

Technology, Competition, and Values

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Toward the end of his study *Diffusion of Innovations*, Everett Rogers surveys the distributive effects of new technologies.¹ He concludes that new technologies tend to increase the gap between haves and have-nots, as the wealthy and powerful gain advantages over those unable to afford technologies or products. Rodgers' study focuses on what is usually thought of as the cure for this process: the diffusion of innovation across society. However, Rodgers notes that due to the "windfall profits" often available to early adopters of technology, even the "diffusion of innovations usually decreases the degree of equality in a social system."²

Law can advance or retard the distributive effects of innovation and its diffusion in many ways. Certain technologies merit special monitoring because they promote the leveraging of economic advantage into social or cultural advantage without substantially increasing overall social welfare.³ Others threaten to undermine collective values and perceptions commonly used to evaluate technology.⁴ A final

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1. EVERETT ROGERS, *DIFFUSION OF INNOVATIONS* 429-34 (4th ed. 1995).

2. *Id.* at 430.

3. See, e.g., Posting of Frank Pasquale to PrawfsBlawg, *How Opal Got Ahead*, available at http://prawfsblawg.blogs.com/prawfsblawg/2006/05/how_opal_got_ah.html (May 9, 2006, 18:40 EST) (discussing the role of consulting services in creating position-enhancing information for application to elite colleges). I refer to such innovation as primarily re-allocative, rather than primarily generative, of social welfare.

4. See, e.g., Posting of Frank Pasquale to Law and Technology Theory, *Two Relationships Between Law and Technology*,

category threatens to do both, creating unfair or wasteful competition while blunting our capacity to recognize its morally dubious character.

The law's current emphasis on innovation is understandable to the extent that it improves social welfare. However, much technology is used not just simply to improve its user's life, but also to help its user gain advantage over others. Expensive sport utility vehicles (SUVs) have provoked a "highway arms race,"⁵ since the "extra weight of SUVs rearranges where deaths occur in crashes, transferring deaths from the SUVs to the cars."⁶ The net neutrality debate may be framed in similar, if less macabre, zero-sum terms: whose content gets where faster and at what cost?⁷ Tollbooths on the internet, which are designed to bring information from certain websites to users more quickly than from other websites, illustrate one answer to this question.⁸

<http://techtheory.blogspot.com/2006/12/two-relationships-between-technology.html> (Dec. 6, 2006, 9:04 EST) ("To bioethicists like Carl Elliott, using drugs to alleviate mild alienation may lead to self-betrayal, since intuitions about the worth or worthlessness of forms of life around us are constitutive of our identity.").

5. See Michelle J. White, *The "Arms Race" on American Roads: The Effect of Sport Utility Vehicles and Pickup Trucks on Traffic Safety*, 47 J.L. & ECON. 333, 333 (2004) (discussing the highway arms race).

6. KEITH BRADSHER, HIGH AND MIGHTY: THE DANGEROUS RISE OF THE SUV 170 (Public Affairs 2003). Regulators estimate SUVs cause 2000 extra deaths a year. *Id.* at 169. However, they contribute little or nothing to the safety of their occupants and greatly increase the danger of driving for non-SUV drivers. *Id.* at xv. Gregg Easterbrook describes some additional problems:

These vehicles have converted driving . . . into a nerve-wracking Darwinian battle. . . . [They] are designed to bring out the worst in their owners while simultaneously making them feel that they are invincible. . . . Traffic studies show that the typical SUV occupies as much road and parking space as 1.4 regular cars.

Gregg Easterbrook, *Axle of Evil*, THE NEW REPUBLIC, Jan. 20, 2003, at 27-28, available

at <http://www.tnr.com/doc.mhtml?i=20030120&s=easterbrook012003>; see also Posting of Frank Pasquale to Jurisdynamics, *SUVs, Ethanol and Distributive Justice*, <http://jurisdynamics.blogspot.com/2006/10/suvs-ethanol-and-distributive-justice.html> (Oct. 9, 2006, 14:24).

