Richmond Journal of Law and Technology

Volume 16 | Issue 1 Article 2

2009

Dissonant Paradigms and Unintended Consequences: Can (and Should) the Law Save Us from Technology?

Donald Labriola

DISSONANT PARADIGMS AND UNINTENDED CONSEQUENCES: CAN (AND SHOULD) THE LAW SAVE US FROM TECHNOLOGY?

By Donald Labriola*

Cite as: Donald Labriola, *Dissonant Paradigms and Unintended Consequences: Can (and Should) the Law Save Us from Technology?*, XVI Rich. J.L. & Tech. 1 (2009), http://law.richmond.edu/jolt/v16i1/article1.pdf

INTRODUCTION

[1] Technologies like digital audio, the Internet, and broadband communications spur economic growth and foster new patterns of commerce and social interaction. But they also spawn disruptive innovations that force established industries to forge novel responses or risk falling by the wayside.[1] The horse-and-buggy industry,[2] vaudeville,[3]

* Donald Labriola is an analyst and Contributing Editor for PC Magazine, has managed an engineering-management consultancy since 1981, and has written and spoken extensively about new media for over two decades. He holds degrees in Math, Physics, and Computer Science, is a May, 2010 J.D. candidate at Albany Law School, and works as a Law Clerk at the Albany, NY intellectual property firm Heslin, Rothenberg, Farley, and Mesiti. The contents of this article do not reflect the opinions or policies of PC Magazine, Albany Law School, or HRFM. The author would like to dedicate this work to Albany Law School's Robert Emery and Daniel Moriarty, in appreciation for their unrelenting encouragement and criticism, and to the late Professor Jeffrey Armstrong, a good friend and the first person to fully grasp the premise of this article after a single reading.

[1] *See generally infra* Parts II–III (describing how technological innovation can give rise to economic upheavals).

[2] *See* Thomas A. Kinney, From Shop to Factory in the Industrial Heartland: The Industrialization of Horse-Drawn Vehicle Manufacture in the City of Cleveland (Sept.

and video-rental stores[4] are but a few examples of thriving markets that found themselves on the scrap heap of obsolescence because they failed to react quickly to the devastating effects of new technology.[5]

[2] Industries faced with such challenges often look to the law for help, as do new-technology upstarts that feel bullied by their entrenched competition.[6] But legislatures and the courts have rarely done more than delay the inevitable.[7] One reason has been the all-too-common failure of

28, 1998) (unpublished Ph.D. dissertation, Case Western Reserve University), *available at* http://ech.case.edu/ech-cgi/article.pl?id=WACI (describing how none of Cleveland's "enormous wagon and carriage factories" survived the introduction of the automobile).

[3] *See, e.g.*, West Virginia State University Capitol Center, Welcome to Capitol Center: History, http://capcenter.wvstateu.edu/history.html (last visited Oct. 12, 2009) ("With the advent of 'talkies' in the late '20s, . . . live stage shows were suddenly things of the past.").

[4] *See, e.g.*, Posting of Matt Buchanan to Gizmodo, http://gizmodo.com/ (Nov. 2, 2007, 01:15 EST) (noting that Blockbuster is the only video-store chain to remain profitable and that its only hope of survival is to "[m]ov[e] into new distribution channels," and that "things are looking grim for the corner rental store").

[5] All three industries were displaced with startling speed by new markets created by the automobile, the motion picture soundtrack, and Internet movie distribution. *See supra* notes 2–4 and accompanying text.

[6] *See, e.g.*, Sony Corp. of Am. v. Universal City Studios, Inc., 464 U.S. 417, 417 (1984) (providing an example of unsuccessful petitioning of the Supreme Court to outlaw home video-recording); Deep v. Recording Indus. Ass'n of Am., Inc., 540 U.S. 1107, 1107 (2004); *see also* Declan McCullagh, *High Court Turns Deaf Ear to Aimster*, CNET NEWS, Jan. 13, 2004, http://www.news.com/2100-1028-5139938.html (discussing the Supreme Court's refusal in *Deep v. RIAA* to hear Aimster's argument that the online file sharing service had legitimate non-infringing uses).

[7] Regardless of how the cases listed *supra* at note 6 were decided, none were able to halt the disruptive effect of new technology. Sony could not stop the inexorable growth of home video-recording and none of the recording industry's many legal victories could save it from decimation by online file sharing. *See generally* JAMES LARDNER, FAST FORWARD: HOLLYWOOD, THE JAPANESE, AND THE ONSLAUGHT OF THE VCR (1st ed. 1987) (describing the content industry's efforts to suppress personal video-recording technologies); AERNOUT SCHMIDT, WILFRED DOLFSMA & WIM KEUVELAAR, FIGHTING THE WAR ON FILE SHARING 85–86, 90 (2007) (noting that the record industry's successful

conventional legal analysis to address the irreconcilable differences between warring factions' basic assumptions, beliefs, and norms of behavior.[8] This article argues that such disparities are functionally similar to the "cognitive dissonances" that behavioral and social psychologists observe in conflicted individuals[9] and synthesizes a dissonance-based analytical model suited to such controversies.[10] It concludes that lawmakers and courts seeking to remedy the social ills caused by technological disruption should consider classical dissonance-reduction strategies used successfully in the social sciences.[11]

[3] This article assembles this thesis in three steps. It first synthesizes Thomas Kuhn's observations about paradigm shifts[12] with modern economic and business management theories to create a general model of the large-scale social and economic disruption that accompanies technological innovation.[13] Next, it draws upon principles of behavioral and social psychology to find parallels between internal conflicts (or "cognitive dissonances") experienced by individuals and those that arise within communities on either side of a paradigm shift.[14] Finally, it asserts that lawmakers, regulators, and the courts must consider the effect of such

effort to shut down the centralized Napster network merely encouraged file sharing entrepreneurs to develop more resilient decentralized topologies such as Gnutella).

[8] *See infra* Part VII.A.

[9] *See generally* LEON FESTINGER, A THEORY OF COGNITIVE DISSONANCE (Stanford University Press 1957) (deriving the basic precepts of cognitive dissonance theory).

[10] *See infra* Parts Ṽ–VI.

[11] *See infra* Part VII.B.

[12] *See infra* note 18.

[13] *See infra* Part II.

[14] *See infra* Parts III–V.

dissonances when devising legal remedies to controversies created by disruptive innovation.[15]

[4] Part II of this article lays the groundwork for this argument by introducing the concept of shared paradigms and describing how a technology-driven shift to a new paradigm advances scientific and social progress even as it devastates established markets. Part III calls upon evolutionary economic theory to describe the Darwinian process that links these shifts to disruptive technological innovation. Part IV surveys cognitive dissonance theory, which psychologists have traditionally used to predict and explain the ways individuals respond to conflicts among their personal beliefs, assumptions, and behavioral norms. Part V ties everything together into a unified theory of *paradigmatic dissonance* that extends cognitive dissonance doctrine to the thorny controversies that arise when disruptive technology spawns a community whose members share an unprecedented paradigm or business model. Part VI integrates this model into modern jurisprudential thought, specifically linking the precepts of behavioral psychology to the neoclassical principles framing the Law and Economics movement. Part VII applies paradigmatic dissonance to our legal system, comparing it to conventional Rationalist approaches and using it to suggest more effective ways to analyze and remedy disputes rooted in disruptive technological innovation.

I. SETTING THE STAGE

[5] Markets come and markets go; history is littered with the cadavers of once-healthy industries that failed to react quickly enough to new technology.[16] Consider, for example, the way that markets rose and fell as waves of innovation drove consumers from live burlesque to radio, to free over-the-air television, and then to various flavors of subscription TV. Repeatedly, industries and the cultures they feed have been unseated by newer technologies that better met the needs of consumers. The survivors

[15] *See infra* Part VII.

[16] *See, e.g.*, *supra* notes 2–5 and accompanying text.

are those nimble enough to devise business models that successfully exploit new technologies.[17]

[6] Despite the painful ramifications for established industries, this quasi-evolutionary process of stability, disruption, adaptation, and renewal ultimately is beneficial to society.[18] Technology that fosters more efficient and flexible ways of working, playing, communicating, or transacting business serves the public good and is essential for survival in a global economy.[19] Like a fire that clears deadwood, periodic exfoliation is an efficient way to revitalize stagnating markets.[20]

---

[17] Consider the motion picture industry, which has survived for nearly a century by maintaining the flexibility to extract revenue from potentially disruptive technologies ranging from sound recording to broadcast television, the VCR, cable TV, and the Internet. *See generally* A CONCISE HANDBOOK OF MOVIE INDUSTRY ECONOMICS (Charles C. Moul ed., 2005); THE AMERICAN MOVIE INDUSTRY: THE BUSINESS OF MOTION PICTURES (Gorham Kindem ed., 1982).

[18] *See* THOMAS S. KUHN, THE STRUCTURE OF SCIENTIFIC REVOLUTIONS 66, 97–98 (2d ed. 1970); JOSEPH A. SCHUMPETER, CAPITALISM, SOCIALISM, AND DEMOCRACY 83–84 (Harper & Row 1976) (1942); Aron S. Spencer & Bruce A. Kirchhoff, *Schumpeter and New Technology Based Firms: Towards a Framework for How NTBFs Cause Creative Destruction*, 2 INT'L ENTREPRENEURSHIP & MGMT. J. 145, 146 (2006).

[19] *See* Spencer & Kirchhoff, *supra* note 18, at 146.

[20] Contrast this to the case where industries have survived by anticipating and riding each new wave of innovation as it breaks. In such cases, businesses are able to prevent paradigm shifts by incorporating non-disruptive *sustaining* technologies into their business models. *See* CLAYTON M. CHRISTENSEN, THE INNOVATOR'S DILEMMA: WHEN NEW TECHNOLOGIES CAUSE GREAT FIRMS TO FAIL xviii–xix (HarperBusiness 2000) (1997) (describing the differences between disruptive and sustaining technologies). In the rewritable-DVD industry, tier one manufacturers survived for years by exploiting every technological advance in the medium with a new product line. Each generation commanded higher margins long enough to subsidize R&D costs, and by the time offshore vendors could drive down prices with reverse-engineered knockoffs, the next launch was ready to go. This cyclical model kept the industry healthy until it finally hit the physical limits of the medium. Similar business models are common in the computer and consumer electronics industries. *See, e.g.*, Don Labriola, *Discs After DVD: Blue-Light Specials*, PC MAGAZINE, May 18, 2005, http://www.pcmag.com/article2/0, 2704,1820927,00.asp.

[7] The situation is less clear-cut when a business is inundated by a technological tsunami that it fails to predict. Laws that do no more than prop up inundated businesses paddle against an inexorable current.[21] There were certainly good reasons, for example, to give the record industry legal tools to defend itself against the unauthorized online distribution of its assets.[22] But lawmakers and the courts might have better served the major labels by considering the bigger picture.[23] As important as it is to protect intellectual property rights, statutes enacted or applied in response to technological disruption must consider the overarching natural selection process that ensures our economy's continued vitality.[24] The laws of the wild are harsh, but established industries sometimes benefit when forced to fend for themselves against new business models.[25] The challenge for lawmakers and adjudicators is to balance the legal rights of traditional businesses against the survival of

[21] The theorists discussed in Parts II–IV are unanimous in their contention that these types of technology-driven mass migrations, once begun, cannot be stopped for long. *See, e.g.*, *infra* notes 45, 60.

[22] *See, e.g.*, Brief of Ass'n for Independent Music as Amicus Curiae in Support of Appellees at 3–7, A&M Records, Inc. v. Napster, Inc., 239 F.3d 1004 (9th Cir. 2000) (No. 00-16401), 2000 WL 33979744.

[23] *See, e.g.*, Brian Hiatt & Evan Serpick, *The Record Industry's Decline: Record Sales Are Tanking, and There's No Hope in Sight: How It All Went Wrong*, ROLLING STONE, June 28, 2007, http://www.rollingstone.com/news/story/15137581/the_record_industrys_decline/ (stating that, like many industry insiders, talent management company CEO Jeff Kwatinetz now believes that suing Napster "was the moment that the labels killed themselves").

[24] This process will be described from several perspectives *infra* in Parts II–V, and its application to legal controversies discussed *infra* in Parts VI.A and VII.B.

[25] *See, e.g.*, Sony Corp. of Am. v. Universal City Studios, Inc., 464 U.S. 417, 446 (1984), where the Supreme Court's refusal to outlaw videocassette recorders forced the movie industry to figure out how to instead use the technology to create a profitable aftermarket; *see also* LARDNER, *supra* note 7.

pioneers who leverage new technology into more efficient (and often unforeseeable) markets—a task akin to playing chess blindfolded.[26]

II. SHIFTING PARADIGMS

A. THE ELUSIVE PARADIGM

[8] Hand-waving marketeers and pop-culture theorists have long used the word "paradigm" as a linguistic spittoon, plugging it with any meaning that happened to need a receptacle at the moment.[27] If defined with precision, however, the concept of shared paradigms can be an effective way to characterize and understand cultural and economic transitions.

