM 2009, http://www-users.cs.umn.edu/~echi/papers/2009-WikiSym/wikipedia-slow-growth-ASC-PARC.pdf (top 1% of Wikipedia editors make 55% of edits); Felipe Ortega et al., *On The Inequality of Contributions to Wikipedia*, PROC. 41ST HAW. INT'L CONF. ON SYS. SCIS. (2008), http://www2.computer.org/portal/web/csdl/doi/10.1109/HICSS.2008.333 (discussing the steep power law of user contributions); Katie Hafner, *Growing Wikipedia Revises Its 'Anyone Can Edit' Policy*, N.Y. TIMES, June 17, 2006, at A1; Priedhorsky, *supra* note 20 (discussing the steep power law of user contributions); Posting of Aaron Swartz to Raw Thought, Who Writes Wikipedia?, http://www.aaronsw.com/weblog/whowriteswikipedia (Sept. 4, 2006, 12:17) [hereinafter Swartz, Who Writes] (quoting Jimmy Wales as saying that "[Fifty percent] of all the edits are done by just .7% of the users . . . 524 people . . . . And in fact the most active 2%, which is 1400 people, have done 73.4% of all the edits."); *cf.* Sarah Perez, *The Dirty Little Secret About the 'Wisdom of the Crowds': There is No Crowd*, READWRITEWEB, Sept. 17, 2009, http://www.readwriteweb.com/archives/the_dirty_little_secret_about_the_wisdom_of_the_crowds.php (describing how many online communities exhibit a strong power law phenomenon among contributors).

26. *Cf.* Elinor Mills, *The Big Digg Rig*, CNET NEWS, Dec. 4, 2006, http://news.cnet.com/2100-1025_3-6140293.html (discussing how websites like Digg.com attract spammers as the sites' traffic grows).

27. Posting of Brad Patrick to WikiEN-l, http://markmail.org/message/3pwmvw3w4krfin6g (Sept. 29, 2006, 09:52); *see also* AYERS, *supra* note 16, at 350 (In 2007, "outsiders were increasingly using Wikipedia for promotional ends by writing about themselves and their ventures.").

Wikipedia explicitly recognizes two types of wikispam:[28]

Advertisements masquerading as articles.[29] For example, a French periodical showed that pharmaceutical companies manipulate Wikipedia pages to neutralize adverse commentary about their drugs and to implicitly encourage unapproved uses.[30]

External link spamming. Initially, link-spamming was a product of Google's "PageRank" search results algorithm, which treats every web link as a vote but gives extra weight to votes from more popular sites.[31] Wikipedia, as a very popular site, has a high PageRank.[32] Accordingly, marketers inserted links into Wikipedia pages principally to increase the linked site's PageRank in the Google index and concomitantly increase search referrals from Google. In 2007, Wikipedia responded by adopting Google's "nofollow" tag,[33] which instructs Google not to count the links as votes.[34]

Wikipedia's adoption of the nofollow tag discourages link-spamming but does not eliminate it. First, third parties may freely republish Wikipedia entries verbatim,[35] and some prominent sites, like Answers.com,[36] do so. Unless republishers independently implement the nofollow tag on their websites, marketers can still get PageRank benefit by inserting links into Wikipedia pages when the entries appear on these third party websites. Second, because Wikipedia has so much traffic, marketers can get a high volume of commercially valuable referrals solely

28. Wikipedia: Spam, http://en.wikipedia.org/wiki/Wikipedia:Spam (last visited June 11, 2009).

29. Marketers like masquerading because readers may assign more credibility to editorial content than advertising. *See* Eric Goldman, *Stealth Risks of Regulating Stealth Marketing*, 85 TEXAS L. REV. SEE ALSO 11 (2007) (reviewing Ellen P. Goodman, *Stealth Marketing and Editorial Integrity*, 85 TEX. L. REV. 83 (2006)).

30. *See* Mikkel Borch-Jacobsen, *L'Industrie Pharmaceutique Manipule Wikipédia*, RUE89.COM, Apr. 7, 2009, http://www.rue89.com/2009/04/07/l-industrie-pharmaceutique-manipule-wikipedia.

31. *See* Eric Goldman, *Search Engine Bias and the Demise of Search Engine Utopianism*, 8 YALE J. L. & TECH. 188, 204–05 (2006).

32. For example, on October 20, 2009, the Wikipedia English home page had a Google toolbar PageRank of 8 out of 10. Welcome to Wikipedia, http://en.wikipedia.org/wiki/Main_Page (last visited Oct. 20, 2009) (screen shot on file with author). Interior pages can also have a high PageRank. For example, on October 20, 2009, the Wikipedia page for George W. Bush had a Google toolbar PageRank of 7 out of 10. George W. Bush, http://en.wikipedia.org/wiki/George_w_bush (last visited Oct. 20, 2009) (screen shot on file with author).

33. Posting of Brion Vibber to WikiEN-l, http://lists.wikimedia.org/pipermail/wikien-l/2007-January/061137.html (Jan. 20, 2007, 09:30).

34. Posting of Matt Cutts & Jason Shellen to The Official Google Blog, Preventing Comment Spam, http://googleblog.blogspot.com/2005/01/preventing-comment-spam.html (Jan. 18, 2005, 16:28).

35. *See* ZITTRAIN, *supra* note 5, at 153–54, 177–78.

36. *See* Katherine Mangu-Ward, *Wikipedia and Beyond: Jimmy Wales' Sprawling Vision*, 39 REASON 19, 22 (2007).

from readers following a Wikipedia link directly. As a result, external link spamming still plagues Wikipedia.[37]

III. WIKIPEDIA'S RESPONSE TO THE VANDAL AND SPAMMER THREATS

The previous section explored how vandals and spammers constantly attack Wikipedia. This section considers how these threats affect the Wikipedia community.

A. Increased Technological Barriers to Participation

Over time, Wikipedia has implemented technological measures to make it harder for spammers, vandals and casual users to add or edit site content, including:

- restricting the creation of new articles only to registered users;[38]
- blocking IP addresses of repeat offenders, such as a controversial block of all IP addresses owned or operated by the Church of Scientology;[39] and
- requiring new and anonymous users to solve a CAPTCHA[40] before adding new external links.[41]

Also, Wikipedia administrators can technologically restrict editing of certain pages.[42] A page with "full protection" means that only Wikipedia administrators can edit the page, and a page with "semi-protection" can be edited only by autoconfirmed[43] Wikipedia users.[44]

37. *See* BROUGHTON, *supra* note 17 ("[A]s Wikipedia becomes more widely read, the temptation grows to add links in the hopes that someone will click them, generating traffic for the spamming Web site."); AYERS, *supra* note 16, at 154 (discussing Wikipedia's blacklist of oft-spammed external links).

38. Wikipedia: Your First Article, http://en.wikipedia.org/wiki/Make_a_page (last visited Aug. 15, 2009).

39. Wikipedia: Requests for Arbitration/Scientology, http://en.wikipedia.org/wiki/Wikipedia:Requests_for_arbitration/Scientology#Final_decision (last visited Aug. 10, 2009); *see* Noam Cohen, *The War of Words on Wikipedia's Outskirts*, N.Y. TIMES, June 8, 2009, at B3; Cade Metz, *Wikipedia Bans Church of Scientology*, THE REGISTER, May 29, 2009, http://www.theregister.co.uk/2009/05/29/wikipedia_bans_scientology/.

40. A "CAPTCHA" is an automated challenge posed to users to "ensure that a human is making an online transaction rather than a computer." *Definition of: CAPTCHA*, PC MAG. ENCYCLOPEDIA, http://www.pcmag.com/encyclopedia_term/0,,t=captcha&i=39272,00.asp (last visited Aug. 18, 2009).

41. Wikipedia: User Access Levels, http://en.wikipedia.org/wiki/Wikipedia:User_access_levels (last visited Aug. 17, 2009) [hereinafter Wikipedia: User Access].

42. *See generally* AYERS, *supra* note 16, at 143–44.

43. "The precise requirements for autoconfirmed status vary according to circumstances:

Although articles covered by full protection remain relatively rare,[45] "[s]emi-protection is now quite common for pages on subjects in the news headlines."[46]

All of these practices restrict, and therefore are inconsistent with, free editability. Overall, however, Wikipedia's current technological restrictions are fairly modest. For the most part, anyone can edit Wikipedia at any time, and the current technological hurdles modify that statement only slightly. Nevertheless, Wikipedia has been progressively adding new editing restrictions, which I think is consistent with a macro-trend to slowly "raise the drawbridge" on the existing site content and suppress future contributions.[47] If so, Wikipedia may be incrementally moving away from free editability.

Recently, the English-language Wikipedia site has been considering a more dramatic movement away from free editability: a technological measure called Flagged Revisions.[48] (Several Wikipedia sites around the world, including Germany's and Russia's, already deploy Flagged Revisions).[49] Flagged Revisions would make edits from casual contributors effectively invisible until approved by a more trusted Wikipedia editor.[50]

Flagged Revisions would change Wikipedia in two significant ways.

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for most users on en.wiki, accounts which are more than 4 days old and have made at least 10 edits are considered autoconfirmed." Wikipedia: User Access, *supra* note 41.

44. Wikipedia: Protection Policy, http://en.wikipedia.org/wiki/Wikipedia:Protection_policy (last visited Aug. 18, 2009). Wikipedia also enables "creation protection" (to prevent the repeat creation of an unwanted article) and "move protection" (to restrict article renaming). *Id.* In rare cases, Wikimedia staff may also make incontestable changes/protections to articles, such as to delete copyright-infringing works. Wikipedia: Office Actions, http://en.wikipedia.org/wiki/Wikipedia:Office_actions (last visited Aug. 18, 2009).

45. As of October 15, 2009, there were less than 30 non-redirect indefinitely fully protected articles. Wikipedia: Database Reports/Indefinitely Fully Protected Articles, http://en.wikipedia.org/wiki/Wikipedia:Database_reports/Indefinitely_fully_protected_articles (last visited Oct. 15, 2009) (screen shot on file with author).

46. AYERS, *supra* note 16, at 143.

47. *See id.* at 144 ("Semi-protection . . . compromises the purist wiki principle of *anyone can edit anything*, but protection has been necessary essentially because of Wikipedia's own prominence."); Dirk Riehle, *How and Why Wikipedia Works: An Interview with Angela Beesley, Elisabeth Bauer, and Kizu Naoko*, *in* PROC. 2006 INT'L SYMP. ON WIKIS 3, 6 (2006), http://dirkriehle.com/computer-science/research/2006/wikisym-2006-interview.pdf (Wikipedia administrators acknowledged that "[t]he biggest challenge is to maintain what made us who and what we are: the traditional wiki model of being openly editable. There are temptations to lock things down in order to placate the media who tend to focus on the inadequacies of the site.").

48. Wikipedia: Flagged Revisions, http://en.wikipedia.org/wiki/Wikipedia:Flagged_revisions (last visited Aug. 11, 2009).

49. Wikipedia: Flagged Revisions, http://meta.wikimedia.org/wiki/FlaggedRevs (last visited Oct. 27, 2009).

50. *See* Posting of Noam Cohen to NY Times Bits Blog, http://bits.blogs.nytimes.com/2009/01/23/wikipedia-may-restrict-publics-ability-to-change-entries/ (Jan. 23, 2009, 17:46 EST).

First, many contributors would no longer be able to instantly publish their contributions. Second, ultimate publication of most users' contributions would be predicated on an editor accepting the contribution.[51] Thus, Flagged Revisions would mark the effective end of Wikipedia's free editability. Everyone can still *try* to make edits, but only a fraction of those edits will be approved for publication, and the remainder will be effectively discarded.

At the time of this writing (October 20, 2009), Wikipedia is planning to try a less restrictive alternative to Flagged Revisions called "Flagged Protection and Patrolled Revisions."[52] Flagged Protection is an alternative to categorizing problematic pages as semi-protected or fully-protected, both of which prevent editors with insufficient credentials from editing the page at all. Instead, problematic pages could be subject to Flagged Protection, which would allow everyone to edit the page, but only contributions from editors with the requisite credentials would publish to unregistered readers immediately.[53] All other changes would require some level of approval before publishing to unregistered users. Although Flagged Protection is consistent with more drawbridge-raising, Flagged Protection is, in some ways, more permissive than the current semi- and fully-protected options because everyone can still edit every page (even if their edits never get approved).[54] Further, so long as any of the protection options (semi, full, or flagged) remain infrequently used, these measures do not really change the general proposition that anyone can freely edit most of Wikipedia.

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51. For example, due to Flagged Revisions at the German Wikipedia site, editors review 95%+ of new contributions, causing up to a three-week delay before articles are approved for general publication. *Id.*

52. Wikipedia: Flagged Protection and Patrolled Revisions, http://en.wikipedia.org/wiki/Wikipedia:Flagged_protection_and_patrolled_revisions (last visited Nov. 17, 2009). In August 2009, the New York Times (and many other sources) erroneously reported that the English-language Wikipedia planned to adopt Flagged Revisions for all living people's biographies. *See* Noam Cohen, *Wikipedia to Limit Changes to Articles on People*, N.Y. TIMES, Aug. 25, 2009, at B1. Wikimedia's blog post in response did not successfully correct the error. *See* Posting of Erik Moeller to Wikimedia Blog, A Quick Update on Flagged Revisions, http://blog.wikimedia.org/2009/08/26/a-quick-update-on-flagged-revisions/ (Aug. 26, 2009, 02:55). For example, that blog post concludes "we hope to be able to deploy Flagged Revisions in production use on the English Wikipedia within 2-3 months" when the post elsewhere tried to clarify that only Flagged Protection and Patrolled Revisions were being rolled out. *Id.* Further, Wikipedia representatives may have been less than clear in its terminology elsewhere. *See* Farhad Manjoo, *Jimmy Wales Quietly Edits Wikipedia's New Edit Policy*, TIME, Sept. 30, 2009 ("In several interviews, including many with TIME, officials at the Wikimedia Foundation, the nonprofit that manages Wikipedia, explained that the user-edited online encyclopedia would soon impose restrictions on articles about living people."). However, the English-language Wikipedia currently plans only to implement Flagged Protection and Patrolled Revisions for now. *See id.*

53. Wikipedia: Flagged Protection, http://en.wikipedia.org/wiki/Wikipedia:Flagged_protection (last visited July 17, 2009).

54. *See* Moeller, *supra* note 52.

Patrolled Revisions allows editors with the requisite credentials to mark some edits as not vandalism.[55] This informs other editors that they do not need to spend time making the same no-vandalism determination. Thus, Patrolled Revisions facilitates communication among editors and enhances the anti-vandalism systems already in place.

Collectively, Flagged Protection and Patrolled Revisions are part of the drawbridge-raising progression, but they are also consistent with the current assessment that Wikipedia has avoided significant incursions on free editability. Sections IV and V suggest that more dramatic technological measures are inevitable.

B. Increased Social Barriers to Participation

Although Wikipedia has successfully resisted significant technological barriers to editing, I think its main barriers to user participation currently are social, not technological. For example, even without Flagged Revisions, many user contributions simply do not remain published on the site because other editors quickly delete new articles[56] and revert edits.[57] In these cases, the user contributions may be

55. Wikipedia: Patrolled Revisions, http://en.wikipedia.org/wiki/Wikipedia:Patrolled_revisions (last visited Aug. 1, 2009). In a partially related development, Wikipedia is also evaluating WikiTrust, a tool that color-codes entries to reflect an automated assessment of each word's credibility. *See* Wikipedia: WikiTrust, http://en.wikipedia.org/wiki/Wikipedia:WikiTrust (last visited Nov. 1, 2009); Hadley Leggett, *Wikipedia to Color Code Untrustworthy Text*, WIRED, Aug. 30, 2009, http://www.wired.com/wiredscience/2009/08/wikitrust/.

56. AYERS, *supra* note 16, at 196 ("Many newly submitted articles are deleted every day on Wikipedia: approximately one every minute."); *id.* at 218 ("[A] great deal of content is also deleted—hundreds or thousands of articles are deleted from Wikipedia every day."); Suh et al., *supra* note 25 (a quarter of all new pages are deleted, and the deletion rate increased from 2005 to 2007); *The Battle for Wikipedia's Soul*, ECONOMIST, Mar. 6, 2008, at 3 [hereinafter *Soul Battle*]; Hafner, *supra* note 25 (one Wikipedia editor said that half of newly created pages are good candidates for deletion); *see generally* Wikipedia: New Pages Patrol, http://en.wikipedia.org/wiki/New_pages_patrol (last visited Aug. 18, 2009). An entire site, DeletionPedia, is dedicated to republishing deleted Wikipedia articles. *See* Deletionpedia Home Page, http://deletionpedia.dbatley.com/w/index.php?title=Main_Page (last visited Sept. 21, 2009).

57. *See* BROUGHTON, *supra* note 17, at 123 fig.7-1 (showing a rapid growth in the "percentage of edits that are reverted"); Jim Giles, *After the Boom, Is Wikipedia Heading for Bust?*, NEW SCIENTIST, Aug. 4, 2009, http://www.newscientist.com/article/dn17554-after-the-boom-is-wikipedia-heading-for-bust.html (citing research by Ed Chi that occasional editors have twenty-five percent of their edits reverted); Suh et al., *supra* note 25 (showing a steady growth in the reversion rate from 2005 to 2008, although the overall rate remains relatively low); Posting of Aaron Swartz to Raw Thought, Who Writes Wikipedia?–Responses, http://www.aaronsw.com/weblog/whowritescomments (Sept. 5, 2006, 12:42) [hereinafter Swartz, Responses]. Naturally, several factors could explain the rise in quick reversions, including more spam or vandalism or better anti-threat work. Wikipedia is notorious for "edit wars" where two Wikipedia users repeatedly revert each other's contributions. Wikipedia: Edit War, http://en.wikipedia.org/wiki/Edit_warring (last visited Aug. 17, 2009).

momentarily published but are quickly erased. Knowing that it is hard to make sustainable contributions, some users choose not to participate.[58] Other users whose contributions are erased never come back.[59]

Why has it become so hard for users to make contributions that actually stick? Xenophobia is a major contributing factor.[60] Due to the constant threat of spam and vandalism, some Wikipedia editors become socialized to assume that site edits are made by bad folks for improper purposes,[61] thus developing a "revert first" mentality.

The adverse presumptions especially apply to unregistered or unsophisticated users who do not comply with Wikipedia's cultural rituals, such as signing talk pages.[62] By failing to conform to the rituals, these contributors implicitly signal that they are Wikipedia outsiders, which increases the odds that Wikipedia insiders will target their contributions as a threat. As one book says, "If you're editing and aren't logged in, you're in some sense a second-class citizen on the site. Expect less tolerance of minor infractions of policy and guidelines."[63] This

58. *See* Posting of Aaron Swartz to Raw Thought, Making More Wikipedians, http://www.aaronsw.com/weblog/morewikipedians (Sept. 11, 2006, 17:17) (discussing how Richard Stallman decided not to fix a problem he saw in a Wikipedia article because "it would take an enormous amount of his time and the word would probably just get reverted").

59. *See* Giles, *supra* note 57; Katherine Panciera et al., *Wikipedians Are Born, Not Made*, *in* ASS'N FOR COMPUTING MACHINERY, PROC. ACM 2009 INT'L CONF. ON SUPPORTING GROUP WORK 51, 59 (2009) ("60% of registered users never make another edit after their first 24 hours."). Panciera et al. offer two possible hypotheses to explain this group: (1) they only registered for a single purpose; or (2) they were scared away by their experiences. *Id.*

60. *See* Suh et al., *supra* note 25 (describing the "growing resistance to new content especially when contributed by occasional editors").

61. *See* AYERS, *supra* note 16, at 288 ("Wikipedia articles are created in a hostile environment."); Garfinkel, *supra* note 11 ("There was no way for Wikipedia, as a community, to know whether the person revising the article about Jaron Lanier was really Jaron Lanier or a vandal. So it's safer not to take people at their word . . . ."); *see also* Wikipedia: No Vested Contributors, http://en.wikipedia.org/wiki/Wikipedia:No_vested_contributors (last visited July 25, 2009) ("[S]ome long-term contributors may begin to feel a sense of entitlement and superiority over less prolific editors . . . ."). As a partial recognition of these tendencies, the Wikipedia community has an announced philosophy to "assume good faith" on the part of other contributors. Wikipedia: Assume Good Faith, http://en.wikipedia.org/wiki/Wikipedia:Assume_good_faith (last visited Aug. 14, 2009). Obviously, this philosophy is not universally followed. *See* AYERS, *supra* note 16, at 332 ("Assume Good Faith is a good place to begin, but practicing it can be difficult."). Some reversions reflect contributors' resistance to having their own contributions revised. *See id.* at 195–98.

62. Wikipedia: Signatures, http://en.wikipedia.org/wiki/Sign_your_posts (last visited Aug. 8, 2009); AYERS, *supra* note 16, at 116 ("Always sign comments on talk pages . . . ! This is one of the golden rules of Wikipedia; not doing so is considered very bad form.").

63. *See* AYERS, *supra* note 16, at 325. *Accord* BROUGHTON, *supra* note 17, at 124 ("The red link means that no one has ever posted to the editor's user talk page, which in turn indicates that there have been few or no other edits by this IP address, which means few or no constructive edits. In this case, you don't need to do any further research before reverting. If you see a questionable edit from this kind of user account, you can be virtually certain it was vandalism."); Farhad Manjoo, *Is Wikipedia a Victim of Its Own Success?*, TIME, Sept. 28, 2009, at 50.

insider xenophobia is a more significant incursion on free editability than any technological measure because it leads to quick screening of user contributions—both illegitimate and legitimate.

Even if social barriers presumptively block free editability, anyone can overcome these barriers by becoming a Wikipedia insider. Insider status is open to everyone and does not depend on any credentials, experience, or specific domain expertise.[64] However, becoming a Wikipedia insider requires more than just showing up. To gain enough status to reduce the chances of xenophobic reversions, a contributor must incur non-trivial costs. The contributor is expected to build a user page,[65] learn Wikipedia-specific technological codes,[66] discuss proposed changes with other editors before editing an entry,[67] submit to an arcane dispute resolution process,[68] learn a "baffling culture rich with in-jokes and insider references,"[69] and survive a sometimes rough-and-tumble milieu.[70]

Thus, becoming a Wikipedia insider requires a fairly significant commitment. For many contributors, the benefits of insider status are not worth these required investments,[71] leaving these contributors—and their contributions—vulnerable to xenophobia reversion. As a result, despite Wikipedia's vast readership, only a few of those readers have the actual ability to make lasting improvements to the site.[72]

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64. The 2007 "Essjay" controversy, involving college dropout Ryan Jordan, reinforced how contributors without actual credentials could achieve significant authority in the Wikipedia community. *See* Brian Bergstein, *After Flap over Phony Professor, Wikipedia Wants Some Writers to Share Real Names*, USA TODAY, Mar. 9, 2007, http://www.usatoday.com/tech/news/2007-03-07-wikipedia-credentials_N.htm. Despite the Essjay controversy, the Wikipedia community has repeatedly rejected initiatives to verify contributors' credentials. *See* Wikipedia: There Is No Credential Policy, http://en.wikipedia.org/wiki/Wikipedia:Credentials (last visited July 29, 2009) [hereinafter Wikipedia: There is No Credential Policy].

65. *See* AYERS, *supra* note 16, at 315 ("[N]ot editing your user page will not inspire confidence in your commitment to Wikipedia.").

66. *See id.*; Baker, *supra* note 11.

67. *See* AYERS, *supra* note 16, at 116 ("Posting a preliminary comment on the talk page before making a change acts as a kind of insurance policy . . . . If you discuss first and then edit, you should not come under suspicion of high-handed behavior.").

68. AYERS, *supra* note 16, at 383–404; David A. Hoffman & Salil Mehra, *Wikitruth Through Wikiorder*, 59 EMORY L.J. (forthcoming 2010); Brian Butler et al., *Don't Look Now, But We've Created a Bureaucracy: The Nature and Roles of Policies and Rules in Wikipedia*, PROC. TWENTY-SIXTH ANN. SIGCHI CONF. ON HUMAN FACTORS COMPUTING SYS. (2008), http://portal.acm.org/citation.cfm?id=1357227; Baker, *supra* note 11.

69. AYERS, *supra* note 16, at 332.

70. Baker, *supra* note 11 ("There are some people on Wikipedia now who are just bullies, who take pleasure in wrecking and mocking peoples' work . . . .").

71. *See* Lawrence W. Sanger, *The Fate of Expertise After Wikipedia*, 6.1 EPISTEME 52, 65 (2009) ("*Wikipedia* might be best described as having a rule of the most persistent."); Suh et al., *supra* note 25; Swartz, Responses, *supra* note 57.

72. *See* Baker, *supra* note 11 ("[R]elatively few users know how to frame their contribution in a form that lasts."); Sanger, *supra* note 71, at 52, 71 n.29; Bobbie Johnson,

IV. WIKIPEDIA'S LOOMING LABOR SUPPLY PROBLEMS

Over time, Wikipedia will face a growing labor supply problem because its dedicated editors—the people responsible for suppressing threats from vandals and spammers—will leave faster than new dedicated editors can replace them. This section explains why a labor deficit will develop.

A. Editor Turnover

As all online user communities do, Wikipedia will experience editor turnover.[73] I have not seen any studies rigorously exploring these turnover rates,[74] but undoubtedly Wikipedia needs a constant influx of lots of new editors to replace departing ones.[75]

Why do editors leave? Some turnover is due to typical life cycle changes that displace the time an editor has available to contribute to Wikipedia: students graduate from school and begin working full-time; employees change to a new and more demanding job; people get married or have children; and people develop new hobbies that consume their free time.[76]

Other editors leave because they get burned out.[77] Every successful UGC community will have its share of political battles that push out some community members, either due to frustration with site politics or because the member's political positions were rejected. Wikipedia is no

Wikipedia Approaches Its Limits, THE GUARDIAN, Aug. 13, 2009, at 1.

73. In 2009, I did a small and unscientific study of user turnover at Epinions, an early Web 2.0 company now part of the eBay empire, *see* Frequently Asked Questions about the eBay Announcement, http://www1.epinions.com/help/faq/show_~faq_announcement (last visited Aug. 27, 2009). My study revealed that two-thirds of Epinions' top twenty most popular authors in 1999 had turned over in nine years, and twenty-five percent of Epinions' top twenty most popular authors in 2003 had turned over in five years. *See* Posting of Eric Goldman to Technology & Marketing Law Blog, Decay Rates of Committed Online Community Members—an Epinions Case Study, http://blog.ericgoldman.org/archives/2009/01/decay_rates_of_1.htm (Jan. 26, 2009, 06:09).

74. Research by Panciera et al. may be the closest study on this question. They discuss the lifecycle of Wikipedia editors, including how editors of all levels decrease their participation over time. Panciera et al., *supra* note 59; *accord* Rodrigo B. Almeida et al., *On the Evolution of Wikipedia*, INT'L CONF. ON WEBLOGS & SOC. MEDIA 1, 5 (2007), http://oak.cs.ucla.edu/~cho/papers/almeida-icwsm07.pdf ("[W]hen looking at the whole group of our users together, we can conclude that their average productivity is decreasing overall . . . .").

75. *See* Panciera et al., *supra* note 59.

76. Wikipedia is particularly vulnerable to life changes among its contributors because they are overwhelmingly young, unmarried and childless. *See* Noam Cohen, *Wikipedia Looks Hard at Its Culture*, N.Y. TIMES. Aug. 31, 2009, at B3 (Wikipedia contributors are 65%+ single, 85%+ childless, and 70% under 30 years old).

77. *See* Stephan Baker, *Will Work for Praise: The Web's Free-Labor Economy*, BUS. WK., Dec. 28, 2008, http://www.businessweek.com/technology/content/dec2008/tc20081228_809309.htm.

stranger to political battles,[78] and frequent sparring over edits and editorial policies prompts some community members to check out.[79]

Yet other editors tire of the anti-threat work. Spammers and vandals create repetitive and uninteresting work simply to keep the site intact, and some editors opt-out of this seemingly Sisyphean effort. Their departure increases the anti-threat work borne by the remaining Wikipedia editors, which increases the remaining editors' fatigue and could accelerate their departure rate if the editors feel that the bad guys are winning.[80]

The Open Directory Project (ODP),[81] a partial predecessor to Wikipedia, illustrates how relentless spam can eventually overwhelm volunteer UGC editors. The ODP describes itself as "the largest, most comprehensive human-edited directory of the Web. It is constructed and maintained by a vast, global community of volunteer editors."[82] At its zenith, several major search engines incorporated the ODP directory into their search indexes,[83] and the broad distribution of the ODP directory provided potentially significant traffic for any link that ODP editors incorporated into the directory. The commercial value of these links caused marketers to submit lots of links to ODP.[84] The number of links eventually overwhelmed the ODP editors, causing the project to fall far behind in its ability to provide a reasonably up-to-date directory of websites.[85] Eventually, ODP editors started leaving (or just stopped doing their tasks), rendering ODP effectively irrelevant.[86]

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78. One example is the battle between "inclusionists" and "deletionists." *See Soul Battle*, *supra* note 56; *see also* Baker, *supra* note 11; Johnson, *supra* note 72 ("[T]he numbers suggest that the deletionists may have won.").

79. *See Soul Battle*, *supra* note 56.

80. People's motivation to contribute declines when they feel like they are not making a positive contribution. *See* Susan L. Bryant et al., *Becoming Wikipedian: Transformation of Participation in a Collaborative Online Encyclopedia*, PROC. 2005 INT'L ACM SIGGROUP CONF. ON SUPPORTING GROUP WORK (2005), http://www.cc.gatech.edu/~asb/papers/bryant-forte-bruckman-group05.pdf; Panciera et al., *supra* note 59, at 55; Cosley, *supra* note 4, at 67.

81. The Open Directory Project is also called DMOZ. DMOZ Open Directory Project, http://www.dmoz.org (last visited Sept. 25, 2009).

82. About the Open Directory Project, http://www.dmoz.org/about.html (last visited Sept. 25, 2009).

83. Mark Durham, *Google: We're Down with ODP*, SALON, Mar. 24, 2000, http://archive.salon.com/tech/feature/2000/03/24/google_odp/index.html.

84. Posting of countrystarr to SEOmozBlog, Want to Get Listed in DMOZ? Become an Editor, http://www.seomoz.org/blog/want-to-get-listed-in-dmoz-become-an-editor (Apr. 29, 2009, 11:40); Jim Hedger, *Trouble at the ODP*, SEARCH ENGINE GUIDE, May 26, 2005, http://www.searchengineguide.com/jim-hedger/trouble-at-the-odp.php (discussing allegations of pay-to-play among DMOZ editors).

85. Posting of Barry Schwartz to Search Engine Land, Don't Forget About Us, The Web Directories, http://searchengineland.com/dont-forget-about-us-the-web-directories-18601 (May 5, 2009, 08:33 EST); Hedger, *supra* note 84.

86. DMOZ Had 9 Lives. Used Up Yet?, http://www.skrenta.com/2006/12/

B. Wikipedia's Limited Toolkit to Attract New Editors

The ODP experience provides a useful cautionary tale to Wikipedia. To remain credible in the face of growing spam and vandal attacks, Wikipedia needs a constant new supply of engaged and motivated editors. However, Wikipedia's design creates some challenges to attracting those editors.

First, as discussed above,[87] the existing community's xenophobia hinders the recruitment and integration of new dedicated editors.[88] For example, new editors can be driven away by reversion of their contributions,[89] a problem compounded by the fact that their contributions are especially vulnerable.[90] The ever-increasing technological hurdles also discourage some editors from joining the Wikipedia community.[91]

Second, and perhaps more importantly, Wikipedia has a limited toolkit of incentives to attract new editors. Broadly speaking, users provide labor to websites for one of three categories of motivations: cash (financial payoffs, either directly or indirectly), credit (recognition and notoriety), and intrinsic motivations. Unlike many other UGC communities, Wikipedia relies almost exclusively on intrinsic motivations because it does not satisfy contributors' cash or credit motivations very well.

Wikipedia does not have much to offer contributors motivated by cash. Like many UGC sites, Wikipedia does not pay editors directly for their contributions.[92] However, Wikipedia goes much further than most UGC sites at suppressing contributions from people being paid for their work. For example, UGC websites usually ban fake contributions from companies trying to manipulate consumers,[93] but Wikipedia presumes a

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dmoz_had_9_lives_used_up_yet.html (Dec. 16, 2006, 12:09).

87. *See supra* text accompanying notes 58–60.

88. *See* Swartz, Who Writes, *supra* note 25 (noting that Wikipedia insiders never hear the perspectives of occasional contributors and therefore do not prioritize projects that would help their recruitment); *cf.* Bryant, *supra* note 80.

89. AYERS, *supra* note 16, at 195 ("If you spend any serious amount of time writing for Wikipedia, you'll feel you've wasted it if your edits or articles are not incorporated on the site in some fashion.").

90. Wikipedia: Please Do Not Bite the Newcomers, http://en.wikipedia.org/wiki/Wikipedia:Please_do_not_bite_the_newcomers (last visited Sept. 18, 2009) ("It is difficult for a newcomer to be completely familiar with all of the policies, guidelines, and community standards of Wikipedia before they start editing.") [hereinafter Wikipedia: Please Do Not Bite the Newcomers].

91. *See* Ken S. Myers, *WikImmunity: Fitting the Communications Decency Act to Wikipedia*, 20 HARV. J.L. & TECH. 163, 203 (2006).

92. In fact, Wikimedia Foundation (which operates Wikipedia and other wikis) has less than 30 employees. *See* Staff from Wikimedia Foundation, http://wikimediafoundation.org/wiki/Staff (last visited Sept. 17, 2009).

93. These contributions may even be illegal. *See* Press Release, New York State Attorney

conflict of interest when an editor makes any financially incentivized edits.[94] Thus, Wikipedia's policies discourage employees from editing entries for their employers[95] and editors from seeking direct payment to write entries.[96] The norms are so strong against these types of contributions that a third party service, WikiScanner, automatically identifies and publicizes edits from putatively self-interested sources.[97]

Further, unlike most other UGC websites, Wikipedia effectively prevents editors from developing commercially valuable reputations that could indirectly translate into cash. The next section explains this in more detail.