7. Posting of Frank Pasquale to Concurring Opinions, *Net Neutrality: Law, Money, and Culture*, http://www.concurringopinions.com/archives/2006/10/net_neutrality.html (Oct. 18, 2006, 15:58) (discussing the competitive dynamics that could be unleashed if access guarantees and broadband speed were commodified in certain ways).

8. Editorial, *Tollbooths on the Internet Highway*, N.Y. TIMES, Feb. 20,

At one point in time, we could perhaps count on a common, technologically unmediated response to these dilemmas. But mind-focused technological interventions such as therapeutic forgetting,⁹ some forms of cosmetic psychopharmacology,¹⁰ and new attention-enhancement drugs¹¹ may diminish our store of collective values and common perceptions.¹² They may promote competition in the new technological arms races, rather than social questioning of their fairness or the premises of new technologies.¹³ This process can raise deep problems for theorists, for it heralds the technological undermining of the very values upon which we rely to judge technology.

In this short piece I cannot propose solutions to the growing problem of technological arms races and the technological blunting of qualms about them. However, I can outline some of the dilemmas these developments create, and suggest direction for some policy responses. As new sectors of life become more game-like and competitive, methods of leveling the playing field developed in sports and college admissions might become more broadly relevant.¹⁴ Inequality impact statements may be as important to our cultural

2006, at A14.

9. See generally Adam J. Kolber, *Therapeutic Forgetting: The Legal and Ethical Implications of Memory Dampening*, 59 VAND. L. REV. 1561 (2006).

10. See generally Ashley Pettus, *Psychiatry by Prescription*, HARV. MAG., July-Aug. 2006, at 38 (discussing whether those who are receiving prescription drugs for mental health issues need them in all cases).

11. David Plotz, *Wake up Little Susie: Can We Sleep Less?*, SLATE, Mar. 7, 2003, <http://www.slate.com/id/2079113>.

12. See Kolber, *supra* note 9, at 1613-22.

13. The analysis here might be deemed part of the school identified as “managed technological skepticism” in a recent report on cognitive enhancement. See CONSORTIUM FOR SCI., POLICY & OUTCOMES AT ARIZ. STATE UNIV. AND ADVANCED CONCEPTS GROUP, SANDIA NAT’L LABS., POLICY IMPLICATIONS OF TECHNOLOGIES FOR COGNITIVE ENHANCEMENT (2006), available at <http://www.cspo.org/documents/FinalEnhancedCognitionReport.pdf> (“According to [the] standpoint [of Managed technological skepticism], quality of life arises more out of a society’s institutions than its technologies. Markets are viewed as profit-maximizing, not quality-of-life maximizing. The role of government is to enable the more effective pursuit of social goals such as equity and justice, rather than to promote technological advance as a proxy for such goals.”).

14. See, e.g., ROBERT K. FULLINWIDER & JUDITH LICHTENBERG, LEVELING THE PLAYING FIELD: JUSTICE, POLITICS AND COLLEGE ADMISSIONS 205-215 (2004) (summarizing their arguments of how to reform college admissions). See generally PAUL C. WEILER, LEVELING THE PLAYING FIELD: HOW THE LAW CAN MAKE SPORTS BETTER FOR FANS (2000).

environment as environmental impact statements are to the natural world. Finally, current laws regulating the use of controlled substances may need to be extended to precision chemical-based emotional enhancement, even if such pharmaceutical interventions are non-addictive. Technology should not be allowed to accelerate wasteful or unfair arms races or to undermine the very values we rely upon to evaluate it.