[9] The current meaning of the word "paradigm" emerged in the natural sciences with the publication of epistemologist[28] and science historian Thomas Kuhn's influential 1962 essay "The Structure of Scientific Revolutions."[29] Kuhn described a prototypical shared paradigm that he conceptualized as a "disciplinary matrix" of beliefs and practices that define a scientific discipline.[30] Kuhn's "disciplinary matrix" concept

---

[26] *See infra* Part VII.B.2.f (describing how new business models are intrinsically unpredictable).

[27] *See* ROBERT LAWRENCE TRASK, MIND THE GAFFE! A TROUBLESHOOTER'S GUIDE TO ENGLISH STYLE AND USAGE 200 (2006) ("*[P]aradigm* has become a vogue word, and today it is used far too freely, and often pretentiously, when a simpler word would be preferable. . . . Moreover, be very wary of the expression *paradigm shift*. This term . . . has been . . . applied with wearisome frequency to almost any change in policy or fashion.").

[28] Epistemology is a branch of philosophy that studies the nature of knowledge, its means of production, and the way that it relates to concepts like truth, belief, and skepticism. *See* Britannica Online Encyclopedia, Epistemology (Philosophy), http://www.britannica.com/eb/article-9106052/epistemology (last visited Oct. 12, 2009).

[29] *See* KUHN, *supra* note 18.

[30] *Id.* at 182. Kuhn initially defined the term as "the entire constellation of beliefs, values, techniques, and so on shared by the members of a given community." *Id.* at 175. But he later described a narrower type of "paradigm" that was a subset of the disciplinary matrix: "the concrete puzzle-solutions which, employed as models or examples, can

remains useful today in the natural sciences and does not differ fundamentally from the modern understanding of a scientific "paradigm" as a "set of assumptions, models[,] and methods that serves as common, almost canonic knowledge in a discipline."[31]

[10] Kuhn confined his work to scientific communities, but he was quick to note that it could legitimately be extended to other fields,[32] a prediction long since fulfilled in disciplines ranging from sociology[33] to management science[34] and information technology.[35] The concept, however, has not always survived translation, often suffering arbitrary

replace explicit rules as a basis for the solution of the remaining puzzles of normal science." *Id.* This article will use only the original "disciplinary matrix" definition when referring to Kuhnian paradigms.

[31] SCHMIDT ET AL., *supra* note 7, at 147 n.33.

[32] KUHN, *supra* note 18, at 208–09 (explicitly calling for "comparative study of the corresponding communities in other fields" and observing that his "theses are undoubtedly of wide applicability" because Kuhn himself had borrowed many assumptions from the social sciences, literature, music, the arts, politics, and other disciplines).

[33] *See, e.g.*, Leonard B. Bliss, *J.C. Greene's Methods in Social Inquiry*, 2 J. MIXED METHODS RESEARCH 190, 191 (2008) (book review) (crediting the late University of Toronto Sociology Professor Madan Handa as having introduced the notion of social paradigm in the context of social sciences in his unpublished paper, Peace Paradigm: Transcending Liberal and Marxian Paradigms, presented at International Symposium on Science, Technology and Development (Mar. 20–25, 1987) (mimeographed transcript available in the O.I.S.E. Library, Univ. of Toronto)).

[34] *See, e.g.*, Jason Withrow & Mark Geljon, *Paradigm Dissonance: A Significant Factor in Design and Business Problems*, BOXES AND ARROWS, Dec. 11, 2003, http://www.boxesandarrows.com/view/paradigm_dissonance_a_significant_factor_in_design_and_business_problems.

[35] *See, e.g.*, PCMag.com Encyclopedia, Paradigm Shift Definition, http://www.pcmag.com/encyclopedia_term/0,,t=paradigm+shift&i=57310,00.asp (last visited Oct. 14, 2009) (claiming that one example of a "paradigm shift" is "accessing applications and data from the Web instead of from local servers").

redefinition.[36] This article will use the term "paradigm" conservatively to describe a collection of assumptions, beliefs, and norms of behavior that (i) are specific to an industry, customer base, or other clearly demarcated community and (ii) shape the way that such a community conducts itself and perceives the world. This approach is faithful both to Kuhn's original concept and to current usage,[37] yet broad enough to be applied with precision to non-scientific communities and markets associated with specific technologies.[38]

B. PARADIGM SHIFTS

[11] Kuhn likened a paradigm to a scientific community's blueprint for solving problems, calling experimental work done within an established paradigm "normal science."[39] Unlike traditional notions of scientific progress as a linear, incremental process that occurs within a static universe, Kuhn observed that the most important leaps take place when normalcy is interrupted by anomalies[40] that cannot be accommodated by

[36] The computer industry, for example, defines "paradigm" broadly as any "model, example or pattern," PCMag.com Encyclopedia, Paradigm Definition, http://www.pcmag.com/encyclopedia_term/0,2542,t=paradigm&i=48811,00.asp (last visited Oct. 14, 2009), a characterization that has encouraged pundits to apply it to everything from user-interface styles, Jan Ozer, *Pinnacle Edition DV*, PC MAGAZINE, Sep. 17, 2002, http://www.pcmag.com/article2/0,2817,480618,00.asp, to the way that Microsoft Word structures documents, Edward Mendelson, *The Best Office Alternatives*, PC MAGAZINE, Nov. 26, 2007, *available at* http://www.pcmag.com/print_article2/0,1217,a=220175,00.asp.

[37]The American Heritage Dictionary defines "paradigm" as "[a] set of assumptions, concepts, values, and practices that constitutes a way of viewing reality for the community that shares them, especially in an intellectual discipline." Dictionary.com, Paradigm Definition, http://dictionary.reference.com/browse/paradigm (last visited Oct. 14, 2009).

[38] *See, e.g.*, *infra* Part VII.C.

[39] KUHN, *supra* note 14, at 10, 24.

[40] An anomaly in this context is a discovery with implications that contradict the assumptions and beliefs of the current paradigm, or that render that paradigm's norms of behavior ineffective or inadequate. *Id.* at 52–53.

the prevailing paradigm.[41] He dubbed such an event a "crisis."[42] In extreme cases, which he later called "paradigm shifts,"[43] a community in crisis undergoes a scientific revolution that compels it to adopt an entirely new paradigm that better fits the troublesome data.[44] When this occurs, it is impossible for the old and new paradigms to coexist.[45] Kuhn called this characteristic "incommensurability," stating that profound differences in the ways that such overlapping worldviews interpret basic definitions and standards make it impossible even to compare, much less to reconcile them.[46]

[41] Kuhn gave an example of such a crisis in nineteenth century optical physics, when mounting evidence that a beam of light could act like a stream of particles could not be explained by assumptions intrinsic to the prevailing paradigm of the wave theory of light. This crisis was resolved only when the scientific community shifted over the next half-century to a relativistic paradigm that could account for this evidence. *Id.* at 11–13, 107–08. This example also illustrates Kuhn's observation that paradigm shifts can take decades to complete and often require the death or retirement of most of the community members who had vested emotionally in the earlier paradigm. *Id.* at 150–52.

[42] *Id.* at 66–73 (repeatedly referring to several such incidents as "crises").

[43] *Id.* at 103–06 (first using the term "paradigm shift" several times in the Postscript to the Enlarged Second Edition).

[44] *Id.* at 84–85.

[45] *Id.* at 98 (declaring it an "historical implausibility" that a new scientific theory or paradigm could arise without discrediting and displacing its predecessor).

[46] *See id.* at 149 (observing that a new paradigm, although likely to borrow vocabulary, concepts, and procedures from the traditional worldview it replaces, "seldom employ[s them in] the traditional way"); *see also id.* at 150 (stating that "the proponents of the competing paradigms practice their trades in different worlds," meaning that differences in basic assumptions change the way that old- and new-paradigm communities perceive common aspects of reality); *cf. id.* at 101–02 (citing as an example the incommensurability of Newtonian and Einsteinian mechanics, where even seemingly equivalent terms like "mass" have fundamentally different meanings).

[12] Nonetheless, Kuhn considered paradigm shifts to be an essential catalyst of scientific progress[47] that "invariably" result in the advancement of science.[48] He described them as part of an evolutionary process that naturally selects the worldview that best explains both anomalous observations and the greatest number of phenomena that fall within the traditional model.[49] Such a mechanism, he argued, may not foster a model that is objectively "closer to the truth,"[50] but it cannot possibly result in anything other than progress.[51]

[13] Kuhn also observed that the mere discovery of an anomaly does not always trigger a paradigm shift.[52] If a troubling observation does not essentially conflict with a fundamental component of a traditional paradigm, a community may find some way to accommodate the anomaly by applying traditional paradigms in new ways or by redefining the troublesome observation to fall within some other discipline.[53] The

[47] *Id.* at 77 (summarizing the prior chapter with the assumption that scientific "crises are a necessary precondition for the emergence of novel theories").

[48] *Id.* at 173 ("[P]aradigm change invariably produce[s] an instrument more perfect . . . than those known before[.]").

[49] *Id.* at 109–10 (presenting paradigm shifts as a natural selection process that fosters competition among worldviews to best explain anomalies that thwarted the old paradigm); *id.* at 172 (drawing explicit parallels between scientific progress and Darwin's theory of biological "evolution"). Kuhn also noted that, at least in the field of mathematics, new paradigms often represent a step forward because they are likely to provide "neater" or "simpler" solutions than the paradigms they replace. *Id.* at 155–56.

[50] *Id. at* 148–51 (arguing that the principle of incommensurability made such a claim impossible to measure).

[51] *Id.* at 172–73.

[52] *Id.* at 84 (explaining that a paradigm shift becomes inevitable only when a traditional paradigm is totally unable to explain a fundamentally troubling anomaly and asserting that a scientific community may approach the problem by i) devising creative ways to explain the anomaly within the current paradigm, ii) declaring the anomaly inexplicable at the current state-of-the-art and reserving it for analysis by future generations, or iii) migrating to a new paradigm that can explain the anomaly).

[53] *Id.*

community may even completely sidestep the problem by declaring it beyond the current state-of-the-art and setting it aside for consideration by future researchers armed with next-generation clinical tools.[54]

III. CREATIVE DESTRUCTION AND DISRUPTIVE INNOVATION

[14] Despite their disparate vantage points, Kuhn's analysis of paradigm dynamics has much in common with the evolutionary school of economics. Both view technological innovation and its effects as an inevitable, adaptive, even quasi-organic, process akin to natural selection.[55] And like Kuhn, evolutionary economists believe that, despite the havoc that a paradigm shift wreaks upon a traditional community, such transitions are a prerequisite for progress.[56] This school has become an integral part of modern macroeconomic theory.[57]

---

[54] *Id.*

[55] Economist.com, Economics A–Z http://www.economist.com/research/Economics/alphabetic.cfm?letter=E#evolutionaryeconomics (last visited Oct. 14, 2009). "Evolutionary economics" is defined as "[a] Darwinian approach to [economics] . . . . Following the tradition of S[chumpeter], it views the economy as an evolving system and places a strong emphasis on dynamics, changing structures (including technologies, institutions, beliefs and behaviour) and [disequilibrium] processes (such as [innovation], selection and imitation)." *Id.*; *see also* Richard R. Nelson, *Recent Evolutionary Theorizing About Economic Change*, 33 J. ECON. LITERATURE 48, 49 (1995) (noting that Darwinian analogies come naturally to economists, who often "make use of 'biological conceptions' or metaphors" when speaking colloquially about their work).

[56] *See* SCHUMPETER, *supra* note 18; ENTREPRENEURSHIP: THE SOCIAL SCIENCE VIEW 14 (Richard Swedberg ed., Oxford Univ. Press 2000).

[57] The pioneering work of the evolutionary economists discussed here has been acknowledged by numerous authorities and has earned them several Nobel Prizes. *See, e.g.*, The Bernard Schwartz Center for Economic Policy Analysis, http://homepage.newschool.edu/het//profiles/solow.htm (last visited Sept. 30, 2009) ("Robert Solow is one of the major figures of the Neo-Keynesian Synthesis macroeconomics."); All Laureates in Economics, http://nobelprize.org/nobel_prizes/ economics/laureates (last visited Oct. 14, 2009) (listing evolutionary economist Paul Samuelson's 1970 Nobel Prize "for the scientific work through which he has developed static and dynamic economic theory and actively contributed to raising the level of analysis in economic science" and Solow's 1987 Nobel Prize "for his contributions to the theory of economic growth").