For these reasons, it is practically impossible for any Wikipedia editor to make money, directly or indirectly, from participation in Wikipedia. Thus, Wikipedia effectively excludes individuals who would supply their labor for cash motivations.

For people motivated by credit, Wikipedia offers numerous recognition opportunities,[98] including election to administrative

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General, Attorney General Cuomo Secures Settlement with Plastic Surgery Franchise that Flooded Internet with False Positive Reviews (July 14, 2009), *available at* http://www.oag.state.ny.us/media_center/2009/july/july14b_09.html.

94. Wikipedia: Conflict of Interest, http://en.wikipedia.org/wiki/Your_company (last visited Sept. 18, 2009) [hereinafter Wikipedia: Conflict of Interest]; Wikipedia: Paid Editing (policy), http://en.wikipedia.org/wiki/Wikipedia:Paid_editing_(policy) (last visited Oct. 27, 2009) ("Paid editing is a type of conflict of interest (COI).") [hereinafter Wikipedia: Paid Editing Policy].

95. Wikipedia: Paid Editing Policy, *supra* note 94 ("Do not edit Wikipedia to promote your own interests, or those of other individuals or of organizations, including employers, unless you are certain that the interests of Wikipedia remain paramount."); AYERS, *supra* note 16, at 17 ("NPOV is also a prime reason why editors are strongly discouraged from working on articles about themselves or their organizations."); *id.* at 165 ("If you're considering an article about yourself or your company—please don't. Even with the best of intentions, this can be seen as self-promotion and often leads to the article being deleted."). Wikipedia policies do not bar company employees from editing entries that have nothing to do with advancing the company's interests, but it is not clear how many companies would allocate their employees' time that way.

96. *See* Brian Bergstein, *Idea of Paid Entries Roils Wikipedia*, FOX NEWS, Jan. 24, 2007, http://www.foxnews.com/printer_friendly_wires/2007Jan24/0,4675,WikipediaPaidEntries,00.html; Cade Metz, *Jimbo Wales: No One Can Make Money from Wikipedia*, THE REGISTER, June 12, 2009, http://www.theregister.co.uk/2009/06/12/wikipedia_cash_for_spam/; Wikipedia: Conflict of Interest, *supra* note 94; *see also* ZITTRAIN, *supra* note 5, at 140–41 (discussing Wikipedia's repeated banning of MyWikiBiz, a service that offered to write Wikipedia entries for a fee). *See generally* Wikipedia: Requests for Comment/Paid editing, http://en.wikipedia.org/wiki/Wikipedia:Requests_for_comment/Paid_editing (last visited Oct. 27, 2009) ("The majority of those that offered their own opinion statements felt that paid editing was a conflict of interest which should be discouraged or controlled in some way.").

97. *See* John Borland, *See Who's Editing Wikipedia - Diebold, the CIA, a Campaign*, WIRED, Aug. 14, 2007, http://www.wired.com/politics/onlinerights/news/2007/08/wiki_tracker.

98. *See* Mangu-Ward, *supra* note 36, at 18; Benjamin K. Johnson, *Incentives to Contribute in Online Collaboration: Wikipedia as Collective Action*, INT'L COMMC'N ASS'N 58TH ANN. CONF. 1, 18 (2008), http://asurams.edu/coah/EngLangMass/faculty/bjohnson/

positions,[99] appearance on various ranking charts,[100] acknowledgement of laudatory articles[101] and individual awards called "barnstars."[102]

These recognition systems may prompt existing editors to work harder, but they are weakly calibrated to recruit new editors.[103] First, as discussed above, insider xenophobia drives away prospective new editors before these editors buy into Wikipedia's reputation systems. Second, the recognition systems are not easily understood by outsiders, so their recruiting power is limited.

Further, Wikipedia blocks attribution for authoring a Wikipedia article,[104] which also dissuades contributors looking for external recognition for their work.

Because Wikipedia is not designed to promote external recognition for editors, it differs from other popular UGC sites that have brought successful users to the public's attention.[105] Without these "stars," Wikipedia does not have any public examples that might draw new editors to the site with the hope of emulating their notoriety.[106]

In light of the absence of cash motivations and the weak recruiting power of its reputational systems, Wikipedia is remarkable for how little it depends on contributions from people who seek cash or credit.

Incentives_to_Contribute.pdf.

99. Wikipedia: Requests for Adminship, http://en.wikipedia.org/wiki/Wikipedia:Requests_for_adminship (last visited Sept. 18, 2009).

100. *See*, *e.g.*, Wikipedia: List of Wikipedians by number of edits, http://en.wikipedia.org/wiki/Wikipedia:List_of_Wikipedians_by_number_of_edits (last visited Sept. 18, 2009). Many Wikipedia editors prominently display the number of their edits on their personal user pages.

101. *See*, *e.g.*, Wikipedia: Featured articles, http://en.wikipedia.org/wiki/Wikipedia:Featured_articles (last visited Sept. 18, 2009).

102. Wikipedia: Barnstars, http://en.wikipedia.org/wiki/Wikipedia:Barnstars (last visited Sept. 18, 2009). There are additional informal forms of recognition. *See* AYERS, *supra* note 16, at 333–34.

103. This is consistent with Aaron Swartz's theory that Wikipedia focuses most of its development resources on the needs of insiders, not newcomers. *See* Swartz, Who Writes, *supra* note 25.

104. Wikipedia: FAQ, http://en.wikipedia.org/wiki/Wikipedia_FAQ#Who_wrote_article_X_on_Wikipedia.3F (last visited Sept. 18, 2009); AYERS, *supra* note 16, at 103; SUNSTEIN, *supra* note 4, at 153. While every edit is attributed in the article's history, this is more obscure and less definitive than more traditional forms of article attribution like a byline. In fact, many registered Wikipedia editors choose to use an alias/pseudonym. *See* AYERS, *supra* note 16, at 305; *see also* Sanger, *supra* note 71, at 52, 66 (describing why Wikipedia cannot allow people to use their real names).

105. For example, the mainstream media has repeatedly profiled Harriet Klausner, Amazon's long-time top reviewer. *See*, *e.g.*, Joanne Kaufman, *A Novel Heroine*, WALL ST. J., Mar. 29, 2005, http://www.opinionjournal.com/la/?id=110006483; *see also* Mark Frauenfelder, *Revenge of the Know-It-Alls*, WIRED, July 2000, at 144.

106. A star system could work like a workplace "tournament," which encourages employees to work hard by offering the chance to be promoted to lucrative future jobs. *See* MARC GALANTER & THOMAS PALAY, TOURNAMENT OF LAWYERS: THE TRANSFORMATION OF THE BIG LAW FIRM (1991); Iman Anabtawi, *Explaining Pay Without Performance: The Tournament Alternative*, 54 EMORY L.J. 1557, 1584–90 (2005).

C. Wikipedia Compared with the Free and Open Source Software Community

Wikipedia and the free and open source software (FOSS) community share numerous intellectual and philosophical underpinnings,[107] but they diverge in the motivations for participation. Unlike Wikipedia, the FOSS community relies heavily on both cash and credit to fuel its labor economy.

Significant FOSS contributions come from company employees whose employers officially sanction their FOSS work.[108] In effect, employers fund these employees' FOSS participation, in many cases because the resulting FOSS project commercially benefits the employer.[109] In other cases, a company may decide to put mature proprietary software into a FOSS project to reinvigorate customer interest or obtain cheaper ongoing development or support.[110] In these cases, the employing company funds the labor supply for the FOSS project.

Individual software authors also participate in FOSS communities. Often, these contributors seek economic payoffs such as increased expertise in commercially valuable skills, future employment from employers impressed by the work, or an installed base of software adopters who will pay for support from the program's expert.[111]

In contrast, Wikipedia discourages contributions from company employees advancing the company interest, and individual Wikipedia contributors cannot build commercially valuable reputations. As a result, Wikipedia's labor market differs markedly from the FOSS community's labor market.

Beyond their differences in contributor motivations, Wikipedia and FOSS have other important differences. First, producing encyclopedic information may be a qualitatively different process than producing software. A contributor to a FOSS project, by definition, automatically possesses a minimum degree of expertise and sophistication in the relevant subject matter, while Wikipedia accepts contributions from

107. *See* AYERS, *supra* note 16, at 38–41.

108. *See*, *e.g.*, Heather Meeker, Remarks at the Law & Computers Session, AALS Annual Meeting (Jan. 9, 2009), http://www.aalsweb.org/fri/LawandComputers.mp3 (20% of FOSS participants were corporate in 1999; now it is closer to 80%); *see also* John Quiggin & Dan Hunter, *Money Ruins Everything*, 30 HASTINGS COMM. & ENT. L.J. 203, 218–19 (2008); SUNSTEIN, *supra* note 4, at 173.

109. *See*, *e.g.*, RON GOLDMAN & RICHARD P. GABRIEL, INNOVATION HAPPENS ELSEWHERE 76–99 (2005); Quiggin & Hunter, *supra* note 108, at 219.

110. *See*, *e.g.*, GOLDMAN & GABRIEL, *supra* note 109; Meeker, *supra* note 108.

111. *See*, *e.g.*, Josh Lerner & Jean Tirole, *Some Simple Economics of Open Source*, 50 J. INDUS. ECON. 197, 213 (2002).

novices and experts equally.[112] Further, it may be easier for users to assess the quality of a FOSS contribution (does it compile? does it run?) than the accuracy of factual contributions to Wikipedia.[113]

Second, FOSS projects often have more hierarchical workflow management than Wikipedia. Many successful FOSS projects have a single individual or small group of individuals with express authority to oversee the project and decide whether new contributions become part of the project's canon or are vetoed.[114] This represents significantly more organization and structure than Wikipedia's process of letting individuals self-appoint themselves as page guardians.

Given the many differences, we should not assume that FOSS's success is inherently extensible to Wikipedia.[115] More likely, if Wikipedia wants to replicate FOSS's success, it may need to emulate the FOSS community more closely.

D. Can Wikipedia Thrive on Intrinsic Motivations?

Because of its weak systems to motivate editors using cash and credit, Wikipedia relies principally on editors' intrinsic motivations for participation, including pride in building something important, the satisfaction of publishing in a highly visible venue, the sense of participating in a community, and pure altruism.[116]

These are all substantial and important motivations, and unquestionably people provide valuable labor based solely on intrinsic motivations.[117] My concern is that Wikipedia's heavy reliance on this labor supply reduces its pool of potential contributors to replace departing editors. The number of people willing to contribute to Wikipedia without any cash or credit is a relatively small fraction of people willing to contribute to UGC communities generally.[118] Further, Wikipedia must constantly and successfully compete for these people's

112. *See* Duguid, *supra* note 15.

113. *See id.*

114. *See*, *e.g.*, SUNSTEIN, *supra* note 4, at 174–75; Duguid, *supra* note 15.

115. Duguid, *supra* note 15 ("[S]ocial processes of Open Source software production may transfer to other fields of peer production, but, with regard to quality, software production remains a special case.").

116. *See* SUNSTEIN, *supra* note 4, at 157; Johnson, *supra* note 98, at 25.

117. *See* BENKLER, *supra* note 1, at 94.

118. In response to a draft of this Essay, Timothy B. Lee argued that Wikipedia's labor supply should not be a problem given United States residents' surplus of leisure time, which should enable Wikipedia to thrive so long as even a small fraction of that leisure time is allocated towards Wikipedia. *See* Posting of Timothy B. Lee to Bottom-Up, Hobbies Don't Need "Incentives for Participation," http://timothyblee.com/?p=849 (Sept. 9, 2009). But it is not enough to know that Wikipedia has a potential labor supply; instead, we have to explain *why* people will allocate their time to Wikipedia rather than the many other professional and leisure activities competing for their available time.

attention against other activities and hobbies, including those activities that offer them cash or credit.[119]

Therefore, Wikipedia is particularly vulnerable to a labor squeeze over time. Its labor needs increase as its popularity (and attractiveness to spammers and vandals) increases, but Wikipedia can replenish its departing editors only from the portion of the overall UGC labor force that does not seek cash or credit.

E. Doesn't Wikipedia's Success to Date Disprove My Argument?[120]

This discussion raises an obvious anomaly: many of the foregoing labor supply issues should have prevented Wikipedia's community from forming in the first place, so Wikipedia's current success provides strong empirical proof against my argument.[121] Nevertheless, for several reasons, Wikipedia's past does not ensure its future success.[122]

First, many early Wikipedia editors joined to build something from scratch, i.e., the opportunity to write new articles that did not exist and to develop the site's community and policies. With much of that initial development work completed, the site now emphasizes incremental enhancements and site maintenance.[123] Site maintenance requires different skill sets and personalities from those required to build the site, and people who enjoy building sites may not enjoy maintenance as much.[124] This may be analogous to how some successful entrepreneurial

119. *See* Strahilevitz, *supra* note 16.

120. There is an extensive academic literature on community formation, maintenance and dissolution in the offline world, including research on immigration/citizenship, alternative living arrangements like kibbutzim and nineteenth century utopian colonies, and participation in non-profit organizations. Although beyond this Essay's scope, it would be fruitful to explore that literature and analogize it to Wikipedia. Even so, Wikipedia differs from offline communities in important ways. Most obviously, unlike almost all other offline communities, Wikipedia draws from a global labor supply that can join or exit at effectively zero out-of-pocket costs.

121. Jonathan Zittrain has made the analogy that bumblebees should not be able to fly in theory, yet they seem to do fine in practice. ZITTRAIN, *supra* note 5, at 148; *see also* SHIRKY, *supra* note 13, at 117.

122. *See generally* Suh et al., *supra* note 25 (showing how various metrics of Wikipedia activity have reversed their upward trends since 2007).

123. *See* Noam Cohen, *Wikipedia: Exploring Fact City*, N.Y. TIMES, Mar. 29, 2009, at WK3; Jimmy Wales, Wikipedia Founder, Opening Plenary at Wikimania 2006 (Aug. 4, 2006), http://wikimania2006.wikimedia.org/wiki/Opening_Plenary_(transcript) ("But with more than 1 million articles in English, I think we should continue to turn our attention away from growth, and towards quality."). One hypothesis is that the John Seigenthaler incident in September 2005 helped accelerate the refocus from site building to site maintenance: "The Seigenthaler incident prompted an intense effort to write more accurately sourced articles, to institute a zero-tolerance environment for nonsense, and to recognize that people who have no desire to work on the site themselves may be affected by Wikipedia articles." AYERS, *supra* note 16, at 52.

124. *See* Cosley, *supra* note 4, at 104; Manjoo, *supra* note 52; Suh et al., *supra* note 25 (hypothesizing that conflict increases on Wikipedia as the site exhausts opportunities to make

companies struggle as they evolve from start-up mode into more bureaucratic enterprises.[125]

Second, Wikipedia initially operated in relative obscurity, so fending off spammer and vandalism attacks required less effort.[126] Wikipedia's editors are now forced to spend more time on potentially less enjoyable anti-threat work.

Third, Wikipedia's xenophobia may be increasing over time,[127] which would cause Wikipedia to be less welcoming to newcomers now than in the past. As barriers to contribution increase, Wikipedia loses two sources of labor that it had in the past: occasional contributions from non-insiders and ongoing contributions of potential dedicated editors who would have joined the community but instead are driven away.

Finally, it is hard to ignore that Wikipedia is effectively one-of-a-kind. No other mass-market or topically broad wikis have had meaningful success to date. Even Wikimedia's other wiki projects are not nearly as active as Wikipedia.[128] If successful wikis are rare, Wikipedia might be a one-in-a-million lightning strike—some unique combination of factors succeeded in this case, but those circumstances are unlikely to replicate. If so, Wikipedia's rarity might also highlight its fragility.

V. POSSIBLE CHANGES

The previous section described Wikipedia's impending labor supply challenges. This section explores some ways Wikipedia might try to overcome those challenges.

A. Raise Technological Barriers/Eliminate Free Editability

As discussed in Section III, Wikipedia is already "raising the drawbridge" by enhancing its technological defenses against spammers

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novel contributions).

125. *Cf.* Aniket Kittur et al., *Power of the Few vs. Wisdom of the Crowd: Wikipedia and the Rise of the Bourgeoisie*, PROC. 25TH ANN. ACM CONF. ON HUMAN FACTORS IN COMPUTING SYSTEMS 1, 8 (2007), http://www-users.cs.umn.edu/~echi/papers/2007-CHI/2007-05-altCHI-Power-Wikipedia.pdf (discussing how increased Wikipedia bureaucracy over time was possibly contributing to changes in contributors' editing practices).

126. *See* Priedhorsky, *supra* note 20 (discussing the exponential growth of threats from 2003–06).

127. *See* Giles, *supra* note 57 (citing research by Ed Chi that the rate of reversion for occasional editors has increased substantially since 2003). Increasing xenophobia, or other efforts to discourage newcomers, may be common in UGC communities. *Cf.* Posting of Michael Forster to Net-Happenings, http://oii.org/lists/lifecycle.html (Mar. 31, 1995, 07:57 EST).

128. *See* AYERS, *supra* note 16, at 419–42 (providing usage statistics for other Wikimedia projects); *see also* Monthly Wikimedia Page Hits Comparison, http://wikistics.falsikon.de/latest (last visited Sep. 15, 2009) (showing the comparatively small traffic volume of non-Wikipedia projects).

and vandals. In a labor squeeze, Wikipedia can leverage its remaining editor corps by increasing its technological defenses even higher. Not only do higher technological barriers thwart the threats, but they also may curb editor burnout by reducing the amount of time editors spend doing unsatisfying maintenance work.

But how high do technological barriers need to be to defeat the spammers and vandals? Minor anti-threat changes, such as requiring a CAPTCHA to make certain edits, do not meaningfully affect free editability but have low payoffs.[129] More significant measures, such as semi-protection or banning new articles from anonymous contributors, do more to reduce editor workload[130] but at greater cost to free editability. Even more dramatic measures, such as Flagged Revisions, would further cut down spam and vandalism but at the cost of free editability.

B. Recruit Replacement Labor

From my perspective, the labor squeeze and desire to retain credibility makes the latter outcome inevitable. However, Wikipedia can retain free editability if it can maintain a strong labor supply to replace departing editors. To do this, Wikipedia could tap into several potential labor sources, including:

Readers. Wikipedia could convert more readers into editors. However, despite the ease of editing Wikipedia and the multiple prominent encouragements to "edit" in every article, Wikipedia's technological and social barriers hinder reader-to-editor conversion. To overcome some of the social barriers, Wikipedia has implemented several newcomer programs, including a "welcoming committee"[131] and a mentorship program.[132] It is not clear how well these programs work. Wikipedia remains fairly intimidating and unwelcoming to newcomers overall,[133]and it chastises existing editors not to "bite" newcomers.[134]

Cash-Motivated Individuals. As discussed above, Wikipedia effectively precludes contributions from cash-motivated individuals.

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129. Spammers can easily defeat CAPTCHAs. *See*, *e.g.*, Posting of Dancho Danchev to ZDNet's Zero Day, http://blogs.zdnet.com/security/?p=1418 (July 3, 2008, 05:46).

130. *See* AYERS, *supra* note 16, at 52 (discussing how banning new articles from anonymous submitters helped reduce the workload of eliminating new "nonsense pages"); *id.* at 143 ("[S]emi-protection filters out a high proportion of vandalism.").

131. Wikipedia: Welcoming Committee, http://en.wikipedia.org/wiki/Wikipedia:Welcoming_committee (last visited Dec. 31, 2008). Even automated greetings can improve participation. *See* Cosley, *supra* note 4, at 114.

132. Wikipedia: Adopt-a-User, http://en.wikipedia.org/wiki/Adopt-a-User (last visited July 3, 2009).

133. Johnson, *supra* note 98, at 17.

134. Wikipedia: Please Do Not Bite the Newcomers, *supra* note 90.

However, attracting those individuals would not be easy. Obviously, Wikipedia could not directly pay editors for contributions. Putting aside the out-of-pocket costs, commoditizing labor that was previously provided for free can counterproductively suppress people's desire to perform the work,[135] so paying for Wikipedia contributions would likely accelerate the departure of existing editors.[136] Furthermore, people who want cash for writing encyclopedic-style content already have numerous options,[137] and those sites are not exactly beating Wikipedia today.[138]

Even if Wikipedia cannot pay for contributions directly, Wikipedia could find ways to create indirect economic payoffs for Wikipedia participation. For example, Wikipedia could try to create a secondary market for Wikipedia-honed skills. Thus, if future employers valued the editing or writing skills an editor developed by participating in Wikipedia, cash-motivated editors would be willing to provide valuable free services to Wikipedia with the hope of being rewarded by future employers. Interestingly, it is not yet clear that employers value the skills developed on Wikipedia, although perhaps this would become clearer if it were a more explicit goal on Wikipedia. Even so, a secondary market could increase competition for editors' time, so this would partially exacerbate the problem it is trying to solve.[139]

Companies. Just like many FOSS projects rely on companies providing employees' time, Wikipedia could benefit from companies requiring or encouraging employees to contribute to Wikipedia on company time. However, this would require the Wikipedia community

135. *See* DAN ARIELY, PREDICTABLY IRRATIONAL: THE HIDDEN FORCES THAT SHAPE OUR DECISIONS (2008); BENKLER, *supra* note 1, at 94; Baker, *supra* note 77.

136. Although not directly analogous, WikiMoney was a user-created system from 2003 to 2004 that used a scarce fungible currency to motivate other users to undertake valuable tasks, but it never caught on. *See* Wikipedia: WikiMoney, http://en.wikipedia.org/wiki/Wikipedia:WikiMoney (last visited July 3, 2009). The concept persists in the Wikipedia Reward Board, http://en.wikipedia.org/wiki/Wikipedia:Reward_board, where users generally offer barnstars to each other to do desired tasks, and the Wikipedia Bounty Board, http://en.wikipedia.org/wiki/Wikipedia:Bounty_board, where donations to the Wikimedia Foundation are made for the completion of desired tasks.

137. Options include Google Knol (http://knol.google.com), Squidoo (http://www.squidoo.com), Mahalo (http://www.mahalo.com), and Amazon's Mechanical Turk (https://www.mturk.com/mturk/welcome).

138. *See* Rafe Needleman, *Mahalo 2.0 Is Wikipedia Plus Money*, CNET NEWS, June 2, 2009, http://news.cnet.com/8301-17939_109-10255071-2.html ("Most people I talk to, though, don't see Mahalo results pop up in their daily search engine use and can't remember the last time they used the site."); Posting of Eric Krangel to Silicon Alley Insider, http://www.alleyinsider.com/2009/1/why-has-knol-survived-googles-orphan-project-killing-spree-goog (Jan. 25, 2009, 3:30 PM).

139. *See* Posting of Eric Goldman to Technology & Marketing Law Blog, Zittrain on the Dark Sides of Crowdsourcing, http://blog.ericgoldman.org/archives/2009/10/zittrain_on_the.htm (Oct. 27, 2009, 12:06).

to relax its attitudes towards conflicts of interest.[140]

Academics. Many academics currently have little extrinsic incentive to contribute to Wikipedia. Most academics are measured by their "reputation," but as discussed above, Wikipedia does not help its contributors build external reputations. As a result, participating in Wikipedia is not credited by academics' peers or employers.

Wikipedia could change its policies to be more academic-friendly, such as by attributing articles to individual authors so that academics could get credit for their contributions as "publications."[141] However, participation by academics potentially conflicts with several Wikipedia norms. Academics do not get any deference for their expertise (actual or self-perceived),[142] which can create conflicts when academics are debating technical matters with people who lack any domain expertise. Further, it would be difficult to give credit to academics for article contributions given the strong norms that articles are not externally credited to any one contributor.[143] Finally, academics have to be careful of violating the no-conflict-of-interest policy when talking about the subjects they know best—their research.[144] All told, Wikipedia could become a more academic-friendly environment, but doing so would not be easy.

Students. Instead of (or in addition to) recruiting academics to contribute themselves, Wikipedia could recruit teachers and professors to require their students to contribute to Wikipedia as part of their courses.[145] Wikipedia already is trying this approach.[146] Student labor would provide Wikipedia with an influx of new contributors whose

140. *See supra* notes 90–93 and accompanying text.

141. In part to attract academics, Wikipedia's competitor/offshoot Citizendium publicly recognizes contributors. *See* CZ:Why Citizendium?, http://en.citizendium.org/wiki/CZ:Why_Citizendium%3F#Real_names_are_better (last visited Sept. 22, 2009).

142. *See* AYERS, *supra* note 16, at 55; *See* Wikipedia: There is No Credential Policy, *supra* note 64. *See generally* Wikipedia: Ownership of Articles, http://en.wikipedia.org/wiki/Wikipedia:Ownership_of_articles (last visited July 5, 2009) (discussing how contributors must allow others to edit their contributions) [hereinafter Wikipedia: Ownership of Articles]. Also, Wikipedia has egalitarian norms, *see* AYERS, *supra* note 16, at 54, which can conflict with hierarchical norms common in many academic communities.

143. *See* Wikipedia: Ownership of Articles, *supra* note 142.

144. In the analogous situation of autobiographies, "drawing on your own knowledge to edit the Wikipedia entry about yourself violates all three of the site's cornerstone policies." Garfinkel, *supra* note 11.

145. *See*, *e.g.*, Robert E. Cummings, *Are We Ready to Use Wikipedia to Teach Writing?*, INSIDE HIGHER ED, Mar. 12, 2009, http://www.insidehighered.com/views/2009/03/12/cummings; Noveck, *supra* note 13, at 7–8 (encouraging law professors to require law students to edit law-related pages on Wikipedia). *See generally* Postings to Air-L, *starting at* http://listserv.aoir.org/pipermail/air-l-aoir.org/2008-November/thread.html#17511 (Nov. 2008) (discussing assigning Wikipedia tasks to students).

146. Wikipedia: School and University Projects, http://en.wikipedia.org/wiki/Wikipedia:School_and_university_projects (last visited July 18, 2009). Citizendium has launched an analogous program. *See* CZ:Eduzendium, http://en.citizendium.org/wiki/CZ:Eduzendium (last visited Sept. 25, 2009).

incentives do not inherently pose conflicts of interest, and some students would convert into long-term dedicated editors. However, this would also unleash a group of new contributors who, by definition, are building their domain expertise and, at the same time, are not acculturated to Wikipedia's norms and practices. As a result, insider xenophobia poses a serious risk of mooting student contributions.[147]

CONCLUSION

An oft-repeated cliché about UGC sites is "if you build it, they will come."[148] Usually, this phrase is used pejoratively to describe websites that launch UGC features without providing the necessary support to build and foster a robust community of invested contributors. In these cases, the website operator hopes that it can throw open some UGC tools to the world and quality contributions will magically materialize. The web is littered with failed efforts where those hopes went unrealized.

This is part of what makes Wikipedia so remarkable. Wikipedia is the epitome of an "if you build it, they will come" website and, yet, people did come, and they built it beyond everyone's wildest expectations.

Wikipedia's comparatively unique architecture has played a key role in this surprising success, including two key choices that continue to shape Wikipedia today: free editability and the reliance on contributors who are principally seeking to satisfy intrinsic motivations. However, these architectural features are at odds with each other. Wikipedia now is grappling with the challenges of maintaining itself, and free editability invites spammers and vandals while its labor supply cannot easily grow to combat these threats. This Essay predicts that Wikipedia necessarily will respond with more restrictive editing policies, eventually eliminating free editability. This is the only sustainable outcome given its increasing labor squeeze.

Eliminating free editability would hardly overshadow the many amazing accomplishments of Wikipedia and its community. Nevertheless, Wikipedia's success to date makes it tempting to assume that Wikipedia is indestructible. It isn't.[149] History reminds us that UGC sites are brittle. In Wikipedia's case, it will flourish only if lots of people

147. Regarding the xenophobia risk, see User: Jbmurray/Advice, http://en.wikipedia.org/wiki/User:Jbmurray/Advice (last visited July 18, 2009); Wiki-Lessons, http://justtv.wordpress.com/2007/03/16/wiki-lessons (Mar. 16, 2007).

148. This is a variation of the memorable line "if you build it, he will come" from the movie FIELD OF DREAMS (Gordon Company 1989).

149. *See* SUNSTEIN, *supra* note 4, at 195 (describing the conditions that could lead to Wikipedia's failure); Giles, *supra* note 57 (quoting researcher Ed Chi as saying "It's easy to say that Wikipedia will always be here . . . . This research shows that is not a given.").

make the ongoing decision to invest their scarce time and energy in the site. We should not take that for granted.

ARE YOUR BITS WORN OUT? THE DMCA, REPLACEMENT PARTS, AND FORCED REPEAT SOFTWARE PURCHASES

TODD C. ADELMANN*

INTRODUCTION

As with most technological changes, the microprocessor's migration into all types of household devices in the 1980s and 1990s was met with mixed emotions. Setting aside arguments about whether those new capabilities were beneficial, the addition of microprocessors to everyday electronic devices did open a new chapter of flexibility in those devices.[1] While the microprocessor garnered much of the attention, some form of

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1. *See* TECHNOLOGICAL INNOVATION AND ECONOMIC PERFORMANCE 42 (Benn Steil et al. eds., 2002).

software was necessary to allow each of those microprocessors to implement these new functions.[2] In addition to using software to provide more functionality and improve performance, businesses also learned to use these features to create new strategic business advantages.

While the inclusion of software and microprocessors creates the possibility of more interaction and communication between products, the fact that interface specifications are frequently proprietary means the manufacturer often retains control over which products and components are able to successfully interact with their product. Over time, some original equipment manufacturers (OEMs) began including electronics and software not only in the host products, but in replaceable component parts as well. With electronic compatibility in their arsenal, product manufacturers now had a powerful new tool to protect their interests and profits in the lucrative replacement parts business. As this was occurring in the 1980s and 1990s, traditional defenses to copyright infringement were still available to help maintain a balance. However, the 1998 Digital Millennium Copyright Act (DMCA) added a new level of control for the product manufacturers.[3] It placed significant new restrictions on consumers' ability to access the software in lawfully purchased products and parts. As a result, consumers are often not able to access the copy of the software which resides in products they lawfully purchased. Because they cannot access the software, consumers have no choice but to dispose of the software and purchase a new copy along with the replacement part. While it may be true that manufacturers can include software in each new part at very little incremental cost, the resulting monopoly effect, not the actual incremental cost of the software, is what causes the potential market imbalance and may increase prices for consumers over the long term.[4]

The DMCA appears to sanction this new power to monopolize markets for replacement parts which contain software and force consumers to repeatedly purchase copies of the same software. However, this note explains how existing copyright doctrine provides consumers the right to continue reusing their original copy of the software and outlines the policy reasons why the DMCA was not intended to, and should not, provide protection to manufacturers in these circumstances. Rather than dispose of the software along with each part and be forced to repurchase another copy, "[c]onsumers merely want to use the software, which they have purchased, as it was meant to be used—but without the

2. *See* COMPUTERS, SOFTWARE ENGINEERING, AND DIGITAL DEVICES 4-3 (Richard C. Dorf ed., 2006).

3. *See* 17 U.S.C. § 1201 (2008).

4. KENNETH NICHOLS, INVENTING SOFTWARE: THE RISE OF "COMPUTER-RELATED" PATENTS 141 (1998).

ball and chain."[5]

The remainder of this note will provide an alternate argument as to why the DMCA, in its current state, should not apply to tangible replacement parts. Part I of this note will further discuss the unique circumstances which arise when the DMCA is applied to replacement parts. Part II of this note will explain the particular DMCA provisions which are applicable to this problem. Part III will summarize the relevant case law. While there are strong policy arguments why the DMCA should not apply in these situations, Part IV of this note will demonstrate that recognized copyright and property doctrines, alone, allow consumers to escape the application of the DMCA for these types of replacement parts. The discussion here supports those who argue for changes in the DMCA to address these problems but demonstrates that only a clarification of the DMCA is required and not an actual change to the protections it provides.

I. THE DMCA AND REPLACEMENT PARTS

Replacement parts are those parts which fail, wear out, or become unusable through regular use of a durable product and must be replaced in order to continue use of the durable product. While some replacement parts fail on an infrequent or unexpected basis, others are consumed on a predictable, periodic basis by design. In the latter case, the proper functioning of the durable product is based upon the ongoing replacement of these parts. In some cases, the replacement parts even perform a maintenance function on the host product. A consumer who owns the host product must continue purchasing consumable replacement parts that are compatible with the durable product in order to continue using it.[6] The frequently referenced example of razors and razor blades demonstrates that the business opportunity associated with replaceable parts not only has a big impact on the business model but can, in some cases, drive it entirely.[7]

In modern industries, this business model is not only still applicable, it can potentially be used even more opportunistically as product complexity increases. For example, printer manufacturers often sell printers at or below cost and realize most, if not all, of their profits from

5. Tate Michael Keenan, Note, *A Key to Unlocking Your iPhone: Eliminating Wireless Service Providers' Use of the U.S. Copyright Law to Limit Consumer Choice and Provider Competition*, 43 GA. L. REV. 229, 261 (2008).

6. Marcus Howell, Note, *The Misapplication of the DMCA to the Aftermarket*, 11 B.U. J. SCI. & TECH. L. 128, 131 (2005).

7. Michael J. Chang, Comment, *Digital Copyrightability of Lexmark Toners and Cartridges Under the Digital Millennium Copyright Act*, 17 ALB. L.J. SCI. & TECH. 559, 560 (2007).

the ongoing sales of ink and toner cartridges.[8] In the case of Hewlett Packard, "[a]nalysts say ink and toner supplies made up more than 80% of fiscal 2004 profit for the computer giant, although they brought in less than a quarter of the company's $80 billion in sales."[9] Lexmark, another large printer manufacturer, utilizes a similar model in which the printers are sold for little or no profit, while printer *supplies* make up a significant portion of the revenue, profit, and business growth.[10] Creating a situation in which consumers focus on the cost of the appliance or hardware and pay little attention to the cost of supplies is a powerful marketing tool and possibly even a competitive necessity.