I. THE COMMODIFICATION OF ADVANTAGE

The relationship between technology and equality is complex. Two narratives now dominate, and two counter-narratives need a better hearing. The first dominant narrative is that a rising technological tide lifts all boats and leads to a convergence of living standards. Adam Smith tended to explain a convergence of living conditions as epiphenomenal of nobles' desire for expensive baubles: "the expensive vanity of the landlord made him willing to accept" gradual cession of power over individual lives in exchange for the accumulation of durable goods.¹⁵ Contemporary social commentators tend to emphasize the enormous gains in living standards of even the poorest Americans due to technological advance.¹⁶

Some current technological developments validate their faith in technology's power to democratize power and bring convergence in living standards. For example, critics of oligopolistic control of the United States' music market might frame the rise of file-sharing technology as a deeply egalitarian development.¹⁷ Anyone with an Internet connection can download content long locked up by an industry only recently stirred to address pricing concerns.¹⁸ Internet access to

15. Nathan Rosenberg, *Adam Smith, Consumer Tastes, and Economic Growth*, 76 J. POL. ECON. 361, 370 (1968) (quoting ADAM SMITH, *THE WEALTH OF NATIONS* 390 (Random House 1937) (1776)).

16. See, e.g., GREGG EASTERBROOK, *THE PROGRESS PARADOX* (2004) (emphasizing the objective improvement of living standards even during periods when subjective accounts of well-being appeared to stagnate or decline).

17. See Matthew Fagin et al., *Beyond Napster: Using Antitrust Law to Advance and Enhance Online Music Distribution*, 8 B.U. J. SCI. & TECH. L. 451, 457-58 (2002).

18. See, e.g., Posting of Mike to Techdirt, *Universal Pictures Tries to Beat Counterfeiters at Their Own Game In Russia*, <http://www.techdirt.com/articles/20060407/174244.shtml> (Apr. 7, 2006, 18:35).

information in general is an equalizing development; anyone can access a trove of medical studies previously available only to professionals.¹⁹

Yet new technologies can harden social stratification and prompt arms races that merely reallocate (rather than produce new) goods and services. Each of the technological examples given above has a mirror image that undermines its initial emancipatory promise. From the Secure Digital Music Initiative²⁰ to vertical integration of content and devices, virtually every new technology of “info-anarchy” has been matched by a technique of perfect control, though often at the cost of crippled and unpopular products.²¹ Market producers will have very promising competitive strategies at their disposal when they see social producers threatening their revenue streams.²² New anti-circumvention technology is a key part of that strategy.²³ Without a fair-use infrastructure for digital rights management²⁴ and pricing systems that take

EST); *see also* Randall Stross, *Want an iPhone? Beware the iHandcuffs*, N.Y. TIMES, Jan. 14, 2007, § 3, at 3; Posting of John Bennett to Against Monopoly, <http://www.againstmonopoly.org/index.php?limit=10&chunk=1&topic=IP+in+the+News> (Jan. 16, 2007, 07:14 EST) (discussing digital restrictions management and how it changed in South Korea “only after CD sales collapsed.”); Posting of Ketola to Afterdawn.com, *Too Expensive DVDs? Stop Buying Them!*, <http://www.afterdawn.com/news/archive/4117.cfm> (May 29, 2003, 16:32 EST) (discussing the Malaysian government’s response to DVD pricing).

19. Amanda Schaffer, *Open Access: Should Scientific Articles Be Available Online and Free to the Public?*, SLATE, Dec. 14, 2004, <http://slate.msn.com/id/2111023>; Rick Weiss, *A Fight for Free Access to Medical Research Online Plan Challenges Publishers’ Dominance*, WASH. POST, Aug. 5, 2003, at A1.

20. Secure Digital Music Initiative Homepage, <http://www.sdmi.org/> (last visited Mar. 3, 2007).

21. Posting of Tim Armstrong to Info/Law, *Zune Stinks? Blame Grokster*, <http://blogs.law.harvard.edu/infolaw/2006/11/26/zune-stinks-blame-grokster/> (Nov. 26, 2006, 10:49); *see also* Stross, *supra* note 18.

22. Lior Strahilevitz, *Wealth Without Markets?*, 116 YALE L.J. (forthcoming 2007) (manuscript at §§ IIA-IIC, available at <http://papers.ssrn.com/abstract=946479>) (reviewing YOCHAI BENKLER, *THE WEALTH OF NETWORKS: HOW SOCIAL PRODUCTION TRANSFORMS MARKETS AND FREEDOM* (2006)). Benkler’s book discusses how technology makes it easier for individuals not motivated by profit (deemed “social producers”) to complete projects once only motivated by the profit motive (done by “market producers”). Strahilevitz predicts that market producers will find incentives to draw social producers back to market settings. *Id.*

23. *See* Stross, *supra* note 18.