A. SCHUMPETER AND SELF-DESTRUCTING CAPITALISM

[15] Joseph Schumpeter's analysis of the role of entrepreneurship profoundly influenced twentieth-century economic thought.[58] In his posthumous 1954 book *The History of Economic Analysis*, he described a cyclical model of "creative destruction" that ties closed-universe economic development to endlessly recurring sequences of equilibrium, disruption, transition/adaptation, and renewed stability.[59] He portrayed capitalism as a self-devouring process of monopoly and breakup, where technology-driven entrepreneurship continually and inexorably interrupts the "steady-state" economic equilibrium that normally exists in the absence of entrepreneurial perturbation.[60]

[16] In Schumpeter's view, this "creative destruction" was an essential component of capitalism that was responsible for economic growth.[61] Like Kuhn, his observations lead to the conclusion that governments should avoid unduly hampering technological progress by seeking too zealously to shield traditional industries from its disruptive effects.[62]

B. TECHNOLOGICAL INNOVATION AND THE SOLOW-SWAN NEOCLASSICAL MODEL

[58] For a compelling biography of Schumpeter, who is often named one of the founding fathers of evolutionary economic theory, see THOMAS K. MCCRAW, PROPHET OF INNOVATION: JOSEPH SCHUMPETER AND CREATIVE DESTRUCTION (2007).

[59] *See* SCHUMPETER, *supra* note 18, at 83.

[60] *Id.*; *see also* JOSEPH A. SCHUMPETER, THE THEORY OF ECONOMIC DEVELOPMENT: AN INQUIRY INTO PROFITS, CAPITAL, CREDIT, INTEREST, AND THE BUSINESS CYCLE 66–67 (Oxford Univ. Press 1978) (1934) (describing capitalism's "competitive destruction of the old" and enumerating the five classes of disruptive innovations that entrepreneurs introduce into steady-state systems).

[61] SCHUMPETER, *supra* note 18, at 84.

[62] The assertions that paradigm shifts are a vital component of scientific or economic progress and that blindly interfering with them can lead to unintended consequences are common threads that span the breadth of this article. *See generally* Parts II–VI.

[17] Robert Solow and Trevor Swan refined and quantified Schumpeter's work and developed the Solow-Swan Neoclassical model of economic growth.[63] This theory states that overall economic progress within a Schumpeterian closed system is driven solely by (i) increases in "inputs" (primarily labor and capital) and (ii) exogenous technical progress.[64] It concludes that economies naturally converge toward a steady-state growth rate that depends upon the pace of technological progress and changes in the size of the labor force.[65] If the workforce increases at a steady, predictable rate, then overall economic growth (adjusting for factors like depreciation and inflation) becomes a function of the pace of technological innovation.[66] This model has since been applied to determine that eighty percent of post-World War II growth in domestic productivity was due primarily to global research and development.[67]

[63] *See* WARREN J. SAMUELS ET AL., A COMPANION TO THE HISTORY OF ECONOMIC THOUGHT 413–14 (2003). *See generally* Robert Solow, *A Contribution to the Theory of Economic Growth*, 70 Q.J. ECON. 65 (1956) (introducing the author's theory in full quantification); Trevor W. Swan, *Economic Growth and Capital Accumulation*, 32 ECON. REC. 334 (1956) (presenting an elaboration of Swan's initial presentation of what would become his neoclassical growth theory).

[64] *See* SAMUELS ET AL., *supra* note 63, at 413–14 (citing the Neoclassical Model's "golden rule" for economic growth, which holds that rate of return on capital investments depends solely on "the rate of growth of the labor force, the rate of technical progress, and the rate of depreciation").

[65] *See id.*

[66] *See id.*

[67] Charles I. Jones, *Sources of U.S. Economic Growth in a World of Ideas*, 92 AM. ECON. REV. 220, 234-35 (2002) (using the Solow model to determine that eighty percent of domestic economic growth from 1950 to 1993 was due to increases in educational attainment and world R&D levels).

C. CHRISTENSEN AND DISRUPTIVE INNOVATION

[18] These theories burst into mainstream consciousness when Harvard Business School professor Clayton Christensen's best-selling 1997 book, *The Innovator's Dilemma*, introduced a theory of business management that addressed the destabilizing market effects of "disruptive technologies."[68] Unlike "sustaining technologies," which generally are incorporated into existing business models, Christensen's disruptive technologies spawn new markets that small, innovative companies can hijack from under the noses of established businesses.[69] He stated that such technologies, so long as they are sufficiently different from traditional models, would displace even clearly superior alternatives if they better fit the needs of an emerging (and overlooked) user community.[70] The new markets are often too small to attract the attention of established interests initially, but they can grow rapidly enough to displace entire industries[71] through a natural selection process much like a Kuhnian paradigm shift or Schumpeter's creative destruction.

[19] Christensen ultimately revised his theory to identify "disruptive innovation" as the true catalyst, arguing that the novel application of technology within a new business model, rather than the technology itself, is the cause of market disruption.[72]

---

[68] *See* CHRISTENSEN, *supra* note 20, at xxii–xxviii (describing the general principles and characteristics of disruptive innovations); *id.* at 111–14 (summarizing the author's suggestions for managing disruptive change).

[69] *Id.* at xviii–xx.

[70] *Id.* at 219–21.

[71] *Id.* at 265–66.

[72] Christensen's *The Innovator's Solution* (the sequel to *The Innovator's Dilemma*) generally substitutes the phrase "disruptive innovation" for "disruptive technology." CLAYTON M. CHRISTENSEN, THE INNOVATOR'S SOLUTION (2003); *see also* The Opportunity and Threat of Disruptive Technologies (CD-ROM, Harvard Bus. Sch. Publ'g 2003) (presenting a 62-minute video lecture during which Christensen tells how Intel CEO Andy Grove suggested the terminology change just as *The Innovator's Solution* was

IV. DISSONANCE AND COGNITION

A. FESTINGER AND COGNITIVE DISSONANCE

[20] Business and economic theories that describe the mechanics and implications of paradigm shifts do not explain *why* the appearance of even a single anomaly would drive a community to desert long-held beliefs and norms. Is there some fundamental aspect of human nature that compels groups to abandon a worldview *en masse* whenever an ostensibly fitter one comes along? Are lawmakers' efforts to shield traditional business models from new technology invariably doomed to failure? More to the point, given the historical consensus that paradigm shifts are an essential and indispensible condition of economic progress, is such a goal even desirable?

[21] One set of answers can be found in cognitive dissonance theory, a branch of social psychology that describes the ways that conflicted individuals respond to internal contradictions.[73]

[22] Dissonance theory may be virgin territory to the legal profession, but it is well-tread ground in the social sciences. Current thinking dates back to psychologist Leon Festinger's seminal 1957 text, *A Theory of Cognitive Dissonance*, which revealed the surprising findings of his clinical research into the motivations of behavior.[74]

[23] Festinger defined "cognitions" as "any type of human knowledge, opinion, or belief about the environment, about oneself, or about one's

---

going to press), *available at* http://www.viddler.com/explore/sleibson/videos/3/# (17-minute excerpt).

[73] The Encyclopedia Britannica states that "cognitive dissonance" explains why people seek to preserve their current understanding of the world by "reject[ing], explain[ing] away, or avoid[ing] the [challenging] information" or by convincing themselves that no conflict really exists. Britannica Online Encyclopedia, Cognitive Dissonance (Psychology, http://www.britannica.com/EBchecked/topic/124498/cognitive-dissonance (last visited Oct. 14, 2009).

[74] FESTINGER, *supra* note 9.

behavior"[75]—a kitchen-sink classification that accommodates everything from religious and political ideologies to Internet file-sharers' beliefs about the morality of their downloading practices. Within this model, a shared paradigm (that is, is a collective set of assumptions, beliefs, and behavioral norms) is merely a set of cognitions held by all members of a community.[76]

[24] Festinger found "cognitive dissonance" when an individual is faced with two cognitions that lead to obverse results.[77] A record buyer, for example, might believe that shoplifting a CD would be an act of theft—a cognition that leads to the conclusion that acquiring a commercial recording without payment is immoral. But if that same person falls into the habit of downloading copyrighted music from unauthorized Internet services, that behavior leads to a second cognition that spawns the obverse conclusion that he is allowed to take commercially produced music for free. The tension between those two conclusions is a classic example of cognitive dissonance between a belief and a norm of behavior.[78]

[25] Festinger frequently saw his subjects struggling to avoid the obverse implications of their dissonant cognitions, an observation that led him to conclude that dissonance is profoundly aversive.[79] He also

[75] *Id.* at 3.

[76] *See supra* notes 37–38 and accompanying text.

[77] JOEL COOPER, COGNITIVE DISSONANCE: FIFTY YEARS OF A CLASSIC THEORY 6 (2007) ("The state of cognitive dissonance occurs when people believe that two of their psychological representations are inconsistent with each other. More formally, a pair of cognitions is inconsistent if one cognition follows from the obverse (opposite) of the other.").

[78] *See* FESTINGER, *supra* note 9, at 5.

[79] *See* COOPER, *supra* note 77, at 2–3 ("Festinger . . . made a very basic observation about . . . human beings: we do not like inconsistency. It upsets us and drives us to action to reduce our inconsistency. . . . People do not just *prefer* consistency over inconsistency. . . . [They] are *driven* to resolve that inconsistency. How we go about dealing with our inconsistency can be rather ingenious. But, in Festinger's view, there is little question

discovered that cognitive dissonances could be assigned magnitudes and that a dissonance's aversive effect increases monotonically with its magnitude[80]—a key finding that has helped psychologists predict responses to dissonance-altering stimuli.[81]

[26] Festinger's basic premises remain valid today, but fifty years of analysis and observation have produced refinements.[82] Joel Cooper's "New Look" model[83] asserts that dissonance produces aversion only when a subject deliberately takes steps to produce obverse conclusions and is fully aware of the consequences of that decision. Furthermore, the extent of this volition and commitment is now considered a key factor in determining the magnitude of a dissonance and its resulting aversive effect.[84]

---

that it *will* be done."). In layman's terms, this aversion is most often described as a nagging "*discomfort*" with the conflict that creates the dissonance. *Id.* at 57.

[80] *Id.* at 7 (noting that one distinguishing characteristic of Festinger's theory was that it assigned magnitude to cognitive dissonance that was proportional to, among other things, the severity of contradiction between the conclusions that arise from the cognitive pair).

[81] *See* JACK W. BREHM & ARTHUR R. COHEN, EXPLORATIONS IN COGNITIVE DISSONANCE 302–06 (1962) (summarizing factors that contributed to clinically observed dissonance magnitudes and that indirectly determined how subjects responded to stimuli).

[82] *See* COOPER, *supra* note 77, at 181–83 (summarizing advances in the field that have occurred since Festinger's initial publication).

[83] *Id.* at 182 (formalizing the "New Look" definition of dissonance as "a state of arousal that occurs when a person *acts responsibly* to bring about an unwanted consequence") (emphasis added). Note that Cooper's model merely synthesizes concepts that have long been part of cognitive dissonance theory. Brehm and Cohen, for example, theorized in 1962 that a behavioral cognition gives rise to dissonance only when a subject acts with volition and commitment to the resulting obverse outcome. *See* BREHM & COHEN, *supra* note 81, at 300.

[84] COOPER, *supra* note 77, at 63–64.

B. DISSONANCE REDUCTION

[27] Festinger's observation that aversion increases with dissonance magnitude implies that individuals, regardless of whether they act alone or as part of a community, are compelled to find ways to reduce the magnitude of any cognitive dissonance they experience.[85]

[28] Festinger and his followers have documented many ways humans try to reduce cognitive dissonance,[86] the majority of which fall into four general categories:[87]

(i) pretending that the dissonance does not exist;

(ii) reducing the dissonance's perceived importance by rationalizing or discounting its effect or by

[85] *Id.* at 7.

[86] Recent research suggests that the compulsion to reduce cognitive dissonance extend even beyond the human race. Researchers at Yale observed capuchin monkeys subjected to a variation of Festinger's original 1956 experiments exhibiting what could be considered dissonance-reduction behavior. John Tierney, *Go Ahead, Rationalize. Monkeys Do It Too.*, N.Y. TIMES, Nov. 6, 2007, http://www.nytimes.com/2007/11/06/science/06tier.html.

[87] Theorists have at times organized dissonance-reduction strategies in other ways. Brehm & Cohen, for example, found five modes:

- Attitude changes, which may include alterations of one's opinions (personal beliefs) and of one's evaluations (judgments);
- Selective exposure to information;
- Selective recall of information;
- Perceptual distortions; and
- Behavioral changes.