Because OEMs often derive significant amounts of their profit from replacement parts, third parties also have a strong incentive to develop compatible parts and enter the replacement part aftermarket.[11] As an example, the aftermarket for automotive parts in the United States alone is in excess of 200 billion dollars per year.[12] When making a choice, some consumers initially have the highest confidence in compatibility and reliability in OEM supplied parts. However, aftermarket parts suppliers are driven to create quality products and improvements at an attractive price point in order to compete with OEMs, as well as with other aftermarket competitors. In order to do so, they must carefully conform to the specifications, compatibility, and interfaces designated by the OEM.[13] A strong aftermarket is beneficial to consumers in that it fosters competition, which encourages innovation, provides choices, and drives prices down.[14] Without this aftermarket competition, the OEM's monopolies on replacement parts may dampen innovation and result in higher prices for consumers over the long term.[15]

While some replacement parts, like auto parts and printer cartridges, are relatively complex and may require significant design and development activities to produce, others, like vacuum cleaner bags and coffee maker filters, are much simpler. Despite this, many of these simple replacement parts are still product and model specific. Even though a

8. *Id.*

9. Peter Burrows, *Upstarts Spread in the Ink Wars*, BUS. WK., Oct. 28, 2005, http://www.businessweek.com/technology/content/oct2005/tc20051028_769763.htm.

10. *Supplies Sales Drive Lexmark's Second-Quarter Growth*, RECHARGER MAG., July 26, 2005, http://www.rechargermag.com/articles/36878/.

11. Margaret M. Dolan, Comment, *The DMCA and Original Equipment Manufacturers: Let Consumers Decide*, 56 DEPAUL L. REV. 153, 157 (2006).

12. Automotive Aftermarket Industry Association, About the Aftermarket, http://www.aftermarket.org/AbouttheAftermarket.aspx (last visited Oct. 29, 2009).

13. Howell, *supra* note 6, at 132–33.

14. Chang, *supra* note 7, at 561–62; *see also,* Dolan, *supra* note 11, at 181.

15. Lance C. McCardle, Comment, *Despite Congress's Good Intentions, the DMCA's Anti-Circumvention Provisions Produce a Bad Result—A Means to Create Monopolies*, 50 LOY. L. REV. 997, 1021 (2004).

coffee filter is performing a very simple, arguably universal, function, consumer choice is limited to the part that is precisely compatible with the host product. This is true even though its difference from other replacement parts may be functionally negligible. With these simple parts, it is relatively straightforward for an aftermarket manufacturer to analyze the product and design their own version of the replacement part that performs just as well, if not better, than the original. Antitrust laws generally prohibit the OEM from limiting or controlling this type of aftermarket part activity as long as no patent infringement is occurring.[16]

In contrast, unique challenges arise when the replacement part contains electronics and software which communicate with the host product. In addition to the mechanical fit and function, the two must be electrically interoperable.[17] The aftermarket manufacturer now has the much more challenging job of replicating the electrical interface between the two products and emulating the software inside the replacement part which facilitates the communication.[18] For example, the electronics and software in many printers must communicate with corresponding, proprietary software in the replaceable print cartridge before the printer will operate.[19] "The software tells the printer if the correct type of cartridge is installed, if the cartridge is running low on ink, and other useful information the printer may require for its operation."[20] If the printer does not receive proper communication signals from the cartridge, the printer may simply not operate.[21]

In order to create a replacement cartridge which works with the printer, the aftermarket manufacturer must mimic the original cartridge software and provide the expected responses to fool the printer into believing an OEM cartridge is installed.[22] Unless and until aftermarket providers are able to duplicate these features and provide parts which communicate properly with the host device, the OEM has a monopoly on the parts market. Alternately, the host product may allow a non-communicative aftermarket part to operate in the host device, yet intentionally cause the aftermarket part to function very poorly, thereby creating and reinforcing a monopoly on *competitive* parts.[23]

16. Eastman Kodak Co. v. Image Technical Servs., 504 U.S. 451, 478 (1992).

17. Howell, *supra* note 6, at 132–33.

18. *Id.* at 133.

19. DIGITAL RIGHTS MANAGEMENT: TECHNOLOGICAL, ECONOMIC, LEGAL AND POLITICAL ASPECTS 625 (Eberhard Becker et al. eds., 2003).

20. Howell, *supra* note 6, at 133.

21. *Id.*

22. *Id.*

23. ECONOMICS OF INFORMATION SECURITY 36–37 (L. Jean Camp & Stephen Lewis eds., 2004) (explaining how Motorola allowed aftermarket batteries to operate in certain model cell phones but intentionally operated the phones in the least efficient mode, causing the batteries to drain as quickly as possible).

While this type of electronic sophistication could only be economically justified on more complex and expensive replacement parts in the past, new technologies and methods have enabled individual electronic circuits which communicate with host devices to be embedded in parts at a cost of less than one cent per unit.[24] This low cost allows electronic interoperability to be implemented in virtually any replacement part used with a host product which already has electronic features. While the average consumer may not envision a great benefit to a disposable coffee filter which communicates electronically with the coffee maker, a manufacturer can argue, whether legitimately or not, that the precision brewing process is adjusted and optimized for the specific type of filter being used.

In order to make interoperable aftermarket products, developers are generally allowed to make use of reverse engineering techniques to analyze the OEM's software as long as the copyrights on the underlying software are not infringed.[25] While it is quite challenging, experienced engineers are surprisingly adept at being able to capture and analyze signals sent between devices and mimic those interfaces.[26] In order to further protect copyrighted software from these efforts, some manufacturers take the extra step of including security features, otherwise known as technological protection measures, to make it much more difficult for aftermarket manufacturers to gain access to the underlying interoperability software.[27] Although circumventing these types of electronic locks was not historically prohibited, the DMCA added a new tier of protection for manufacturers when they use these types of electronic locks.[28] The DMCA, generally, prohibits the circumvention of the technological protection measures which control access to copyrighted material even if no *traditional* copyright violations are committed after gaining access to the software.[29] This extra tier of protection for software embedded in a replacement part allows copyright law to effectively restrict the ability to create a functional replacement part and blocks the aftermarket opportunities associated with those parts.[30]

While the primary intent of the DMCA was to restrict the rampant

24. Peter Singer, *A New Approach to Low-Cost RFID Tags*, SEMICONDUCTOR INT'L, Feb. 1, 2005, http://www.semiconductor.net/article/CA499653.html.

25. Chang, *supra* note 7, at 564.

26. The author has personally observed sophisticated successful reverse engineering activities performed by suppliers of replacement parts which contain electronics and software.

27. Howell, *supra* note 6, at 133.

28. 17 U.S.C. § 1201(a)(1)(A) (2008); 3 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 12A.03[A][1][a] (2009).

29. 17 U.S.C. § 1201(a)(1)(A).

30. AARON SCHWABACH, INTERNET AND THE LAW: TECHNOLOGY, SOCIETY, AND COMPROMISES 93 (2005).

copying and pirating of goods which exist only in digital form,

> [t]he potential effect of applying [the DMCA] to the aftermarket is particularly troublesome because it is relatively easy for any manufacturer to add this type of technological access control to existing products, even those outside the realm of the consumer electronics market. For example, automakers could ensure that consumers only purchased licensed replacement tires, windshield wipers, or even the gas used to fill up the car, at monopolistic rates.[31]

There are concerns that the DMCA can be extended to provide protection for just about any product by including a small amount of embedded software and protecting that software with some sort of electronic lock.[32] In addition, this protection could potentially also extend to each of the replacement parts used with these products. On the surface, this application of the DMCA to tangible aftermarket parts seems to be an inappropriately far reaching use of the DMCA's anti-circumvention provision.[33] Due to this potential misuse, many commentators argue the DMCA should be either amended to exclude these types of scenarios or interpreted in a manner to exclude application to these types of goods.[34]

II. OVERVIEW OF THE APPLICABLE DMCA PROVISIONS

As new technological capabilities emerge which potentially facilitate acts of copying and distributing protected material, copyright law's protections must continually adapt to provide protection as it relates to these new capabilities. At various points in time, new technologies like photocopy machines and digital audio tapes presented unique challenges which copyright struggled to accommodate.[35] With many forms of copyrighted material already existing in digital form, the widespread availability of the internet and increasing availability of high speed

31. Howell, *supra* note 6, at 134–35.

32. Caryn C. Borg-Breen, Comment, *Garage Door Openers, Printer Toner Cartridges, and The New Age of the Digital Millennium Copyright Act*, 100 NW. U. L. REV. 885, 886 (2006).

33. Keenan, *supra* note 5, at 244.

34. *See* Jacqueline Lipton, *The Law of Unintended Consequences: The Digital Millennium Copyright Act and Interoperability*, 62 WASH. & LEE L. REV. 487, 545 (2005); James L. Davis, Note, *Is Interoperability Just For Those Who Can Hack It? The Application of the DMCA Interoperability Exceptions in the Consumer Electronics Industry*, 2005 U. ILL. J.L. TECH. & POL'Y 141, 169–70 (2005); Howell, *supra* note 6, at 152–53; Chang, *supra* note 7, at 564; ROBIN JEWELER, CONGRESSIONAL RESEARCH SERVICE, CRS REPORT FOR CONGRESS, ANTICIRCUMVENTION UNDER THE DIGITAL MILLENNIUM COPYRIGHT ACT AND REVERSE ENGINEERING: RECENT LEGAL DEVELOPMENTS CRS-15 (2004), *available at* http://ipmall.info/hosted_resources/crs/RL32692_041210.pdf.

35. Lee Kovarsky, *A Technological Theory of the Arms Race*, 81 IND. L.J. 917, 956 (2006).

internet connections prompted Congress to enact the DMCA.[36] Three DMCA provisions have a direct impact on the OEM replacement parts market: 1) the anti-circumvention provision, 2) the anti-trafficking provision, and 3) the reverse engineering exception.

A. Anti-circumvention Provision

Copying which occurs in a widely distributed manner across the internet and exists as thousands or millions of independent acts, frequently through peer to peer networks, naturally triggers a desire to stem the illegal activities by controlling upstream activities which enable the copying. The DMCA does just this by making the act of circumventing the technical protection measures or electronic locks, in itself, a liability-creating activity even if the underlying protected work is not copied or distributed.[37] The most novel aspect of the DMCA, and hence the most discussed and debated, is the anti-circumvention protection. Regardless of whether anything is actually copied, it prohibits "circumvent[ing] a technological measure that effectively controls access to a work protected under this title."[38]

"The act of circumvention . . . is an independent violation separately actionable under § 1201 and subject to the remedies, civil and criminal, codified in § 1203."[39] It is precisely this creation of liability, even though no copying or traditional copyright violations have taken place, which prompts some to refer to the DMCA as "paracopyright" law and describe it as a legal mechanism altogether separate from copyright law.[40] "In explaining this right, Congress adopted the analogy of breaking into a locked room to obtain a copy of a book; it is the act of breaking in, rather than the subsequent use of the book, that is prohibited."[41] While this analogy provides an illustration which is helpful to understanding the distinction between circumvention and copyright violating acts in themselves, it can be misleading because it firmly attaches a negative connotation to the circumventing activities, and glosses over fair use and other exceptions under which these activities may be allowed.[42]

However, in reality, the locked room analogy may be the most accurate. While some allowed uses of otherwise protected material are

36. *See* MARSHALL LEAFFER, UNDERSTANDING COPYRIGHT LAW 391 (4th ed. 2005).

37. *See* 17 U.S.C. § 1201(a) (2008).

38. *Id.* § 1201(a)(1)(A).

39. LEAFFER, *supra* note 36, at 394.

40. NIMMER, *supra* note 28, § 12A.18[B].

41. Daniel C. Higgs, Note, Lexmark International, Inc. v. Static Control Components, Inc. & Chamberlain Group, Inc. v. Skylink Technologies, Inc.*: The DMCA and Durable Goods Aftermarkets*, 19 BERKELEY TECH. L.J. 59, 63 (2004).

42. *See* 17 U.S.C. § 1201(c)–(k) (2008).

theoretically still intact, the fact that the statute treats the circumvention of the protection measure and the potential copying entirely independently, means that a violation can take place regardless of whether the downstream use may ultimately be protected. The supposed protection for other activities may essentially vanish "particularly when courts hold that the fair use defense cannot be asserted in an anti-circumvention proceeding because fair use only protects certain *uses* of a copyright work, as opposed to *access* of a copyright work without authority."[43]

A logical conundrum is created by defining circumvention as a *copyright* violation. The problem lies in the fact that the potential defenses exist on the copyright, or the *use*, side of the fence. There is little dispute that circumvention of a technical protection measure which protects a copyrighted work presents a prima facie case of infringement.[44] The person who makes no use of the protected work once the circumvention has taken place, or does not even access or interact with the copyright protected work in any manner, is probably still liable for infringement. However, a person who goes a step further and makes use of the work in a manner which is protected by one of the DMCA exceptions *may* escape liability. In other words, the person who makes no use whatsoever is *theoretically* subject to a higher risk of copyright liability than the person who circumvents and uses the work in an excepted manner. Under the DMCA, both the traditional defense of *no* use and fair use no longer exist.[45]

B. Antitrafficking Provision

Further recognizing the distributed nature of copying digital works in this technological era and the ability of the average personal computer user to accomplish the circumvention and copying through easily downloaded software applications, Section 1201(b) also prohibits trafficking in devices or tools which are used to circumvent technical protection measures:

> No person shall manufacture, import, offer to the public, provide, or otherwise traffic in any technology, product, service, device, component, or part thereof, that . . . is primarily designed or produced for the purpose of circumventing protection afforded by a technological measure that effectively protects a right of a copyright

43. Lipton, *supra* note 34, at 494 (emphasis in original).
44. *See* 17 U.S.C. § 1201(a) (2008).
45. *See* Davis, *supra* note 34, at 148.

owner under this title in a work or a portion thereof . . . .[46]

This makes it easier to attack the problem of piracy by also creating liability for the relatively small number of people who provide the technological tools which enable others.

Even though the provider of the tool may never use it to access a protected work, he is still liable under this provision. While this type of contributory liability has long been possible in copyright cases, the DMCA wording goes further and creates liability for the creation and distribution of these types of devices, or software, by removing the need to associate it with specific acts of infringing copying activity.[47] While this has no significant affect on how infringing activities and activities which are plainly contributory are framed, it does significantly impair an individual's ability to pursue previously allowed, excepted activities. As technology expands, specialization means only a very limited number of people have the technical expertise necessary to create the tools necessary to circumvent a particular type of technical protection measure. As a result, the likelihood an individual who wants to circumvent a technical protection measure for an excepted purpose also has the technological knowledge to develop the circumvention means is almost nonexistent. While the traditional contributory liability approach may relieve the tool developers because the ultimate use of the material was allowed, the DMCA approach no longer affords this possibility of relief.[48] The possibility has effectively been eliminated by placing the cart before the horse. "If circumvention itself is illegal then there is no noninfringing use of circumvention technology."[49]

C. Reverse Engineering Exception

Although there are multiple exceptions to the DMCA allowing, for example, uses by libraries, law enforcement, and others, the most pertinent exception related to this note is the reverse engineering exception. The reverse engineering exception, often also called the interoperability exception, allows a person to circumvent the technical protection measures around a work "for the sole purpose of identifying and analyzing those elements of the program that are necessary to achieve interoperability of an independently created computer

46. 17 U.S.C. § 1201(b)(1)(A).

47. *See* Ryan L. Van Den Elzen, Note, *Decrypting the DMCA: Fair Use as a Defense to the Distribution of DeCSS*, 77 NOTRE DAME L. REV. 673, 690 (2002).

48. Davis, *supra* note 34, at 169.

49. Yochai Benkler, *Free as the Air to Common Use: First Amendment Constraints on Enclosure of the Public Domain*, 74 N.Y.U. L. REV. 354, 426 (1999).

program . . . ."[50] It allows a person to engage in circumvention when it is necessary to make software programs compatible with other software programs, as long as the interface specifications are not otherwise readily available.[51]

These technical solutions can even be distributed to others as long as it done "solely for the purpose of enabling interoperability of an independently created computer program."[52] While this provides valuable permission for those engaged in the development of software programs which must interface with other programs, it provides no assistance to the average, non-technical end user who is not attempting to get multiple computer programs to operate together but is simply attempting to access a work to use it in a way that would be protected under traditional copyright law.[53] Despite the fact that other sections of the statute are geared towards the actions of companies, the wording of this exception is such that it focuses specifically on the actions of the end user, and does not expressly provide the same latitude for manufacturers and distributors who are working to provide similar solutions to end users.[54] In this case, using the traditional incentive versus public benefit tradeoff as a means of deciding how far the reverse engineering exception should reach is problematic because the innovation incentive is on both sides of the equation.[55]

III. VIDEO GAMES, TONER CARTRIDGES AND GARAGE DOOR OPENERS

A. Sega

Sega Enterprises v. Accolade, Inc. was decided before the enactment of the DMCA but touched on some important copyright concepts which can play a role in DMCA analysis.[56] Sega developed, manufactured and sold game cartridges which were compatible with their own video game console.[57] Accolade purchased Sega game cartridges and performed reverse engineering analysis on them in order to discover the interface specifications necessary to produce their own game cartridges which could be played on the Sega game consoles.[58] Accolade developed their

50. 17 U.S.C. § 1201(f)(1).
51. LEAFFER, *supra* note 36, at 400–01.
52. 17 U.S.C. § 1201(f)(3).
53. Davis, *supra* note 34, at 169.
54. Keenan, *supra* note 5, at 253, 255.
55. Craig Zieminski, *Game Over for Reverse Engineering?: How the DMCA and Contracts Have Affected Innovation*, 13 J. TECH. L. & POL'Y 289, 319–20 (2008).
56. 977 F.2d 1510 (9th Cir. 1992).
57. *Id.* at 1514.
58. *Id.* at 1514–15.

own compatible games based on the information learned from the reverse engineering activities and copied only a very small portion of the Sega code which they felt was necessary to include in their games in order to maintain compatibility with upcoming Sega game platforms.[59]

Although Accolade was ultimately held liable for the portion of the software code which was directly copied, the court found, through a traditional fair use analysis, that the *intermediate* copying of the entire program for disassembly purposes was a protected use because there was no other means of accomplishing this lawful activity.[60] Even though Accolade undertook these activities with the commercial purpose of competing directly with Sega's own cartridges, thereby reducing Sega's sales, the "panel's opinion . . . saw this substitution as swamped by the potential positive effects on the market for Sega's consoles and games."[61] There are two important points to carry forward from *Sega* to analysis under the DMCA. First, *intermediate* copies of software made in the process of accomplishing other legal objectives may not be infringing. Second, even though the software copying may result in a direct reduction in sales of the work owner's product, this does not necessarily defeat a fair use argument because it also considers the benefits of competition and the effect on the market in broader terms.

B. Lexmark

Lexmark is a major player in the computer printer industry and, like most, brings in much of its income from the sale of replacement toner cartridges for the laser printers it manufactures and sells.[62] Each toner cartridge contains an electronic chip which monitors the level of toner, controls the operation of the toner cartridge, and communicates with the printer. The printer will not operate properly until it receives the proper handshake signal from the chip in the toner cartridge.[63] Static Control Components (SCC), a major supplier of aftermarket parts and components to the printer cartridge remanufacturing industry, reverse engineered one of Lexmark's chips and began offering for sale a clone of that chip.[64] Cartridge remanufacturers could buy those chips and attach them to their refilled or refurbished cartridges in order to make them work in the Lexmark printers.

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59. *Id.* at 1516.

60. LEAFFER, *supra* note 36, at 494.

61. Frank Pasquale, *Toward an Ecology of Intellectual Property: Lessons from Environmental Economics for Valuing Copyright's Commons*, 8 YALE J. L. & TECH. 78, 98 (2006).

62. Howell, *supra* note 6, at 141–42.

63. Tomas Kellner, *Protecting the Family Jewels*, FORBES, Dec. 8, 2003, at 66, *available at* http://www.forbes.com/forbes/2003/1208/066.html.

64. *Id.*

Lexmark sued SCC for copyright infringement and for violation of the DMCA anti-circumvention provisions.[65] The Federal District Court for the Eastern District of Kentucky granted a preliminary injunction against SCC because Lexmark was "likely to prevail on the merits of its copyright infringement and DMCA claims."[66] SCC "did not qualify for the interoperability exceptions because the computer program was copied from Lexmark and not independently created."[67] The Sixth Circuit Court of Appeals reversed the injunction in favor of SCC.[68] The court found that the small piece of code that was directly copied was not eligible for copyright protection.[69] In addition, the court found that the copied code was not protected by the DMCA because the code in question could be accessed in the printer through other avenues which had no technical protection measures associated with them.[70] The technical protection measure used by Lexmark protected against the use of the software, but did not protect against access to the software itself, so the DMCA anti-circumvention provision was not applicable.[71]

While the outcome is consistent with the objectives of those arguing for a more restricted application of the DMCA, the holding is likely limited by the unique circumstances of the case. Despite this decision, it is possible that manufacturers may still be able to achieve DMCA protection for code in replacement parts if there is no other way to access the code.[72] In future cases involving more complex code and more careful protection of that code, the outcome may be different. "In fact, the Sixth Circuit's reasoning on this point could now be read as a recipe for future manufacturers on precisely how to launch a successful DMCA claim in a subsequent interoperable products case."[73] "The tension between the court's reasoning and the binding text of the DMCA can only limit the decision's precedential value—to the detriment of technology users . . . ."[74]

C. Chamberlain

Chamberlain Group, Inc. is a manufacturer of automatic garage

65. Lexmark Int'l, Inc. v. Static Control Components, Inc., 253 F. Supp. 2d 943, 947 (E.D. Ky. 2003).

66. *Id.* at 974.

67. Davis, *supra* note 34, at 150.

68. Lexmark Int'l, Inc. v. Static Control Components, Inc., 387 F.3d 522, 551 (6th Cir. 2004).

69. *Id.* at 542.

70. JEWELER, *supra* note 34, at 8.

71. Davis, *supra* note 34, at 151.

72. JEWELER, *supra* note 34, at 9.

73. Lipton, *supra* note 34, at 506.

74. Timothy Armstrong, *Fair Circumvention*, 74 BROOK. L. REV. 1, 25 (2008).

door openers.[75] In order to deter thieves from attempting to electronically capture the unique codes transmitted by the remote control to open the garage door, Chamberlain implemented a "rolling code" system which causes a new code to be generated each time the door is opened.[76] Software and algorithms in the opener allowed it to generate a new code for the remote control each time the door was opened using the remote. Skylink, Inc., a provider of universal garage door opener remote control replacements, began marketing a remote which was compatible with the Chamberlain garage door openers.[77] Rather than duplicating the "rolling code" system, the Skylink remote control worked by exploiting a feature in the Chamberlain openers which allowed the rolling code process to be circumvented.[78]

Chamberlain sued under the anti-trafficking provisions of the DMCA, alleging that Skylink illegally circumvented the technical protection measures associated with the Chamberlain authorization sequence software and enabled the users of the remote to bypass those protections.[79] The district court found that Skylink had not improperly provided access to Chamberlain's copyrighted software and granted summary judgment in favor of Skylink.[80] In its decision, the court emphasized homeowner expectations and industry practice.[81] Since Chamberlain had not specifically notified customers about any limitations in purchasing a replacement remote, the customers implicitly had authorization to use aftermarket remotes from other providers, and "the customers could pass the authorization along to Skylink by purchasing and programming the replacement remote."[82]

On appeal, the Federal Circuit affirmed the district court's holding but on different grounds.[83] Although not expressly limited by the underlying activities in the DMCA, the court focused on whether the "access" provided by the allegedly infringing activities enabled or contributed to activities which would be infringing under traditional copyright law.

> We conclude that 17 U.S.C. § 1201 prohibits only forms of access that bear a reasonable relationship to the protections that the

75. Howell, *supra* note 6, at 143.

76. *Id.*

77. Chamberlain Group, Inc. v. Skylink Techs., Inc., 292 F. Supp. 2d 1023, 1026 (N.D. Ill. 2003).

78. *Id.* at 1032.

79. *Id.* at 1025.

80. *Id.* at 1046.

81. JEWELER, *supra* note 34, at 11.

82. Howell, *supra* note 6, at 144.

83. Chamberlain Group, Inc. v. Skylink Techs., Inc., 381 F.3d 1178, 1204 (Fed. Cir. 2004).

> Copyright Act otherwise affords copyright owners. While such a rule of reason may create some uncertainty and consume some judicial resources, it is the only meaningful reading of the statute.[84]

The court concluded there was no violation of the DMCA because the remote control did not copy or modify Chamberlain's software; it only bypassed the security features to get to the software.[85] While the outcome is consistent with the objectives of those arguing for an interpretation which keeps the DMCA within the bounds defined by traditional copyright law, the effect is unclear because the outcome is dependent on the actions of the end user and utilizes "a requirement beyond the text of the statute."[86] Chamberlain "did not shut the door to creative uses of the DMCA."[87] The Chamberlain decision may not reach very far because the express language of the DMCA could easily support the alternate conclusion.[88] Craig Zieminski notes that, "[i]f the DMCA intends to prohibit access control circumvention that does not result in copyright infringement, then the reasoning behind the *Chamberlain* holding is fallacious."[89]

IV. APPLICATION TO REPLACEMENT PARTS

A. Congress Did Not Intend This Outcome

The DMCA was not created because consumers suddenly started ignoring or circumventing copyright laws more than they had in the past, but because the availability of digital copies of copyrighted works and high speed networked digital communications gave the behaviors of those who do infringe an exponentially larger impact on rights owners.[90] Rights owners were justifiably concerned to see that perfect, digital copies of their protected works could be posted on the internet by a small number of people and be instantly and easily available to millions. The primary purpose of the DMCA was to provide additional protections for rights owners by adapting copyright law "to make digital networks safe places to disseminate and exploit copyrighted materials."[91] The new and unique concerns which brought about the legislation are not applicable to tangible replacement parts which cannot be copied and widely distributed through the use of digital networks. They are physical items

84. *Id.* at 1202–03.
85. Howell, *supra* note 6, at 144.
86. Davis, *supra* note 34, at 152.
87. Keenan, *supra* note 5, at 249.
88. Armstrong, *supra* note 74, at 19.
89. Zieminski, *supra* note 55, at 329.
90. JESSICA LITMAN, DIGITAL COPYRIGHT 111 (2001).
91. S. REP. NO. 105-190, at 2 (1998).

which require traditional manufacturing processes to create each instance and require traditional transportation processes to put each instance of the item in the hands of each end user.

Scholarly research has failed to find information in the legislative history which indicates that Congress intended the DMCA to have this type of effect on aftermarket replacement parts.[92] Professor Lipton says, "Congress did not intend to impact significantly the usual rules and policies relating to commercial competition in tangible goods."[93] These uses of the DMCA not only allow a manufacturer to use a program which is not otherwise available to control trade in the tangible good but create an especially problematic extension of the DMCA when the copyrighted software is incidental to the primary product or replacement part.[94]

Use of the DMCA to indirectly protect replacement part markets in this manner is not only an unintended extension of the DMCA but affords protection for replacement parts containing embedded software which actually conflicts with other intellectual property doctrine. This type of protection for tangible goods gives them intellectual property protection which has the benefits of both patent and copyright law.[95] It gives *useful* devices, which are normally only eligible for patent protection, the benefits of the ease, low cost, and long duration of copyright protection while allowing the manufacturer to monopolize these markets in a manner which is normally only afforded under the much more stringent, shorter duration protections provided by patent rights.[96] This improper use of the DMCA means a functional item which may not have been patentable for various reasons and probably was not eligible for copyright protection, now becomes protected by this new, more powerful variation of copyright law.[97] Zieminski notes that "[a]side from protecting the idea of a product, which falls under the domain of patent law, certain parties are using [DMCA] reverse engineering restrictions to monopolize ancillary markets, a practice that is unacceptable under patent and copyright law."[98] It not only makes copyright law more aggressive, it makes it applicable in situations where copyright was not even previously available.

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92. Brief Amicus Curiae of Law Professors at 5, Lexmark Int'l, Inc. v. Static Control Components, Inc., 253 F. Supp. 2d 943 (E.D. Ky. 2003) (No. 02-571-KSF), *available at* http://www.eff.org/files/filenode/Lexmark_v_Static_Control/20030213-LawProfessorsAmicus.pdf.

93. Lipton, *supra* note 34, at 490.

94. Keenan, *supra* note 5, at 244.

95. *See* Paul R. Kitch, *DMCA Is OEMs Ticket to "Super-Patenting" the Unpatentable*, 17 INTELL. PROP. & TECH. L.J. 5, 5 (2005).

96. *Id.*; *see also* ROBERT A. GORMAN, COPYRIGHT LAW 43–44 (2d ed. 2006).

97. *See* Kitch, *supra* note 95, at 5–6.

98. Zieminski, *supra* note 55, at 326.

When creating the DMCA, Congress recognized the need to allow consumers and manufacturers the flexibility to achieve interoperability between products and the need to leave those rights undisturbed in order to preserve lawful competition and innovation.[99] More specifically, that motivation, preserving competition in the marketplace, drove the creation of the reverse engineering exception.[100] However, if a broad interpretation of the DMCA is allowed to restrict these reverse engineering activities and limit the ability of aftermarket companies to produce compatible parts, there will be a significant, unintended economic effect on competition and the advancement of technology in these industries.[101] The policies and rules which counterbalance the rights afforded to owners under traditional copyright law "seem to have been sidestepped by the DMCA."[102]

B. First Sale Doctrine

Although the Copyright Act gives the copyright owner the exclusive right to reproduce copyrighted works and distribute those copies, the rights are subject to the many exceptions provided in sections 107 through 122 of the Act.[103] Among these exceptions, section 109 provides an important exception that is commonly referred to as the "first sale doctrine."[104] The first sale doctrine provides that the owner of a lawfully obtained copy of a work can dispose of that copy as he sees fit.[105] The copyright owner cannot, generally, exert any subsequent control over the further distribution or lawful use of that particular copy of the work.[106] The copyright owner's rights in the material object are exhausted by the initial sale and, absent other copyright violations, the end user's use of that instance of the work cannot be controlled.[107]

However, the first sale doctrine does not extinguish all of the copyright owner's rights, even with respect to that instance of the work. Even under the first sale doctrine, the owner of the copy does not have the right to create derivative works or transform that copy into a

99. S. REP. NO. 105-190, at 13 (1998).
100. Higgs, *supra* note 41, at 80.
101. Brief Amicus Curiae of Law Professors, *supra* note 92, at 7.
102. Mike Godwin, *The New Legal Panic over Copyright*, *in* COPY FIGHTS: THE FUTURE OF INTELLECTUAL PROPERTY IN THE INFORMATION AGE 177, 179 (Adam Thierer & Clyde Wayne Crews Jr. eds., 2002); *see also* KEMBREW MCLEOD & LAWRENCE LESSIG, FREEDOM OF EXPRESSION: RESISTANCE AND REPRESSION IN THE AGE OF INTELLECTUAL PROPERTY 179 (2007).
103. 17 U.S.C. §§ 107–122 (2008).
104. GORMAN, *supra* note 96, at 119.
105. LEAFFER, *supra* note 36, at 319.
106. *Id.* at 319–20.
107. *Id.*

derivative work.[108]

In the case of replacement parts, the end user is not attempting to make a derivative work. The end user would be attempting to use an exact copy of the copyrighted software to perform exactly the same function but within a different physical part.

Software copyright owners sometimes avoid the first sale doctrine by structuring the initial transaction as a license rather than a sale, thereby retaining the ownership rights that would normally trigger the protections of the first sale doctrine.[109] This approach is commonly used for purely digital works which are more easily copied and distributed on a large scale. Apple's iTunes is one of the most well known examples of this approach in which the consumer is not actually purchasing a copy of the work, but is only obtaining a license to access and make certain uses of it.[110] Under this license, there is no way to resell the music *purchased* from iTunes as one could if a traditional CD of the music had been purchased.[111] While various parties debate whether this is fair to the consumer, the beneficial protections of the license approach for the rights owner for purely digital goods are understandable. However, this approach is very difficult to carry over to tangible goods. The absence of a license agreement, the physical nature of the goods, and the often ancillary nature of the embedded software support a strong presumption that the traditional rights of the first sale doctrine continue to be applicable to replacement parts.[112]

Furthermore, even though the license model used by Apple and others is more restrictive than an outright purchase of a work, it does not require a user to repurchase the work if the device on which it is installed is destroyed or replaced.[113] A consumer whose mp3 player is no longer usable is generally able to reload the music onto a replacement device at no additional cost.[114] Similarly, a consumer who purchases a replacement part which contains software has already purchased a copy of the software and should not be required to repurchase it each time the tangible, physical item it is being used with must be replaced. This point is especially instructive when considering the fact that, in most

108. H. WARD CLASSEN, A PRACTICAL GUIDE TO SOFTWARE LICENSING FOR LICENSEES AND LICENSORS: MODEL FORMS AND ANNOTATIONS 17 (2d ed. 2007).

109. *See* Lipton, *supra* note 34, at 538.

110. Apple, Inc., iTunes Terms of Service, http://www.apple.com/legal/itunes/us/service.html (last visited Oct. 29, 2009).

111. Eric Matthew Hinkes, *Access Controls in the Digital Era and the Fair Use/First Sale Doctrines*, 23 SANTA CLARA COMPUTER & HIGH TECH. L.J. 685, 690 (2007).

112. *Id.*

113. *See e.g.*, Apple, Inc., *supra* note 110; *see also* RealNetworks, Inc., Rhapsody End User License Agreement, http://rhapreg.real.com/rhapsody/freeform?freeformname=RhapC%20EULA (last visited Oct. 29, 2009).