24. Dan L. Burk & Julie E. Cohen, *Fair Use Infrastructure for Copyright*

ability to pay seriously, the vast majority of consumers could lose out in the ensuing battle between oligopolists and hackers.²⁵

A similar tension is evident in the rise of technological arms races that appear to harden existing market-based hierarchies. Google and Amazon developed search technologies that created fantastic clearinghouses of information. Some claim the resulting comprehensive databases have given a variety of small players a chance at reaching consumers.²⁶ Rather than battling for shelf space in retail stores, rarely purchased books, music, or films can be kept in a near-infinite online inventory until they are accessed.

Yet the same dynamics that tilted the real-space playing field toward dominant players can also infiltrate these new online retailers. We have little idea of how pervasively “stealth marketing” affects results on Amazon’s front page, personalized recommendations, or other search results.²⁷ New battles for prominence in search results could lead old powerhouses to dominate this new battlefield.²⁸ Key advertising words are already being auctioned, and even unpaid or organic search results could become determined by who bids the most for search engine optimization technology.²⁹ Search engines

Management Systems 12-22 (Georgetown University Law Center 2000 Working Paper Series in Public Law and Legal Theory, Working Paper No. 23973, 2000), available at <http://ssrn.com/abstract=239731>.

25. See, e.g., David Needle, *Security Vendors Debate the Arms Race*, EARTHWEBNEWS, May 3, 2007, available at <http://news.earthweb.com/security/article.php/3675546> (“With the rise in attacks, from malware and phishing to assorted viruses and identity theft, it’s no wonder the market for security software and services is booming.”).

26. CHRIS ANDERSON, *THE LONG TAIL: WHY THE FUTURE OF BUSINESS IS SELLING LESS OF MORE* (2006).

27. Ellen P. Goodman, *Stealth Marketing and Editorial Integrity*, 85 TEX. L. REV. 83, 89 (2006) (citing Letter from Heather Hipsley, Acting Assoc. Dir. of Adver. Practices, FTC, to Gary Ruskin, Executive Dir., Commercial Alert (June 27, 2002), available at <http://www.commercialalert.org/PDFs/ftcresponse.pdf>). But see Eric Goldman, *Stealth Risks of Regulating Marketing*, 85 TEX. L. REV. SEE ALSO 11, 12-15 (2006), <http://www.texaslrev.com/seealso/volume-85/issue-1/stealth-risks-of-stealth-marketing.html>.

28. See Goodman, *supra* note 27, at 100-103.

29. Frank Pasquale, *Rankings, Reductionism, and Responsibility*, 54 CLEV. ST. L. REV. 115, 123-24 (2006); Kevin Lee, *The Search Tax: Are Search Engines Leeches?*, CLICKZ, Jan. 26, 2007, http://clickz.com/showPage.html?page=clickz_print&id=3624697; see also

themselves create great social welfare.³⁰ Yet, much of the onslaught of follow-on technology for manipulating results seems designed primarily to channel that welfare to those best able to bid for it.³¹

II. LIMITS OF THE INCENTIVES V. ACCESS TRADE-OFF

When IP-intensive technology leads to inequality, or when inequality prevents equal access to technology, it is often justified by what I'll call the second dominant narrative of technology and equality: that we must restrict access to intellectual property now to create incentives for its future creation.³² This debate over the incentives versus access meme is so dominant in the IP literature that scholars rarely focus on a darker counternarrative: namely, that sometimes access restrictions appear to be less about creating incentives for future innovation than they are about preserving relative advantage. Consider this account of price discrimination in railways:

It is not because of the few thousand francs which would have to be spent to put a roof over the third-class carriages or to upholster the third-class seats that some company or other has open carriages with wooden benches. . . . What the company is trying to do is to prevent the passengers who can pay the second-class fare from travelling third class; it hits the poor, not because it wants to hurt them, but to frighten the rich And it is again for the same reason that the companies, having proved almost cruel to third-class passengers and mean to the second-class ones, become lavish in dealing with first-class passengers. Having refused the poor what is necessary, they give the rich what is superfluous.³³

Frank Pasquale, *The Law and Economics of Information Overload Externalities*, VAND. L. REV. (forthcoming 2007) (manuscript at § IVA) available at <http://ssrn.com/abstract=888410>.