BREHM & COHEN, *supra* note 81, at 306–08.

fabricating counter-beliefs that are consonant with both cognitions;

(iii) changing one's behavioral norms to reduce dissonance with another cognition; and

(iv) taking steps to prevent dissonant cognitions from arising in the first place, including avoiding possible sources of dissonance-producing cognitions.[88]

[29] These responses can produce unexpected and seemingly irrational results that, without an appreciation of dissonance effects, appear to defy logic.[89]

V. TYING IT ALL TOGETHER: THE DISSONANT PARADIGM MODEL

[30] Cognitive dissonance pervades our lives, and academic literature is filled with efforts to extend its precepts and observations to group behavior.[90] This article strides even further by applying the theory to

[88] COGNITIVE DISSONANCE: PROGRESS ON A PIVOTAL THEORY IN SOCIAL PSYCHOLOGY 4–5 (Eddie Harmon-Jones & Judson Mills eds., 1999); *see also* COOPER, *supra* note 77, at 7–12 (including an example of how dissonance effects come into play when buying a car).

[89] *Infra* Part VII.C (explaining how unexpected consequences can occur when seemingly straightforward attempts to change behavior run afoul of cognitive dissonance effects).

[90] BREHM & COHEN, *supra* note 81, at vii (noting that from the outset, Festinger's theory was used to study "a broad range of phenomena, [including] social interaction and mass behavior"); *see, e.g.*, Sendhil Mullainathan & Ebonya L. Washington, *Sticking with Your Vote: Cognitive Dissonance and Voting* (Yale Econ. Applications and Policy Discussion Paper, Working Paper No. 14, 2007), *available at* http://ssrn.com/abstract=904000 ("[T]heories of cognitive dissonance suggest [that] the very act of voting may influence political attitudes."); Alafair S. Burke, *Improving Prosecutorial Decision Making: Some Lessons of Cognitive Science*, 47 WM. & MARY L. REV. 1587, 1601(2006) (using cognitive psychology to analyze the decision-making behavior of prosecutors); Withrow & Geljon, *supra* note 34 (applying cognitive dissonance to business-management controversies); Victor Ricciardi & Helen K. Simon, *What Is Behavioral Finance?*, 2 BUS. EDUC. & TECH. J. 1 (2000) (surveying the field of behavioral economics known as behavioral finance, which applies dissonance theory to the actions and norms of investors

dissonances between cognitions held by communities that straddle a paradigm shift.[91]

[31] It should not be surprising that the laws of cognitive psychology would apply to mass phenomena like paradigm shifts. Communities consist of individuals; paradigms are, by definition, clusters of beliefs, assumptions, and behavioral norms (that is, *cognitions*) shared by community members.[92] If a disruptive event gives rise to cognitions dissonant with those of a communal paradigm, similar cognitive dissonance potentially will confront every individual in the group. Such a stimulus can, in the aggregate, produce macroeconomic effects if it elicits common dissonance-reduction responses from a significant proportion of the community.[93]

[32] Kuhn, Schumpeter, Christensen, and their followers all use local terminology to describe aspects of this process. An anomaly, be it an inexplicable experimental observation (that is, a Kuhnian "crisis"), an economy-shattering social or technological innovation, or an

---

and financial markets); William H. Cummings & M. Venkatesan, *Cognitive Dissonance and Consumer Behavior: A Review of the Evidence*, 13 J. MARKETING RES. 303 (1976) (reviewing and summarizing research relating consumer behaviors like brand loyalty to cognitive dissonance theory); BREHM & COHEN, *supra* note 81, at 270–85 (using cognitive dissonance theory to interpret the results of 1960s-era desegregation efforts); *id.* at 286–97 (applying dissonance theory to analyze brainwashing techniques used on Korean War POWs); Desmond Ng, *Cognitive Dissonance in the Swine Value Chain* (text of presentation made at the Banff Pork Seminar January), 12 ADVANCES IN PORK PRODUCTION 105 (2001), *available at* http://www.banffpork.ca/proc/2001pdf/Chap15-Ng.pdf (using cognitive dissonance to explain differences in perceptions among competitors and end-users in the U.S. and Canadian markets for swine genetic products).

[91] The scope of the model described here is limited to controversies that occur within a paradigm shift, but the author contends that it is applicable to any controversy where adversaries, whether individuals or groups, hail from communities within different paradigms, and he plans to explore this proposition in future articles.

[92] KUHN, *supra* note 18, at 176 ("A paradigm is what members of a community share, *and*, conversely, a scientific community consists of men who share a paradigm.").

[93] *Id.*

entrepreneurial business model that renders established industries obsolete, destabilizes a traditional paradigm by creating cognitive dissonance in the minds of individuals who share that paradigm.[94]

[33] Community members seek to reduce such dissonance with an urgency that increases with the magnitude of the dissonance.[95] These efforts manifest as combinations of the standard dissonance-reduction strategies previously discussed.[96] Minor dissonances may be accommodated without drastic steps, but anomalies that strike to the heart of a shared paradigm drive a community to more extreme action.[97]

---

[94] The parallels among these theories run deeper than this, but addressing them as comprehensively as they deserve is beyond the scope of this introductory article. Kuhn, for example, described community responses to scientific crises that mimic classic cognitive dissonance reduction behavior. *Id.* at 78-79 (stating that when scientists encounter an anomaly that leads to results obverse to those predicted by a traditional paradigm, "[t]hey will devise numerous articulations and ad hoc modifications of their theory to eliminate any apparent conflict"). Kuhn's work also mirrors Festinger's observations about dissonance magnitude when it acknowledges that the greater degree of "tension" between more dissimilar paradigms can drive community members to more extreme responses, even including willingness "to desert science because of their inability to tolerate crisis." *Id.* Aversion to dissonance was so central to Kuhn's thesis that it spawned the analogous concept of "the essential tension," which arises when a community member must work, at least occasionally, within an established paradigm despite the discomforting conflict between that paradigm and an anomaly that it cannot explain. *Id.* Even more significantly, Kuhn acknowledged that non-scientists also experienced this aversive tension, mentioning specific examples culled from the arts community. *Id.* at 79 n.2 (citing Frank Barron, *The Psychology of Imagination*, SCI. AM., Sept. 1958, at 151, 160).

[95] *See supra* notes 80–81.

[96] Kuhn, for example, observed that minor dissonances might be accommodated by extending a traditional paradigm, by casting the dissonance-causing anomaly in a different light, or by simply ignoring the dissonance in the hope that some future community will find a way to resolve it. These responses fit into standard categories of dissonance-reduction strategies. *See supra* notes 52 & 88.

[97] *Supra* note 96. In a full-blown paradigm shift, some community members typically adopt long-term dissonance-reduction strategies like total denial, and the community as a

[34] A paradigm shift occurs when high-magnitude dissonance makes it impossible to place anomaly-generated cognitions in consonance with the traditional paradigm.[98] Kuhn notes that in such cases, old and new paradigms are not merely different—they are generally incommensurable.[99] That is, they incorporate assumptions and basic definitions so irreconcilable that one cannot even find common benchmarks with which to compare them.[100] Once this occurs, community members are generally left with dissonance-reduction options that permit only the adoption of a better-fitting worldview—and the migration to a new paradigm.[101]

[35] These are the general conditions, long studied and well understood from a variety of perspectives, to which the arguments in this article apply. Social psychologists and economists, like most scientists, raise an eyebrow at theories that are contrived *post hoc* and are not founded on empirical data derived from blind, peer-reviewed studies.[102] But the

whole may not shift to a new paradigm until a large portion of the original community retires or dies out. *Supra* note 41 and accompanying text.

[98] *Supra* note 43. This article will use a shorthand to describe such conflicting worldviews as "dissonant paradigms."

[99] *Supra* note 46.

[100] KUHN, *supra* note 18, at 149.

[101] One fact agreed upon by all the theorists discussed in this article is that once a disruption has spawned a new (and incommensurable) paradigm, the paradigm shift cannot be stopped. *See supra* notes 47–51, 64, 67; *see also* CHRISTENSEN, *supra* note 20 (asserting that companies that try to use traditional management techniques to halt the progress of disruptive technologies cannot succeed).

[102] BREHM AND COHEN, supra note 81, at 312–13 (noting that a theory can be confirmed by its ability to predict experimental outcomes, but merely showing that it is consistent with prior observed phenomena is at best persuasive evidence of its validity, and specifically stating that "after [an] experiment is over, anything that occurred can be interpreted as dissonance reduction, whether or not it was seen as a possible mode beforehand"). Festinger brings up related concerns before gingerly extending his theoretical framework to communities that consist of individuals that experience identical

liberties taken here in synthesizing the dissonant-paradigm model are hardly unprecedented. Researchers have long sought and found parallels between dissonance and macroeconomic phenomena[103] and Kuhn's observations about paradigm shifts have routinely been applied to extra-scientific communities.[104] Although new to the legal world, the rationale and methodology that underlie this derivation should be familiar to readers grounded in fields like psychology and economics.

VI. THE JURISPRUDENCE OF PARADIGMATIC DISSONANCE

A. SONY V. UNIVERSAL

[36] Despite its apparent novelty, the dissonant paradigm model is hardly disconnected from mainstream jurisprudential thought. There is little reason that a theory rooted in neoclassical economics and cognitive dissonance—doctrines that have been successfully extended to many of the social sciences[105]—would fail to find relevance in an area of the law that clearly intersects with macroeconomics and group psychology.[106]

---

dissonances. But his reservations are not daunting enough to stop him from proceeding. *See* FESTINGER, *supra* note 9, at 234.

[103] *See, e.g.*, Withrow & Geljon, *supra* note 34; Mullainathan & Washington, *supra* note 90 (providing a sampling of such studies).

[104] *See, e.g.*, CHRISTENSEN, *supra* note 20, at xxv (supplementing the book's detailed analyses of several business-community paradigm shifts with a table listing two dozen more); Tim O'Reilly, Open Source Paradigm Shift, http://www.oreillynet.com/pub/a/oreilly/tim/articles/paradigmshift_0504.html (extending the concept of paradigm shifts to the computer industry, specifically citing the introduction of the IBM PC as an example and predicting a shift to open-source software); John C. Harrison, Do You Suffer from Paradigm Paralysis?, http://www.mnsu.edu/comdis/kuster/Infostuttering/Paradigmparalysis.html (describing a new paradigm within which the medical community may better understand the phenomenon of stuttering).

[105] *See, e.g.*, Part III and note 85.

[106] Macroeconomics is the branch of economics that studies the overall working of a national economy. The Free Dictionary, Definition of Macroeconomics, http://www.thefreedictionary.com/macroeconomics (last visited Oct. 14, 2009). Social

[37] Consider, for example, a dissonance-informed analysis of the Supreme Court's 1984 decision in *Sony Corp. of America v. Universal City Studios, Inc*.[107] There, Universal Studios and Disney Productions, which owned copyrights on television shows and feature films broadcast by television networks, claimed that Sony contributed to large-scale infringement by selling videocassette recorders (VCRs) that let viewers "time-shift" (that is, record and store for later viewing) their copyrighted content.[108]

[38] Commercial-supported over-the-air television was still the industry's dominant business model when the case reached the Supreme Court.[109] But this paradigm had already been disrupted[110] by consumer videotape technology that allowed millions of viewers to consume TV programming more efficiently by choosing viewing times convenient to them.[111]

[39] Cast in terms of paradigmatic dissonance, this controversy becomes a straightforward contest between shared worldviews on opposite sides of a paradigm shift. As is generally the case, the local legal system

---

psychology is the branch of human psychology that deals with the behavior of groups and the influence of social factors on the individual. The Free Dictionary, Definition of Group Psychology, http://medical-dictionary.thefreedictionary.com/Group+psychology (last visited Oct. 14, 2009).

[107] 464 U.S. 417 (1984).

[108] *Id.* at 421–23.

[109] Nat'l Cable & Telecomms. Ass'n, History of Cable Television, http://www.ncta.com/About/About/HistoryofCableTelevision.aspx (last visited Oct. 14, 2009) (noting that cable and satellite television did not become popular until after passage of the 1984 Cable Act).

[110] *VCRs Achieve 30% Market Penetration*, DISCOUNT STORE NEWS, Feb. 17, 1986, http://findarticles.com/p/articles/mi_m3092/is_/ai_4138144 (citing a report by the Electronic Industries Association's Consumer Electronics Group that 7.6 million units were sold in 1984 alone).

[111] *See Sony*, 464 U.S. at 421.

at the time held the perspective of the industry's traditional real-time broadcast paradigm.[112] The studios thus urged the Court to apply strict statutory construction to the Copyright Act.[113] Within that paradigm, non-infringing "fair use" of copyrighted content was limited to a small number of enumerated instances subject to a statutory four-part test.[114] This short list did not include time-shifting entire programs for personal use.[115]

[40] Time-shifting disrupted the traditional paradigm by transferring temporal control over content consumption from the networks to consumers. This threatened a business model that relied upon carefully constructed programming schedules to maximize ratings and advertising revenue.[116] More alarming to the plaintiffs, the VCR made it easy for consumers to share and distribute recorded programs without copyright owners' consent, strip out or fast-forward past commercials, view recorded shows multiple times, and otherwise control and manipulate content in ways that previously had not been possible.[117]

[41] These capabilities spawned cognitions alien to the traditional paradigm and led to widespread adoption[118] of behavioral norms (that is,

---

[112] *See* SCHMIDT ET AL., *supra* note 7, at 143. *See generally* 17 U.S.C. §§ 101–1332 (2006).