114. *See* Apple, Inc., *supra* note 110; RealNetworks, Inc., *supra* note 113.

circumstances, the ownership rights of the copy of the software embedded in the replacement part are more extensive than those provided by a license agreement.[115]

Although not expressly mentioned in the decision, the reasoning behind the *Chamberlain* court's decision is consistent with the first sale doctrine and supports this type of use by consumers.[116] As with the reprogramming of a replacement remote control for a garage door opener, it is the end consumer who is exchanging one part for another. The customer has already purchased a lawful copy of the software and is simply bypassing security features associated with that software in order to continue exercising their first sale rights.

Absent any license agreement restrictions, an end user's continued use of their lawfully purchased software in this manner would generally not present an infringement problem. According to *Chamberlain*, a use which would be allowed under traditional copyright law would not be prohibited under the DMCA.[117] "The DMCA does not create a new property right for copyright owners."[118] For these types of applications, the focus is on the end user and whether the end user has done something which constitutes an infringing activity.[119] Therefore, the conclusion, even under the DMCA, must hinge upon whether the end user was within the bounds of his first sale rights.

The first sale right includes not only the right to resell the item, along with any embedded software, but also the right to destroy the work.[120] Although some may extend the doctrine of moral rights to protect against disposal of a work, the United States copyright system takes a utilitarian approach to copyright, as opposed to a moral approach, and generally does not prohibit destruction of protected works.[121] This hesitance to extend application of moral rights to disposal is particularly justified for digital works where many identical copies exist and destruction of a copy does not completely remove the creative expression from the public as would destruction of an original painting.

Section 109(b)(1)(A) provides some special restrictions on application of the first sale doctrine to computer programs and software.[122] However, section 109(b)(1)(B)(i) explains that these

115. *See supra* note 114.

116. *See* Chamberlain Group, Inc. v. Skylink Technologies, Inc., 381 F.3d 1178, 1204 (Fed. Cir. 2004).

117. *Id.* at 1202; Howell, *supra* note 6, at 144.

118. *Chamberlain*, 381 F.3d at 1204.

119. *See* Davis, *supra* note 34, at 152.

120. Hinkes, *supra* note 111, at 689.

121. Shubha Ghosh, *Reflections on the Traditional Knowledge Debate*, 11 CARDOZO J. INT'L & COMP. L. 497, 509–10 (2003).

122. 17 U.S.C. § 109(b)(1)(A) (2008).

restrictions do not apply to "a computer program which is embodied in a machine or product and which cannot be copied during the ordinary operation or use of the machine or product."[123] Since replacement parts of the type being discussed here do not inherently provide the ability to copy the embedded software in most cases, the section 109(b)(1)(A) restrictions would not apply and all of the usual first sale rights would still be available.

C. Separability

Even though embedded software exists in nearly all electronic consumer products on the market today, some argue there is not an expectation of continued use of the software when the durable product is no longer usable for some other reason.[124] In other words, today's consumer does not necessarily expect to be able to continue to use the software embedded in an alarm clock when the alarm clock is otherwise no longer usable. The software and the physical product are often viewed as inseparable because they are marketed in that manner and have been historically treated as one item. But, software and hardware may be increasingly viewed as separate items as software becomes a more important part of products, exists as a more distinguishable element, and platform standardization occurs.[125]

When a consumer is replacing a product, the question of separability usually does not rise to the surface because the consumer usually purchases a different model of the product which uses different software, or purchases a product from a different manufacturer altogether. However, the case of replacement parts is different in a significant way. If the OEM is successful in creating a monopoly in the replacement parts, the consumer has no other choice than to purchase the replacement part from the OEM. The separability question becomes more important because the consumer is essentially forced to *repurchase* a copy of the same software that was just discarded.[126] From the outset, the OEM successfully requires the consumer to continue repurchasing the same software throughout the life of the durable product through design of the product, design of the part, and the business model.

D. Fair Use

The fair use doctrine allows certain "reasonable" uses of copyrighted

123. *Id.* § 109(b)(1)(B)(i).

124. Seldon J. Childers, *Don't Stop the Music: No Strict Products Liability for Embedded Software*, 19 U. FLA. J.L. & PUB. POL'Y 125, 127 (2008).

125. Samuel N. Weinstein, *Bundles of Trouble: The Possibilities for a New Separate-Product Test in Technology Tying Cases*, 90 CAL. L. REV. 903, 943–50 (2002).

126. Dolan, *supra* note 11, at 181–82.

material without the consent of the copyright owner.[127] The ideas underlying the fair use doctrine have existed in common law since the mid-nineteenth century and were codified in the 1976 Copyright Act.[128] Fair use is an equitable doctrine which courts may utilize when a literal, strict enforcement of the copyright owner's rights is against the public interest and is not necessary to protect the owner from significant harm.[129] Although the statute does provide some examples of situations where the fair use defense is applicable, there is no intent to provide an exhaustive list of all the possible situations.[130] Fair use has been allowed to develop and expand "through the case law and its adaption to changing times and technology."[131] "[C]ourts must be free to adapt the doctrine to particular situations on a case-by-case basis."[132] "[T]he endless variety of situations and combinations of circumstances that can rise in particular cases precludes the formulation of exact rules . . . especially during a period of rapid technological change."[133] Therefore, any purely historical explanation as to why fair use does not apply to a particular situation is questionable, especially where new technologies are involved.

The DMCA expressly states that it is not to affect any pre-existing fair use rights.[134] Despite the literal text, critics argue the DMCA has been applied in ways that do affect fair use rights.[135] In the case of tangible goods and replacement parts, it is fundamental to remember that, in most cases, the consumer has purchased, not licensed, the item and has ownership rights associated with the physical item and the embedded software. While it is true that manufacturers of replacement parts, in the future, may choose to provide the software embedded in replacement parts only under a license agreement, thereby further limiting the rights of consumers, this is not the predominant situation for replacement parts today.

A broad reading of the DMCA anti-circumvention provisions might limit the ability to obtain help or tools from others in order to access this underlying software, but even the broadest reading would seemingly still afford access rights to "those few who [own the work and]

127. Rosemont Enters., Inc. v. Random House, Inc., 366 F.2d 303, 306 (2d Cir. 1966).
128. GORMAN, *supra* note 96, at 139–41.
129. *Id.* at 140.
130. LEAFFER, *supra* note 36, at 471.
131. *Id.*
132. H.R. Rep. No. 94-1476, at 66 (1976).
133. *Id.*
134. 17 U.S.C. § 1201(c)(1) (2008).
135. *See e.g.*, David Nimmer, *A Riff on Fair Use in the Digital Millennium Copyright Act*, 148 U. PA. L. REV. 673, 714, 741 (2000); Hinkes, *supra* note 111, at 699; Haimo Schack, *Anti-Circumvention Measures and Restrictions in Licensing Contracts as Instruments for Preventing Competition and Fair Use*, U. ILL. J.L. TECH. & POL'Y 321, 324, 331 (2002).

personally possess sufficient expertise to counteract whatever technological measures are placed in their path."[136] The *Chamberlain* court recognized that the DMCA cannot prevent all types of access to embedded software because "[a] provision that prohibited access without regard to the rest of the Copyright Act would clearly affect rights and limitations, if not remedies and defenses."[137] However, some commentators feel broad interpretation and application of the DMCA results in consumer liability for circumvention of technical protection measures even if the consumer was performing acts which would otherwise be protected fair use privileges.[138]

There are at least two reasons an absolute restriction on a product owner's right to access the software within the product he has purchased is inconsistent with fair use and cannot be supported. First, fair use rights exist for individuals who have not even purchased a work or otherwise compensated the work owner.[139] In the case of replacement parts, the user has purchased both the physical product, the original instance of the replacement part, and the embedded software. The financial benefit the copyright owner receives as a result of the purchase satisfies the primary objectives of copyright: encouragement of individual effort and availability of the work to the public through the guarantee of economic gain.[140] Because the purchasing consumer has directly contributed to the satisfaction of this objective, it would be illogical to conclude that the purchaser has rights that reach no further than those available under fair use to an individual who purchased nothing. In other words, a nonpurchaser who uses the work in a noncommercial manner and does not affect the owner's market for the work, has a reasonable argument that his activities are protected by fair use, even in absence of permission from the owner. If a person who actually purchases a copy is not afforded broader individual uses than the nonpurchaser, the copyright system is not successfully providing financial incentives for the work owners.

The second reason fair use must allow the product owner to access the software within the product is that the DMCA would be inherently contradictory if it did not leave those rights untouched, as expressly provided in the text.[141] If this is not the case, manufacturers of electronic products can proactively eliminate fair use opportunities associated with copyrighted works within the product for both purchasers, and non-purchasers, simply by adding a technical protection measure to the

136. Nimmer, *supra* note 135, at 740.

137. Chamberlain Group, Inc. v. Skylink Technologies, Inc., 381 F.3d 1178, 1200 (Fed. Cir. 2004).

138. LEAFFER, *supra* note 36, at 509–10.

139. *Id.* at 470.

140. *Id*. at 22.

141. *See* 17 U.S.C. § 1201(c)(1).

product.[142] The Copyright Act is not intended to be a complete bar to competition and the specific market situation must be taken into account when deciding how it is applied, even under a fair use argument. In *Sega*, even though the two parties were in direct commercial competition, the copying of the software in order to develop compatible products was protected fair use.[143] The fact that there may be some reduction of sales in the OEM's products is not dispositive and may even be counterbalanced by the fact that the replacement parts which were developed using copied software ultimately have a positive effect on the market for the OEM's host products.[144]

Even if courts are unwilling to extend traditional fair use doctrine to these unique situations created by the DMCA, the alternate argument says that a parallel doctrine of "fair circumvention" should evolve to address unanticipated situations just as fair use did for traditional copyright law.[145] This could be accomplished by borrowing some guidance from fair use while not being confined to the specific boundaries or interpretations of fair use.[146] While some may be resistant to creating exceptions to statutes which seem to clearly address a situation, the DMCA may simply not have a single clear meaning within its four corners to apply to these situations.[147] If the judicial development of fair use is viewed as a reasonable approach to the challenges raised by traditional copyright law, the same approach for the DMCA would seemingly be sensible.[148]

Unchecked, the DMCA will swallow traditional fair use everywhere an electronic lock is possible. The incentive associated with disallowing fair use through a broad reading of the DMCA combined with advancements in miniaturization of electronics,[149] will leave very few replacement parts without this type of monopolistic control.[150] James Davis says:

> [A]ttempting to monopolize an entire market of aftermarket electronic products based on the reward of a monopoly over copyrightable software in the primary product "runs counter to the statutory purpose of promoting creative expression and cannot constitute a strong equitable basis for resisting the invocation of the

142. Borg-Breen, *supra* note 32, at 894.
143. Sega Enters. v. Accolade, Inc., 977 F.2d 1510, 1527–28 (9th Cir. 1992).
144. *See* Pasquale, *supra* note 61, at 112.
145. Armstrong, *supra* note 74, at 4–5.
146. *Id.* at 47–48.
147. *Id.* at 44.
148. *Id.* at 50.
149. Singer, *supra* note 24.
150. Chang, *supra* note 7, at 568.

fair use doctrine."[151]

The DMCA was not intended to change these existing balances between traditional copyright law and free market dynamics.

E. Misuse

Even those who prefer strict textual interpretation and a minimum of exceptions cannot ignore the fact that intellectual property misuse is a recognized doctrine that can serve as a successful defense for what might otherwise be deemed infringement.[152] The patent misuse doctrine developed in response to patent owners who were using their market power to restrain competition and control markets in related products through leveraged use of their patents.[153] While not as thoroughly developed, the copyright misuse doctrine is a recognized defense.[154] Although there are some elements in common with antitrust law, a successful defense does not require one to show competitive injury or individual harm.[155] Therefore, even though it is a relatively new concept and does not have a fully developed set of case law, there is support for use of the copyright misuse doctrine to counterbalance the expansive and unique rights provided by the DMCA.[156]

In 2006, the Librarian of Congress granted a DMCA circumvention exception allowing users to circumvent the protections associated with embedded software in cellular phones in order to enable the phones to operate on other provider's networks.[157] In reaching the decision, the Librarian recognized that the restriction of access to the software by the carriers and phone manufacturers was "a business decision that has nothing whatsoever to do with the interests protected by copyright."[158] While a full discussion of embedded software copyright misuse in replacement parts presents a slightly different question and is beyond the scope of this note, it must be recognized that there are formal processes through which DMCA rights can be adjusted in order to respond to activities which look like copyright misuse, and provide proper protections for end users without venturing into a rewriting or

151. Davis, *supra* note 34, at 155 (quoting Sega Enters. v. Accolade, Inc., 977 F.2d 1510, 1523–24 (9th Cir. 1992)).

152. *See* Morton Salt Co. v. G.S. Suppiger Co., 314 U.S. 488 (1942).

153. LEAFFER, *supra* note 36, at 518.

154. Lasercomb Am., Inc. v. Reynolds, 911 F.2d 970 (4th Cir. 1990).

155. LEAFFER, *supra* note 36, at 518.

156. Dan L. Burk, *Anticircumvention Misuse*, 50 UCLA L. REV. 1095, 1138–40 (2003).

157. Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 71 Fed. Reg. 68,472, 68,476 (Nov. 27, 2006) (to be codified as amended at 37 C.F.R. § 201.40).

158. *Id.*

reinterpretation of the DMCA.[159]

F. Practical Aspects of Computer Programs

Although not usually categorized as a fair use defense, section 117 of the Copyright Act provides a further limitation on the rights of copyright owners for computer programs.[160] It recognizes the unique characteristics of computer software and the unique circumstances that arise in conjunction with software use.[161] The section 117 limitations "acknowledge both that utilization of software may sometimes require reproduction, and that software is evanescent."[162] Under this section, the lawful owner of a copy of software is allowed to make backup copies of the software under certain circumstances. The consumer is allowed "to make or authorize the making of" a copy of the program if it is an "essential step in the utilization of the computer program in conjunction with a machine and that it is used in no other manner."[163] This provision acknowledges that software has very different characteristics than physical, tangible devices and provides the flexibility to make copies of the software in order to insure that the user is able to accommodate the various situations that might arise and keep the hardware and the software working together.

Most commonly, the referred-to *machine* would be a computer and the *copy* would be a copy made in the process of loading that program into the computer's memory.[164] In the case of a replacement part, the *machine* would be a host product like a printer, automobile, or some other tangible device that interfaces with the replacement part by making use of the software that resides in it.

Envision a scenario in which an automobile air filter contains software which communicates with the engine through electronic means in order to insure proper operation and guarantee that the engine will not run if the filter is too old, dirty, or missing. Eventually, the air cleaner will need to be replaced and the owner will need to replace it with one that has the electronics and software to interface to the car properly. If he was able to buy a replacement filter that did not include the software and was able to *reuse* his copy of the software from the original filter, making this copy of the software would be "an essential step in the utilization of

159. Keenan, *supra* note 5, at 241–42, 261.

160. *See* 17 U.S.C. § 117 (2008).

161. LEAFFER, *supra* note 36, at 315.

162. Joseph P. Liu, *Owning Digital Copies: Copyright Law and the Incidents of Copy Ownership*, 42 WM. & MARY L. REV. 1245, 1295 (2001).

163. 17 U.S.C. § 117(a)(1).

164. GORMAN, *supra* note 96, at 165.

the computer program in conjunction with a machine[.]"[165] Some may argue there is no economical difference between selling the air filter with or without the software because the incremental cost of the manufacturer programming the software into the part is negligible. While this may be true, the importance of this flexibility lies not in a per item financial analysis, but in whether the consumer has the right to continue to use his existing software and the market monopolies which are made or broken as a result of the answer.

Although this approach may seem awkward because current retail practices do not normally function this way, it is fundamentally no different than the right of a user who buys a computer which is bundled with a copy of Microsoft Windows to retain his copy of that software and install it on a new computer when the old computer is discarded. Why should this outcome be changed by more directly attaching the software to a physical item? Although this interpretation and use of backup copies under section 117 does not appear to have been tested, the fact that both the machine and the software in this replacement part scenario were manufactured and sold by the same provider would seem to lean in favor of an end user making a copy of the software in order to be able to continue using those pieces together.

In addition, section 117 provides that backup copies may be transferred to another person along with the original copy of the software.[166] Combining this right with the separability concept discussed previously, the owner of the replacement part should be able to make a copy of the embedded software in the replacement part, assuming he is technologically able to, and transfer that copy, along with the expired part which contains the original software, to a third party. At that point, the third party has lawfully obtained the expired part which contains the original copy of the software as well as the backup copy of the software.[167] Alternatively, the original owner could transfer the expired part to the third party and the third party, now being the owner, could make the backup copy. This would be allowed as long as it was being done as an essential step in the utilization of the embedded software with a machine.[168] If the expired part is unusable and must be discarded, making a copy of that software will be essential to continue using the software *with a machine*.

The alternative hypothetical situations above describe how either the original owner of the replacement part or a third party receiving ownership of the replacement part, could lawfully make a copy of the

165. 17 U.S.C. § 117(a)(1).
166. *Id.* § 117(b).
167. *See id.*
168. *Id.* § 117(a)(1).

software under section 117. The latter would be necessary if the original owner did not have the technical ability to make the copy himself. While theoretically sound, transfer of ownership of the expired part to the manufacturer is not a terribly practical solution.

A better approach is for the original owner, retaining ownership of the part, to engage the manufacturer, as an agent, to help make the backup copy and exercise the rights associated with the use of that backup copy.[169] "If the alleged infringing activity would be excused if done personally by the principal then the principal's agent, or even an authorized independent contractor, must be able to assert the principal's defenses under the Copyright Act."[170] In other words, the owner of the software can rely on a third party to execute the copying activity on his behalf. [171] This approach was supported in *Sega* where the intermediate copies of software, made in the process of accomplishing other lawful objectives, were found to not infringe the original work.[172] Of course, the third party would have no rights in the software and no right to keep a copy for himself.

The potential solutions described above resolve the situation in the absence of the DMCA. An additional layer of complication arises when the manufacturer of the part uses a technical protection measure to limit access to the software embedded in the replacement part. As described previously, the interoperability exceptions to the DMCA allow the owner of an instance of the work to reverse engineer and circumvent the technological protection measures in order to achieve interoperability.[173] However, this exception is limited to achieving interoperability with "an independently created computer program."[174] Whether the host product software qualifies as an independently created computer program, whether the requisite interoperability can be satisfied by the replacement part itself, and the exact scope of the interoperability exception remain unclear under the current case law.[175]

If a narrow interpretation of the DMCA ultimately controls, the owner of the part will likely still have the right to access the work under the fair use arguments made previously.[176] However, the agent approach to making backup copies under section 117 would be difficult to fit within the interoperability exception rights provided to the owner of the

169. Llewellyn Joseph Gibbons, *Entrepreneurial Copyright Fair Use: Let the Independent Contractor Stand in the Shoes of the User*, 57 ARK. L. REV. 539, 595 (2004).

170. *Id.*

171. NIMMER, *supra* note 28, § 8.08[B][1][d].

172. *See supra* Part III(A).

173. 17 U.S.C. § 1201(f)(1) (2008); Davis, *supra* note 34, at 149.

174. 17 U.S.C. § 1201(f)(1).

175. Howell, *supra* note 6, at 141.

176. *See* LITMAN, *supra* note 90, at 132.

software under the DMCA. Although an agent can be given authority to act on behalf of the owner, he would still not be the *owner* of the property (the software) and it is unclear whether agency principles would allow him to do so under the DMCA.[177]

The *Lexmark* decision appears to deal with the question of duplicated software for replacement parts directly.[178] The product in question provided end users a copy of software they already owned in order to enable a replacement part to operate correctly with the host device when disposal of the original part containing the original copy of the software was necessary.[179] Furthermore, the circumvention of the protection measures and copying of the software was performed by a third party, SCC, and not the end user.[180] Unfortunately, due to the unique facts of the case, it cannot be relied upon as an answer to the question it would appear to squarely address.[181] In a situation where the software is eligible for copyright protection and has been properly protected in all instances, the *Lexmark* decision will provide little precedent and a similar case could easily be decided in favor of the manufacturer.[182]

G. No Additional Copies

The preceding discussions explain how the consumer could lawfully make a copy of the software embedded in an expired part, transfer it to the new part, and continue using the software lawfully. In this regime, an aftermarket manufacturer could market replacement parts without software and still theoretically be able to compete. This eliminates the problem of the aftermarket part provider being liable for copying or supplying copies of the software and encountering problems with copyright law or the DMCA. The rights of the copyright owner are fully respected in that the number of copies of the software being used is no greater than the number for which he has already been compensated.

While this approach provides a solution to the problem of protected software in replacement parts from a theoretical standpoint, it does not

177. *See* J. DENNIS HYNES & MARK LOEWENSTEIN, AGENCY, PARTNERSHIP AND THE LLC: THE LAW OF UNINCORPORATED BUSINESS ENTERPRISES 38 (7th ed. 2007).

178. Lexmark Int'l, Inc. v. Static Control Components, Inc., 387 F.3d 522, 529 (6th Cir. 2004).

179. *See* Lexmark Int'l, Inc. v. Static Control Components, Inc., 253 F. Supp. 2d 943, 955 (E.D. Ky. 2003).

180. *Id.*

181. *Lexmark*, 387 F.3d at 540–41, 547–48 (concluding that the Toner Loading Program at issue in the case was not eligible for copyright protection and would not have been covered by the DMCA because the software was accessible in the printer without the protection mechanisms).

182. *See* Lipton, *supra* note 34, at 506.

present an efficient solution when the practical aspects of volume manufacturing and retail supply channels are considered.[183] Under this scenario, aftermarket part manufacturers would not be able to program a replacement part with the appropriate software as part of a volume manufacturing process. Either the manufacturer would need to wait to receive the original copy of the embedded software from the end user before a copy could be programmed into the new part or the end user would have to do it himself.[184] This would be necessary to insure that the new copy only existed as a legitimate replacement of an original copy in order to maintain a one-for-one relationship. While this solves the problem academically, it does not allow a manufacturer to fill supply channels and retail stores with aftermarket parts that already have the proper software loaded and are ready to be used. Supply chains would be filled with thousands of new copies without being able to link each of those copies with a specifically identified original copy which would be destroyed.

While the *Sega* decision seems to allow these types of temporary copies, is there also a contractual solution that can bridge the gap? If the part manufacturer could insure that the original copy was being destroyed, it could get much closer to insuring that the work owner's rights were being properly protected. This could be accomplished by requiring the return of the original part in order to be eligible for a purchase. The manufacturer would then guarantee the destruction of the old copy and insure that the backup copy was being used only as a replacement for the original.[185]

As an alternate to a physical exchange, a system could be designed in which the end user contractually agreed to return or destroy the original as part of the purchase. Although implemented for a different reason, Lexmark sells some of its replacement print cartridges under a "Prebate" program in which a contractual agreement is created with every buyer of their discounted cartridges.[186] The agreement binds the purchaser to either return the used cartridge to Lexmark or destroy it in exchange for getting a lower purchase price on the cartridge.[187] It prohibits the end user from using the old cartridge in any other manner.[188] The contract is based on an agreement on the package and

183. *See* CHARLES C. POIRIER, ADVANCED SUPPLY CHAIN MANAGEMENT: HOW TO BUILD A SUSTAINED COMPETITIVE ADVANTAGE 8–10 (1999).

184. *See* 17 U.S.C. § 117(a)(1), (b) (2008).

185. *See id.* § 117(a).

186. Mizuki Sally Hashiguchi, *Recycling Efforts and Patent Rights Protection in the United States and Japan*, 33 COLUM. J. ENVTL. L. 169, 179 (2008).

187. *See* Tricia Judge, *ACRA Lawsuit Attacking Prebate Filed*, RECHARGER MAG., Sept. 5, 2001, http://www.rechargermag.com/articles/33357/.

188. Hashiguchi, *supra* note 186.

binds the consumer when they open the package of the new cartridge.[189] This approach has been found to create a valid contract between the manufacturer and the end user.[190]

Applying this concept to the replacement part software problem, an aftermarket manufacturer could create a similar contract with the end user of each of their replacement parts. Like the Lexmark Prebate example, the contract would require the end user to dispose of their expired part and not allow it to be used further in any way.[191] The copyright owner is protected in that the number of copies of the software being used is contractually controlled to be no greater than the number of works he originally sold. The difference between this example and the Lexmark application is that the contract is being created with the end user to guarantee the rights of a third party rather than the rights of one of the contracting parties.[192] At any point in time there are many additional copies in the parts supply chain but each cannot be legally used until it has legitimately replaced an original copy.

On the surface, the existence of many extra copies in the supply chain may be unsettling, but it is fundamentally no different than a consumer's right to make backup copies of works he owns and have extra copies in existence even though there is only a legal right to use one of them.[193] In other words, there is precedent for a scenario in which the number of copies lawfully in existence is greater than the number of copies which can lawfully be *used* at any point in time.

CONCLUSION

Whether or not one thinks a vacuum cleaner bag or coffee filter should have electronics, the technology exists, is not cost prohibitive, and can arguably help the manufacturer make the products work better together. Should the end user be forced to repurchase a copy of the embedded software each time the bag or filter is replaced? A literal reading of the DMCA suggests that the manufacturer can electronically protect the software and effectively prohibit the end user, or anyone else, from accessing the software in an attempt to reuse it or develop an alternate solution.[194] While it may be true that the manufacturer can include the software in each item at very little incremental cost, the monopoly effect, not the incremental cost of the software, causes the

189. Ariz. Cartridge Remanufacturers Ass'n v. Lexmark Int'l, Inc., 421 F.3d 981, 983–84 (9th Cir. 2005).

190. *Id.* at 987.

191. *See* Hashiguchi, *supra* note 186.

192. *See id.*

193. *See* 17 U.S.C. § 117(a) (2008).

194. *See id.* § 1201(a)–(c).

market imbalance and increases prices for consumers over the long run.

Congress did not intend the DMCA to provide these types of restrictions. However, through combined use of doctrines and provisions of traditional pre-DMCA copyright law end users can arguably work around the DMCA provisions in order to lawfully reuse the software in replacement parts they purchase. Application of the first sale doctrine, fair use, agency principles, and the copyright provisions for software and computer maintenance may allow users to lawfully accomplish this type of software reuse despite the DMCA. Case law supports this interpretation but does not necessarily provide a solid precedent upon which to rely. Allowing these uses is consistent with both traditional copyright law and the objectives of the DMCA, and does not expose manufacturers or work owners to significant additional risk.

A contract approach may help solve the problem in the short term, but it is not the best overall approach because the contract approach "ignores the underpinnings of intellectual property law, which seek to balance the interests of society and artist/inventor by providing whatever limited set of rights is necessary to induce intellectual creation" and may upset that balance in the long run.[195] The nature of the DMCA is such that copyright owners cannot be trusted to set the balance of rights themselves and the nature of the market is such that it will not achieve this equilibrium on its own.[196]

Although an end user could defend his action of copying and reusing software in a replacement part based on the arguments provided here, the DMCA legislative amendments proposed by other critics are the best long term solution.[197] The hypothetical situations described here demonstrate that those amendments would not actually be a reduction in the protections currently provided to work owners, but simply a clarification for those situations in which end users want to reuse the software embedded in replacement parts. Because it would only be a clarification, the legislative hurdle is significantly lower than would be required for an actual reduction in rights.

195. Zieminski, *supra* note 55, at 336.
196. *Id.* at 338.
197. *See supra* note 34.

TEXT MESSAGE PRICE GOUGING: A PERFECT STORM OF TACIT COLLUSION†

PER LARSEN*

INTRODUCTION

Among the revolutionary changes in personal communications over the last several decades is one that has us all twiddling our thumbs while we should be shaking our heads. Text messaging, or Short Messaging Service (SMS), has exploded in a little over a decade from an obscure feature to the most common mobile communications tool.[1] Meanwhile,

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1. In the fourth quarter of 2007, the number of text messages sent eclipsed phone calls for American wireless phone subscribers for the first time. Alex Mindlin, *Letting Our Fingers Do the Talking*, N.Y. TIMES, Sept. 29, 2008, at C4, *available at*

wireless providers have been reaping windfall profits, with predicted SMS revenues of between $60 billion and $80 billion worldwide in 2007.[2]

During this explosion of use, the normal protections of antitrust law and regulatory oversight has failed to protect consumers from overpaying for each text message they send. In particular, courts are unable to effectively deal with oligopoly markets under current antitrust law. Additionally, the wireless providers have persuaded the FCC that competition in the wireless market is effectively constraining prices and convinced consumers that text messaging is a premium service, thus averting price regulation and consumer backlash.

In Part I, this note will first analyze text message pricing to show how consumers are overcharged relative to other wireless services. Part II will examine how the text messaging market became a concentrated market with only a few national wireless carriers. Part III will provide economic background for how competition, antitrust law, and regulatory oversight should protect consumers from price gouging. Part IV will describe the inability of the traditional focus of antitrust law on evidence of conspiracy to deal effectively with oligopoly markets and explores alternative economic approaches. Part V analyzes the text messaging market under an economic approach to antitrust conspiracy liability. Finally, Part VI discusses how the FCC has not fulfilled its mission to provide consumers effective competition and efficient use of spectrum with regards to text messaging. I suggest that FCC regulation of text messaging is warranted because of the difficulties of antitrust enforcement.

I. TEXT MESSAGE PRICING

A. History of Text Message Pricing

The ability to send short text messages was incorporated into the technical specifications for the 2G digital Global System for Mobile communications (GSM) standard, with commercial services launched using GSM in 1993. Initially, providers did not predict that text messaging would catch on as a way for users to send messages to each other and had not made networks interoperable for text messaging, nor put in place billing mechanisms that would prevent fraud.[3]

In the US, interoperability between carriers was not fully achieved

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http://www.nytimes.com/2008/09/29/technology/29drill.html.

2. Craig Kuhl, *SMS Jackpot*, WIRELESSWEEK, Oct. 13, 2007, http://www.wirelessweek.com/Article-SMS-Growth-next-gen-apps-services.aspx.

3. SMS History, funSMS.net, http://www.funsms.net/sms_history.htm; History of SMS, 42IT, http://www.42it.eu/Mobile_Systems/SMS/History_of_SMS/.

until 2002, at which point text messaging was priced at between 5 and 10 cents per message on a pay-per-use (PPU) basis.[4] By 2005, text messages were commonly priced at 10 cents per message.[5] In October of 2006, Sprint raised the PPU price to 15 cents.[6] By June of 2007, AT&T, T-Mobile, and Verizon matched the higher price.[7] In October of 2007, Sprint again was the first wireless provider to raise the PPU price, this time to 20 cents.[8] In March of 2008, both Verizon and AT&T followed suit.[9] In August of 2008, T-Mobile raised its PPU price to 20 cents to match the other three nation-wide providers.[10]

These text message price increases did not escape the attention of legislators worried about the anticompetitive effects of consolidation in the wireless market. On September 9, 2008, Herb Kohl (D-Wis.), the Senate Antitrust Committee Chairman, sent a letter to executives of the top four wireless companies expressing concern about recent price increases for text messages.[11] In the letter, Senator Kohl directly questioned whether increased rates were "a reflection of a decrease in competition, and an increase in market power."[12] Additionally, Senator Kohl repeated a contention of some industry experts that "these increased rates do not appear to be justified by any increases in the costs associated with text messaging services."[13] While not directly alleging collusion in text message pricing, Senator Kohl noted that "it appears that each of [the top four wireless] companies has changed the price for text messaging at nearly the same time, with identical price increases. This conduct is hardly consistent with the vigorous price competition we hope to see in a competitive marketplace."[14] In the letter, Senator Kohl asks for a comparison of prices charged for text messages and other services, as well as an explanation of how each particular carrier's price structure is

4. Annual Report & Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services, *Eighth Report*, FCC 03-150, WT Dkt. No. 02-379, ¶¶ 144, 146 (Jul. 14, 2003) [hereinafter *Eighth CMRS Report*].

5. Press Release, Senator Herb Kohl, Kohl Calls on Cell Phone Companies to Justify Skyrocketing Texting Rates (Sept. 9, 2008), *available at* http://kohl.senate.gov (follow "Newsroom" hyperlink).

6. *Cell Phone Text Messaging Rate Increases and the State of Competition in the Wireless Market: Hearing Before the Subcomm. on Antitrust, Competition Policy and Consumer Rights of the S. Comm. on the Judiciary*, 111th Cong. (2009) (prepared statement of Randal Milch, Executive Vice President and General Counsel, Verizon Wireless) [hereinafter *Wireless Competition Hearing*].

7. Kohl, *supra* note 5.

8. *Id.*

9. *Id.*

10. *Id.*

11. *Id.*

12. *Id.*

13. *Id.*

14. *Id.*

different from their main competitors.[15] In part prompted by the inquiry of Senator Kohl, twenty class action lawsuits have been filed alleging price fixing for text messages.[16]

B. Text Messaging Price Comparison

A good starting point for determining if the price of text messaging is reasonable is to compare the price of text message service with voice service for wireless phones. To compare text messaging and voice service, I first normalize the data transferred in a voice call and a text message to a common unit of data, then compare the price of voice and text messaging service for the common unit of data.

A modern digital wireless phone does not transmit voice signals continuously; instead, small chunks of voice data are recorded, digitized, and compressed. For example, a phone might process twenty millisecond chunks of voice data at a time and then transmit them separately in packets. A conversation consists of a constant flow of packets, each of which is digitized, compressed, transmitted, and decoded in real-time, so a user doesn't notice their phone call is chopped up into thousands of tiny fragments.

The amount of data in each packet is determined by the frequency range in the caller's voice that is transmitted and the resolution of the digitized signal. Typically, to provide acceptable voice quality, a minimum cutoff frequency (the highest frequency of the caller's voice that is transmitted) of around 4 KHz is required, and because the sampling frequency must be twice the cutoff frequency, the sampling frequency is a minimum of about 8 KHz. A sampling resolution of 8 bits captures enough of the signal to reproduce an acceptable voice transmission. Thus, with a sampling frequency of 8 KHz and a resolution of 8 bits, the sampled digital signal would have a data rate of 64 kbps (kilobits per second). In a wireless phone, this 64-kbps signal is then compressed dramatically and transmitted at a variable rate depending on the requirements of the caller's voice. Using an advanced compression algorithm such as coded excited linear prediction (CELP), transmission rates will vary between 1.2 kbps and 14.4 kbps with an average between 4 kbps and 7 kbps depending on desired voice quality.[17]

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15. *Id.*

16. Randall Stross, *What Carriers Aren't Eager to Tell You About Texting*, N.Y. TIMES, Dec. 26, 2008, at BU3, *available at* http://www.nytimes.com/2008/12/28/business/28digi.html?ref=technology. Recently sixteen actions were transferred to the Northern District of Illinois for pre-trial proceedings. *In re* Text Messaging Antitrust Litigation, 588 F. Supp. 2d 1372, 1373 (J.P.M.L. 2008).