30. See e.g., Weiss, *supra* note 19.

31. See e.g., Pasquale, *supra* note 29, at 123-24.

32. Peter S. Menell, *The Property Rights Movement's Embrace of Intellectual Property: True Love or Doomed Relationship?*, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=965083#PaperDownload (last visited May 10, 2007) ("The principal economic justification for intellectual property derives from a broader economic problem: the inability of a competitive market to support an efficient level of innovation in some areas of technological innovation—particularly those in which research and development (R&D) is costly, innovation is easily perceived, and imitation is relatively inexpensive and can occur rapidly. . . . Most firms would not invest in developing new technologies if rivals could enter the market and dissipate the profit before R&D costs adjusted for attendant risks could be recovered.").

33. JULES DUPUIT, ON TOLLS AND TRANSPORT CHARGES 23 (International Economic Papers No. 11, Elizabeth Henderson trans., 1962), *quoted in* James

In other words, it is in the company's interests to prevent the diffusion of technologies of comfort and repose. It profits from a scramble for better accommodations.

This may seem like a rather exceptional situation, but society is full of examples of positional goods, where the problem may be even more acute.³⁴ For example, consider the possible development of a height-enhancing pill.³⁵ Society does not have much interest in a general boost in height, but many individuals do have a personal interest in being taller. Their interest is only in their position relative to others, not in achieving some platonic ideal of height. If such a pill were developed, it would not change the distribution of height in society in a productive way, but it would permit the wealthy to escape the stigma of being in the lowest height percentiles. That process reinforces the stigma (or at least practical difficulty) of being at the very bottom, as extraordinary shortness becomes a badge not merely of genetic misfortune, but also of financial deficiency. We could imagine similar dynamics developing in the case of other cosmetic interventions.³⁶ Indeed, as Sered and Fernandopulle argue in

Boyle, *Cruel, Mean, or Lavish? Economic Analysis, Price Discrimination and Digital Intellectual Property*, 53 VAND. L. REV. 2007, 2007 (2000). Cf. BARBARA EHRENREICH, *FEAR OF FALLING: THE INNER LIFE OF THE AMERICAN MIDDLE CLASS* 251-63 (1989) (arguing for a revival of conscience and responsibility in the middle class and a rediscovery of the lower class).

34. See Posting of Frank Pasquale to madisonian.net, *A Sketch of My Paper on Primarily Position-Enhancing Information*, <http://madisonian.net/archives/2006/10/07/a-sketch-of-my-paper-on-ppei/> (Oct. 7, 2006) (defining and discussing positional goods); see also Harry Brighouse & Adam Swift, *Equality, Priority, and Positional Goods*, 116 ETHICS 471 (2006) (“[Positional goods] are goods with the property that one’s relative place in the distribution of the good affects one’s absolute position with respect to its value. The very fact that one is worse off than others with respect to a positional good means that one is worse off, in some respect, than one would be if that good were distributed equally. So while it might indeed be perverse to advocate leveling down all things considered, leveling down with respect to positional goods benefits absolutely, in some respect, those who would otherwise have less than others.”); Robert H. Frank, *Positional Externalities Cause Large and Preventable Welfare Losses*, 95 AM. ECON. REV. 137, 137 (2005).

35. See Dov Fox, *Human Growth Hormone and the Measure of Man*, THE NEW ATLANTIS, Fall 2004/Winter 2005, at 75, available at <http://www.thenewatlantis.com/archive/7/fox.htm>.

36. See Posting of Frank Pasquale to PrawfsBlawg, *The Commodification of Caste*, http://prawfsblawg.blogspot.com/prawfsblawg/2006/05/the_commodifica.html (May 14, 2006, 07:38 EST).