[113] Justice Blackmun affirmed the plaintiffs' interpretation in a strongly worded dissent. *See Sony*, 464 U.S. at 457 (Blackmun, J., dissenting). His opinion is an illustration of Schmidt's "material law is king" scenario, wherein adjudicators determine legality without considering a new-paradigm community's motivations and probable responses to strict-constructionist remedies. SCHMIDT ET AL., *supra* note 7, at 143.

[114] 17 U.S.C. § 107.

[115] *See id.* ("[T]he fair use of a copyrighted work . . . for purposes such as criticism, comment, news reporting, teaching . . ., scholarship, or research, is not an infringement of copyright.").

[116] *See Sony*, 464 U.S. at 452–53.

[117] *Id.* (describing reasons why most of these fears should be found groundless).

[118] *Supra* note 110.

time-shifting) that did not fall within the plaintiffs' definition of fair use. The home-taping community's commonality of experience ensured that these cognitions and dissonances were a group phenomena.[119]

[42] Cognitive dissonance theory teaches that viewers faced with such disruptive technology and its aversive consequences would likely try to reduce their dissonance by denying to themselves the existence of any conflict, by fabricating consonance-restoring cognitions (such as the belief that time-shifting is a valid new type of fair use), or by taking steps to prevent the creation of cognitions potentially dissonant with the traditional paradigm (for example, by refusing to make unauthorized recordings or even to own a VCR).[120]

[43] Among viewers who could not resist the allure of the VCR, the most probable strategy would thus be to devise some rationale for deeming time-shifting morally or legally legitimate. Furthermore, because the VCR threatened to disrupt a traditional worldview at a fundamental level, these cognitions would have likely been only one component of a comprehensive, internally consistent set of behavioral norms, beliefs, and assumptions—in other words, an entire paradigm—that better accommodated anomalies created by VCR technology.[121]

[44] Kuhn, Christensen, and the evolutionary economists agree that it is generally futile, and even undesirable, to obstruct a new paradigm that more efficiently addresses a disruptive anomaly.[122] Here it was too late to simply ban the VCR after millions of users had adopted the new time-shifting paradigm. But, it would have been equally difficult for a mere plurality to endorse unrestricted mass copying of protected content in a

[119] *See supra* notes 91–97 and accompanying text.

[120] *See supra* notes 87–88 and accompanying text. These responses fall into the general categories of dissonance-reduction strategies predicted by Festinger and his followers.

[121] *See supra* note 92.

[122] *See supra* Part III.A–C and note 45; *see also* KUHN, *supra* note 18, at 176.

way that might be interpreted as subverting centuries of copyright history and tradition.

[45] The Court ultimately resolved the conflict by adopting the standard dissonance-reduction strategy of fabricating a new cognition that reconciles disparate paradigms.[123] Refusing to hold home taping infringement *per se*, it devised a rationale for extending the "fair use" defense to the practice of time-shifting an entire program for non-commercial use.[124] And without an underlying act of direct infringement, the traditional legal system could not deem the defendants' act of selling VCRs to be contributory infringement.[125]

[46] The *Sony* Court found support for this position by noting that the plaintiffs had been unable to show nontrivial harm and that other content providers were uninterested in protecting their content from time-shifting.[126] VCR technology thus offered substantial non-infringing uses that would be lost to the public should video recorders be banned—justification in the Court's eyes for declaring time-shifting to be a new type of fair use.[127]

[47] Notwithstanding its inconsistency with precedent, this holding supported, through a process of extrapolation, the studios' contention that existing copyright law should be strictly enforced. The Court effectively created a third paradigm that reduced the dissonance between the

[123] *See supra* note 88 and accompanying text.

[124] Sony Corp. of Am. v. Universal City Studios, Inc., 464 U.S. 417, 442 (1984).

[125] Contributory copyright infringement requires actively inducing, causing, or materially contributing to, or providing goods or means necessary to help another party directly infringe. Without direct infringement, there can be no contributory infringement. *See* BLACK'S LAW DICTIONARY 851 (9th ed. 2009).

[126] *Sony*, 464 U.S. at 446–47. The Court observed that, because the plaintiffs owned only a minority of copyrighted broadcast content, their competitors had "created a substantial market for a paradigmatic non-infringing use of [time-shifting VCRs]." *Id.* at 447 n.28.

[127] *Id.* at 454.

Copyright Act's infringement rules and the new-paradigm cognition that time-shifting is neither morally nor legally wrong. It allowed the paradigm shift generally to run its course, but only so long as time-shifters adhered to fair use limits now read into the Copyright Act.[128]

[48] In true Kuhnian fashion, unfettered VCR technology eventually inspired new, more efficient business models and time-shifting technologies that ultimately benefited all parties.[129] Not only did the VCR help create the enormously profitable movie-rental market, but it also benefited the public by paving the way for methods of content delivery that would more efficiently and effectively satisfy consumer needs than traditional broadcast television.[130]

[49] Most significantly, the Court arrived at its holding through conventional judicial reasoning,[131] demonstrating that established jurisprudential standards and methodologies can be fully compatible with the dissonant paradigm model.

---

[128] Even the *Sony* holding would not save time-shifting technologies that, for example, caused material economic harm to content owners and had no other non-infringing uses. *Id.* at 449.

[129] Examples include the video tape and disc rental industries, personal video recorders (such as TiVo products), networked media-streaming appliances, video-on-demand applications, and online information-delivery services.

[130] These included settop and computer-based video-recording, video-on-demand services, and DVD and Blu-ray discs. And while the *Sony* decision did not, strictly speaking, address the legality of videotape rental, it certainly did facilitate the growth of the VCR market, without which video rentals might never have become viable.

[131] Albeit, perhaps, with paradigmatic dissonance lurking as a Holmesian "inarticulate major premise." *See* Oliver Wendell Holmes, *The Path of the Law*, 10 HARV. L. REV. 457, 465 (1897) ("Behind the logical form lies a judgment as to the relative worth and importance of competing legislative grounds, often an inarticulate and unconscious judgment, it is true, and yet the very root and nerve of the whole proceeding."); *see also* Anne C. Dailey, *Holmes and the Romantic Mind*, 48 DUKE L.J. 429, 447–56 (1999) (describing Holmes's view of the relationship between "Unconscious Ideas and Legal Rules").

B. DISSONANCE AND MODERN JURISPRUDENTIAL THOUGHT

[50] It is one thing to use historic court decisions to illustrate a novel legal theory, but *post hoc* analyses neither demonstrate a model's predictive value nor integrate it into an established legal framework. Here, however, there is no need to shoehorn paradigmatic dissonance into the jurisprudential mainstream. The model clearly claims common provenance with several prominent schools of legal thought. In particular, it shares deep roots in neoclassical economics and belief in the primacy of transactional efficiency and unfettered market forces[132] with the influential Chicago School of the Law and Economics movement.[133] One might even argue that paradigmatic dissonance merely enhances the Law and Economics model with a set of dissonance-cognizant analytical tools.[134]

[51] Both acknowledge that economic forces set the stage for paradigm shifts and that, despite any concomitant disruption, such forces are essential components of a healthy, growing economy. But paradigmatic dissonance more completely explains less obvious motivations of adversaries entangled in such shifts and better predicts the counterintuitive ways parties may react to economically rational remedies. While paradigmatic dissonance fits snugly within the larger framework of the Law and Economics model, it introduces additional factors necessary to accurately compare relative efficiencies and transaction costs and to

[132] This connection should hardly be surprising since the Law and Economics movement generally builds upon the same neoclassical model of economics that underlies paradigmatic dissonance. *See supra* Part III.B.

[133] Black's Law Dictionary defines "Law and Economics" as "[a] discipline advocating the economic analysis of the law, whereby legal rules are subjected to a cost-benefit analysis to determine whether a change from one legal rule to another will increase or decrease allocative efficiency and social wealth." BLACK'S LAW DICTIONARY 963 (9th ed. 2009). Although beyond the scope of this introductory paper, the author suggests that the complex relationship between paradigmatic dissonance and the Law and Economics school is a topic worthy of further exploration.

[134] That is, by finding linkage between the principles of neoclassical economics and of cognitive dissonance theory.

predict the conduct of communities interacting within a transitioning market.

[52] The Chicago School has been criticized for mercilessly applying economic criteria to even equitable disputes, a perspective that opponents claim ignores the importance of distributive justice.[135] Paradigmatic dissonance addresses this concern by softening the neoclassical model's stark reliance on market infallibility with Humanist qualifications found in cognitive psychology.

[53] Consider again the *Sony* decision. There, the plurality, although concerned with preserving the studios' copyrights, was unwilling to criminalize millions of Americans merely because they chose a more efficient consumption method. The Court intrinsically understood the futility of trying to suppress a paradigm that had been endorsed by the mass market—a tactic that, even if successful, risked opening niches for less-efficient and even more disruptive innovations.[136] In giving relatively free rein to economic natural selection, the *Sony* decision could not help but facilitate efficient business models that would better serve the public good.

---

[135] *See, e.g.*, Duncan Kennedy, *Law-and-Economics from the Perspective of Critical Legal Studies*, *in* THE NEW PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW 465 (Peter Newman ed., 1998) (".The . . . proposal that courts adopt [efficiency] as the criterion of decision between different possible legal rules is a bad idea, practically unworkable, incoherent on its own terms, and . . . open to . . . ideological manipulation . . . .").

[136] This is exactly what happened when the Ninth Circuit shut down the Napster peer-to-peer music file sharing service. Rather than save the record industry by eliminating unauthorized online file sharing, terminating Napster gave rise to decentralized file sharing services that have proven nearly impossible to control. *See* A & M Records, Inc. v. Napster, Inc., 239 F.3d 1004 (9th Cir. 2001)*; see also* Jeffrey R. Armstrong, *Sony, Napster, and Aimster: An Analysis of Dissimilar Application of the Copyright Law to Similar Technologies*, 13 DEPAUL-LCA J. ART & ENT. L. 1, 13 (2003); SCHMIDT ET AL., *supra* note 7, at 85–86, 90.

[54] Paradigmatic dissonance and the Chicago school share ground in other ways. Richard Posner,[137] for example, reveals a Kuhnian perspective to Law and Economics theory when he describes how evolutionary market forces, not the whims of government or some objectively knowable benchmarks, ultimately determine the "truth" of new ideas.[138]

[55] Like the theorists from whose work the dissonant-paradigm model is derived, Posner explains that communities select cognitions (and, by analogy to the work of H.L.A. Hart,[139] ascribe power to the corresponding legal system) when those cognitions better explain observations and phenomena that are anomalous to a traditional paradigm:

> [W]hen we say that an idea (the earth revolves around the sun) is correct[,] we mean that all or most of the knowledgeable consumers have accepted ("bought") it. (Even in science—the traditional domain of objective validity—ideas are discarded not because they are demonstrated to be false but because competing ideas give better answers to the questions with which the scientists of the day are most concerned.)[140]

[56] Posner's statements also echo another tenet of paradigmatic dissonance: the impossibility of protecting an established business model

[137] Posner, who sits on the Seventh Circuit and is Senior Lecturer at the University of Chicago Law School, has been described as "the most influential and significant theorist and advocate of the law and economics approach." Richard E. Levy, *The Tie that Binds: Some Thoughts About the Rule of Law, Law and Economics, Collective Action Theory, Reciprocity, and Heisenberg's Uncertainty Principle*, 56 U. KAN. L. REV. 901, 904 (2008).

[138] Excepting, of course, "purely deductive propositions such as the Pythagorean theorem." RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 541 (2d ed. 1977).

[139] Discussed *infra* note 147.

[140] POSNER, *supra* note 138, at 541.

by suppressing a more efficient paradigm.[141] By corollary, Law and Economics, like the dissonant paradigm model, acknowledges that government should, whenever possible, resist the urge to shield vested interests in heavy-handed ways that interfere with technological progress or judge innovations solely by using standards rooted in traditional paradigms and legal systems.