17. LAWRENCE HARTE, RICHARD LEVINE & ROMAN KIKTA, 3G WIRELESS DEMYSTIFIED 211 (2002).

In comparison, a standard SMS message is limited to 140 bytes (160 7-bit characters). Thus, to transmit a single text message a cellular phone must send slightly more than one quarter of the amount of data contained in the average second of voice transmission. Also, in terms of the cellular phone infrastructure, a text message is much less of a burden because it is not time-critical. In fact, cellular providers typically do not guarantee the delivery of text messages at all, much less within a given period of time or real-time as is the requirement for voice transmission.[18]

Determining the cost of voice service is complicated by differentiated calling plans offered by wireless providers, including some plans with unlimited minutes and family plans that combine minutes across several individuals.[19] While price differentiation means that customers pay different rates for voice service based on quantity of service purchased, the average revenue per minute (RPM) for the wireless industry provides a good baseline for the price charged to customers of voice data transmission.[20] In 2007, the average industry wide voice RPM was 5 cents.[21] Similarly, wireless phone providers offer differentiated plans for text messaging.[22] These options include PPU, a fixed monthly fee for a limited number of text messages, or a higher fee for unlimited text messages per month.[23] In 2007, the FCC estimated the average industry wide revenue per text message (RPT), taking into account the differentiated service plans, was 2.5 cents.[24]

Figure 1 compares per-kilobit revenue for voice service with per-kilobit revenue for a PPU price of 20 cents and for 2007 average wireless industry RPT.[25] Figure 1 assumes a text message using the maximum of 160 characters, which is very rarely the case. If the length of an average text message were factored in, the difference in revenue would increase by at least a factor of two, possibly more.[26] Compared to the average revenue for voice service, the revenue for a text message priced at 20 cents is over 800 times more per kilobyte, even assuming a user

18. *See, e.g.*, AT&T, Wireless Data Service Terms and Conditions, http://www.wireless.att.com/learn/articles-resources/wireless-terms.jsp (follow "Feature Terms" hyperlink).

19. Annual Report & Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services, *Thirteenth Report*, DA 09-54, WT Dkt. No. 08-27, ¶¶ 111–12 (Jan. 15, 2009) [hereinafter *Thirteenth CMRS Report*].

20. *Id.* ¶ 192.

21. *Id.* ¶ 193 tbl.12.

22. *Id.* ¶ 119.

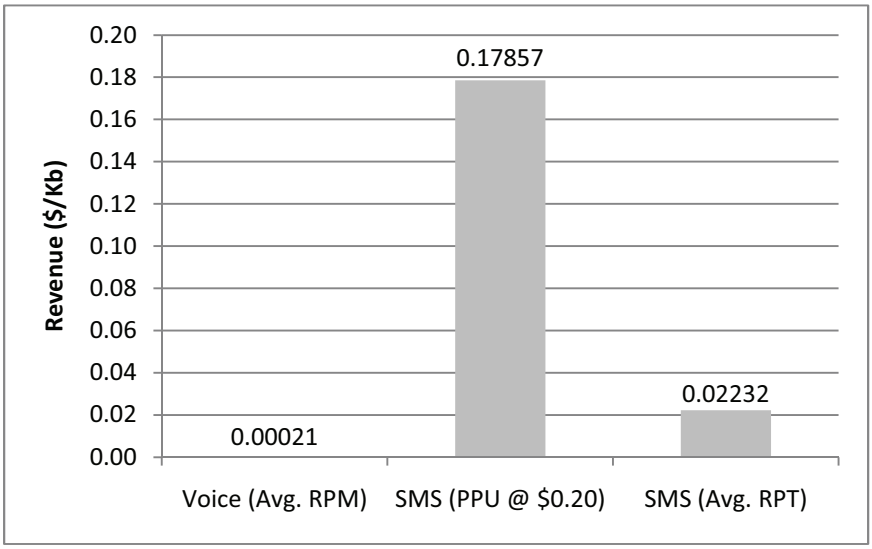
23. *Id.*

24. *Id.* ¶ 194 tbl.13.

25. *Thirteenth CMRS Report*, supra note 19, tbls. 12–13. Average voice RPM assumes a low-end average voice bandwidth of 4 Kbps.

26. A non-scientific study of 50 recent messages sent from my iPhone resulted in an average of approximately 65 characters per message (users without a full keyboard will tend to use fewer characters).

Figure 1: Text Message Price Comparison (per Kb)



maximizes the message length. Even the average revenue for text messages is over 100 times more per kilobyte than the average revenue for voice service.

Comparing the price of text messaging to other data services also shows that consumers are overcharged for texting. For example, a Verizon Wireless customer pays $1.99 per megabyte for data services if they do not have an unlimited data plan.[27] This is close to 90 times cheaper than the PPU price of 20 cents even if the sender used the entire 160 character limit for each message. Compared to Verizon's text message plans, per megabyte pricing of data is also a bargain. Verizon charges $1.99 for the equivalent of 7,489 text messages if those bytes are "data," but $5 for only 250 text messages if those bytes are considered "text."[28] Moreover, during the same time period that text message PPU pricing has been increasing, pricing for mobile data has been going down dramatically.[29]

This comparison also raises a few questions of its own. What is the difference between text messages and data? How can a provider charge more for bytes because they are "text" bytes instead of "data" bytes? How

27. *See* Verizon Wireless, Pricing for Data Usage, http://www.verizonwireless.com/b2c/splash/Megabyte.jsp.

28. *See id.*; Verizon Wireless, News Center, http://news.vzw.com/news/2007/03/pr2007-03-01.html.

29. For example, in 2003, AT&T charged $7.99 per month for one MB of data, and currently charges $60 for 5 GB per month, or 12 cents per MB. *Eighth CMRS Report*, *supra* note 4, ¶ 136 n.458; AT&T, PDAs and Smartphones - Data Only, http://www.wireless.att.com/cell-phone-service/cell-phone-plans/pda-personal-plans.jsp.

can a provider have a separate charge, as does AT&T, for text messages over and on top of an unlimited data plan?[30]

It turns out that the difference between "data" and "text" may be that "text" costs even less for the providers to transmit than other data. Text messages are typically sent on what is called the "control channel," which carries control information between a handset and a base station.[31] Thus, in reality, while charging a premium for the service, sending a text message costs the wireless provider almost nothing.[32]

To illustrate the exorbitant cost of texting, various commentators have calculated that the price of bandwidth for text messaging is 15 to 60 million times more expensive than bandwidth purchased from an Internet service provider, 200 times more expensive than using the United States Postal Service to hand-deliver a written message, and four times more expensive than receiving scientific data from the Hubble space telescope.[33]

II. TEXT MESSAGING MARKET BACKGROUND

Initially, the FCC believed that the wireless telephony market was a natural monopoly, but through the rulemaking process eventually adopted a duopoly system by issuing two competing licenses in each service area.[34] The duopoly system showed the promise of wireless telephone communications, but service was expensive and fragmented.[35] The FCC brought more competition to the market by allocating additional spectrum to wireless technology through a rulemaking process begun in 1990.[36] As additional entry in the market was facilitated by the new licenses, merger activity was at the same time stitching together the new licenses into larger networks.[37] By 2001, mergers had consolidated 85% of the wireless market share in six national wireless providers.[38] Before 2001, the FCC regulated competition in the wireless industry with "spectrum caps" that limited the amount of spectrum any one

30. For example, text messaging is not included in the unlimited data plans available with the iPhone. AT&T Wireless, iPhone 3G What You Need to Know, http://www.wireless.att.com/cell-phone-service/specials/iphone-info.jsp.

31. Stross, *supra* note 16.

32. *Id.*

33. *See* Sam Garfield, *The True Price of SMS Messages*, A GTHING SCIENCE PROJECT, Jan. 28, 2008, http://gthing.net/the-true-price-of-sms-messages; Space Scientist Says Texting is Four Times More Expensive Than Receiving Scientific Data from Space, Physorg.com, May 12, 2008, http://www.physorg.com/news129793047.html.

34. Thomas W. Hazlett, *Is Federal Preemption Efficient in Cellular Phone Regulation?*, 56 FED. COMM. L.J. 155, 160–61 (2003).

35. *Id.* at 163.

36. *Id.*

37. *Id.* at 168.

38. *Id.*

provider could have in a particular geographic area.[39] In 2001, the FCC found that there was "meaningful economic competition" in urban wireless markets and decided to "sunset" the spectrum caps by 2003.[40] The FCC decided "that we should move from the use of inflexible spectrum aggregation limits to case-by-case review of spectrum aggregation and enforcement of other safeguards applicable to such carriers based on evidence of misconduct."[41]

In 1993, when Congress created a statutory category for wireless services to promote consistent regulation, it established the promotion of competition as a fundamental goal of regulatory policy.[42] In the FCC's Thirteenth Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services, the FCC concluded that "there is effective competition in the [commercial wireless communications] market."[43] The FCC does not regulate rates of wireless providers because it found that "effective competition" was providing low prices to US wireless consumers.[44]

To support a finding of effective competition, the FCC noted that 95% of the US population is able to choose from at least three mobile carriers and more than 60% of the U.S. population is served by five or more carriers.[45] However, one of the primary benefits of a wireless phone is the ability to use your own phone when you travel, preferably using your own carrier's network to prevent roaming charges. At the end of 2007, only four wireless carriers were considered to provide "nation-wide" coverage.[46] In effect, nation-wide wireless service is an oligopoly[47] market with the four largest wireless carriers serving close to 85% of subscribers.[48]

39. *See* 2000 Biennial Regulatory Review Spectrum Aggregation Limits For Commercial Mobile Radio Services, *Report & Order*, 16 FCC Rcd. 22,668, ¶¶ 1, 3 (2001).

40. *Id.* ¶¶ 1, 5.

41. *Id.* ¶ 6.

42. *Thirteenth CMRS Report*, *supra* note 19, ¶ 3.

43. *Id.* ¶ 1.

44. States may file a petition to regulate wireless service rates if they can demonstrate that "conditions in the state for commercial mobile radio services do not adequately protect subscribers to such services from unjust and unreasonable rates." 47 C.F.R. § 20.13 (2008).

45. *Thirteenth CMRS Report*, *supra* note 19, ¶ 2.

46. *Id.* ¶ 14.

47. In contrast to a monopoly, where one firm controls output in the relevant market, an oligopoly refers to a small number of firms that produce either all or enough output in the relevant market to affect price. ROBERT PITOFSKY, HARVEY J. GOLDSCHMID & DIANE P. WOOD, TRADE REGULATION 490 (5th ed. 2003).

48. After the Alltel-Verizon merger, adding Alltel data to the market share of Verizon. *Thirteenth CMRS Report*, *supra* note 19, chart 1.

III. COMPETITIVE, MONOPOLY, AND OLIGOPOLY MARKETS

In a perfectly competitive market, price equals marginal cost.[49] As each firm in the perfectly competitive market strives to maximize profits in the face of competition, each firm lowers its price and increases its output until the market price is equal to the marginal cost of an additional unit.[50] In the perfectly competitive market, each firm is a price taker, meaning that it faces a perfectly elastic demand curve; if it raises its price the competing firms take all its sales.[51] In contrast, a monopolist is not a price taker because no other firms are competing, and he will set price to maximize profit.[52] In general, this means the monopolist will raise the price above the competitive level, and correspondingly reduce output and thus reduce the cost of producing the goods until his profit is maximized.[53]

Monopoly pricing and corresponding output reduction results in two types of inefficiencies, deadweight loss and wealth transfer to the monopolist.[54] Deadweight loss refers to loss of value to the overall economy of the product at the competitive price, resulting in substitutions of inferior or costlier alternatives.[55] Wealth transfer to the monopolist results in both economic inefficiencies and a higher profit to the monopolist than is warranted based on the real economic value of its goods or services to society.[56]

While competition in a free market is the best way to ensure low cost goods and services and a wide range of choice for consumers, free markets without oversight may for a variety of reasons result in monopoly. For example, a market may be a "natural monopoly," which occurs when the market is served at lower cost by one firm instead of multiple firms.[57] Traditional telephone service was long considered a natural monopoly because once the majority of the infrastructure is built the cost of adding an additional customer is small, and therefore the marginal cost continues to decline over the entire market.[58] Alternately,

49. W. KIP VISCUSI, JOSEPH E. HARRINGTON, JR. & JOHN M. VERNON, ECONOMICS OF REGULATION AND ANTITRUST 79 (4th ed. 2005).

50. George A. Hay, *Oligopoly, Shared Monopoly, and Antitrust Law*, 67 CORNELL L. REV. 439, 443 (1982).

51. *Id.*

52. RICHARD POSNER, ANTITRUST LAW 12 (2d ed. 2001).

53. *Id.* at 11.

54. *Id.* at 12–13.

55. *Id.* at 12.

56. Pursuit of monopoly profits leads to misallocation of resources into "efforts by sellers to monopolize and by consumers to avoid being charged monopoly prices." *Id.* at 13–14.

57. Richard A. Posner, *Natural Monopoly and its Regulation*, 21 STAN. L. REV. 548, 548 (1969).

58. JONATHAN E. NUECHTERLEIN & PHILIP J. WEISER, DIGITAL CROSSROADS 13 (2005) [hereinafter DIGITAL CROSSROADS].

several firms can form a cartel, agreeing that instead of competing, they will use their combined market power to achieve monopoly pricing for the cartel members.[59] To effectively maintain monopoly pricing, a formal cartel needs the ability to detect cartel members selling below the monopoly price (cheating), and sanction them through economic or other means.

While a monopolist controls output and pricing itself because it is the only seller in a relevant market, an oligopoly is a small number of sellers who dominate a market.[60] Collusion among oligopolists can achieve monopoly pricing by leveraging the combined market power of the sellers as a group into an effective monopoly.[61] While collusion might occur in an unconcentrated market, oligopoly markets facilitate collusion because it is easier to coordinate among a smaller group of sellers to maintain monopoly pricing.[62] Conversely, with a large number of sellers, maintaining coordinated action is difficult because the firms attempting to control pricing using a cartel will not be able to effectively police many firms from cheating on the cartel.

For at least fifty years, economists and antitrust scholars have recognized that, in an oligopoly market, sellers can also coordinate an agreement to raise prices above a competitive level through "tacit collusion,"[63] using market signals in the place of direct communication to coordinate price controls.[64] Tacit collusion in an oligopoly market is both more durable and more difficult to detect than explicit price fixing agreements.[65] To maintain an anticompetitive price, an oligopoly must both establish a higher price and enforce adherence to the higher price in the face of the pressure on each oligopolist to increase their short term profits by cheating.[66] Even highly concentrated oligopolies may find it difficult to enforce a formal agreement where structural conditions create

59. POSNER, *supra* note 52, at 14.

60. PITOFSKY ET AL., *supra* note 47, at 490.

61. *Id.*

62. Thomas A. Piraino, Jr., *Regulating Oligopoly Conduct Under the Antitrust Laws*, 89 MINN. L. REV. 9, 10 (2004).

63. I adopt Judge Posner's term "tacit collusion." Synonymous terms include "conscious parallelism," or "oligopolistic interdependence." POSNER, *supra* note 52, at 52–53.

64. *See, e.g.*, Donald F. Turner, *The Definition of Agreement Under the Sherman Act: Conscious Parallelism and Refusals to Deal*, 75 HARV. L. REV. 655, 661 (1962) ("[E]conomic theory has suggested that this kind of noncompetitive behavior might well arise in an 'oligopoly' situation (i.e., where sellers are 'few') without overt communication or agreement, but solely through a rational calculation by each seller of what the consequences of his price decision would be, taking into account the probable or virtually certain reactions of his competitors."); POSNER, *supra* note 52, at 52 ("[I]n some circumstances competing sellers might be able to coordinate their pricing without conspiring in the usual sense of the term—that is, without any overt or detectable acts of communication.").

65. Piraino, *supra* note 62, at 30.

66. Hay, *supra* note 50, at 445.

a powerful incentive to cheat.[67] However, in cartels without a formal agreement, repeated iterations of establishing a consensus price through market signals give oligopolists confidence in each other and therefore tacit arrangements do not require constant policing on the part of the oligopolists to prevent cheating.[68] Additionally, tacit collusion is more difficult to detect and prosecute because there is no direct evidence that a monopoly price has been fixed.[69]

The primary tools the government has to prevent the anticompetitive effects of monopoly pricing are regulation and antitrust law. Antitrust law counters monopolization by attempting to structurally enforce competitive markets, thereby resulting in competitive pricing. Regulation, in contrast, may either attempt to promote competitive markets through enforcement of structural requirements,[70] or directly set prices to a level deemed competitive through rate regulation.[71]

IV. ANTITRUST LAW AND THE OLIGOPOLY PROBLEM

Against the backdrop of increasing industry concentration and market power wielded by trusts, Congress passed the Sherman Act as a remedial statute, arming antitrust enforcers with federal statutory law to combat restraints of trade.[72] Congress broke the Sherman Act into two sections, one targeting collusive practices and the other abuse of monopoly power by a single firm. To provide authority to fight collusion among competitors, the "supreme evil of antitrust,"[73] Section 1 prohibits every "contract, combination . . . or conspiracy, in restraint of trade . . . ."[74] While unenforceable under common law, the Sherman Act affirmatively rendered contracts in restraint of trade illegal.[75]

A. The Scope of Agreement Under the Sherman Act

The intentional brevity of the Sherman Act left the scope of what constitutes an illegal agreement up to the flexible interpretation of the courts.[76] In a line of cases punctuated by *United States v. Socony-Vacuum*

67. Jonathan B. Baker, *Two Sherman Act Section 1 Dilemmas: Parallel Pricing, the Oligopoly Problem, and Contemporary Economic Theory*, 38 ANTITRUST BULL. 143, 151 (1993).

68. Piraino, *supra* note 62, at 30.

69. *Id.*

70. For example, interconnection requirements. *See* DIGITAL CROSSROADS, *supra* note 58, at 70.

71. For example, telephone rate regulation as a public utility. *See id.* at 46.

72. PITOFSKY ET AL., *supra* note 47, at 35–51.

73. Verizon Commc'ns Inc. v. Trinko, 540 U.S. 398, 408 (2004).

74. 15 U.S.C. § 1 (2006).

75. U.S. v. Addyston Pipe & Steel Co., 85 F. 271, 279 (6th Cir. 1898), *aff'd*, 175 U.S. 211 (1899).

76. PITOFSKY ET AL., *supra* note 47, at 51.

Oil Co., the Supreme Court established the principle that price-fixing agreements between competitors are per se illegal under the Sherman Act.[77] Hand in hand with the initial focus of Section 1 enforcement on formal cartels and horizontal price fixing was an evidentiary dependence on finding a conspiracy between the parties.[78] This focus was a logical extension of the courts' criminal conspiracy experience and adaptation from other areas of law to finding evidentiary facts related to the parties.[79] Section 1 enforcement has been largely effective in eliminating formal cartels in restraint of trade.[80] However, the focus on evidence of conspiracy and lack of economic analysis left the federal courts ill-equipped to deal with the paradox of noncompetitive prices arising from apparently independent business behavior that is a result of tacit collusion.

One of the first Section 1 cases to reach the Supreme Court without an explicit horizontal agreement was *Interstate Circuit, Inc. v. United States*, in which the managers of two chains of first run theaters sent identical letters to eight film distributors demanding that the distributors only release new movies to subsequent run theaters operating under certain price conditions.[81] The eight distributors imposed the conditions on subsequent run theaters in several cities served by the chains of first run theaters.[82]

While the government presented no direct evidence of agreements between the distributors, the Supreme Court held that the separate agreements violated Section 1 as an implicit agreement in restraint of trade.[83] In its decision, the Court recognized that an unlawful agreement could occur without express collusion.[84] The letters from the first run theaters were an invitation to collude, and "[i]t was enough that, knowing that concerted action was contemplated and invited, the distributors gave their adherence to the scheme and participated in it."[85] Therefore, because the chains of first-run theaters had facilitated the collusion, *Interstate Circuit* was not a pure tacit collusion case.[86]

77. 310 U.S. 150, 218 (1940). *See also Addyston Pipe*, 85 F. at 301–02; Standard Oil Co. of New Jersey v. U.S., 221 U.S. 1, 50–52 (1911); U.S. v. Trenton Potteries Co., 273 U.S. 392, 396 (1927).

78. POSNER, *supra* note 52, at 53; F.M. SCHERER & DAVID ROSS, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE 339 (1990).

79. POSNER, *supra* note 52, at 53.

80. *Id.* at 51–52.

81. 306 U.S. 208, 215–18 (1939).

82. *Id.* at 218–19.

83. *Id.*

84. *Id.* at 227 ("It is elementary that an unlawful conspiracy may be and often is formed without simultaneous action or agreement on the part of the conspirators.").

85. *Id.* at 226.

86. SCHERER & ROSS, *supra* note 78, at 340.

A few years later, the Supreme Court appeared to support the idea that pure tacit collusion could provide the basis for a conspiracy under the Sherman Act. In *American Tobacco Co. v. United States*, the Court upheld a jury verdict of a conspiracy to restrain trade and monopolize by three tobacco companies that dominated the cigarette manufacturing market based on circumstantial and economic evidence.[87] The evidence cited by the Court as showing that the tobacco companies had conspired to fix prices and exclude competition in the cigarette market included identical list and discount prices, and lock-step price increases of the leading cigarette brands from each manufacturer.[88] The Court repeated that "[n]o formal agreement is necessary to constitute an unlawful conspiracy."[89] The evidence of concerted action taken by the cigarette manufacturers provided sufficient proof to infer a conspiracy under the Sherman Act.[90]

However, only a few years later the Supreme Court retreated from finding Section 1 liability based on tacit collusion. In a case reminiscent of *Interstate Circuit*, nine film distributors all in turn refused to grant first run exhibition rights to a new theater located in a suburban shopping center.[91] The Court distinguished between independent business decisions and agreement, holding that if the conduct of the defendants could be a result of legitimate independent business decisions, no Section 1 claim could be maintained.[92]

Despite the influence of the "Chicago School" of economics on antitrust law, the Supreme Court has maintained its emphasis on evidence of an agreement in tacit collusion cases. The dichotomy between the Court's approaches with respect to facilitating practices and tacit collusion illustrates the Court's continuing reliance on evidence of an agreement in Section 1 cases.

In *United States v. Container Corp. of America*, the Court held that exchange of information, as a facilitating practice of collusion, could constitute a Section 1 violation.[93] The defendants in *Container Corp.* provided information to each other regarding recent prices charged or quoted for orders of corrugated containers.[94] Although not expressly

87. 328 U.S. 781, 798–804 (1946).

88. *Id.* at 805.

89. *Id.* at 809.

90. *Id.*

91. Theatre Enters., Inc. v. Paramount Film Distrib. Corp., 346 U.S. 537, 539 (1954).

92. *Id.* at 541 ("[T]his Court has never held that proof of parallel business behavior conclusively establishes agreement or, phrased differently, that such behavior itself constitutes a Sherman Act offense. Circumstantial evidence of consciously parallel behavior may have made heavy inroads into the traditional judicial attitude toward conspiracy; but 'conscious parallelism' has not yet read conspiracy out of the Sherman Act entirely." (citation omitted)).

93. 393 U.S. 333, 335 (1969).

94. *Id.*

finding such exchanges of information per se unlawful, the Court reasoned that "[t]he exchange of price data tends toward price uniformity."[95] In *United States v. United States Gypsum Co.*, the Court clarified that "rule of reason" analysis applies for exchange of price data and other information between competitors.[96] Thus, where the plaintiff pleads a claim based on a facilitating practice, the Court will conduct a rule of reason analysis to determine if the practice had the purpose or effect of fixing or stabilizing prices.[97]

In contrast, the Court has developed a high standard for pleading an antitrust conspiracy through parallel conduct that requires a plaintiff to produce evidence showing that the defendant's conduct is inconsistent with independent business behavior.[98] This requirement stems from reluctance by the Court to proscribe independent action or interfere with the rights of the business community.[99] Recently, the Supreme Court has reaffirmed its stand against allowing tacit collusion to support a Sherman Act offense where parallel behavior may be explained by rational business strategy.[100]

Thus, the current state of Supreme Court jurisprudence acknowledges that tacit collusion can be a conspiracy in violation of Section 1, but requires a court to tease out so-called "plus factors" that show that the alleged anticompetitive behavior could not be a result of independent behavior. It is not surprising that this fine distinction has led to a confused series of opinions when lower courts attempt to interpret what evidence would differentiate a tacit agreement from independent conduct.[101]

B. Economics-Based Approaches to Antitrust Enforcement

The Supreme Court's lack of success in developing workable guidelines for antitrust liability in oligopoly markets rests in part on a failure to link antitrust culpability to an economic model of oligopoly behavior.[102] Based on more refined economic analysis of oligopoly markets including the influence of game theory, several authorities have proposed economic approaches that distinguish culpable behavior of

95. *Id.* at 337.
96. 438 U.S. 422, 441 (1978).
97. *Id.* at 435.
98. Monsanto Co. v. Spray-Rite Serv. Corp., 465 U.S. 752, 764 (1984).
99. *See id.* at 761.
100. *See* Bell Atl. Corp. v. Twombly, 550 U.S. 544, 554 (2007) ("The inadequacy of showing parallel conduct or interdependence, without more, mirrors the ambiguity of the behavior: consistent with conspiracy, but just as much in line with a wide swath of rational and competitive business strategy unilaterally prompted by common perceptions of the market.").
101. Piraino, *supra* note 62, at 26; Hay, *supra* note 50, at 465.
102. Hay, *supra* note 50, at 465.

oligopolists.

The economic approach to collusion proposed by Judge Richard Posner makes no distinction between a formal cartel and a purely tacit meeting of the minds, and attempts to detect and prove collusion based on economic factors and evidence.[103] Judge Posner's approach examines the factors that affect the costs and benefits of collusion to determine a market's susceptibility to collusion, and therefore the amount of communication necessary for effective collusion.[104]

In encouraging adoption of an economics-based approach to antitrust enforcement, Judge Posner points to empirical evidence showing that many Justice Department actions have targeted harmless attempts at price fixing which did not raise consumer prices to a level that would allow a private plaintiff to prove any damages.[105] Thus, using a "cops and robbers" approach is "most successful against those conspiracies that are least likely to succeed."[106] Judge Posner argues that his purely economic approach goes "beyond the cops and robbers approach to price fixing and, in doing so, incidentally [solves] the problem of how to deter purely tacit collusion."[107]

V. ANTITRUST ANALYSIS OF TEXT MESSAGING

While the above analysis shows that pricing of text messaging services does not appear to reflect vigorous competition among wireless providers, antitrust law requires that a plaintiff prove that price gouging is a result of anticompetitive behavior. We may never know whether executives in the wireless oligopoly met in a smoke filled room and agreed to raise text message rates. However, in this section I analyze economic factors that would indicate whether text message price gouging is a result of competitive market forces or anticompetitive practices. Even without a formal agreement, if text message price gouging is a result of tacit collusion among wireless providers, it should be recognized as an illegal agreement in restraint of trade under Section 1 of the Sherman Act.

A. Text Messaging Market Definition

The ultimate goal of antitrust enforcement is to prevent the unlawful exercise of market power.[108] Defining the relevant market

103. POSNER, *supra* note 52, at 60, 69.
104. *Id.*
105. *Id.* at 54 n.3.
106. ROGER D. BLAIR & DAVID L. KASERMAN, ANTITRUST ECONOMICS 201 (1985).
107. POSNER, *supra* note 52, at 61.
108. James A. Keyte, *Market Definition and Differentiated Products: The Need for a Workable Standard*, 63 ANTITRUST L.J. 697, 698 (1995).

provides the analytical framework to calculate market power, and therefore is fundamental to determining if business conduct is an abuse of market power and harmful to consumers.[109] To define the relevant market, "the court must determine which products compete with the defendant's product and thus limit or prevent the exercise of market power."[110]

Typically markets are defined by the principle of the hypothetical monopoly, which states that a market should be defined as the smallest group of products that could be profitably restricted by a monopolist.[111] For these markets, the small but significant and non-transitory increase in price (SSNIP) test is used to measure market power through elasticity of demand.[112]

However, telecommunications markets are composed of complementary services that are not consumed independently.[113] For these types of markets, the conventional market definition tests do not work because the elasticity of demand for the component services cannot be separated.[114] Thus, the SSNIP test will produce more narrowly defined markets than necessary because the individual elasticity of demand is lower (more inelastic) for each component than the overall bundle of services. For example, most consumers would not switch phone plans because of a SSNIP in the price of text messaging alone, if the cost of complementary services remains equal between carriers. Additionally, the typical two-year contracts that wireless carriers require consumers to sign complicates the elasticity of demand measurements due to a SSNIP in the price of text messaging. While consumers may be able to avoid early termination fees because of an increase in text message pricing, this likely is not clearly understood by many consumers and consumers will be reluctant to switch providers if they might face additional charges for doing so in the middle of their contracts.[115]

Because consumers buy a bundle of services, different markups for different services can be misleading indicators of market power.[116] Wireless providers selling bundled services will increase the markup on

109. *Id.* at 697.

110. JOSEPH P. BAUER & WILLIAM H. PAGE, KINTNER FEDERAL ANTITRUST LAW § 10.1 (2d ed. 2002).

111. U.S. DEPARTMENT OF JUSTICE & FEDERAL TRADE COMMISSION, 1992 HORIZONTAL MERGER GUIDELINES § 1.11, 57 Fed. Reg. 41,552 (1992).

112. Jordi Gual, *Market Definition in the Telecoms Industry*, *in* THE ECONOMICS OF ANTITRUST AND REGULATION IN TELECOMMUNICATIONS 46, 49 (Pierre-André Buigues & Patrick Rey eds., 2004).

113. *Id.* at 59.

114. *Id.*

115. *See, e.g.*, Sergiu Gatlan, Verizon Increases SMS Rates, SOFTPEDIA, http://news.softpedia.com/news/Verizon-Increases-SMS-Rates-44479.shtml.

116. Gual, *supra* note 112, at 60.

those services facing less elasticity of demand.[117] Therefore, a high markup alone in one component of bundled services does not necessarily indicate an abuse of market power.[118]

However, credible evidence that the price of a particular service could be raised above the competitive level may imply that the service is a relevant product market for antitrust analysis.[119] In the context of competing local exchange carriers, the FCC provided the example, "if the price/cost ratio for a particular interexchange service is four times that of the price/cost ratio for all other interexchange services, that may constitute credible evidence of a lack of competitive performance."[120] As described above, text message pricing exceeds other wireless services by factors in the range of fifty to several hundred. Therefore, because the text messaging market shows strong evidence of a lack of competitive performance, it should be examined separately from other wireless services for the purpose of antitrust analysis.

Additionally, if text messaging is priced at a monopoly level, some consumers will shift to alternatives with higher costs to society. For example, if a consumer does not want to pay the monopoly price for text messaging, they can use voice communication only. This consumer will waste more of their time in communication and potentially tie up more spectrum than necessary, both costs to society. Thus, monopoly pricing of text messaging results in deadweight loss regardless of competition in wireless services overall.

B. An Economic Analysis of the Text Messaging Market

Using the economic approach suggested by Judge Posner to police tacit collusion, efforts at enforcement would follow a two step analysis.[121] First, identify whether the market is susceptible to collusive practices. Examining the market conditions to determine if they are favorable to collusion allows evaluation of ambiguous conduct in context.[122] Also, market analysis of the benefits and costs of colluding show how specific economic symptoms can indicate effective collusion.[123] Second, determine if economic evidence shows that collusive pricing has actually occurred.[124]

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117. *Id.*

118. *Id.*

119. Regulatory Treatment of LEC Provision of Interexchange Services Originating in the LEC's Local Exchange Area & Policy and Rules Concerning the Interstate, Interexchange Marketplace, *Second Report & Order*, 12 FCC Rcd. 15,756, 15,783 (1997).

120. *Id.* at n.123.

121. POSNER, *supra* note 52, at 69.

122. *Id.*

123. *Id.* at 61.

124. *Id.* at 69. The second step could be analogized to the Supreme Court's "plus factor"

1. The Text Messaging Market's Susceptibility to Collusion

Judge Posner suggests a list of seventeen factors used to determine if the market is favorable to collusion. I have grouped Judge Posner's seventeen factors into roughly six categories: market concentration, elasticity of demand, barriers to market entry, product characteristics, price information, and antitrust history of the market.[125]

(1) *Market concentration.* Two factors of market concentration facilitate collusion; a concentrated market on the selling side and an unconcentrated market on the buying side.[126] The text messaging market is characterized by both of these factors.[127]

On the selling side, wireless service is a concentrated market that should raise a presumptive danger of collusion in the minds of economists and antitrust enforcers. Judge Posner points to widely varying estimates of what level of market concentration would begin to worry economists, with some economists starting to worry with a four firm market share of 45% and others not considering the market highly susceptible to collusion until the four firm market share is 70-80%.[128] While this range may be large, the largest four wireless carriers had a market share of over 85% even before the merger of Alltel and Verizon, therefore likely raising fears of collusion in the minds of most economists.

Similarly, by Justice Department merger standards the wireless market is highly concentrated. The Herfindahl-Hirschman Index (HHI) is a measure of market concentration adopted by the Justice Department and the FTC.[129] The HHI is calculated by squaring the market shares of each firm, summing the squares, and multiplying by 100.[130] Thus, the HHI varies from almost zero in a very atomized market to 10,000 in a perfectly monopolized market.[131] The Justice Department divides

required by *Twombly*. However, the Supreme Court would require a high level of proof "tending to exclude the possibility of independent action." Bell Atl. Corp. v. Twombly, 550 U.S. 544, 554 (2007).