The Uninsured in America,

The current American system in which health care is linked to employment is creating a caste of the chronically ill, infirm, and marginally employed. . . . Sick, lacking reliable health care, and locked in employment situations . . . that do not offer medical benefits, they find it increasingly difficult to escape. . . . Illness itself constitutes a physical marker: rotten teeth, chronic coughs, bad skin, a limp, . . . – all of these signal caste in basic ways.³⁷

Thus, ill health is not simply the result of a poor employment situation, but also often its cause. Many employers who offer health insurance will examine applicants' physical markers indicating lack of health and dental care in the past, and refuse to hire applicants based on unfair presumptions about these markers.³⁸ When badges of caste become commodified, we have to start thinking about legal intervention to stop self-reinforcing stratification.

New educational technologies can lead to similar dynamics. Academic doping has become a real problem on many campuses, where students without Attention Deficit Hyperactivity Disorder (ADHD) use Ritalin, Strattera, or other pharmaceuticals used to treat ADHD to get an "edge."³⁹ Those wary of caffeine-generated jitters may soon start using ProVigil to purchase consequence-free all-nighters.⁴⁰ Test-preparation technologies are also creating inequalities; students able to afford test-preparation courses, such as those offered by Kaplan, have a definite advantage over those who do not have access to such courses.⁴¹ The former have the benefit of the

37. SUSAN STARR SERED & RUSHIKA FERNANDOPULLE, *UNINSURED IN AMERICA: LIFE AND DEATH IN THE LAND OF OPPORTUNITY* (2005).

38. *Id.* at 15 ("Because health care is so tightly linked to employment, once an individual or a family is caught in the death spiral, it is nearly impossible to find a way out. Unemployable or marginally employed because of poor health, members of this new "untouchable caste" are denied consistent access to medical care. Sick, lacking reliable health care, and locked in employment situations (especially in the service sector—the same sector to which India's untouchables are consigned) that do not offer medical benefits, they find it increasingly difficult to escape.").

39. LAWRENCE H. DILLER, *RUNNING ON RITALIN* 63 (1998); FRANCIS FUKUYAMA, *OUR POSTHUMAN FUTURE: CONSEQUENCES OF THE BITECHNOLOGY REVOLUTION* (2002); James Butcher, *Cognitive Enhancement Raises Ethical Concerns*, 362(9378) *LANCET*, 132-133 (2003); Lawrence Diller, *The Run on Ritalin: Attention Deficit Disorder and Simulant Treatment in the 1990s*, *HASTING CENTER REPORT* 26 (1996); Danielle C. Turner & Barbara J. Sahakian, *Neuroethics of Cognitive Enhancement*, 1 *BIOsocieties* 113 (2006).

40. GREG CRITSER, *GENERATION RX: HOW PRESCRIPTION DRUGS ARE ALTERING AMERICAN LIVES, MINDS, AND BODIES* (2005).

41. NICHOLAS LEMANN, *THE BIG TEST: THE SECRET HISTORY OF THE*

collective insights of hundreds of test takers who report back on small portions of the test to central headquarters.⁴²

Perhaps most discouragingly, efforts to regulate such advantages have failed entirely in at least one context. After the South Korean parliament banned “cram schools” in the early 1990s due to their inequality-enhancing effect, that country’s Supreme Court intervened to declare this tutoring a constitutional right.⁴³ Part of the court’s reasoning focused on global competitiveness; it assumed that any country that unilaterally decided to limit these forms of educational competition would effectively “shoot itself in the foot” in the global race for capital investment.⁴⁴

Admittedly, egalitarian programs have to be conditioned by awareness of the multiple levels of competition (both temporally and spatially) of which any given competition is part.⁴⁵ For example, in South Korea, an attempt to level the playing field within the country, at a particular time, was deemed by its Supreme Court to be naïve, given its effects on long-term competition by South Koreans in the global economy. Therefore, my contention here is not that the law should cripple the development of these new technologies; most have many

AMERICAN MERITOCRACY (1999); Malcolm Gladwell, *What Stanley Kaplan Taught Us About the SAT*, NEW YORKER, Dec. 17, 2001, at 86, available at http://www.gladwell.com/2001/2001_12_17_a_kaplan.htm.