> If competition among ideas is the method by which truth is established, the suppression of an idea on the ground that it is false is irrational. An idea is false only if rejected in the marketplace, and if rejected there is no occasion to suppress it. For the government to declare an idea to be "true" when it has suppressed the competing ideas would be comparable to its declaring a brand of beer to be the "most popular" brand when the sale of the other brands had been suppressed."[142]

[57] Posner further notes that even the venerable "Hand rule" of tort law,[143] familiar to almost every first-year law student, fits within this framework by requiring lawmakers and adjudicators to consider the relative effects of their actions on both parties to a dispute.[144] A remedy that enacts great penalties upon time-shifters without demonstrating

---

[141] *See, e.g.*, CHRISTENSEN, *supra* note 20, at 266 (claiming that companies that use traditional management techniques to halt the progress of disruptive technologies cannot succeed because such practices work only with sustaining technologies. The "more productive route . . . is to understand the natural laws that apply to disruptive technologies and to use them to create new markets and new products.").

[142] POSNER, *supra* note 138, at 541–42.

[143] *Id.* at 542 ("The courts, [Judge Learned Hand] wrote, must in each case 'ask whether the gravity of the "evil" [i.e., if the instigation succeeds], discounted by its improbability, justifies such invasion of free speech as is necessary to avoid the danger.'").

[144] *Id.* at 545–46 (using the example of pornography, where restricting the public display of pornography on billboards would have a relatively low cost for pornography consumers, but failing to enact such a law would have a much higher cost to the public at large; the reverse is true for a law that completely bans pornography).

equivalent benefits to content owners would be based upon a biased analysis that ignores one side of the economic equation. This is the lesson of *Sony*; one that is still being relearned to this day.

[58] One can find connections to paradigmatic dissonance in other schools of jurisprudential thought. H.L.A. Hart,[145] for example, tempered the austere Austinian view of Positivism[146] by identifying "secondary rules" that legitimize legal power and define how it is allocated and applied in society. The most basic tenet is the Rule of Recognition, which holds that law gains validity, not from intrinsic authority of the sovereign, but from the recognition and acceptance of those subject to its power.[147] This concept foreshadows the fundamental principle of paradigmatic dissonance that it is a community's market-driven choices, regardless of the efforts of government, that legitimize a local legal system and its accompanying paradigm.

[59] From another perspective, the dissonant-paradigm model may be viewed as a straightforward extension of the Sociological school of legal thought, which considers differences between social groups on either side of a legal controversy.[148] Instead of defining law as what the courts or a government says it is, both doctrines assume a pragmatic stance that

---

[145] Herbert Lionel Adolphus Hart (1907–92) was a British philosopher and professor of jurisprudence at the University of Oxford, where he held the esteemed Regius Chair for Jurisprudence from 1952 through 1969. *See* Tony Honoré, Legal Philosophy in Oxford, http://www.law.ox.ac.uk/jurisprudence/hart.shtml (last visited Oct. 14, 2009).

[146] Austinian Positivism teaches that legal rules are valid because they are enacted by an existing political authority or accepted as binding in a given society, not because they are grounded in morality or in natural law. *See* BLACK'S LAW DICTIONARY 978 (9th ed. 2009) (definition of "legal positivism").

[147] NEIL MACCORMICK, H.L.A. HART 33 (2d ed. 2008) (stating that a legal system is valid in a particular community only if "the bulk of the inhabitants of [that community agree to] comply with the primary rules requiring them to do certain things and omit others").

[148] *See generally* MATHIEU DEFLEM, SOCIOLOGY OF LAW: VISIONS OF A SCHOLARLY TRADITION (2008) (describing and tracing the history of the Law and Sociology movement).

strives to balance competing values of adversarial groups that belong to different demographic and social classes.[149]

[60] These parallels are not merely hand-waving efforts to portray synchronicities as correlations; they are evidence that legal models do not develop in a vacuum. The same broadly applicable doctrines that inform paradigmatic dissonance could not have helped but influence other major schools of jurisprudential thought. Paradigmatic dissonance is a multidisciplinary synthesis of widely accepted theories, not an unprecedented leap. And its unique vantage point is an extension of, rather than an alternative to, mainstream legal thought.

VII. THE ROLE OF LAWMAKERS AND ADJUDICATORS

A. THE ILLUSION OF RATIONALISM

[61] Paradigmatic dissonance need not be the only modality used to analyze controversies that arise during paradigm shifts, but failing to consider it can result in an imperfect analysis and unintended consequences.[150] One problem is that mainstream Rationalist analysis may not reveal the underlying motivations of parties on either side of a transition. Rationalism, for example, generally presumes that individuals' responses to external events follow logically from their beliefs—not the

[149] S*ee, e.g.*, Brown v. Bd. of Educ., 347 U.S. 483, 494 n.11 (1954) (advocating desegregation by citing numerous studies that show detrimental psychological and sociological effects on segregated black children).

[150] *See supra* note 89 and accompanying text; *infra* Part VII.C (presenting a brief example of the often-unexpected ways that individuals respond to cognitive dissonance).

other way around.[151] This presumption, however, produces an incomplete picture of paradigm-shift dynamics.[152]

[62] Rationalist legal analysis also fails to acknowledge fundamental characteristics of the shift itself. In his exhaustive examination of the conflicts between the recording industry and the online file-sharing community, economist Aernout Schmidt noted that, rather than treating the emergence of disruptive entrepreneurial markets as migrations to new paradigms, mainstream legal analysis assumes the viewpoint of the "local legal system."[153] Such an approach determines legality, but never looks under the hood. It fails to address the questions of *why* one community inexplicably violates the law in an otherwise-stable legal system while another clings to economically inefficient business models within that established system.[154] Because existing laws are likely wedded to traditional paradigms, Schmidt argues, Rationalist analysis encourages a one-sided perspective that casts disruptive technology and new-paradigm communities as villains.[155] Furthermore, although mainstream legal

[151] Rationalism assumes that pure reason and logic are the ultimate source of truth. Britannica Online Encyclopedia, Rationalism, http://www.britannica.com/EBchecked/topic/492034/rationalism (last visited Oct. 14, 2009). Legal analyses that blindly embrace this philosophy do not always anticipate counterintuitive dissonance effects that arise during paradigm-shift controversies. *See, e.g.*, *infra* Part VII.C.

[152] *See* Mullainathan & Washington, *supra* note 90 ("[C]ognitive dissonance suggest[s] . . . that behavior may shape preferences.").

[153] *See* SCHMIDT ET AL., *supra* note 7, at 143.

[154] *Id.* at 144. These issues are also a primary focus of Christensen's "disruptive innovation" thesis. *See generally* CHRISTENSEN, *supra* note 20 (describing how established businesses and innovators interact from a market perspective in Part I).

[155] SCHMIDT ET AL., *supra* note 7, at 143–44 (observing that this rule applies generally, with disruptive technologies and new-paradigm businesses often declared responsible for "major legal and economic problems" arising in areas like "intellectual property law enforcement[, and] contract, liability, competition[,] and privacy law"); *see also* Withrow & Geljon, *supra* note 34 (defining the dissonance effect "Fundamental Attribution Error" as occurring when one party blames "the other's perceived mistakes on some intrinsic aspect of that person (e.g., their personality or personal abilities . . .)").

analysis frequently assumes that single-mindedly applying current law during a paradigm shift will foster more efficient business models, this rarely happens.[156]

[63] Another failure of Rationalism is its assumption that more severe penalties have greater deterrent effect upon premeditated actions.[157] This may make sense when perpetrators share values and behavioral norms with the local legal system.[158] But when disputes arise between communities defined by incommensurable paradigms, simply increasing penalties that favor one worldview over the other can produce counterintuitive results.[159] Dissonance theory teaches that the most effective way to use punishment to discourage behavior is to inflict the mildest possible penalty capable of influencing underlying beliefs.[160] Anything stronger will strengthen those beliefs and make the proscribed behavior *more* attractive.[161] Even more problematic, the principle of

[156] SCHMIDT ET AL., *supra* note 7, at 144.

[157] Rationalists presume that behavior is a logical response to stimuli, and thus, in general, deterrents deter, incentives entice, and people act in a rational manner. *See* Britannica Online Encyclopedia, Rationalism, http://www.britannica.com/EBchecked/topic/492034/rationalism (last visited Oct. 15, 2009).

[158] Modern homicide law is generally considered logical and effective when applied to perpetrators who hold a paradigm similar to the one upon which the law is founded. This paradigm includes beliefs that killing a person is a punishable act; that premeditated killings are worse than those committed in the heat of passion; that both are more deserving of punishment than causing an accidental death; and that capital punishment or life imprisonment have greater deterrent effect than would a few years in prison. *See* MODEL PENAL CODE § 210.3 cmt. 1 (1980).

[159] *See, e.g.*, COOPER, *supra* note 77, at 19–21 (discussing clinical evidence that increasing punishment for proscribed behavior can create dissonance effects that make those activities more attractive); *id.* at 24 (describing a classic experiment where more severe punishment inflicted upon children ordered not to play with attractive toys had less effect upon the children's cognition that the toys were desirable).

[160] *Id.* at 24.

[161] *Id.*; *cf. id.* at 18–19 (citing BREHM & COHEN, *supra* note 81, at 73–78 (presenting an inverse corollary based on a 1961 experiment where Yale students were paid varying amounts of money to write favorable essays about unpopular local police; students paid

vicarious dissonance, which states that individuals can experience the aversive effect of other people's dissonant cognitions,[162] makes it likely that applying an overly harsh remedy to even one community member can have undesired effects on the entire group.[163]

B. WHAT THE LAW CAN LEARN FROM PARADIGMATIC DISSONANCE

1. LEGAL REMEDIES

[64] It is beyond the scope of this article to propose hard-edged solutions to specific social problems.[164] But it is certainly possible to suggest general points of departure from which theorists, lawmakers, and adjudicators can develop fact-specific analyses and remedies.

[65] In an unpublished 2003 dissertation, economists Jason Withrow and Mark Geljon applied Kuhn's and Festinger's models to business and management problems, analyzing them as dissonances between contrasting worldviews.[165] The authors defined three general classes of remedies:

---

the least experienced the greatest changes in attitude toward the police, thereby confirming an inverse relationship between the intensity of the external stimulus and its effect on dissonance)).

[162] *See id.* at 119–23.

[163] *Id.* This principle is illustrated *infra* in the music-industry example of Part VII.C and is extrapolated to the concept of "vicarious hypocrisy" in COOPER, *supra* note 77, at 178–80.

[164] In fact, it is inadvisable to consider such a task without undertaking an exhaustive analysis of the facts in each case.

[165] *See* Withrow & Geljon, *supra* note 34.

(i) *Strategic Approaches* that foster the development of a third paradigm that is consonant with the worldviews of both parties;[166]

(ii) *Tactical Solutions* that reduce dissonance by facilitating the parties' understanding of each other's worldviews and by encouraging them to accept the fact that their conduct is rooted in different assumptions and beliefs;[167] and

(iii) *Operational Cures* that work to build bridges between worldviews when creating a new paradigm is not possible.[168]

[66] Any combination of these three approaches may give rise to effective remedies, but cures must be fashioned with an understanding of

[166] *Id*. This is the type of approach taken in *Sony Corp. of America v. Universal City Studios, Inc.*, where the Court's refusal to regulate home-recording devices facilitated the creation of the video-rental industry. Sony Corp. of Am. v. Universal City Studios, Inc., 464 U.S. 417, 427 (1984).

[167] Withrow & Geljon, *supra* note 34. One such remedy is the record labels' recent decision to sell freely reproducible music online. Even if the music industry's paradigm does not include its customers' cognition that they have the right to port purchased music to multiple devices at will, this new business model acknowledges that such a cognition exists and recognizes that it must be incorporated into its business model. Likewise, even if music-consumers do not hold a cognition that they have the duty to pay for online music, the labels' good-faith offering of unprotected downloads may reduce dissonance enough to make these services palatable. *See* Daniel Kreps, *T.I. Illegal Seizure Ruling Postponed, Sony/BMG Goes DRM-Free, Led Zeppelin Bonnaroo Rumors Inaccurate and More*, ROLLING STONE, Jan. 4, 2008, http://www.rollingstone.com/rockdaily/index.php/2008/01/04/ti-illegal-seizure-ruling-postponed-sonybmg-goes-drm-free-led-zeppelin-roo-rumors-inaccurate-and-more (reporting that holdout Sony/BMG will join the other major labels, Amazon.com, and iTunes Plus in licensing unprotected MP3 music files through the Internet).

[168] *See* Withrow & Geljon, *supra* note 34 ("Accept differences in paradigms and implement smart ways of dealing with them."); *see also, e.g.*, *infra* Part VII.B.1.c (describing a general class of "bridging" remedies that involve taxing revenues generated by one business model to support another).

underlying cognitive dissonances and the specific factors that control their magnitude.[169] This perspective may help explain why regulators have traditionally favored certain types of solutions to the problems that attend disruptive innovation:[170]

(a) THROW TECHNOLOGY AT TECHNOLOGY

[67] Regulate the pace of the shift with incentives that favor technological controls or innovations that reduce dissonance or make old paradigms more economically feasible.[171]

(b) ALTERNATIVE DISPUTE RESOLUTION

[68] Rather than taking one side, force parties to submit to mediation or arbitration. This approach can reduce aversion to compromise by coercing adversaries to adopt otherwise-dissonant cognitions[172]and can be

[169] *See* BREHM & COHEN, *supra* note 81, at 302–06 (summarizing the factors controlling dissonance magnitude that had been reported to date).