125. Judge Posner's factors are: "Market concentrated on the selling side;" "No fringe of small sellers;" "Inelastic demand at competitive price;" "Entry takes a long time;" "Buying side of market unconcentrated;" "Standard product;" "Nondurable product;" "The principal firms sell at the same level in the chain of distribution;" "Price competition more important than other forms of competition;" "High ratio of fixed to variable costs;" "Similar cost structures and production processes;" "Demand static or declining over time;" "Prices can be changed quickly;" "Sealed bidding;" "Market is local;" "Cooperative practices;" and "The industry's antitrust 'record.'" POSNER, *supra* note 52, at 69–79.

126. *Id.* at 69.

127. *Id.* at 75.

128. *Id.* at 70.

129. 1984 Merger Guidelines, 49 Fed. Reg. 26,823, 26,830 (June 29, 1984).

130. *Id.*

131. *Id.* at n.14.

markets by HHI into "unconcentrated (HHI below 1000), moderately concentrated (HHI between 1000 and 1800), and highly concentrated (HHI above 1800)."[132] In a highly concentrated market with a HHI above 1800, the Justice Department considers "[a]dditional concentration resulting from mergers is a matter of significant competitive concern."[133] At the end of 2007, even before the Verizon-Alltel merger, the HHI of the wireless market was 2674,[134] well above the level of 1800 that would lead to increased scrutiny of mergers in a highly concentrated market.

Courts would also very likely find that the level of concentration in the wireless market would raise anticompetitive concerns in rule of reason analysis. In *Container Corp.*, the Supreme Court found a marketplace where eighteen companies controlled 90% of the market to be "dominated by relatively few sellers."[135] The Court found this market concentration to support the finding of a violation based on sharing of price information between competitors.[136]

In *Todd v. Exxon Corp.*, fourteen defendants controlled collectively 80-90% of the relevant market.[137] The court reasoned that that figure was "an extremely high market share by any measure."[138] While the number of sellers in the market began to push the boundaries of oligopoly, the court reasoned that sophisticated data dissemination could produce anticompetitive effects even among this relatively high number of sellers.[139] Moreover, "a very small handful of firms in a more highly concentrated market may be less likely to require [such sophisticated data dissemination methods]."[140]

Accordingly, the text messaging market is highly concentrated by widely accepted econometric standards. Additionally, because it is dominated by a small number of sellers, the text messaging market is susceptible to collusion without sophisticated information exchange.

A factor that would make collusion more difficult is a fringe of small sellers, because "it makes a difference in a market where the four largest firms have 80 percent of the market whether there is one other firm or ten other firms."[141] While in the wireless market there are several other providers than the big four, what really matters to restricting the

132. *Id.*
133. *Id.*
134. *Thirteenth CMRS Report*, *supra* note 19, ¶ 46.
135. 393 U.S. 333, 337 (1969).
136. *Id.*
137. 275 F.3d 191, 208 (2d Cir. 2001).
138. *Id.*
139. *Id.*
140. *Id.* at 209.
141. POSNER, *supra* note 52, at 70.

power of the oligopoly is the ability of these other firms to increase their output to force price competition. The reason these firms cannot compete directly on price is that they are regional players and either don't directly compete with the national firms or don't compete on a national basis.[142]

(2) *Inelastic demand at competitive price.* If demand is inelastic at the competitive price, collusion will be particularly attractive because the potential gain of collusion varies inversely with the elasticity of demand.[143] Elasticity of demand is difficult to measure, but text messaging has several characteristics that suggest inelasticity at a competitive price. First, the marginal cost is effectively zero, so in a competitive market the price would be close to zero. The demand curve of almost any commodity with a price close to zero is certainly inelastic. Second, even with the current inflated prices for text messaging, the growth and volume of text messages, with a ten-fold increase between 2005 and 2008 in number of text messages and reaching 75 billion during the month of June 2008, indicate a highly inelastic demand curve.[144]

(3) *Barriers to market entry.* High barriers to market entry ensure that collusive firms will not face competition. Three factors place a high barrier to entry in the wireless market. First, a potential competitor needs to acquire spectrum. Second, prohibitively high fixed costs impose a large initial investment. The current wireless providers collectively invest more than $20 billion per year just to improve their networks, thus any potential competitor faces an initial investment well into the billions of dollars.[145] Lastly, build-out of a complex network takes a long time.

In addition, a potential market entrant is not guaranteed that they will be able to reap the monopoly profits of the current oligopolists. The cartel can reduce their prices to try to drive the newcomer out of business, thus a potential entrant must be able to foresee a profit at a lower price than is currently charged and compete with all offerings of the current wireless providers, including voice and data services.

(4) *Product characteristics.* Judge Posner suggests examining three factors of the product to assess the risk of collusive pricing, the homogeneity of the product, the durability of the product, and the forms of competition between firms.[146] It is more difficult for firms to collude

142. *See Thirteenth CMRS Report*, *supra* note 19, ¶ 14 ("As of year-end 2007, there were four mobile telephone operators in the United States that analysts typically describe as 'nationwide.'").

143. POSNER, *supra* note 52, at 61, 71.

144. Wireless Quick Facts, CTIA, http://www.ctia.org/advocacy/research/index.cfm/AID/10323 (follow "Research" hyperlink, then follow "Wireless 101" hyperlink).

145. *Id.*

146. POSNER, *supra* note 52, at 71.

the less homogeneous the product, because agreement will be difficult to reach without complex negotiation and it will be difficult for members of the cartel to detect cheating.[147] The durability of the product matters because a seller of a durable product is more tempted to cheat to gain a series of sales related to a durable product than for a one-time sale of a nondurable product.[148] Eliminating price competition more directly yields higher profits where other forms of competition such as warranties and service are less important.[149]

These three factors are all present in the text messaging market. Text messaging is a homogeneous, nondurable product for which price competition is the primary form of competition between vendors.

(5) *Price information and adaptation.* Factors that Judge Posner argues favor collusion between competing firms include ease and speed of price change, sealed bidding, localized markets, and cooperative practices between sellers.[150] While sealed bidding is not applicable to a consumer product, the concept of the ability of colluders to detect cheating is relevant. Because wireless carriers typically pre-announce rate changes, carriers will not only be able to detect cheating but will have advance notice. Thus, each wireless carrier knows if they were to reduce their price for text messaging in an attempt to undercut the monopoly price the rest of the carriers could follow suit quickly and the cheating firm would not recognize any benefit to cheating.

Judge Posner posits that it is easier for firms to collude in a localized market because market concentration is likely higher in a localized market and sellers may communicate easier.[151] The non-localized nature of the wireless market may cut against probability of collusion, but the ease of communication between competing firms may be increased by the cooperative practices of the industry. In a regulated industry, firms cooperate in lobbying efforts and "[t]he personal relations thus forged and opportunities for communication thus created reduce the cost of collusion."[152]

(6) *Antitrust record of industry.* The telephony market in general has a long history of antitrust scrutiny with regards to both exclusionary and collusive conduct, which is, at least, evidence that the structure of the market may favor collusion.

The convergence of these facilitating factors in the text messaging market suggests that it is highly susceptible to collusive practices.

147. *Id.* at 75.
148. *Id.*
149. *Id.*
150. *Id.* at 78.
151. *Id.*
152. *Id.* at 78–79.

Therefore, this susceptibility should be used as a lens through which economic evidence is examined to determine if tacit collusion may be the cause of anticompetitive pricing.

2. Direct Economic Evidence of Collusion in the Text Messaging Market

To determine whether collusive practices have actually occurred absent evidence of overt acts of collusion, Judge Posner suggests analyzing fourteen types of relevant economic evidence.[153] Examining the economics of the text messaging market reveals several clues of the types that Judge Posner suggests indicate collusion. The relevant economic evidence that indicates collusion includes marketwide price discrimination, exchange of price information, amplitude and fluctuation of price changes, demand elasticity at the market price, and the level and pattern of profits.

(1) *Marketwide price discrimination*. Price discrimination is selling at different prices in different sales, usually either on a basis of quantity of the sale, timing, or some other price discrimination factor in an effort to capture the deadweight loss above the marginal cost. While price discrimination "does not support, even weakly, an inference of collusion,"[154] uniform discounts across brands might indicate collusion.[155]

In the text messaging market, it would not be unexpected as a result simply of individual maximizing action to have price discrimination by each service provider in the form of package plans. However, besides the uniform PPU price, the similarity of pricing plans across wireless providers may raise an inference of collusion. For example, all four wireless providers charge $5.00 for between 200 and 300 text messages per month.[156] In addition, Verizon and AT&T both charge $15.00 for 1500 text messages per month and offer unlimited texting plans at $20.00 per month.[157] In a sign that this economic factor did not escape his attention, Senator Kohl, in his letter to the big four wireless carriers, asked each wireless carrier specifically to detail how its rate structure

153. Judge Posner's factors are: "Fixed relative market shares;" "Marketwide price discrimination;" "Exchanges of price information;" "Regional price variations;" "Identical bids;" "Price, output, and capacity changes at the formation of the cartel;" "Industry resale price maintenance;" "Declining market shares of leaders;" "Amplitude and fluctuation of price changes;" "Demand elastic at the market price;" "Level and pattern of profits;" "Market price inversely coordinated with the number of firms or elasticity of demand;" "Basing-point pricing;" and "Exclusionary practices." *Id.* at 79.

154. *In re* Brand Name Prescription Drugs Antitrust Litig., 186 F.3d 781, 787–88 (7th Cir. 1999).

155. *Id.* at 788.

156. *Wireless Competition Hearing*, *supra* note 6 (prepared statement of Randal Milch, Executive Vice President and General Counsel, Verizon Wireless).

157. *Id.*

differs from competitors, thus allowing comparison of price discrimination across carriers.[158]

(2) *Exchange of price information*. In a competitive market, the exchange of price information may improve competition by dispersing knowledge to buyers, but it may have the opposite impact in an oligopoly market. The practice of wireless providers to announce rate increases in advance allows a provider to effectively test the market. If it appears that no one will follow suit, then the provider can back down from the increase.

(3) *Amplitude and fluctuation of price changes.* Cartels will tend to change price less frequently and make smaller changes to price than will sellers in a competitive market.[159] While the size of the hefty price increases to text messages would not indicate collusion, the changes have been relatively infrequent and matched lock-step by each of the major wireless providers. This is one of the main concerns voiced by Senator Kohl in his letter to the wireless executives.[160] He describes the industry-wide price increases without a corresponding justification in costs as "particularly alarming."[161]

In *American Tobacco Co. v. United States*, the Supreme Court reasoned that the record of simultaneous price increases for the leading cigarette brands in the face of declining costs and falling demand was circumstantial evidence of a conspiracy.[162] While the Court might have misinterpreted the response of a monopolist to falling market demand,[163] declining costs or oversupply of a commodity should lead to price cutting, not price increases. In the words of the Ninth Circuit, "[p]rice increases which occur in times of surplus or when the natural expectation would be a general market decline, must be viewed with suspicion."[164]

Because the supply of text messaging is almost unlimited, the practical effect on a market should be similar to the oversupply or surplus of a commodity. Therefore, if the text messaging market is competitive, prices should decrease. While it is true that the average revenue per text message decreased between 2005 and 2007,[165] the PPU price charged by the four largest providers has doubled since 2005. Even the wireless providers do not claim that the PPU price increases were driven by rising costs.[166] The reason for the price increase is likely a scare tactic.

158. Kohl, *supra* note 5.
159. POSNER, *supra* note 52, at 89.
160. Kohl, *supra* note 5.
161. *Id.*
162. 328 U.S. 781, 804–05 (1946).
163. POSNER, *supra* note 52, at 90.
164. C-O-Two Fire Equip. Co. v. U.S., 197 F.2d 489, 497 (9th Cir. 1952).
165. *Thirteenth CMRS Report*, *supra* note 19, tbl. 13.
166. *See, e.g., Wireless Competition Hearing, supra* note 6 (oral testimony of Randal Milch,

Consumers—especially those with teenage children—are worried about the unwanted surprise of receiving an enormous bill for text usage at the PPU rates.[167] Thus, raising the PPU rates forces consumers into buying plans for more texts per month than they will ever use. These plans guarantee revenue to the wireless providers for a service that has very little associated cost.

That text message prices are not based on cost is not economic evidence of a conspiracy. However, as in *American Tobacco*, the market-wide price increases for PPU text rates should be viewed as a suspicious economic marker.

(4) *Demand elasticity at the market price*. In a typical market where total cost varies with output, the theoretical point at which a monopolist maximizes his profit is when marginal revenue equals marginal cost.[168] But if total cost does not vary with output, a different rule will determine the monopoly price.[169] According to this rule the monopolist will raise prices to at least the point at which demand becomes *elastic*, because if he has set a price at which demand is *inelastic*, then an increase in price will invariably lead to higher profits.[170] Thus, in a monopoly market where all costs are fixed and marginal cost approaches zero, price is almost purely driven by the *inelasticity* or *elasticity* of demand. A monopolist will always raise rates above the inelastic part of the demand curve because he can always increase total revenue unless the demand is elastic.[171] Judge Posner states that "[a]n inference of monopolization could be drawn if demand were elastic at the current price but the product did not have good substitutes as measured by relative cost."[172]

In the text messaging market, the PPU price increases by all four nation-wide wireless providers have certainly pushed the PPU price towards the elastic part of the demand curve for PPU text service. In addition, while mobile email has risen in popularity, it has not yet become a good substitute for text messaging because virtually all wireless phones have text messaging capability, but far fewer have email capability. Therefore, the raising of per message text rates to a price that starts to make consumers question whether to use text messaging may be a natural result of collusion.

(5) *Level and pattern of profits*. "In a few cases it may be possible to

Executive Vice President and General Counsel, Verizon Wireless) ("We don't base our text message prices on our costs, in that sense.").

167. *See, e.g.*, Margaret Webb Pressler, *For Texting Teens, an OMG Moment When the Phone Bill Arrives*, WASH. POST, May 20, 2007, at A01.

168. VISCUSI ET AL., *supra* note 49, at 82.

169. POSNER, *supra* note 52, at 11.

170. *Id.*

171. *Id.* at 90.

172. *Id.*

infer collusion from the presence or pattern of abnormally high rates of return."[173] The text messaging market has risen from a novelty to $80 billion in revenue in little over a decade.[174] The cellular providers have tried to obscure the true costs of providing text messaging service, but, because the costs are relatively insensitive to volume, one can conclude that the high revenues of text messaging are mostly profit.[175] In addition, during the time revenue from text messaging has been exploding, the average revenue per minute for voice calls for US carriers has been declining.[176] Even with a 22% decline in voice revenue per minute in 2005 and a 5% decline in 2006, carriers were able to maintain approximately the same revenue per subscriber by an increase in mobile data revenue, including text messaging.[177] Thus, wireless carriers have been able to forestall a decline in average revenue per subscriber by increasing revenue from other services such as text messaging.

While no single piece of economic evidence is determinative of the presence of a conspiracy to raise text message prices, the presence of several types of economic evidence that tend to indicate collusion warrant further inquiry. Under a formalistic reading of *Twombly*, antitrust cases against the wireless providers are not likely to get past a motion to dismiss. However, if a court is willing to view the totality of the economic evidence in context, including economic evidence showing that the market is highly susceptible to collusion, it may find enough evidence to allow an action to proceed. If an action does get past a motion to dismiss under *Twombly*, more information on text message pricing may come to light through discovery.

VI. FCC REGULATION OF TEXT MESSAGE PRICING

The overarching policies of fairness and efficiency have been present in the mandate of the FCC since its inception with the passage of the 1934 Communications Act, charging the FCC with the duty "to make available, so far as possible, to all the people of the United States, . . . a rapid, efficient, nationwide, and world-wide wire and radio communication service with adequate facilities at reasonable charges."[178] With regard to text messaging, the FCC has let wireless customers down both with respect to reasonable rates and efficient use of wireless spectrum. Price gouging for text messaging both overcharges customers and suppresses the use of what otherwise could be an even more valuable

173. *Id.*
174. Kuhl, *supra* note 2.
175. Stross, *supra* note 16.
176. *Thirteenth CMRS Report*, *supra* note 19, ¶ 193.
177. *Id.* ¶¶ 193, 195.
178. 47 U.S.C. § 151 (2006).

communications tool than it is today.

Texting is an efficient form of communication in circumstances when only a short message is necessary, and while text messaging has grown by at least an order of magnitude since 2004,[179] many customers may not adopt its use, or restrict use to prevent having to pay exorbitant fees. Thus, not only has the FCC failed to protect consumers from unreasonable charges by allowing price gouging in text messaging, but consumers are not getting the maximum benefit from efficient use of spectrum regulated by the FCC.

The FCC should examine more closely the economics of data pricing in the wireless market and take responsibility for market conditions that it created as a result of its wireless policy. As a first step, the FCC should set a price cap on PPU rates closer to the marginal cost of the service. Additionally, the FCC should recognize that a byte of data is not somehow different because it is text, and disallow wireless carriers from charging a separate rate for text messaging apart from data service.

CONCLUSION

Analysis of economic evidence indicates that the text messaging market is highly susceptible to collusion, and collusion, either tacit or express, may be the cause of monopoly prices for text messaging. While antitrust action from consumer class action groups or congressional oversight is a possible route to competitive pricing of text messaging, the skeptical view of Supreme Court jurisprudence with regard to accepting tacit collusion as an agreement in restraint of trade under the Sherman Act may prevent a judicial resolution to text message price gouging.

Wireless providers know that the FCC closely examines competition in traditional services, and thus they would be reluctant to collude on pricing for those services. However, by selling text messaging as a premium service to consumers and effectively using competition in voice service to shield extraordinarily high prices for text messaging service, the major wireless providers have been able to reap windfall profits from consumers without close FCC scrutiny. As part of its fulfillment of the obligation to promote competition in the wireless industry the FCC should take action against market conditions in the wireless market that have resulted in anticompetitive prices for text messaging service.

179. *Thirteenth CMRS Report*, *supra* note 19, ¶ 2.

TICKET SNIPING

AVI LOEWENSTEIN*

INTRODUCTION

Disney star Hannah Montana, the stage persona of the young singer-actress Miley Cyrus, toured in 2007 with her "Best of Both Worlds Tour."[1] The tour was a tremendous success, selling out all 54 of the shows.[2] Ticketmaster Entertainment (Ticketmaster),[3] the exclusive

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1. Randall Stross, *Hannah Montana Tickets on Sale! Oops, They're Gone*, N.Y. TIMES, Dec. 16, 2007, §3, at 4, *available at* http://www.nytimes.com/2007/12/16/business/16digi.html.

2. Craig Harris, *Scalpers Pushing Hannah Montana Tickets, Fans to the Limit*, SEATTLE POST-INTELLIGENCER, Oct. 2, 2007, http://www.seattlepi.com/pop/333927_

ticket seller for the tour, sold out numerous shows within minutes, leaving many Hannah Montana fans out in the cold. Yet, often, moments after the shows went on sale, the secondary market[4] flourished with tickets to those shows. The tickets, whose face value ranged from $21 to $66, were resold on StubHub for an average of $258, plus StubHub's 25% commission (10% paid by the buyer, 15% by the seller).[5] StubHub reported that ticket sales for Hannah Montana accounted for $10 million of its sales in 2007, the most for a single act in the company's history.[6]

Consumers were outraged at the entire debacle—they viewed the ticket prices on the secondary market as outrageous and suspected foul play as to why they couldn't buy the tickets directly from Ticketmaster. Their suspicions were well-founded. Ticket scalpers[7] had developed software (sometimes called "bots") to "snipe" tickets, meaning that the scalpers used software to inundate Ticketmaster's website with automated requests, which enabled the scalpers to purchase large quantities of Hannah Montana tickets before the general public.[8] These tickets were then resold on the secondary market for a lucrative profit.

The ticket snipers essentially "cut in line:" The use of sniping software violates the first-come, first-served doctrine of a queue, which hinges on the notion that each individual is able to occupy one position

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hannahmontanatix02.html.

3. Ticketmaster is the world's largest live entertainment ticketing and marketing company. Ticketmaster operates in 20 global markets, providing ticket sales, ticket resale services, marketing and distribution through www.ticketmaster.com, one of the largest e-commerce sites on the Internet, approximately 7,100 retail outlets, and 17 worldwide call centers. In 2008, Ticketmaster sold more than 141 million tickets valued at over $8.9 billion on behalf of its clients. *See* About Ticketmaster Entertainment, Inc., http://www.ticketmaster.com/h/about_us.html (last visited Oct. 2, 2009) [hereinafter About Ticketmaster].

4. The secondary market is the Internet-driven business of ticket reselling. Several websites, including StubHub.com, TicketsNow.com, and TicketLiquidator.com, are marketplaces for tickets where consumers and brokers can buy and sell tickets, but the artist, promoter and original ticket seller (usually Ticketmaster) have no involvement. StubHub! Home Page, http://www.stubhub.com (last visited Oct. 2, 2009); Tickets Now Home Page, http://www.ticketsnow.com (last visited Oct. 26, 2009).

5. StubHub, 2007 StubHub Concert Ticket Annual Report 2 (2007).

6. *Id.*

7. For purposes of this analysis, a ticket scalper is a person or entity that purchases tickets with the intent of reselling them at a higher price. This definition is designed for analytical purposes only and does not necessarily correspond to any legal definition of this term.

8. The phrase "ticket sniping" originated in a blog post by Professor Eric Goldman. *See* Posting of Eric Goldman to Technology and Marketing Law Blog, Ticketmaster Wins Big Injunction in Hannah Montana Case, But Did the Public Interest Get Screwed?—Ticketmaster v. RMG, http://blog.ericgoldman.org/archives/2007/10/ticketmaster_wi.htm (Oct. 21, 2007, 3:45 PM) ("This case involves what I'll call 'ticket sniping'—the practice of quickly snapping up highly-sought-after tickets when they first go on sale and then reselling them at higher prices.").

in the queue. The ticket sniper's ability to pack the queue with hundreds or thousands of automated queue holders breaches that doctrine. The phenomenon of ticket sniping is pervasive throughout the entertainment industry.[9] Individual consumers interested in attending big-name concerts and sporting events almost inevitably encounter the following situation: Tickets go on sale online at a specified time. The consumer desperately tries to purchase the tickets the moment they are available, but is unsuccessful because ticket snipers have packed the queue with automated requests at superhuman speed. Within a matter of minutes, the event is sold out. The consumer, frustrated and upset, turns to the secondary market to purchase tickets from ticket scalpers, typically paying well above face value.[10]

The public's outrage and the seemingly unfair buying practices of the scalpers have created a problem without an obvious solution. This Note will address the attempts to solve the problem of ticket sniping. Litigation has attempted to solve the problem but without much success; legislative solutions are emerging, but they, too, will fail. However, these failures are overshadowed by market solutions, which attack the problem with effectiveness and efficiency.

BACKGROUND

Sellers of tickets to sporting events, concerts and other live entertainment face unique challenges with respect to how they distribute their product. For reasons explained below, artists and promoters[11] price

9. Ellen Rosen, *In the Race to Buy Concert Tickets, Fans Keep Losing*, N.Y. TIMES, Oct. 6, 2007, at C6.

10. *Id.*

11. The pricing of tickets is a complex process. Contractual arrangements between artists and promoters are heterogeneous, but the typical contract resembles a book contract, with an advance and royalties if sales exceed a certain level. The typical contract is most easily illustrated with a hypothetical example. Suppose that an artist contracts with a promoter to perform a single concert. The artist receives a "guaranteed advance," for example, a sum equal to the first $100,000 of ticket sales; then, before additional revenue is distributed, the promoter recovers his expenses and a "guaranteed profit," say $50,000 for expenses and $22,500 for profit. The expenses could include advertising, rent for the venue, costs of unloading the equipment, and so forth. The promoter and the artist then split any ticket revenue above the guarantee plus expenses and minimum profit (above $172,500 in this case), usually with the artist receiving 85% and the promoter receiving 15% of these revenues. This arrangement probably describes approximately three-quarters of contracts. The artist's guaranteed advance and percent of revenue after expenses is higher for artists with greater bargaining power.

In the negotiation of the contracts, the artists (or their managers) negotiate the ticket prices, which naturally affect the amount of revenue collected. Fan perception is a critical component of such negotiation. The artist usually receives 100% of merchandise sales (e.g., T-shirts) that take place at the concert. The venue usually receives the concessions and parking revenue.

Tickets are then primarily distributed by a ticket seller (e.g., Ticketmaster), but occasionally the venue's box office, and, in some cases, directly by the band to its fan club. The

the tickets below the market clearing price.[12] Because of this discrepancy, demand for tickets exceeds supply, and some mechanism other than price must determine which consumers are permitted to purchase the tickets. Queuing is the traditional distribution mechanism for tickets to concerts and sporting events.[13] There is an intuitive fairness of such a system; consumers view queuing as the fairest method of ticket distribution compared to lotteries or auctions.[14] Consumers likely prefer queues because of a sense of democratic equality created by the queue. A queue is a great equalizer—position in the queue appears independent of social or economic status.[15] Consumers who know that they can later purchase tickets on the secondary market can balance time potentially spent in line against money potentially saved by avoiding the higher priced secondary market.[16] Further, some consumers may derive utility from the queue itself; there can be a crowd effect from waiting with a certain group of people, and anticipation may be heightened through the time spent in line.[17]

The traditional paradigm of ticket queuing has moved to the electronic world. Beginning in the mid 1990s, online ticket sellers, most notably Ticketmaster, began selling tickets on the Internet in addition to phone and in-person sales.[18] Like almost all online ticket sellers, Ticketmaster's online allocation system is an electronic queue. At the prescribed date and time at which tickets for a given event go on sale,

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ticket sellers do not participate in the pricing of the tickets. *See* Alan B. Krueger, *The Economics of Real Superstars: The Market for Rock Concerts in the Material World*, 23 J. OF LAB. ECON. 1, 4 (2005).

12. The market value or market clearing price for *n* identical tickets is the reservation price of the *n*th highest bidder in a hypothetical auction of those tickets. John D. Tishler, *Ticket Scalping: An Economic Analysis and Proposed Solution*, 33 SANTA CLARA L. REV. 91, 95 n.34 (1993).

13. Tishler, *supra* note 12, at 103.

14. *Id.*

15. *See generally* Michael Reisman, *Lining Up: The Microlegal System of Queues*, 54 U. CIN. L.REV. 417, 432 (1985).

16. Stephen K. Happel & Marianne M. Jennings, *Folly of Anti-Scalping Laws*, 15 CATO J. 65, 67 (1995) [hereinafter Happel & Jennings, *Folly*].

17. *Id.*

18. Ticketmaster Company History, http://www.ticketmaster.com/history/ (last visited Oct. 26, 2009); *see also* Bob Tedeschi, *A Surge in On-Line Ticket Sales, Too*, N.Y. TIMES, Apr. 18, 1999, at C13; Steven Pearlstein, *Internet Realigns Market for Tickets*, WASH. POST, Oct. 6, 2006, at D01 (noting that Ticketmaster is the exclusive selling agent for about 70% of the major sports teams, rock promoters and theater venues). Online ticket sales revolutionized ticketing and resulted in a range of benefits to the consumer and the promoter, including speed of booking, constant availability of booking facilities, and streamlining of the management of festivals and events. IAN YEOMAN ET AL., FESTIVAL AND EVENTS MANAGEMENT 191 (2004). Online sales have been tremendously successful with more than 200 million online tickets sold in 2007, with the leader in the industry, Ticketmaster, selling 141 million tickets worldwide. About Ticketmaster, *supra* note 3. Ticketmaster sells 67% of its inventory online. Brian Mansfield, *The Traps of Ticket Shopping*, USA TODAY, June 15, 2007, at E1.

consumers log onto Ticketmaster's website and attempt to purchase tickets.[19] Due to the limited number of concurrent users supported by Ticketmaster's servers, only a limited number of consumers are able to purchase tickets at any one time; the remaining consumers are placed in a queue, and when server availability opens up, the consumer at the top of the queue is permitted to purchase tickets, if available.[20] Ticket sniping software has plagued the electronic queuing system. Ticket sellers use what is called a "CAPTCHA" (an acronym for "Completely Automated Turing Test to Tell Computers and Humans Apart"), to prevent bots from using their websites.[21] CAPTCHAs are the little challenge-response tests (usually squiggly, distorted images) commonly seen when registering for Internet services such as free email accounts or blogging sites.[22] The user has to correctly type the letters in the image before proceeding.[23] The sniping software, though, consistently solves the CAPTCHAs, despite the near constant improvement of the quality of CAPTCHAs by the ticket sellers. Some question whether CAPTCHAs can ever be effective.[24] On a fundamental level, it is exceedingly difficult to create a test which is implemented by a computer but which cannot be reverse engineered by another computer.[25]

The sniping software's capabilities are astonishing. Ticket scalper Chris Kovach, using such software, made more than 600,000 ticket requests in a single day, and purchased 24,000 tickets over a several year period. Ticketmaster reports that on some days, 80% of its ticket requests are generated by bots.[26]

After the Hannah Montana debacle, a variety of legal actions and technological advancements have attempted to solve the problem of ticket sniping. Ticketmaster sued RMG Technologies (RMG), a company that developed and marketed sniping software specifically aimed at Ticketmaster, and was granted a permanent injunction and

19. Scott D. Simon, *If You Can't Beat 'Em, Join 'Em: Implications For New York's Scalping Law in Light of Recent Development in the Ticket Business*, 72 FORDHAM L. REV. 1171, 1187 n.108 (2004); *see also* Travis Schluessler et al., *Is a Bot at the Controls?: Detecting Input Data Attacks*, PROC. 6TH ACM SIGCOMM WORKSHOP NETWORK AND SYSTEM SUPPORT FOR GAMES (2007), http://caia.swin.edu.au/netgames2007/papers/1569050079.pdf.

20. Simon, *supra* note 19, at 1187.

21. *See generally* Sara Robinson, *Human or Computer? Take This Test*, N.Y. TIMES, Dec. 10, 2002, at F1.

22. *Id.*

23. *Id.*

24. *See* Tim Anderson, *How Captcha Was Foiled: Are You a Man or a Mouse?*, THE GUARDIAN, Aug. 28, 2008, at 3; Posting of Robin Whittleton to Kyan Blog, The Future of CAPTCHA, http://blog.kyanmedia.com/archives/2008/7/23/the_future_of_captcha/ (July 23, 2008).

25. *See* Whittleton, *supra* note 24.

26. Stross, *supra* note 1.

damages.[27] Similarly, a consumer class action was filed against RMG and several ticket scalpers, but the case was voluntarily dismissed. Additionally, several states passed, and several more are considering, legislation targeting the use of sniping software. Lastly, Ticketmaster developed new ticket purchasing technology that attempts to solve the problem.

This Note will address the effectiveness and efficiency of each response. Part I will provide an economic background to the ticket sniping problem and the ticket industry. Part II will address the merits and implications of Ticketmaster's suit against RMG as well as address the class action suit against RMG and several ticket scalpers brought by consumers frustrated at their inability to purchase tickets. Part III will address recent legislation adopted in six states (and pending in several others)[28] specifically aimed at the manufacturers and users of sniping software. The legislation comes in two varieties: North Carolina and Oregon have made the use of sniping software a civil violation.[29] Minnesota, Colorado, Tennessee, and Indiana, on the other hand, have made the use of such software a crime, punishable by imprisonment and/or a fine.[30] Part IV will address the entertainment industry's business model changes and technological advances that disempower ticket snipers. I will conclude by arguing that the market has effectively and efficiently solved the problem, thus leaving a legal solution superfluous.

I. THE ECONOMICS OF TICKET SNIPING

The motivations of the ticket snipers and the economics of the ticket industry are a good starting point for understanding the problem. Large queues and seemingly insatiable demand typically seen at online ticket sales perplex an economist. In traditional competitive markets, interaction between buyers and sellers bring demand into balance with supply, so queues are quickly eliminated. Why such large queues?

The answer is relatively simple: Traditionally, the entertainment and sports industries have set their ticket prices far below market value.[31] Many consumers are willing to pay much more than the face value of the

27. Ticketmaster L.L.C. v. RMG Techs., Inc., 507 F. Supp. 2d 1096 (C.D. Cal. 2007).

28. *See* H.R.1044, 96th Gen. Assem., Reg. Sess. (Ill. 2009) (proposing criminal sanctions); H.R. 3801, 186th Leg., Reg. Sess. (Mass. 2009) (proposing civil penalties); Assem. B. 3723, 2009 Assem., Reg. Sess. (N.Y. 2009) (proposing civil penalties); H.R. 464, 2009 Gen. Assem., Reg. Sess. (Pa. 2009) (proposing criminal sanctions); H.R. 508, 127th Gen. Assem., Reg. Sess. (Ohio 2008) (proposing civil penalties).

29. N.C. GEN. STAT. § 14-344.2 (2008); OR. REV. STAT. § 646.632 (signed into law June 17, 2009).

30. MINN. STAT. § 609.125 (2007); COLO. REV. STAT. § 6-1-720 (2008); TENN. CODE ANN. § 39-17-1105 (2008); IND. CODE. § 35-43-2-3 (effective July 1, 2009).

31. Simon, *supra* note 19, at 1176.

ticket. The below market price creates a situation where more people are willing to buy tickets than there are tickets available, resulting in a sellout.[32]

Those who are able to purchase tickets from the box office and pay only face value receive a "consumer surplus," which is the positive difference between what they would have paid for the ticket and the price they actually paid.[33] The ticket sniper attempts to capture that consumer surplus by purchasing the ticket before the consumer has the opportunity, and then reselling that ticket to the consumer, with a markup that allows the ticket sniper to profit from the surplus.

The more difficult question is this: Why are the tickets priced well below what consumers are willing to pay (the market clearing price) in the first place? If tickets were sold at the market clearing price, the consumer surplus would be eliminated, and the scalpers' motivation with it. Of course, a scalper may still purchase a ticket in anticipation of a price increase between the time of sale and the event, but pursuing that action does not require the use of sniping software, as there would theoretically be no queue.

Scholars have identified several possible explanations for artists' and promoters' pricing policies for events. Among these are long term revenue maximization, inability to price discriminate, promoter insider trading, partnership agreements, desires for sellouts, and altruism. These rationales are not mutually exclusive and a combination of these rationales can explain the below market pricing of tickets.

A. Long-term Revenue Maximization

Most importantly, tickets are underpriced to maximize long-term revenues. In order to build loyalty from a large fan base (who will attend concerts in the future and buy recorded music, paraphernalia, etc.), artists and promoters want to avoid the perception of gouging fans. Their strategy is based on their belief that consumers see price increases based on increased demand as unfair.[34] Kahneman, Knetsch and Thaler demonstrate such consumer sentiment in their often repeated behavioral economics studies, which found that 82% of survey respondents believed it "unfair" or "very unfair" for a hardware store to raise snow shovel prices

32. *Id.*

33. For example, suppose a consumer in Big Box Retailer sees a DVD on the rack. No price is indicated on the package, so the consumer brings it over to the register to check the price. As the consumer walks to the register, they think to themselves that $20 is the highest price that they would be willing to pay. At the register, they find out that the price is actually $12, so they buy the DVD. The consumer surplus in this example is $8: the difference between the $20 the consumer was willing to pay and the $12 they actually paid. *See generally* GREGORY MANKIW, PRINCIPLES OF ECONOMICS 139 (5th ed. 2008).

34. Simon, *supra* note 19, at 1181.

by $5 the morning after a snowstorm.[35] Charging the market clearing price in the short term can generate extremely adverse "moral effects" or "reputation effects" in the long term.[36] In the same sense, consumers would find it repugnant for a promoter to charge upwards of $200 for a ticket to Hannah Montana, who has a family friendly appeal.[37]

A promoter charging the market value might alienate and anger fans, who might then find other artists or sports teams to patronize. To build long-run popularity, the promoter might provide fans with a larger share of the consumer surplus than would be the case if the artist were simply maximizing short-run profit. Therefore, promoters may intentionally keep prices low to create consumer goodwill, which will in turn increase loyalty, attendance at future events, and purchases of the promoters' related products.

B. Inability to Price Discriminate

Tickets may also be underpriced because promoters are unable to price discriminate in a beneficial way.[38] Venues are large and often circular in shape, thus making certain seats, such as front and center seats, far more desirable than high-up seats with obstructed or undesirable views. It would be impossible to properly estimate the market clearing price for each individual ticket to a reserved seat event. Therefore, promoters typically price discriminate in large, delineated seating sections. Scalping opportunities can arise from two potential pricing mistakes—mispricing of the entire seating section as well as mispricing within a seating section. For example, a promoter may misprice an entire seating section due to mistaken assumptions about the consumer's perception of the view or the ability to hear. Additionally, within a seating section, the seats which provide better views may be underpriced relative to the rest of the area. In both situations, scalping opportunities arise from those mistakes.[39]

While this may be true for some promoters and artists, given the promoters' sophistication, it seems unlikely that promoters simply continue to misprice tickets year after year.[40] Live Nation, the largest

35. Daniel Kahneman et al., *Fairness as a Constraint on Profit Seeking: Entitlements in the Market*, 76 AM. ECON. REV. 728, 729 (1986).

36. Happel & Jennings, *Folly*, *supra* note 16 at 65.

37. Consumers mistakenly view the face value of a ticket as representative of promoters' costs, an error implicitly endorsed by state statutes that require prices to be printed on tickets. In other words, if Hannah Montana tickets did not have a face value, consumers wouldn't feel that they were subjected to opportunistic behavior by the sellers.

38. Tishler, *supra* note 12, at 99.

39. *Id.*

40. Stephen K. Happel & Marianne M. Jennings, *Assessing the Economic Rationale and Legal Remedies for Ticket Scalping*, 16 J. LEGIS. 1, 8 (1989) [hereinafter Happel & Jennings,

producer of live concerts in the world, annually produces more than 16,000 concerts for 1,500 artists in 57 countries and sells over 45 million tickets.[41] Live Nation employs statisticians and analysts to analyze its extensive historical data of ticket pricing for each venue, and it seems unsatisfactory to say that promoters simply repeatedly err in their pricing.[42] Presumably, they can tap this data and eliminate most, if not all, price discrimination mistakes based on venue layout.

C. Promoter Insider Trading

Artists and promoters retain tickets to distribute above face value (essentially enter the scalping business themselves), largely as a response to scalpers and ticket snipers. Some artists feel taken advantage of after seeing the scalpers' tremendous profit, but want to avoid the appearance of gouging fans by offering the tickets at market value.[43] Ticketmaster's "fan-to-fan" marketplace, TicketExchange.com, is often flooded with tickets shortly after Ticketmaster begins selling face value tickets.[44] A vast majority of these tickets are actually owned by the artist or promoter.[45] If the tickets do not sell at the inflated price on TicketExchange.com, the tickets may be moved between TicketExchange and Ticketmaster's lower-priced main inventory, without any signal to consumers that the ticket's status has been changed.[46] For example, an artist such as Elton John may request that certain desirable seats not be sold at face value but rather on TichetExchange.com for five times face value, but, of course, without indicating that the seller of the ticket is Elton John. If the tickets do not sell within a specified period, say five or six hours, the tickets would then be moved back to Ticketmaster to be sold for their face value. This phenomenon allows artists to underprice tickets but still capture the true value without the appearance of gouging fans.

Additionally, the below market pricing allows for promoters to provide tickets to favored parties, a phenomenon that is much more widespread than the public realizes.[47] A striking example is Bruce Springsteen's May 21 and May 23, 2009 shows at East Rutherford, New

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Assessing the Economic Rationale].

41. Live Nation Investor Information, http://phx.corporate-ir.net/phoenix.zhtml?c=194146&p=irol-irhome (last visited Feb. 3, 2009).

42. Live Nation Careers, http://www.livenationcareers.com/cgi-bin/htmlos.cgi/001156.4.991477868616394014 (last visited Oct. 3, 2009).

43. For a further discussion of this phenomenon, *see supra* Part I.A.

44. Ethan Smith, *Concert Tickets Get Set Aside, Marked Up by Artists, Managers*, WALL ST. J., Mar. 11, 2009, at B1.

45. *Id.*

46. *Id.*

47. Simon, *supra* note 19, at 1180.

Jersey's Izod Center.[48] Courtesy of an Open Public Records Act request from the Newark Star-Ledger, some 90% of the most desirable seats in the venue were reserved for friends and family of the band, venue employees, record-label executives, and their guests.[49] Of the total 20,000 seats at the May 21 show, 2,262, or 12%, were withheld from public sale by various interested parties, including the public agency that runs the venue (hence the public-records act request).[50] Of those, 1,450 were held for friends and family of Springsteen and his band, plus radio-station executives and the like; 812 were held by the New Jersey Sports and Exhibition Authority.[51] The withheld tickets were also some of the most highly sought after. Of the 1,126 seats closest to the stage, only 108 were officially listed for sale to the public.[52]

In 2003, the New York Yankees were investigated by a New York State lobbying commission for distributing free tickets to public officials without disclosing the nature and amount of the gifts, and later paid a fine of $75,000.[53] For the 2009 NFL Super Bowl held in Tampa, Florida, 25% of the tickets were held back by the NFL and distributed to the broadcast network, corporate sponsors, media, VIPs, and charities.[54]

D. Partnership Agreements

Another possible reason for the underpricing of tickets is that promoters enter into partnership agreements with secondary market resellers, such as StubHub or Ticketmaster's TicketsNow, which give the promoters a portion of the ticket price in exchange for being identified as the "official" reseller for the event. The "official" reseller is not the exclusive reseller, but by being labeled as such, the official reseller hopes consumers will search its website for tickets before looking elsewhere. Such agreements create a disincentive to overprice tickets because underpricing tickets will result in capturing a portion of that mistake from the partnership agreements. If, on the other hand, a promoter overprices tickets, it bears the full weight of its mistake through decreased revenue because the tickets will not be resold on the secondary

48. Posting of Ethan Smith to SpeakEasy Wall Street Journal Arts and Media Blog, Springsteen Concerts: Who Gets the Best Seats? (Hint: Not You), http://blogs.wsj.com/speakeasy/2009/06/14/springsteen-concerts-who-gets-the-best-seats-hint-not-you/ (June 14, 2009, 19:28).

49. *Id.*

50. *Id.*

51. *Id.*

52. *Id.*

53. *See* Michelle O'Donnell, *Yankees and Lobbying Panel Settle Case*, N.Y. TIMES, Jan. 1, 2004, at B4.

54. Super Bowl 43 Ticket Information, http://www.ticketsolutions.com/superbowl-info.asp (last visited Feb. 3, 2009) (also noting that "less than 1%" are available to the general public).

market.

All four major professional sport leagues—MLB, NBA, NFL, and NHL—entered into agreements with secondary ticket sellers in 2007, providing that ticket resellers such as StubHub become the "official" ticket resellers for those leagues, and, in return, the leagues receive a portion of the revenue from such sales.[55] In early 2008, Madonna and her promoter, Live Nation, entered into an agreement with StubHub to serve as the "official fan-to-fan ticket marketplace;" for each ticket sold, Madonna received a flat fee and a percentage of the revenue, the exact amount of which has not been disclosed.[56]

E. Desire for Sellouts

Promoters desire sellouts for their events and could possibly be willing to forgo some ticket revenue to ensure such a sellout. One reason promoters desire sellouts is for the dynamics associated with the crowd effect. The perception that an event will be a sellout attracts consumers into the ticket market who would not otherwise attend, and the ambiance from a sellout may intensify the demand by consumers for future events.[57] Additionally, sellouts make the concert experience better for the musician and audience alike. But perhaps most importantly, promoters desire sellouts to maximize complementary revenues from parking, refreshment, and souvenir sales at the stadium or concert hall.[58] Lastly, because the marginal costs associated with additional attendees are low until capacity is reached, promoters do not like to see seats unsold.[59]

F. Altruistic Pricing Schemes

It is also possible that promoters intentionally underprice their tickets not for long-term revenue maximization, but rather to be "fair" to their fans, allowing those fans who cannot afford market priced tickets (the "blue collar" fan), to attend the performance.[60] Profits may become secondary to fairness. For example, Bruce Springsteen apparently wants his "true fans" to be able to attend his concerts, and intentionally sets ticket prices below market value.[61] His great success and wealth seem to

55. John Helyar, *In Change of Heart, Leagues Embrace Secondary Ticket Sellers*, ESPN.COM, Dec. 21, 2007, http://sports.espn.go.com/espn/news/story?id=3165059.

56. Ethan Smith, *StubHub Enlisted in Resale Of Madonna Concert Tickets*, WALL ST. J., May 9, 2008, at B6.

57. Happel & Jennings, *Folly*, *supra* note 16, at 67.

58. *Id.*

59. *Id.* at 70.

60. Happel & Jennings, *Assessing the Economic Rationale*, *supra* note 40, at 9.

61. *Id.*; *see* John Seabrook, *The Price of the Ticket*, THE NEW YORKER, Aug. 10, 2009, at

have given him the ability to trade profits for other objectives, but of course, few other artists and promoters are willing and able to forgo this revenue.[62]

* * *

These reasons may explain the conditions leading to below market value ticket prices. This underpricing gives rise to scalping and the use of sniping software.

II. THE LITIGATION RESPONSE

A. The Litigation Impetus

The Hannah Montana debacle was the driving force behind two important cases. First, in June 2007, Ticketmaster sued RMG, a company that developed and marketed sniping software specifically aimed at Ticketmaster.[63] Ticketmaster prevailed, obtaining a permanent injunction and a large judgment against RMG.[64] Second, in December 2007, Boaz Lissauer, a consumer unable to purchase a ticket to see the rock band The Police from Ticketmaster, brought a class action suit against RMG and several brokers who employed RMG's software.[65] Lissauer's suit, however, was eventually voluntarily dismissed, and the court never addressed the merits of his claims.[66] Each case will be addressed in turn.

B. Ticketmaster's Litigation

Ticketmaster sued RMG Technologies for copyright infringement, Terms of Use violations, and violating a number of federal and state statutes.[67] Ticketmaster asserted eleven claims in its First Amended Complaint (FAC), including copyright infringement, violation of the Digital Millennium Copyright Act (DMCA) and the Computer Fraud and Abuse Act (CFAA), breach of contract, and fraud.[68] After surviving a motion to dismiss, Ticketmaster moved for a preliminary injunction

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62. Happel & Jennings, *Assessing the Economic Rationale*, *supra* note 40, at 9.

63. Ticketmaster L.L.C. v. RMG Techs., Inc., 507 F. Supp. 2d 1096 (C.D. Cal. 2007).

64. *Id.*

65. Class Action Complaint, Boaz Lissauer v. RMG Techs., Inc., No. 2107CV1278 (S.D. Ohio Dec. 19, 2007).

66. Notice of Voluntary Dismissal by Plaintiff Boaz Lissauer, Boaz Lissauer v. RMG Techs., Inc., No. 2:07-CV-01278 (S.D. Ohio Jan. 11, 2008).

67. *Ticketmaster,* 507 F. Supp. 2d at 1096.

68. First Amended Complaint, Ticketmaster L.L.C. v. RMG Techs., Inc., 507 F. Supp. 2d 1096 (C.D. Cal. 2007) (No. CV 07-2534-ABC (JCx)).

based on five of the claims set forth in its FAC: Violation of the Copyright Act, the DMCA, the California Penal Code, the CFAA, and breach of contract.[69] To obtain a preliminary injunction, Ticketmaster needed to show a threat of irreparable harm and a likelihood of success on the merits.[70]

1. Direct and Indirect Copyright Infringement Claim

Ticketmaster's creative claim of copyright infringement was twofold: RMG infringed Ticketmaster's copyright in its website, first, directly by violating the Terms of Use when it tested its software, and second, indirectly when it intentionally induced others to view the website in contravention of the Terms of Use.[71]

Ticketmaster owns a copyright in its website, Ticketmaster.com.[72] When RMG viewed Ticketmaster's website to test its software, a copy of each page was necessarily downloaded or "cached" from Ticketmaster's computers onto RMG's computer's random access memory.[73] The court held this copy falls within the Copyright Act's definition of "copy."[74] Typically, an individual surfing a website would not be liable for copyright infringement because there is either an express or implied license to create those copies. Ticketmaster's express license was located in its homepage, which displayed the following warning: "Use of this website is subject to express *Terms of Use* which prohibit commercial use of this site. By continuing past this page, you agree to abide by these terms."[75] The underlined phrase "Terms of Use" was a hyperlink to the full Terms of Use, thus putting RMG on notice of the Terms of Use.[76] The full Terms of Use contained the following restrictions:

> You [the viewer] agree that you are only authorized to visit, view and to retain a copy of pages of this site for your own personal use, and that you shall not duplicate, download, [or] modify . . . the material on this Site for any purpose other than to review event and promotions information, for personal use . . . .
>
> No . . . areas of this Site may be used by our visitors for any commercial purposes . . . .

69. *Ticketmaster*, 507 F. Supp. 2d at 1104.

70. *Id.* at 1104–1112 (citing Walczak v. EPL Prolong, Inc., 198 F.3d 725, 731 (9th Cir. 1999)).

71. *Id.* at 1104–5.

72. *Id.* at 1104.

73. *Id.*

74. *Id.* at 1105.

75. *Id.* at 1107.

76. *Id.*

> You agree that you will not use any robot, spider or other automated device, process, or means to access the Site . . . . You agree that you will not use any device, software or routine that interferes with the proper working of the Site nor shall you attempt to interfere with the proper working of the Site.
>
> You agree that you will not take any action that imposes an unreasonable or disproportionately large load on our infrastructure.[77]

The court held that Ticketmaster was highly likely to demonstrate that RMG's applications are automated devices that violated the Terms of Use.[78] The decision focused upon the definition of "automated device" and the battle between Ticketmaster's CAPTCHA and RMG's sniping software.[79] RMG countered that its "Ticket Broker Acquisition Tool" (TBAT) was not an "automated device," but rather an Internet browser, like Internet Explorer, that requires human interaction.[80] The court disagreed.[81] The court cited expert testimony that noted that the term "automated device" is well understood in the context of computer programming, and RMG's TBAT is such a device.[82] Additionally, Ticketmaster submitted evidence, including declarations from RMG's former clients and the results of Ticketmaster's sleuthing, that traced ticket requests and purchases made on Ticketmaster.com to individual users and, ultimately, to RMG.[83] Ticketmaster identified one individual who used an IP address registered to RMG and purchased almost 13,000 tickets over several years and made more than 425,000 ticket requests in a single day, far more than any human would be able to manually generate.[84]

The court rejected the defendant's arguments that, under *Perfect 10, Inc. v. Amazon.com*, cached copies of the plaintiff's website were a permitted fair use.[85] In *Perfect 10*, the Ninth Circuit held that Google's creation and display of lower resolution "thumbnail" copies of infringing images in search results was a fair use.[86] In reaching this result, the Ninth Circuit relied largely on the transformative nature of the thumbnails Google created, which, by facilitating the public's ability to search the

77. *Id.*
78. *Id.* at 1109.
79. *Id.* at 1108.
80. *Id.*
81. *Id.*
82. *Id.*
83. *Id.*
84. *Id.* at 1103, 1111.
85. *Id.* at 1109 (declining to apply Perfect 10, Inc. v. Amazon.com, 487 F.3d 701 (9th Cir. 2007)).
86. *Perfect 10*, 487 F.3d at 717.

web for images, serve a different purpose than the original images, which are designed to entertain.[87] Although RMG's use of copyrighted content was incidental to its main purpose of facilitating bulk ticket purchases, the court found that RMG's program did not utilize copyright material in a "transformative" manner and was explicitly commercial in nature.[88] The court also noted that *Perfect 10* applied to "innocent" third-party visitors who intended to comply with the terms of use.[89] RMG was neither an innocent third-party, nor did it intend to comply with Ticketmaster's Terms of Use.[90] Thus, RMG was liable for direct infringement of Ticketmaster's copyright in the website.[91]

The court went on to find that RMG was additionally liable as an indirect infringer under *MGM Studios Inc. v. Grokster, Ltd.*[92] *Grokster*, a landmark 2005 United States Supreme Court case, held that "one who distributes a device with the object of promoting its use to infringe copyright, as shown by clear expression or other affirmative steps taken to foster infringement, is liable for the resulting acts of infringement by third parties."[93] The court found that there was substantial evidence that RMG designed its application for the purpose of giving its clients unauthorized access to Ticketmaster.com.[94] The court relied heavily on evidence that RMG advertised its product as "stealth technology [that] lets you hide your IP address, so you never get blocked by Ticketmaster."[95] However, according to one commentator, this is a fairly expansive interpretation of copyright inducement, because RMG seemed to merely promote the ability to hide a user's IP address from Ticketmaster, not infringe on its copyright.[96] Nevertheless, the court noted that there was substantial evidence that RMG's customers engaged in numerous acts in violation of the Terms of Use, and that such evidence makes it highly likely that Ticketmaster would succeed in its claim against RMG for indirect infringement.[97]

2. DMCA Claim

The DMCA, a federal statute passed in 1998, prohibits production and dissemination of technology, devices, or services intended to

87. *Id.* at 718.
88. *Ticketmaster*, 507 F. Supp. 2d at 1110.
89. *Id.*
90. *Id.*
91. *Id.*
92. MGM Studios Inc. v. Grokster, Ltd., 545 U.S. 913, 930–931 (2005).
93. *Id.* at 918.
94. *Ticketmaster*, 507 F. Supp. 2d at 1110.
95. *Id.*
96. *See* Goldman, *supra* note 8.
97. *Ticketmaster*, 507 F. Supp. 2d at 1110.

circumvent measures that control access to copyrighted works.[98] Additionally, it prohibits circumventing an access control, whether or not there is actual infringement of a copyright.[99] Ticketmaster alleged that RMG's software violated § 1201(a)(2), which prohibits trafficking in devices designed to circumvent "technological measure[s] that effectively control[] access to a work protected under this title."[100] The court laid out the requisite elements of a violation of § 1201(a)(2):

> A plaintiff alleging a violation of § 1201(a)(2) must prove: (1) ownership of a valid copyright on a work, (2) effectively controlled by a technological measure, which has been circumvented, (3) that third parties can now access (4) without authorization, in a manner that (5) infringes or facilitates infringing a right protected by the Copyright Act, because of a product that (6) the defendant either (i) designed or produced primarily for circumvention; (ii) made available despite only limited commercial significance other than circumvention; or (iii) marketed for use in circumvention of the controlling technological measure.[101]

Relying on the previous discussion of Ticketmaster's copyright claim, the court concluded that Ticketmaster was likely to prevail.[102]

It is not clear, though, to what extent the software "circumvented" the CAPTCHA. Cipriano Garibay, president of RMG Technologies, stated in an interview with the New York Times that the company employed humans in India at $2 an hour to type in the answer to the CAPTCHA.[103] If the purpose of the CAPTCHA is to distinguish between humans and computers, the software only circumvented the CAPTCHA in a very attenuated sense; the purpose of the CAPTCHA would need to be characterized as a test to distinguish the ultimate purchaser of the ticket from another human hired only complete the CAPTCHA. But it appears that RMG did not assert this fact in its

98. *See* 17 U.S.C. §§ 512, 1201–05, 1301–32 (2006); 28 U.S.C. § 4001 (2006).

99. *See* 28 U.S.C. § 4001.

100. 17 U.S.C. § 1201(a)(2)(A).

101. *Ticketmaster*, 507 F. Supp. 2d at 1111 (citing Chamberlain Group, Inc. v. Skylink Techs., Inc., 381 F.3d 1178, 1203 (Fed. Cir. 2004)).

102. *Id.*

103. Stross, *supra* note 1. This "low-tech" approach is also achieved through porn sites: For a person to gain access to a porn site, the person must solve what appears to be the porn site's CAPTCHA. The person provides the solution to the CAPTCHA, and is given entrance to the porn site. However, the person has actually solved a CAPTCHA on an unrelated site that the bot is trying to gain access to. The bot has simply duplicated the CAPTCHA picture from the target site to the porn site. When the person inputs the correct CAPTCHA, the bot snatches the answer and inputs it into the target site. E-mail from Allan Caine, Ph.D. Candidate, David R. Cheriton School of Computer Science, University of Waterloo, to author (Feb. 25, 2009, 14:40:46 MST) (on file with the Journal on Telecommunications and High Technology Law).

defense. It is unclear whether Garibay's assertion to the New York Times was completely true.

3. Breach of Contract Claim

Perhaps the most straightforward and simplistic claim Ticketmaster asserted was that RMG violated its Terms of Use on its website and was thus liable for breach of contract.[104] The court, relying heavily on the discussion of the Terms of Use in the copyright claim, found that RMG was on notice of, and assented to, the Terms of Use and that its violation of those terms constituted a breach of contract.[105]

4. CFAA Claim

The CFAA, a federal anti-hacker statute passed in 1986, permits "[a]ny person who suffers damage or loss" through a violation of its provisions to "maintain a civil action . . . to obtain compensatory damages and injunctive relief or other equitable relief."[106] To prevail on its CFAA claim, a plaintiff must demonstrate that a defendant "intentionally accesse[d] a computer without authorization or exceed[ed] authorized access, and thereby obtain[ed] . . . information from any protected computer,"[107] or a defendant "knowingly cause[d] the transmission of a program . . . and . . . cause[d] damage without authorization, to a protected computer."[108] A plaintiff must also demonstrate that a defendant's unauthorized access caused $5,000 in loss during a one-year period.[109]

The court summarily concluded that "[i]t appears likely that Plaintiff will be able to prove that Defendant gained unauthorized access to, and/or exceeded authorized access to, Plaintiff's protected computers, and caused damage thereby."[110] However, the court went on to find that because Ticketmaster "ha[d] not quantified its harm as required by the statute or even attempted to show what portion of the harm [was]

104. Perhaps a weakness of this claim is that RMG only tested—and never actually used—the software to purchase tickets. Nonetheless, the testing of the software violated the Terms of Use.

105. *Ticketmaster*, 507 F. Supp. 2d at 1113. In past decisions, courts have favored enforcement of online agreements where there has been clear notice of the terms of an agreement, and there has been some mechanism for users to assent to those terms. For further discussion of notice requirements, see generally Lothar Determann & Irene Gutierrez, *Copyright Violations in Caching Of Website Content and Online Contract Formation*, 3 J. OF INTELL. PROP. L. & PRAC. 548 (2008).

106. 18 U.S.C. § 1030(g).

107. 18 U.S.C. § 1030(a)(2)(C).

108. 18 U.S.C. § 1030(a)(5)(A).

109. 18 U.S.C. § 1030(a)(5)(B)(i).

110. *Ticketmaster*, 507 F. Supp. 2d at 1113.

attributable to Defendant," the CFAA claim did not provide a basis for a preliminary injunction.[111]

5. California Penal Code Claim

The Court, satisfied that Ticketmaster would likely prevail on its copyright, DMCA and breach of contract claims, declined to address the fifth claim.[112]

6. Irreparable Injury

Lastly, the court addressed whether Ticketmaster had shown "the possibility of irreparable injury."[113] The posture of the two companies was a bit unusual in that Ticketmaster was, in a sense, suing its best customer: RMG's software permitted its users to purchase as much of Ticketmaster's product as they could, as rapidly as possible. As Jay M. Coggan, RMG's lawyer, noted, "This may be the only time in the history of litigation that any seller sued its customers for paying them too much money."[114] Ticketmaster argued that it would suffer "a loss of goodwill with the buying public in that there is a growing public perception that [Ticketmaster] does not provide the public with a fair opportunity to buy tickets due to automated purchases."[115] Ticketmaster cited "numerous complaints" from customers, news stories, and blog posts that discussed the unavailability of tickets to the most desirable events, including Hannah Montana's "Best of Both Worlds Tour." The court agreed with Ticketmaster's argument, and in its injunction noted that it was in the public interest because consumers could not buy tickets at their face value, and were forced to pay brokers "inflated prices for resold tickets."[116, 117]

On October 16, 2007 the court granted Ticketmaster's motion for a preliminary injunction, and enjoined RMG and all persons acting for its benefit or on its behalf from, *inter alia*, purchasing or facilitating the purchase of tickets from Ticketmaster's website for the commercial

111. *Id.*

112. *Id.*

113. *Id.* at 1113–1115.

114. Ethan Smith, *Hannah Montana Battles the Bots*, WALL ST. J., Oct. 5, 2007, at B1, *available at* http://online.wsj.com/public/article_print/SB119153995723149557.html.

115. *Ticketmaster*, 507 F. Supp. 2d at 1114.

116. *Id.* at 1116.

117. The court's agreement with this perceived harm is premature to the extent that Ticketmaster did not provide evidence that this loss of goodwill will result in consumers or promoters refusing to use the Ticketmaster website. If consumers and promoters continue to use Ticketmaster but simply hold some belief that there was some possibility of unfairness, it doesn't seem that Ticketmaster has suffered any measurable harm.

purpose of reselling them.[118] This essentially shut down RMG's business.[119] RMG appealed to the Ninth Circuit, and oral arguments were held in May 2008.[120] Subsequent to oral argument, though, RMG relieved its counsel and failed to appoint new counsel, causing Ticketmaster to move for default judgment and a permanent injunction.[121] The failure to appoint a new counsel and continue to litigate the case was due to RMG's financial difficulties.[122] RMG had spent approximately $200,000 on legal fees, according to its president, Cipriano Garibay, and "couldn't afford attorneys anymore."[123] On June 19, 2008, the district court entered a default judgment of $18,237,200 and permanent injunction against RMG, nullifying the Ninth Circuit appeal.[124]

While Ticketmaster's success against RMG creates the appearance that litigation can solve the problem, the appearance is misleading. First, it is questionable whether Ticketmaster possesses the motivation to pursue further litigation. Many assert that Ticketmaster used its suit against RMG for public relations purposes[125] to cover up its own activities in the secondary market, and does not plan to pursue further litigation.[126] In February 2008, Ticketmaster paid $265 million to

118. Professor Goldman has questioned the quality of the court's analysis, particularly the implicit holding that browsing is copyright infringement as well as the upholding of Ticketmaster's browsewrap. *See* Goldman, *supra* note 8. His criticisms are primarily based on the fact that RMG was only a manufacturer and not a user of the software. *Id.* According to his view, the court strained the doctrines and the facts to grant Ticketmaster a win, likely with the equities in mind. *Id.* Arguably, Ticketmaster would have a much stronger case if it litigated the same causes of action against a user of RMG's software. Professor Goldman's criticisms are beyond the scope of this Note.

119. Alfred Branch Jr., *Ticketmaster wins $18.2 million judgment against RMG Technologies*, TICKETNEWS.COM, June 25, 2008, http://www.ticketnews.com/Ticketmaster-wins-millions-judgment-against-RMG-Technologies6825761.

120. Oral Argument, Ticketmaster LLC v. RMG Techs., Inc., No. 07-56666 (9th Cir. May 7, 2008).

121. Application for Default Judgment against Defendant RMG Technologies, Inc., Ticketmaster v. RMG Techs., Inc., No. 2:07-cv-02534-ABC-JC (C.D. Cal. June 3, 2008).

122. Vinnee Tong, *Federal Court Fines RMG $18M in Ticketmaster Case*, WATODAY.COM, June 26, 2008, http://www.watoday.com.au/technology/federal-court-fines-rmg-18m-in-ticketmaster-case-20080626-2x0u.html; *see also* Branch, *supra* note 119.

123. Tong, *supra* note 122.

124. Default Judgment and Permanent Injunction, Ticketmaster v. RMG Techs., Inc., No. 2:07-cv-02534-ABC-JC (C.D. Cal. June 19, 2008).

125. Ticketmaster issued two press releases announcing its victories in the RMG case: Press Release, Ticketmaster Entertainment, Federal Court Grants Ticketmaster's Request For Preliminary Injunction Barring RMG Technologies From Facilitating Access to Ticketmaster's Ticketing System (Oct. 15, 2007), *available at* http://mediacenter.ticketmaster.com/Extranet/TMPRArticlePressReleases.aspx?id=5024; Press Release, Ticketmaster Entertainment, Default Judgment and Permanent Injunction Against RMG Technologies, Inc. Entered in U.S. District Court (June 25, 2008), *available at* http://mediacenter.ticketmaster.com/Extranet/TMPRArticlePressReleases.aspx?id=6356.

126. Brian Thompson, *RMG Technologies Claims They Are Not the Bad Guys*,

purchase TicketsNow.com (TicketsNow), a reseller of tickets that competes with StubHub and TicketLiquidator.[127] In doing so, Ticketmaster set itself up for a potential conflict of interest. There appears to be a strong *incentive* for Ticketmaster to get tickets into the hands of brokers who operate on TicketsNow, and to reap hefty commissions. In fact, when a consumer attempts to purchase a ticket to a sold out event through Ticketmaster, the consumer is sometimes automatically rerouted to TicketsNow and offered the tickets at increased prices, creating an attractive selling method for snipers.[128] But this theory might be more conspiracy than fact. Ticketmaster seems to continue to invest in technology designed to thwart ticket scalping,[129] and incurred the costs to implement Paperless Ticketing, as discussed in Section IV.

Second, even if Ticketmaster does want to pursue the problem, the litigation will be prohibitively expensive. While RMG was forced into bankruptcy, dozens of other manufacturers of sniping software have already replaced RMG.[130] Concerts continue to sell out in minutes.[131]

Allan Caine, a computer science researcher at the University of Waterloo, Canada, explains that from a technical point of view, the

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TICKETNEWS.COM, Mar. 26, 2008, http://www.ticketnews.com/RMG-Technologies-claims-not-the-bad-guys38251321.

127. Posting to DealBook, IAC's Ticketmaster Pays $265 Million for TicketsNow, http://dealbook.blogs.nytimes.com/2008/01/16/iacs-ticketmaster-pays-265-million-for-ticketsnow/ (Jan. 16, 2008, 18:36 EST).

128. Interestingly, in February 2009, Ticketmaster agreed to pay the state of New Jersey $350,000 to settle charges by the Attorney General of New Jersey that the practice of automatically redirecting consumers to TicketsNow may have violated the state's Consumer Fraud Act. A similar settlement was reached with the Illinois Attorney General in June 2009. Kerry Grace Benn, *Ticketmaster Unit to Pay $50,000 Over Deceptive Practices*, WALL ST. J., July 1, 2009, http://online.wsj.com/article/SB124637740774473993.html; Samantha Henry, *Ticketmaster to Change Online Sales System*, USA TODAY, Feb. 23, 2008, http://www.usatoday.com/money/media/2009-02-23-ticketmaster_N.htm.

129. Ethan Smith, *Big Ticket Seller Tried Deal With Scalpers*, WALL ST. J., Aug. 28, 2009, at B1 (noting that "Ticketmaster . . . initiat[ed] a new technology that blocks any computer that attempts to access the company's Web site 1,000 times or more in a day").

130. Posting of admin to PreferredSear.com, RMG is Gone, But the Bots Live On, http://blog.preferredseat.com/2009/02/18/rmg-is-gone-but-the-bots-live-on/ (Feb. 18, 2009) (noting that "[n]ot only is the same [sniping] software still in use, but dozens of software companies have come forth with their own versions and have been hawking them to ticket brokers nationwide").