[170] This list is by no means exhaustive. It describes several general classes of remedies that boast proven track records, but there are innumerable ways to deal with technology-based disruption, and each solution must be crafted specifically to serve the facts at hand. Readers are encouraged to glean ideas from the scores of examples, observations, and findings described in the sources cited here. *See, e.g.*, *id.*; COOPER, *supra* note 77; FESTINGER, *supra* note 9.

[171] The Ninth Circuit ostensibly attempted such a remedy when it ordered the Napster online file sharing service to implement a content-filtering mechanism that would allow it to survive so long as it could guarantee its ability to pay the music industry royalties for all copyrighted content downloaded from its servers. This appeared on its face to be an incentive to create technology that would allow old- and new-paradigm business models to coexist. But many would argue that it was merely a cynical way to side against Napster, which had little chance of developing the perfect technology required by the court. *See* A&M Records, Inc. v. Napster, Inc., 239 F.3d 1004, 1027 (9th Cir. 2001) (holding that Napster "bears the burden of policing the system within the limits of the system"); *Record Industry Attacks Napster Filter*, BBC NEWS, Mar. 28, 2001, http://news.bbc.co.uk/2/hi/business/1246924.stm.

[172] *See* COOPER, *supra* note 77, at 63 (describing how dissonance occurs only when a subject undertakes dissonance-causing behavior of her own volition).

especially effective during an impasse if one or both parties cannot afford to lose face through concession.[173]

(c) TAX THE POOR AND GIVE TO THE RICH

[69] When disruptive innovation threatens a traditional industry with undue hardship, it may be possible to ease the pain by using fees and taxes to shift capital. This solution changes the relative efficiency of the two paradigms, giving the besieged industry time to catch its breath without unduly suppressing innovation. It may also reduce both sides' dissonances by creating a bridging mechanism through which each acknowledges, supports, and profits from the other's efforts.[174]

(d) GIVE THE MARKET FREE REIN

[70] In some cases, the government has simply refused to step in, allowing survival-of-the-fittest market forces to exert *de facto* regulation. This may seem harsh, but it was just such a ruling in *Sony Corp. of America v. Universal City Studios, Inc.* that, despite fears that home videotaping would devastate the film and television industries, instead

[173] Consider how much healthier the music industry might be today had the *A&M v. Napster* court ordered it to negotiate joint ownership of Napster and work together in good faith to transform the site into a legal and profitable downloading service. Napster's founders were clearly amenable to a merger but the labels could not risk alienating their old-paradigm business partners, such as CD retailers and distributors, by voluntarily undertaking such an effort. Had they been forced to do so under court order, however, they might have been relieved of much of that pressure. *See A&M Records*, 239 F.3d 1004; Linda Himelstein, *Napster's CEO Splits on a Sour Note*, BUSINESSWEEK.COM, May 14, 2002, http://www.businessweek.com/technology/content/may2002/tc20020514_1069.htm (reporting that co-founder Shawn Fanning and Napster CEO Konrad Hilbers resigned in anger with the collapse of a deal to sell the service to media giant Bertelsmann).

[174] Congress adopted this approach when refereeing the anti-piracy debate between the music and consumer-electronics industries created by the advent of personal digital recording devices. Its solution was to enact the Audio Home Recording Act, 17 U.S.C. §§ 1001–10 (2006), which imposed taxes on digital recorders and media that funded compensatory royalties to content publishers. 17 U.S.C. §§ 1001–1010 (2006).

gave Hollywood an enormous new revenue stream by facilitating the creation of the prerecorded videotape aftermarket.[175]

2. A DOZEN RULES

[71] Complex social problems require sophisticated solutions that make sense from multiple perspectives. When addressing controversies that span incommensurate worldviews, the dissonant-paradigm model, even if it is not the only theory employed, can add depth to a legal analysis.[176] This section summarizes a dozen of the more useful principles, some of which have been alluded to above, that emerge from the extension of this model to real-world controversies.

(a) THE HARDER YOU PUSH, THE MORE YOU FAIL

[72] Cognitive dissonance theory states that deterrents are most effective when they inflict the minimal amount of punishment necessary to alter undesired behavior. Greater levels of deterrence actually strengthen cognitions that reduce dissonance with the unwanted conduct.[177]

(b) SELL TIME, BUT NOT TOO MUCH

[73] Sometimes an industry devastated by disruptive innovation might have been able to compete had it been allowed more time to react. In such cases, regulators may best serve the public interest with temporary measures that merely slow a paradigm shift, rather than try to stop it.

---

[175] Sony Corp. of Am. v. Universal City Studios, Inc., 464 U.S. 417 (1984) (refusing to acquiesce to the MPAA's demands that videocassette recorders be banned); *see also* Dave Owen, *The Betamax vs VHS Format War*, MEDIACOLLEGE.COM, Jan. 8, 2008, http://www.mediacollege.com/video/format/compare/betamax-vhs.html.

[176] *See, e.g.*, *supra* Part VI.A; *infra* Part VII.C.

[177] *See supra* notes 160–61 and accompanying text.

(c) BALANCE THE SCALES OF JUSTICE

[74] Regulators' highest priority should be to facilitate progress. The best way to do this is to ensure that innovative technology is allowed to deliver the greatest benefit to the greatest number.[178] This goal must, however, be tempered by fairness. It is in the public interest to give established industries a fair chance to compete on the new playing field. They should neither have the power to crush emerging models arbitrarily nor to lock out innovative competitors long enough to steal their ideas. But they should be allowed to protect their investments against those who would use new technology to plunder their assets.

(d) UNDERSTAND THE SCOPE OF THE NEED BEFORE TAILORING A CURE

[75] Evolutionary economist Samuelson's Neoclassical Synthesis theory identified economic urgency as the primary factor controlling how aggressively government should intervene during a paradigm shift.[179] Despite the urgings of lobbyists and other special interests, lawmakers must consider the imminence and the degree of disruption when deciding how quickly and how forcefully to respond. Aggressive response to disruptions that are distant in time can themselves cause disruptive consequences.[180]

---

[178] A common theme running through the derivation of the dissonant-paradigm model has been the crucial role that paradigm shifts play in enabling social, economic, or scientific progress. *See, e.g.*, *supra* notes 18, 48–49, 55–56, 61, 63, 67 and accompanying text.

[179] *See generally* PAUL A. SAMUELSON, FOUNDATIONS OF ECONOMIC ANALYSIS (enlarged ed. 1983) (applying the Solow-Swan model to cases where governments are called upon to address the disruptive effects of technological innovation, defining parameters that specify the proper degree of governmental intervention in such situations, and asserting that governments should consider only the immediacy and urgency of harm caused by the disruption when deciding how aggressively to act).

[180] *See infra* Part VII.B.2.f.

(e) CRYSTALS AND MUD

[76] The legal system's initial response to an emerging paradigm is generally to shore up old-paradigm statutes through extension, exception, and creative interpretation. It may not be until volumes of case law and statutory tweaking reduce the original statute to all patch and no rubber that government is driven to pass comparatively straightforward legislation that better accommodates the new paradigm.[181] The timing of such overhauls can significantly alter the social and economic impact of a paradigm shift and the relative fortunes of parties on either side. If enacted too soon, lawmakers may not be able to fully identify the evolving paradigm or understand its implications.[182] But if too late, obsolete laws may be exploited to suppress innovation or remain on the books long after they have ceased to serve any purpose.

(f) NEW PARADIGMS CANNOT BE ANTICIPATED

[77] One issue in which theorists from Kuhn through Christensen agree is that there is no way to anticipate the nature and implications of a new business model, paradigm, or technology before it emerges. Pre-emptive strikes on disruptive innovations that exist only in crystal balls are likely to be at best a waste of resources.[183] A better strategy is to monitor early-

[181] This cyclical model, developed and applied to property law by Stanford professor Carol Rose, asserts that statutes begin as hard-edged "crystalline" entities that produce deterministic results, but are eventually "muddied" in the courts by exceptions and extension to unforeseen fact patterns. According to Rose, when the muddiness increases to an unworkable level, the cycle continues with another round of crystallizing legislation. One can analogize the disruptive effects of technological innovation into similar cycles, a phenomenon that may in fact occur generally. *See* Carol M. Rose, *Crystals and Mud in Property Law*, 40 STAN. L. REV. 577, 580 (1988).

[182] *See infra* Part VII.B.2.f.

[183] *See* CHRISTENSEN, *supra* note 20, at 265 (stating the principle that "Markets That Don't Exist Can't Be Analyzed," which holds that a company that refuses to enter a new market without first accumulating market data and revenue projections will be "paralyzed" by disruptive technologies "because they demand data on markets that don't yet exist."); *see also, e.g.*, Sony Corp. of Am. v. Universal City Studios, Inc., 464 U.S. 417 (1984) (where the movie industry attempted to convince the courts to ban a

warning mechanisms that give regulators and affected communities time to forge measured responses to disruption.[184]

(g) REGULATION MUST ACCOUNT FOR THE NEEDS OF THOSE BEING REGULATED

[78] Laws and regulations that do not accommodate, or even acknowledge, the needs of the communities they regulate create adversarial, economically inefficient, and ultimately anti-democratic relationships between the governing and the governed.[185] Legal analyses and remedies must recognize that when parties violate local statutes. They may be acting in accord with norms that the law will one day recognize.[186] Rationalist solutions that accept the legitimacy of only one party's worldview cannot produce equitable remedies tailored to the needs of both sides.[187]

(h) SOMETIMES IT IS BEST TO WAIT AND SEE

[79] Regulators always must ask themselves whether it makes more sense to do nothing than to take steps that could make a bad situation

technology that, not too many years later, spawned a business model that became one of Hollywood's most important revenue sources).

[184] *See* CHRISTENSEN, *supra* note 20, at 143 ("The strategies and plans that managers formulate . . . should be plans for learning and discovery rather than plans for execution.").

[185] Mathias Klang, Disruptive Technology: Effects of Technology Regulation on Democracy 225–27 (Oct. 2, 2006) (unpublished doctoral dissertation, Göteborg University, Dept. of Applied Information Technology), *available at* http://gupea.ub.gu.se/dspace/handle/2077/9910; *see also* MACCORMICK, *supra* note 147.

[186] Klang, *supra* note 185, at 226 (stating "[t]he process of legislation and control must . . . involve the needs of the users," and drawing parallels to engineering design standards and the requirements of social contracts).

[187] *See* SCHMIDT ET AL., *supra* note 7, at 142–43.

worse.[188] When it is too soon to safely fashion even interim remedies or when parties to a controversy may yet be persuaded to negotiate on a level playing field, the best solution may be for government to step aside and, at least for a time, allow market forces to prevail.

(i) BEHAVIOR CAN CHANGE BELIEFS

[80] Cognitive dissonance theory states that when an individual's behavior is inconsistent with a previously held cognition, the resulting dissonance can compel a change in beliefs or assumptions.[189] While it may be obvious that thoughts can influence behavior, conventional analyses would not predict the opposite to be true.[190]

(j) PARADIGM SHIFTS PASS A POINT OF NO RETURN

[81] Lawmakers can try to cushion the catastrophic effects of a paradigm shift on established businesses. They can throttle its pace through regulation, and they can use incentives to temporarily funnel innovation in a particular direction. But they generally cannot permanently stop a community from adopting a paradigm that fits its needs and cannot hope for a good outcome by merely giving entrenched industries the power to suppress innovation. Economic forces almost always prevail.[191]

(k) NOT ALL COGNITIONS ARE CREATED EQUAL

[82] Dissonance-altering remedies produce unexpected consequences when they prompt a different dissonance-reduction response than they had

---

[188] *See, e.g.*, *infra* Part VII.C (implying that cognitive dissonance theory reveals that the more aggressively the RIAA attacks file sharers, the less likely they are to experience aversion to unauthorized copying); COOPER, *supra* note 77, at 19–21, 24–25.

[189] *See* Mullainathan & Washington, *supra* note 90 (reporting experimental results that show that "cognitive dissonance suggest[s] . . . that behavior may shape preferences").

[190] *See id.*; *see also* BREHM & COHEN, *supra* note 81, at 73–78.