131. Ben Sisario, *Online Sales Make Hot Tickets Harder to Get*, N.Y. TIMES, Mar. 31, 2009, at A1. ("U2's show on Sept. 24 at Giants Stadium in East Rutherford, N.J., was an 'instantaneous sellout' through Ticketmaster on Monday morning, according to the promoter, Live Nation. Just as quickly, however, thousands of listings flooded any-price-goes sites like TicketsNow.com, a Ticketmaster subsidiary where fans and brokers flip tickets, often at prices far above face value. One seller was asking $10,000 for a $253 seat near the stage."); *see also*, Steve Haruch, *The Music City Star*, NASHVILLE SCENE, Feb. 25, 2009, http://www.nashvillescene.com/2009-02-26/news/the-music-city-star/ (explaining that musical artist Taylor Swift sold out the L.A. Staples Center in two minutes).

software is relatively unsophisticated.[132] In a little under a week, he was able to develop sniping software that successfully targeted Tickets.com, and he published an academic article that explained in detail how he did it.[133] To solve the sniping problem through litigation, Ticketmaster would need to incur tremendous discovery costs involving computer forensic experts to even identify possible defendants, which could number in the hundreds. Complicating the litigation, the sniping software manufacturers may use shell entities to conduct their business, forcing Ticketmaster to litigate with the entities and hope for some form of veil piercing to make the judgment applicable to the individuals. Further, while Ticketmaster did prevail against RMG, it prevailed on a preliminary injunction from a district court, which fails to provide needed precedential value for future cases. Lastly, even if Ticketmaster were able to get a personal judgment, the manufacturers are likely judgment-proof and almost surely don't have any type of insurance to cover this type of judgment.

Thus, it appears that Ticketmaster is unlikely to solve the problems of ticket sniping through litigation. Ticketmaster may lack the motivation to pursue such litigation, but even if it had the motivation, the costs would be prohibitively expensive. What about the consumers in this situation? Do they have any legal recourse?

C. Boaz Lissauer's Class Action Suit

In February 2007, Boaz Lissauer, a New Jersey plastic surgeon, attempted to purchase tickets to an August 1, 2007 Madison Square Garden concert of the rock band The Police.[134] Mr. Lissauer was unable to purchase tickets through Ticketmaster, so he turned to the secondary market and purchased seats from TicketLiquidator.com.[135] Mr. Lissauer paid $195 for each of four "nosebleed" seats, which carried a face value of $63 each.[136] Upset at the situation, he filed a suit against RMG, two brokers who allegedly used RMG's software, and 100 John Does—unknown brokers who used RMG's software.[137]

The suit was filed as a class action, with the class consisting of "all persons who . . . purchased tickets from any Broker Defendant at artificially inflated prices for events from January 1, 2004 through

132. Caine, *supra* note 103.

133. Allan Caine & Urs Hengartner, *The AI Hardness of CAPTCHAs Does Not Imply Robust Network Security*, *in* TRUST MANAGEMENT 367 (Sandro Etalle & Stephen Marsh eds., 2007); Caine, *supra* note 103.

134. Class Action Complaint, Boaz Lissauer v. RMG Techs., Inc., No. 2107CV1278 (S.D. Ohio Dec. 19, 2007).

135. *Id.* at 4.

136. *Id.*

137. *Id.* at 1.

October 15, 2007 for events in which Ticketmaster was the exclusive primary seller for the event."[138] The complaint asserted eight claims for relief. First, the plaintiffs alleged violation of 17 U.S.C § 1201, the same DMCA section that Ticketmaster relied on in its own suit against RMG.[139] The plaintiffs alleged that they suffered damages as a result of RMG's violation of the statute due to being forced to pay an increased price for tickets.[140] Second, the plaintiffs alleged violation of the CFAA, 18 U.S.C. § 1030, again, the identical section that Ticketmaster litigated against RMG.[141] The damages alleged by the plaintiffs as result of RMG's violation included, *inter alia*, "diminishing the inventory of tickets available through Ticketmaster to Class members, causing artificially high levels of tickets to be placed on reserve and thereby interfering with the transmission of real time sales information to Class members."[142]

The third and fourth claims alleged "racketeering activity" as defined in 18 U.S.C. § 1961(1), through the defendants' violations of 18 U.S.C. § 1029, which prohibits fraud and related activity in connection with access devices.[143] Fifth, the plaintiffs alleged that they were third-party beneficiaries of the contract between Ticketmaster and the defendants insofar as Ticketmaster's stated policies and Terms of Use are explicitly designed to protect consumers against unfair ticket buying practices.[144] Sixth, the plaintiffs alleged intentional interference with contractual relations, and their seventh and eighth claims alleged unjust enrichment and requested an accounting.[145]

The plaintiffs' claims were facially quite strong, particularly because several of the claims were identical to Ticketmaster's claims in its successful suit against RMG. Additionally, the Ticketmaster litigation against RMG was replete with moral condemnation of RMG. If a court were to perceive similar equities, RMG and the other ticket scalpers would have a very tough obstacle to overcome. But the validity of the plaintiffs' claims remains untested. Shortly after filing the complaint, the suit was voluntarily dismissed.[146] According to a source close to the case, the suit was dropped because even if the plaintiffs won a large judgment, it would likely go unsatisfied.[147] Ticketmaster already won an $18 million

138. *Id.* at 6.
139. *Id.* at 22.
140. *Id.* at 24.
141. *Id.*
142. *Id.* at 23–24.
143. *Id.*
144. *Id.* at 26.
145. *Id.* at 28–30.
146. Notice of Voluntary Dismissal by Plaintiff Boaz Lissauer, Boaz Lissauer v. RMG Techs., Inc., No. 2:07-CV-01278 (S.D. Ohio Jan. 11, 2008).
147. Notes on file with Author.

judgment against RMG, possibly putting them into bankruptcy.[148] The plaintiffs' attorneys viewed a judgment against the other scalpers as virtually worthless. As discussed above with respect to Ticketmaster's litigation problems against snipers, there would have been tremendous discovery costs, veil piercing problems, and judgment proof defendants. The fruits of ticket sniping are not concentrated but are rather disbursed among hundreds of parties. All potential plaintiffs would encounter these problems, making the possibility of consumers solving the ticket sniping problem through private litigation quite impractical.

* * *

In sum, litigation isn't the solution to ticket sniping. The primary reason is that the profits from ticket sniping are widely dispersed among many scalpers. This wide dispersion makes litigation prohibitively expensive due to discovery costs and the inability to collect on potential judgments. Further, it isn't clear that some potential plaintiffs, such as ticket sellers, have the motivation to litigate ticket snipers as they are not being harmed. Can legislation, then, provide a solution?

III. THE LEGISLATIVE RESPONSE

Largely in response to the Hannah Montana debacle, consumers contacted their state legislatures demanding a solution. Beginning in mid-2007, several states proposed legislation aimed at sniping software users. Six states have enacted such legislation so far, and several more are considering legislation.

A. The Nature of the Consumers' Harm

Prior to addressing the legislation, it is important to understand the nature of the consumers' harm. Minnesota State Senator Ron Latz, in connection with the anti-sniping legislation he helped pass in Minnesota, argued, "Professional ticket brokers used special computer software to cut to the front of the line and snatch up most of the tickets, beating out the average fans who simply wanted to go enjoy the concert. That's not fair—that's cheating, and this bill will make that illegal."[149] Minnesota State Representative Joe Atkins added that "Hannah Montana fans were robbed last summer, literally . . . . Robbed out of hundreds of dollars and robbed of the chance to see their favorite star on

148. Branch, *supra* note 119; Tong, *supra* note 122.

149. Press Release, Minnesota State Senator Ron Latz, 'Hannah Montana' Bill Passes State Senate (Apr. 10, 2008), *available at* http://www.senate.leg.state.mn.us/members/member_pr_display.php?ls=80&id=1618.

stage."[150]

Representative Atkins' characterization of the voluntary transactions entered into by fans of Hannah Montana as "robbery" is inaccurate. Paying the market price for a luxury good is voluntary transaction. No one is coerced into buying these tickets, and it is certainly not robbery. But the characterization of the use of sniping software as electronic "cutting in line" is accurate. The use of sniping software violates the first-come, first-served doctrine, which hinges on the notion that each individual is able to occupy one position in the queue. The ticket sniper's ability to pack the queue with hundreds or thousands of automated queue holders breaches that doctrine.[151] As evidenced by the legislators' comments, this electronic version of line intrusion causes the same psychological responses as line intrusion in the physical world. What is the source of those feelings of unfairness or unjustness? Psychologists posit two explanations as to why individuals show resistance to line intruders.[152] The first, known as the "individual costs" explanation, hypothesizes that individuals respond to intrusions because they fear loss of their queue position, thereby incurring additional waiting time, or, in the case of tickets, increased costs.[153] The individual costs position explains queuers' reactions purely in terms of personal interests.[154] Individuals want to be guaranteed their due access to a resource with minimal costs.[155]

The alternative explanation, known as the "moral outrage" explanation, is intrinsically social in nature.[156] According to this view, a queue constitutes a rudimentary social system. Individuals do not react purely in terms of personal wishes but by reference to a consensually shared social norm. Individuals feel outraged at the intruder's violation of

150. Press Release, Minnesota State Representative Joe Atkins, Measure to Outlaw Online Ticket Bullying Clears Legislature (Apr. 23, 2008), *available at* http://www.house.leg.state.mn.us/members/pressrelease.asp?party=1&pressid=3561&memid=10753.

151. In physical queues, scalpers will often employ "diggers" or "droids" to stand in line or to make repeated phone calls to acquire tickets. *See* Mike Goodman, *The Droids vs. The Straights*, L.A. TIMES, Feb. 10, 1991, Magazine at 14; *see also* Brian Montopoli, *The Queue Crew*, LEGAL AFF., Jan.–Feb. 2004 at 6. Sniping software is more akin to line cutting than employing "diggers" or "droids" because a single broker can only employ so many "diggers," but can employ thousands of bots in their sniping software. Additionally, there is a perceived fairness of hiring someone to stand in line for you; there is a sense that that person is still incurring the costs that everyone else is. Sniping software, on the other hand, does not carry the same perception that the scalper is employing legitimate means to "hold" places in the line.

152. *See* Stanley Milgram et al., *Response to Intrusion Into Waiting Lines*, 51 J. OF PERSONALITY AND SOC. PSYCHOL. 683, 683–89 (1986).

153. *Id.*

154. *Id.*

155. *Id.*

156. *Id.*

the norms and values on which the queue is based. The indignation aroused by the encroachment derives, in part, from "the perceived disrespect the intruder has shown the system of social rules under which all members of the moral community are expected to live."[157] The intruder seems to show disrespect for important cultural values including egalitarianism, orderliness, and principles of fairness and justice.[158] Intruders violate the social norm that everyone should be treated equally and served on a first-come, first-serve basis.

It is a combination of these two positions that explain Minnesota's legislators' and the public's frustration with ticket snipers. But prior to current sniping legislation, no state had ever criminalized cutting in line in the physical world, and only extremely rarely imposed civil penalties.[159] Queues in the physical world are *not* regulated and enforced by the law but rather by the private actors who create them or by the participants in the queue themselves. For example, Marie Helweg-Larsen and Barbara LoMonaco describe the queuing norms for fans of the rock band U2:

> At shows held in U.S. arenas, fans with [general admission] tickets form very long, overnight queues, which typically number over 300 by the time the queue goes into the venue at around 6 p.m. for that evening's concert. The queue is managed largely by fans themselves who organize a system in which the first fans in line keep a list with names and numbers assigned to people as they arrive. The *line Nazi* or *fan with the Sharpie* (as they are informally called) also writes the line number on the fan's hand. Neither venue staff in the U.S. nor U2 staff generally impose queuing rules or regulations, and tend to support the fans' self-organized system (e.g., when a fan arrives at a venue and asks a venue security guard what to do, she is likely to tell the fan to go to the front of the line to get on the list and receive a number). The U2 queues tend to function remarkably similarly from

157. Kevin Gray, *Legal Order of the Queue*, LONDON SCH. ECON., CONF. TECHNIQUES OF OWNERSHIP: ARTIFACTS, INSCRIPTIONS, PRACTICES 1, 27 (2007), http://www.lse.ac.uk/collections/law/projects/techniquesofownership/tech-gray.pdf.

158. Milgram et al., *supra* note 152.

159. The state of Washington enacted legislation in 2007 that made it a traffic violation to "move in front of another vehicle in a queue already waiting to board" one of the several state ferries which shuttle cars and passengers across Puget Sound. WASH. REV. CODE § 46.61.735 (2007) (Violators were subject to a fine of $101 and "directed to immediately move the motor vehicle to the end of the queue of vehicles waiting to board the ferry."); *see* William Yardley, *No Cutting in Line for Puget Sound Ferries, Under Penalty of Law*, N.Y. TIMES, Apr. 11, 2007, at A13. It is important to note that these were state funded and run ferries, and were not private. Occasionally, cutting in line results in other criminal activity. *See* Rick Yencer, *Cut to Front and Go to Jail*, STAR PRESS, Jan. 13, 2009, at 1A (Reporting how a father and son cut into a customer service line at a Wal-Mart in Muncie, Indiana. An off-duty police officer was in the line and instructed the men to wait their turn. The father and son confronted the off duty officer and threatened him. The son was preliminarily charged with battery on a police officer, while the father was preliminarily charged with criminal recklessness with a vehicle and intimidation.).

> U.S. city to U.S. city, despite a lack of formal rules and little official enforcement.[160]

Violations of queuing norms are typically policed by the queue participants themselves. There is tremendous disapproval towards an intruder into a queue. The expression of this disapproval ranges all the way from polite reminders of the existence of the queue ("Um . . . are you waiting to buy a ticket?" or "No Way! The line's back here.") to hostile stares and gestures, even outright acts of physical violence aimed at ejecting the trespasser.[161] In a classic study by Milgram, Liberty, Toledo, and Wackenhut, researchers cut into 129 lines at train station counters, betting parlors, and other locations in New York City.[162] Results showed that objections to line intrusions were much more frequent when intruders cut ahead, as opposed to behind, the subject in line; when there were two intruders instead of one; and when there was less distance (fewer people) between the subject and the line intruder.[163] Overall, the percentage of subjects who reacted (by verbal, nonverbal, or physical action) varied considerably from a high of 91% when there were two intruders cutting in line right in front of the subject, to a low of 5% when there was one intruder who cut in line three places in front of the subject.[164] Additionally, studies have found that as the stakes go higher, the more likely queue intruders will be sanctioned.[165] For example, in his study of fanatical Melbourne soccer fans, Leon Mann recounted that five individuals were hospitalized after four different brawls broke out over queue-jumping in ticket lines that had a limited number of tickets for sale.[166] In a queue for gasoline in Nigeria during the gasoline shortages of the 1970s, drivers who intruded into the queue "were dragged from their vehicles, which were then pushed out into the road (and on a couple of occasions into ditches) by numerous willing hands."[167]

The law has largely stayed out of queue enforcement because of this self-regulation.[168] But there are two critical differences between electronic

160. Marie Helweg-Larsen & Barbara L. LoMonaco, *Queuing Among U2 Fans: Reactions to Social Norm Violations*, 38 J. OF APPLIED SOC. PSYCHOL. 2378, 2380 (2008).

161. Milgram et al., *supra* note 152, at 684–85.

162. *Id.* at 684.

163. *Id.* at 685.

164. *Id.*

165. *Id.* at 688.

166. Leon Mann, *Queue Culture: The Waiting Line As a Social System*, 75 AM. J. OF SOC. 340, 347 (1969).

167. John A. Wiseman, *Aspects of Social Organisation in a Nigerian Petrol Queue*, 17 J. OF MODERN AFR. STUD. 317, 319 (1979).

168. An old common-law maxim reads *De minimis lex non curat*—the law does not care about trifles. Shawn J. Bayern, *Explaining the American Norm Against Litigation*, 93 CAL. L. REV. 1697, 1707 (2005). Another possible explanation for the inaction by legislatures is that the public viewed the relatively *de minimis* harm that results from most line intruders as

queues and physical queues that might justify legal intervention. First, enforcement by others in the queue is impractical in an electronic queue because it is impossible to detect whether there has been an intrusion and by whom, and impossible to express disapproval in a meaningful way.

Second, internal restraints against intruding into lines are reduced due to the anonymity of the Internet. That is, people may not intrude into physical lines because they feel it is wrong and fear the awkwardness and negative emotions they will feel as a result. In fact, the researchers in one study who were tasked with intruding into a line often procrastinated at length, pacing nervously near the queue, spending as much as a half an hour working up the "nerve" to intrude.[169] For some researchers, the anticipation of intruding was so unpleasant that they reported feeling nauseated during and after the experiments.[170] But the awkwardness and negative emotions are not present in an electronic queue intrusion—the Internet and computer provide a shield of anonymity between the ticket sniper and the other persons in the queue. As Patricia Wallace noted, "[w]hen people believe their actions cannot be attributed directly to them personally, they tend to become less inhibited by social conventions and restraints."[171]

Thus, the enforcement mechanisms that regulate in-person queues don't work online. Can criminal legislation provide a solution to the problem?

B. The Legislation

The legislation varies from state to state. Of the six states that have enacted anti-sniping legislation, four have criminalized it (Colorado, Tennessee, Indiana, and Minnesota), and two have created a civil cause of action (North Carolina and Oregon).[172]

The Tennessee statute is typical of the anti-scalping legislation. It reads:

> It is an offense for any person to knowingly sell, give, transfer, use, distribute or possess with the intent to sell, give or distribute software that is primarily designed or produced for the purpose of interfering

insufficient to justify a legislative response.

169. Milgram et al., *supra* note 152, at 686.

170. *Id.*

171. PATRICIA M. WALLACE, THE PSYCHOLOGY OF THE INTERNET 124–125 (1999).

172. North Carolina has included the legislation under its Consumer Protection and Unfair Competition statutes and has provided standing to bring a civil action against the ticket sellers and the venues hosting the ticketed event. As discussed above, the ticket sellers already have legal recourse to stop ticket snipers; this legislation for ticket sellers is simply duplicative. Oregon law is similar. *See* OR. REV. STAT. §§ 646.632, .639 (2009).

> with the operations of any ticket seller that sells, over the Internet, tickets of admission to a sporting event, theater, musical performance, or place of public entertainment or amusement of any kind by circumventing any security measures on the ticket seller's website, circumventing any access control systems of the ticket seller's website, or circumventing any controls or measures that are instituted by the ticket seller on its website to ensure an equitable ticket buying process.[173]

The statute goes on to define a "ticket seller" as "a person who has executed a written agreement with the management of any venue for a sporting event, theater, musical performance, or public entertainment or amusement of any kind, to sell tickets to such an event over the Internet."[174]

The criminal sanctions can be harsh. For example, Colorado provides that a violation of its statute is a Class 1 misdemeanor, the highest class of misdemeanor.[175] A Class 1 misdemeanor carries a presumptive sentence of six months imprisonment, a $500 fine, or both, and a maximum punishment of eighteen months imprisonment, or a $5,000 fine, or both.[176] Additionally, civil penalties can be imposed under Colorado's Consumer Protection Act of up to $2,000 for each ticket purchased with sniping software. Tennessee, on the other hand, takes a more lenient approach. A violation of its statute is a Class B misdemeanor, punishable by "fine only of not more than five hundred dollars ($500), or any profits made or tickets acquired in the course of the violation of this section, whichever amount is greater."[177]

C. Enforcement Problems

Regardless of the legislation's merits, it will have formidable enforcement problems. Online ticket sniping will likely join the long list

173. TENN. CODE ANN. § 39-17-1105(b) (2008).

174. *Id.* Ohio's pending legislation takes a different approach by prohibiting ticket brokers from purchasing tickets from the original ticket sellers altogether. *See* H.R. 508, 127th Gen. Assem., Reg. Sess. (Ohio 2008). In addition, the bill sets up a licensing process for ticket brokers similar to those in the insurance and real estate industry, requiring brokers to register with the Ohio Department of Commerce. *See id.* The statute is problematic because it defines a ticket broker as a person "with intent to resell, resell or engage in or continue in the business of reselling, any ticket of admission, or any other evidence of the right of entry, for any entertainment, sporting, or amusement event . . . ." *Id.* The statute's broad definition would surely encompass unwanted individuals. Under this definition, a consumer who purchased a ticket, subsequently decided not to go, and chose to sell his or her ticket on the secondary market would violate the statute unless he or she registered as a broker. This is undoubtedly not the intent of the legislature.

175. COLO. REV. STAT. § 6-1-720 (2008).

176. *Id.* § 18-1.3-502.

177. TENN. CODE ANN. § 39-17-1105 (2008).

of cybercrimes that are rarely enforced.[178] Cybercrimes, which are largely state as opposed to federal crimes, are unenforced because of jurisdictional problems, the lack of information sharing among enforcement agencies, lack of technological resources and experience among local enforcement agencies, and resistance to devote time and resources to a problem in which most of the victims are outside any one jurisdiction.[179] Jurisdictional problems will be particularly acute for the anti-scalping legislation, and will prevent significant enforcement.

Cybercrime jurisdiction is full of uncertainty and little case law has addressed the issues. The foundation for criminal jurisdiction is that the criminal acts occur within the jurisdiction. State statutes generally define what it means for a cybercrime to occur in its jurisdiction.[180] The jurisdictional provision that was included in North Carolina's computer crime legislation, for example, states that any computer crime "may be deemed to have been committed where the electronic communication was originally sent or where it was originally received in this State."[181] The jurisdictional provision included in Connecticut's computer crimes code declares that if "any act performed in furtherance of the offenses . . . occurs in this state or if any computer system or part thereof . . . is located in this state, the offense shall be deemed to have occurred in this state."[182] Other states such as Ohio and Utah rely on statutes defining general criminal jurisdiction to establish jurisdiction in cybercrime cases.[183]

The most expansive state provision for jurisdiction is found in West Virginia's Computer Crimes and Abuse Act, which added the following

178. *See* Peter Swire, *No Cop on the Beat: Underenforcement in E-Commerce and Cybercrime*, 7 J. ON TELECOMM. & HIGH TECH. L. 107, 123 (2009).

179. *Id.* at 108.

180. Susan W. Brenner & Bert-Jaap Koops, *Approaches to Cybercrime Jurisdiction*, 4 J. OF HIGH TECH. L. 1 (2004).

181. N.C. GEN. STAT. § 14-453.2 (2008).

182. CONN. GEN. STAT. ANN. § 53a-261 (2008).

183. *See* OH. REV. CODE ANN. § 2901.11 (LexisNexis 2009); UTAH CODE ANN. § 76-1-201 (2009). The Utah statute, for example, provides as follows:

> (1) A person is subject to prosecution in this state for an offense which he commits, while either within or outside the state, by his own conduct or that of another for which he is legally accountable, if: (a) the offense is committed either wholly or partly within the state; (b) the conduct outside the state constitutes an attempt to commit an offense within the state; (c) the conduct outside the state constitutes a conspiracy to commit an offense within the state and an act in furtherance of the conspiracy occurs in the state; or (d) the conduct within the state constitutes an attempt, solicitation, or conspiracy to commit in another jurisdiction an offense under the laws of both this state and the other jurisdiction.
>
> (2) An offense is committed partly within this state if either the conduct which is any element of the offense, or the result which is such an element, occurs within this state.

UTAH CODE ANN. § 76-1-201 (2009).

section to the criminal code:

> Any person who violates any provision of this . . . [computer crimes code] and, in doing so, accesses, permits access to, causes access to or attempts to access a computer, computer network, computer data, computer resources, computer software or computer program which is located, in whole or in part, within this state, or passes through this state in transit, shall be subject to criminal prosecution and punishment in this state and to the civil jurisdiction of the courts of this state.[184]

But even this extremely broad provision might prove powerless against ticket snipers. Because so few states have passed the legislation, ticket snipers will simply relocate away from the few states that do have the legislation. The most common delivery methods for tickets are to ship the actual ticket via FedEx or other overnight carrier, or for certain events, eDelivery, which allows tickets to be sent to buyers electronically. Simply relocating to another state will not prove a significant financial obstacle for the ticket snipers. Thus ticket snipers might use sniping software in Wyoming, a state without anti-scalping legislation, to purchase tickets to an event in Colorado, and ship the tickets via FedEx or eDelivery to Colorado residents prior to the event.[185] Even though Colorado has anti-sniping legislation, Colorado would be powerless to prosecute the ticket snipers because they did not violate any Colorado statute. The Colorado anti-sniping statutes only address the use and possession of the sniping *software*, not the goods resulting from the use of such software. Given that so few states have passed legislation (and it will be years before a critical mass of states pass such legislation, if ever), ticket sniping will continue to be prevalent despite legislation that criminalizes it in a few states.

Further, while federal legislation may be effective, it does not appear that Congress will pursue such legislation. In April 2009, New York senator Charles Schumer introduced legislation in the Senate aimed at quelling the secondary market.[186] The proposed legislation imposes a

184. W. VA. CODE ANN. § 61-3C-20 (LexisNexis 2009).

185. One objection to this analysis is to argue that the use of sniping software implicates the state law of the location of the servers for the ticket sellers. Ticketmaster is obviously secretive about the location of the servers for security purposes, but its home offices are in the state of California, and it is probable that the servers are located there. If California were to pass anti-scalping legislation, the act might be deemed to have been committed in California, and would be in violation of the laws there. Of course, California would need to decide whether to prosecute the ticket snipers, perhaps creating intrastate conflicts about decisions to enforce anti-scalping legislation.

186. Press Release, Senator Charles E. Schumer, Schumer Unveils New Legislation to Crack Down on Ticket Resellers and Dramatically Bring Down Prices for Fans–New Two-Day Waiting Period Will Allow Fans to Get First Crack at Originally Priced Tickets (Apr. 6,

two-day waiting period from when tickets go on sale through an authorized sales channel before a ticket reseller can buy those tickets to put on the secondary market.[187] The bill will also require ticket resellers to register with the Federal Trade Commission and disclose their registration number on all tickets they sell on the secondary market.[188] While Schumer's legislation may be effective against ticket snipers, the changes are so drastic and radical that it is difficult to predict the legislation's effect on the ticket market. Regardless, ticket scalpers will undoubtedly find ways to circumvent the bill, creating new problems and need for ever further regulation. But the bill appears to have virtually no momentum since announced in April.

In June 2009, New Jersey congressman Bill Pascrell, Jr. introduced to Congress the BOSS Act—Better Oversight of Secondary Sales and Accountability in Concert Ticketing.[189] The legislation would direct the Federal Trade Commission to prescribe rules to make the murky world of ticket selling more transparent (both on the primary and secondary markets), but it does not address sniping software.

Thus, it does not appear that Congress will solve the ticket sniping problem anytime soon. Of course, even if federal legislation were enacted, ticket snipers may relocate their operations to foreign jurisdictions, posing difficult international jurisdictional and political issues.[190]

D. The Law's Failure

We have seen why litigation by Ticketmaster is not a solution, and likewise why litigation by consumers will never adequately address the problem. Further, criminal legislation is likely not the solution due to enforcement problems. This result is not surprising since the ticket sniping problem is exactly the kind of problem the law is ill-suited to address due to the nature of the harm—an intrinsically social harm in the form of a violation of queuing norms. The law is "expensive machinery" to address a violation of a social norm: Lawsuits take time, involve judges and high-paid lawyers, incur other administrative costs, can result in adjudicative errors, and in the case of criminal legislation, use the valuable time and resources of taxpayer funded law enforcement agencies.[191] This is why litigation and legislation have failed to address the problem.

2009), *available at* http://schumer.senate.gov/new_website/record.cfm?id=311230.

187. *Id.*

188. *Id.*

189. H.R. 2669, 111th Cong. (2009).

190. *See generally* Brenner & Koops, *supra* note 180.

191. Bayern, *supra* note 168.

That is not to say that all violations of social norms and other small wrongs should not be addressed by the law. Small wrongs can still decrease social utility and ideally call for redress. The law's limitations result from practical incapacities, not from theoretical limitations. These wrongs are systematically redressed more efficiently by market forces and private actors because private actors are decentralized. Professor Robert Cooter makes the following observation: "As society diversifies and businesses specialize, state officials struggle to keep informed about the changing practices of people, and people struggle to make lawmakers respond to changing practices. To loosen these constraints on information and motivation, law must decentralize."[192] An example of the efficiency of private actors, as discussed below, can be found to address the ticket sniping problem.

IV. THE MARKET RESPONSES

Ticketmaster, along with the entertainment industry, has addressed the problem with two recent innovations to the allocation of tickets that may soon revolutionize the industry. First, promoters and artists have been using auctions with much more frequency, thus eliminating the consumer surplus created by underpricing their tickets.[193] Using what Ticketmaster calls "dynamic pricing," in 2003, promoters and artists began selling the most desirable seats in an auction format. In early 2008, the Chicago Cubs, in a partnership between the team and the Chicago Board Options Exchange, auctioned off 71 new season ticket packages that included season tickets located adjacent to the Cubs' dugout on the third-base line and the right to purchase 2008 postseason tickets if the Cubs made the playoffs, which they did. The proceeds from the auction topped $1 million, and individual seats ranged from $197 to $400 per seat, per game.[194] Irving Azoff, Chairman and CEO of Ticketmaster, has acknowledged that ticket prices that fluctuate with market demand might be the future of concert ticketing.[195]

Second, in May 2008, Ticketmaster introduced new technology called "Paperless Ticket."[196] Instead of receiving paper tickets ahead of

192. Robert Cooter, *Normative Failure Theory of Law*, 82 CORNELL L. REV. 947, 948 (1997).

193. Timothy Finn, *Music Industry on Alert as Ticketmaster-Live Nation Merger Looms*, KANSAS CITY STAR, Feb. 14, 2009, at A1 ("Some analysts expect more VIP packaging and more 'dynamic pricing' of concert tickets—an auction, essentially, where the best seats go to the highest bidder."); Pearlstein, *supra* note 18.

194. Carrie Muskat, *CBOE Single-Game Seats Auction on Tap*, MLB.COM, Mar. 13, 2008, http://mlb.mlb.com/news/article.jsp?ymd=20080313&content_id=2425556.

195. Seabrook, *supra* note 61, at 42.

196. Press Release, Ticketmaster Entertainment, Ticketmaster Introduces Paperless Ticket (May 13, 2008), *available at* http://www.prnewswire.com/mnr/ticketmaster/33099.

the event, the credit card used to make the purchase essentially serves as the customer's ticket.[197] To attend the show, the customer presents the credit card used to purchase the tickets and a valid photo ID.[198] The gate attendant swipes the credit card and a seat locator slip is printed for each seat in the order.[199] Because there is no opportunity to resell the ticket, there will be no interest from ticket snipers in tickets to the event.

The technology, of course, is not perfect. Tickets cannot be purchased for minors that plan on attending a show without the purchaser, and all members of the same party must enter at the same time. The tickets cannot be purchased with cash or gift cards, and the ability to gift the tickets to someone else is currently unavailable, although Ticketmaster reports that it is currently addressing that problem.[200] Fans who enjoy collecting ticket stubs as mementos from the concerts they attend are out of luck. Further, some consumers might not want to bring a credit card to a concert out of fear of theft. Lastly, some consumers may object to the notion that the system is an unreasonable restriction on alienation. Consumers bought the tickets, the argument goes, and they should be able to dispose of them at their discretion.

While these arguments are valid, the costs and burdens imposed on the consumers do not outweigh the potential windfall of consumer surplus they are now able to capture. Put differently, consumers are in a far superior position paying the face value of tickets and incurring some of the relatively minor inconveniences than potentially paying several times the face value of the tickets on the secondary market. Further, the elimination of the ticket snipers will reduce the consumers' frustration with the ticket buying process and their suspicions of foul play.

Regardless of the merits of Paperless Ticketing, there are early indications that the system works, and will soon become the industry norm. In the summer of 2008, Tom Waits became the first touring artist to use Ticketmaster's Paperless Tickets during his 13-date U.S. tour.[201] Stuart Ross, Waits' booking agent, cited the desire to "take the secondary market out of the mix" as motivation to use the technology, and ensure that the tickets are sold to the end user at face value.[202] The band AC/DC employed a combination of Paperless Tickets and standard paper tickets for its North America tour, which began in October 2008.[203] Metallica's September 2008 show in London was entirely

197. *Id.*

198. *Id.*

199. *Id.*

200. Dane Stickney & Kevin Coffey, *Take That, Scalpers: Paperless Tickets Debut*, OMAHA WORLD-HERALD, Jan. 18, 2009, at 06E.

201. Ray Waddell, *The Ticket that Exploded*, BILLBOARD, Nov. 22, 2008, at 33.

202. *Id.*

203. Ray Waddell, *Miley Strikes Back: Can Tween Star Thwart Scalpers With Paperless*

paperless, and the logistics appears to have been successful for these shows, with "lines r[unning] at roughly the same speed as a normal night."[204] Interestingly, Miley Cyrus will exclusively use Paperless Tickets for her 45-show North American tour in 2009, which began selling in mid-2009.[205]

The problem of ticket sniping is thus potentially solved. The combination of Paperless Ticketing and dynamic pricing, both of which yield the ticket snipers powerless, provides promoters and artists with valuable tools for selling their product. If they desire to ensure that their "true" fans are able to attend their events, they can employ Paperless Ticketing and forgo the potential capture of the consumer surplus. If, on the other hand, the artists desire to maximize their profits and capture that consumer surplus themselves, they can auction the tickets. Finally, they can use some mixture of the two allocation systems for any given event, ensuring that at least some portion of the tickets are sold to fans while still maximizing their profits from a portion of the seats. Either way, the problem of ticket sniping will quickly disappear.

CONCLUSION

The ticket sniping problem is unique in that there is tremendous social outcry, yet the law simply is not equipped to address it. Fortunately, private actors have created far more efficient and effective solutions to the problem. The only issue remaining is whether the private responses—the increased use of auctions and Paperless Tickets—will be used by artists and promoters. To that end, the most effective way consumers can solve this problem is not by relying on the law through litigation and legislation, but rather by pressuring their favorite artists and sports teams to use effective market solutions. The problem of ticket sniping is indeed searching for a remedy, and consumers can lead their artists to the solution.

Ticketing?, BILLBOARD.BIZ, June 27, 2009, http://www.billboard.biz/bbbiz/content_display/magazine/upfront/e3i6c3a49109c5609b6ee2129d0bf0db61f.

204. *Id.*

205. Ethan Smith, *Going 'Paperless' to Thwart Scalpers*, WALL ST. J., June 8, 2009, at B1.