[191] *See supra* note 141.

intended. The factors that influence this critical decision are related to the relative importance a person assigns to each cognition. Those that have greater perceived importance generally produce higher magnitude dissonance with other cognitions, and the relative importance of cognitions in a dissonant pair helps determine which one a subject tries harder to preserve. Furthermore, efforts to modify an individual's or a community's behavior or beliefs by changing the importance of one cognition may have surprising ripple effects on other cognitions and dissonances. Thus, remedies undertaken without knowledge of the issues that influence dissonance-reduction choices pose a greater risk of unintended consequences.

[83] Modern dissonance theory, for example, holds that it is generally harder to change behavioral cognitions than it is to alter attitudes.[192] Consequently, a remedy that increases the dissonance between a norm of conduct and an equally strong belief is more likely to change the subject's thought processes than her behavior.[193]

[84] Similarly, when fashioning legal remedies, it is important to realize that it is easier to alter cognitions about one's own behavior, often by merely changing the behavior itself, than it is to change cognitions about the environment gleaned from one's own senses.[194]

[85] Finally, all things being equal, cognitions that correspond to cultural norms are usually stronger (and more difficult to change) than personal beliefs.[195]

---

[192] *See* COOPER, *supra* note 77, at 8 ("In general, it is difficult to change a cognition about one's behavior. Therefore, when behavior is discrepant from attitudes, the dissonance caused thereby is usually reduced by changing one's attitude.").

[193] *Id.*

[194] FESTINGER, *supra* note 9, at 276.

[195] COOPER, *supra* note 77, at 182 ("[When choosing between] internalized standards of one's society, culture, or family, or [the] personal standards . . . generated by what one thinks of oneself. . . . [T]he playing field . . . tilts toward normative standards unless

(l) VICARIOUS DISSONANCE

[86] It is possible for individuals to experience dissonance by merely observing the undesired consequences of others' behavior. This effect, for better or worse, leverages the effects of remedies imposed on individuals, extending their reach throughout the community. This can be an effective tool when it is not practical to punish or reward the behavior of every community member. But, it can also compound errors when a modest remedy produces unintended consequences.[196]

C. UNINTENDED CONSEQUENCES: A BRIEF EXAMPLE

[87] The surprising outcomes often predicted by cognitive dissonance theory help explain why many seemingly rational, straightforward legal remedies produce counterintuitive results. Dissonance theory can thus help governmental and private entities better comprehend and more reliably influence individuals' behavior by more accurately identifying and characterizing the components of the paradigm they share.[197]

[88] The recording industry, for example, periodically tries to discourage unauthorized online file-sharing activity by launching media campaigns that stress the inequity of enjoying another person's creative work without compensation.[198] Dissonance theory would characterize such messages as attempts to reinforce consumers' presumed belief in fair

---

something in the environment specifically makes personal standards particularly accessible.").

[196] *See supra* note 162 and accompanying text; *see also infra* Part VII.C.

[197] *See, e.g.*, COOPER, *supra* note 77, at 174 (citing public health policy as an example of how cognitive dissonance may be "an effective means of inducing changes in both behavior and attitudes toward greater compliance with positive health messages" and calling it "one [of the] more effective . . . techniques that health professionals can use to trigger healthier behaviors").

[198] The Record Industry Association of America (RIAA), Motion Picture Association of America (MPAA), and the business-software industry's Business Software Alliance (BSA) have all launched such advertising campaigns over the last few decades.

play, and thus increase the magnitude of that cognition's dissonance with, and the resulting aversion to, unlawful file-sharing behavior.

[89] This tactic, however, ignores the fact that file-sharing communities live within a different paradigm than do record labels. It is a mistake to assume that young Internet music consumers observe any belief, assumption, or norm of behavior merely because such a cognition falls within the record industry's traditional paradigm.

[90] Music file-sharers, for example, do not equate the interests of faceless record labels with those of recording artists. Many believe that money paid to major record labels never finds its way into musicians' pockets and, if anything, assume that record companies routinely and shamelessly exploit both musicians and consumers.[199] The cognition that unlawful downloading deprives labels of income thus does not easily lead the file-sharing community to the conclusion that the practice is immoral or harmful to innocent parties. Therefore, pleas to consider the welfare of musicians are less likely within the file-sharing community's paradigm to increase the magnitude of the dissonance between downloaders' online behavioral norms and their belief in fair play.

[91] A better understanding of dissonance and paradigm shifts might suggest more effective ways to discourage file-sharing behavior. One strategy would be to cultivate dissonance with the cognition that recording

[199] A representative sampling of Stanford law professor and celebrity file-sharing advocate Lawrence Lessig's online writings clearly express the disdain that the file sharing community feels toward the music industry. *See, e.g.*, Lawrence Lessig, *Copyrights Rule*, THE INDUSTRY STANDARD, Oct. 2, 2000, http://www.lessig.org/content/standard/0,1902,18964,00.html ("Courts are racing to enjoin alleged violators of copyright law, taking no account of the effects on the development of the Internet."); Lawrence Lessig, *Copyright Thugs*, THE INDUSTRY STANDARD, May 7, 2001, http://www.lessig.org/content/standard/0,1902,24208,00.html ("[P]reventing piracy doesn't mean you can punish researchers."); Lawrence Lessig, *Just Compensation*, THE INDUSTRY STANDARD, Apr. 9, 2001, http://www.lessig.org/content/standard/0,1902,23401,00.html ("Congress should help artists get paid without delivering the Internet into the hands of the big labels."); Lawrence Lessig, *The Limits of Copyright*, THE INDUSTRY STANDARD, Jun. 19, 2000, http://www.lessig.org/content/standard/0,1902,16071,00.html ("You don't have to be a pirate to be concerned about this trend . . . .").

companies engage in practices so unfair that the labels themselves do not deserve equitable treatment. The labels, however, have done exactly the opposite, reinforcing their schoolyard-bully image with high-profile lawsuits that threaten small-time music downloaders with extraordinary fines.[200] As mentioned earlier, dissonance theory teaches that unnecessarily harsh penalties have less deterrent effect and can actually strengthen cognitions that reinforce undesired behavior.[201] Taking steps that increase resentment of the music industry promotes the belief that the labels do not deserve fair treatment and further reduces cognitive dissonance with illicit downloading norms, making the practice even more acceptable within the file-sharer community.[202]

[92] Apple, Inc., on the other hand, took a radically different approach with its iTunes legal music download service, the first such offering that could be considered a commercial success.[203] Despite the fact that Apple's copy-protection technology was cracked soon after iTunes went live,[204] there is little evidence that the site has suffered from wholesale piracy—at least any that might cause the devastating sales declines that

[200] *See* Hiatt & Serpick, *supra* note 23.

[201] *See supra* note 161 and accompanying text.

[202] One might argue that the incommensurability of the paradigms in conflict here and record executives' ignorance of the characteristics of paradigm shifts both conspired to prevent decision-makers from understanding the futility of attempting to change beliefs and norms of behavior with a message rooted in the cognitions of the wrong paradigm. Nonetheless, it is hard to argue that the record companies' lawsuits against music consumers helped in any significant way; music sales have taken a precipitous fall since the suits began in late 2003. *See* Hiatt & Serpick, *supra* note 23 (including a Nielsen SoundScan album sales chart that shows the rate of decline increasing sharply in 2004 and subsequent years).

[203] *See Apple's iTunes Grows to No. 2 U.S. Music Retailer*, REUTERS.COM, Feb. 26, 2008, http://www.reuters.com/article/industryNews/idUSWNAS243320080227 (reporting that only Wal-Mart sold more music than iTunes in 2007).

[204] John Borland, *Program Points Way to iTunes DRM Hack*, CNT NEWS, Nov. 24, 2003, http://www.cnn.com/2003/TECH/internet/11/27/itunes.code.ap/index.html.

have crippled the major labels.[205] One difference is that young, hip music consumers do not view Apple with the contempt they reserve for old-paradigm record companies. Apple CEO Steve Jobs has made it clear that Apple is one of them, openly challenging the labels' hardline anti-piracy stance[206] and furnishing iTunes with a slick interface and savvy business model that reveals an understanding of its user community's shared paradigm.[207] While music consumers overwhelmingly prefer illicit download sites to the labels' proprietary offerings, a significant minority willingly pays Apple for content available elsewhere for free. In other words, Apple has been more successful than the major record labels because its business decisions, informed by an intrinsic understanding of the online-music community's shared paradigm, gave rise to cognitions and cognitive dissonances critically different from those produced by the labels' old-paradigm tactics.

[93] This brief example hints at the power of dissonance theory to provide an analytical framework within which one can conceptualize interactions between communities that share different paradigms. But it is not intended to be definitive proof of the superiority of the dissonant-paradigm model. Many of the same conclusions could have been reached through other paths and, more to the point, using paradigmatic dissonance theory to forge a comprehensive analysis of a complex real-world controversy would require a deeper understanding of Festinger's and Kuhn's work and its linkage to modern jurisprudential thought than can be imparted here. The point is to convey a taste of how the dissonant-paradigm model might be applied and to demonstrate that such analyses are possible, have predictive value, and can produce insights into why seemingly logical actions have unanticipated outcomes.

---

[205] *See supra* note 203.

[206] Steve Jobs, Thoughts on Music, http://www.apple.com/hotnews/thoughtsonmusic (last visited Oct. 15, 2009).

[207] Troy Dreier, *Apple iTunes Music Store*, PC MAGAZINE.COM, Aug. 5, 2003, http://www.pcmag.com/article2/0,1759,1194956,00.asp (receiving five-star highest rating from online readers).

VIII. FINAL THOUGHTS: "WE'VE ONLY JUST BEGUN"

[94] The dissonant-paradigm model may seem novel within the context of legal analysis, but extrapolations of psychological and economic theories to foreign disciplines are far from unique. As noted earlier, the work of Kuhn, Christensen, and the evolutionary economists has been successfully extended to a broad range of disciplines. And legal theorists have certainly strayed into the social sciences—sometimes even with results that seem deceptively similar to the work presented here.[208]

[95] Applying Festinger's theory of cognitive dissonance to the law may seem formidable to legal professionals who lack training in psychology, but similar efforts have already borne fruit in business management, economics, finance, and many other fields of endeavor.[209] There is no reason why the legal profession, with its centuries-long academic legacy and huge number of peer-reviewed journals,[210] cannot develop a useful body of theory and case law in this area.

---

[208] One must be careful to distinguish the dissonant-paradigm model from the superficially similar Behavioral Law and Economics school, which seeks to replace the Law and Economics school's assumption of perfect rationality with the assertion that "all people systematically fall prey to biases and errors in their judgment and decisionmaking [that] lead to predictably irrational behavior." Although the two theories may seem to start from the same gate—with the assumption that legal analysis must account for behavior motivated by psychological factors—the conclusions and applications are dissimilar. This article makes no judgments about the rationality of the choices made by individuals faced with cognitive dissonance, and that issue is irrelevant to the thesis presented here. At most, cognitive dissonance identifies rules with which seemingly irrational conduct can be seen to be logical and consistent. *See* Gregory Mitchell, *Why Law and Economics' Perfect Rationality Should Not Be Traded for Behavioral Law and Economics' Equal Incompetence*, 91GEO. L.J. 67, 67 (2002).

[209] *See, e.g.*, Withrow & Geljon, *supra* note 34 (adapting cognitive dissonance techniques to business-management problems); Ricciardi & Simon, *supra* note 90 (describing principles of the branch of behavioral economics known as behavioral finance, which applies cognitive psychology, including dissonance theory, to the behavior of financial markets); *see also* the many other examples cited *supra* in note 90.

[210] In 2007, there were, for example, over 1100 active law journals in existence in the United States. Karen Dybis, *100 Best Law Reviews*, NAT'L JURIST, Feb. 2008, at 22.

[96] It would be impossible to fully explore such an expansive thesis in this limited space. This article attempts to provide no more than an aerial view of the dissonant-paradigm model's logical flow and overarching concepts, and strives to do so in terms familiar to a legal audience. Numerous opportunities exist for interested readers to flesh out this skeletal work and delve more deeply and subtly into the topic from both legal and extralegal perspectives.

[97] In conclusion, we reiterate our position that paradigmatic dissonance does not take sides in paradigm-shift controversies and, despite some of the examples cited here, should not be condemned out of hand as a backhanded effort to justify copyright infringement. To the contrary, it proposes a broader perspective that accommodates the viewpoints of both parties to a controversy and acknowledges the fact that new-paradigm business models and communities, despite the havoc they wreak on established industries, cultures, and legal systems, serve a vital economic function. In other words, we go no further than to hold that such pioneers should not be reflexively dismissed as criminals merely because their activities defy traditional standards.

[98] Paradigmatic dissonance brings to the table a new way for the law to conceptualize the processes that drive paradigm shifts, a framework within which lawmakers and adjudicators can better evaluate responses to complex and subtle social problems. It is the author's hope that this first modest effort be cultivated by many hands into a robust model that can better address the often-devastating business, social, and economic problems that accompany increasingly frequent technological revolutions.