42. LEMANN, *supra* note 41.

43. *Extracurricular lesson ban case*, 12-1 KCCR 427, 98Hun-Ka16, 98Hun-Ma429 (consolidated) (April 27, 2000), English translation in CONSTITUTIONAL COURT OF KOREA, DECISIONS OF THE KOREAN CONSTITUTIONAL COURT (2000) 1, 3 (2002), available at http://www.ccourt.go.kr/home/english/download/decision_2001.pdf (“The regulation of private education in Article 3 goes beyond the private dimension of substantially infringing on the basic rights of parents and children in private education There is a question as [to] the effectiveness of Article 3 in the accomplishment of the legislative purpose, [on the] one hand, and Article 3 produces substantial restrictive impact on basic rights and substantial disadvantages in the accomplishment of a cultural state, on the other. Therefore, Article 3 departs widely from a reasonable relationship of proportionality between the public interest obtained through the restriction and the restrictive impact caused by the restriction, and therefore violates the balance of interests.”)

44. *Id.* (“Cultural poverty in this age of unlimited competition among states for survival will ultimately lead to social and economic backwardness.”).

45. See FRANCIS FUKUYAMA, OUR POSTHUMAN FUTURE (2002) (discussing perils of unilateral decisions to “disarm” in any particular technological context).

constructive uses. Rather, it is to argue that inequality-enhancement should be a quality of technology salient enough to lead to some systematic evaluation of its effects. We see a generalized solicitude for the environment in statutes like the United States' NEPA.⁴⁶ As any American administrative law professor can attest, there are many "impact statements" that agencies must fill out to assess the effects of their actions on small businesses, paperwork, and so on.⁴⁷ Perhaps the law should require similar analysis and disclosure of new technological impact on inequality.

III. AGAINST COMPLACENT CONTINUUMISM

Technophiles and transhumanists are sure to challenge any suggestion of forced disclosure. One of the primary rhetorical tropes of opponents of regulation is to put all manner of social change on a continuum and say "See, we've been doing X for years, this new technology just lets us do it more quickly."

46. National Environmental Policy Act, 42 U.S.C. §§ 4321-4370f (2000). Moreover, certain agencies have to figure out how some new technologies will affect the environment. *See, e.g.*, Nanotechnology Law, *When Nano Turns Washing Machine Into Pesticide*, <http://nanotechlaw.blogspot.com/2006/12/when-nano-turns-washing-machine-into.html> (Dec. 10, 2006, 07:38 EST) (discussing silver-based nanotechnology in the Samsung C1235A washing machine, which EPA decided to regulate as a pesticide).

47. *See* Daniel A. Farber, *Bringing Environmental Assessment into the Digital Age* (UC Berkeley Public Law Research Paper No. 877625, 2006), available at <http://ssrn.com/abstract=877625>. *But see* Mark Seidenfeld, *A Table of Requirements for Federal Administrative Rulemaking*, 27 FLA. ST. U. L. REV. 533, 533-34 (arguing that too many informational requirements have been imposed on the regulatory process). Seidenfeld catalogs the waves of informational requirements; inequality impact statements could fit into any of the following:

The early 1970s, an era that introduced statutorily mandated review of agency action to ensure adequate assessment of environmental impacts, together with judicial demands for adequately reasoned decisions, began a transformation of the notice and comment process into one requiring extensive documentation of the information on which the agency relies and detailed explanation of the choices the agency made in deciding to adopt a rule. The late 1970s through the 1980s marked the White House's commencement of its own demands for rigorous regulatory impact analyses—potentially mammoth studies that attempt not only to identify but also to quantify the costs and benefits of a rule. Not to be outdone, Congress increased the statutory demands on agencies' promulgation of rules, requiring analyses of impacts on such entities as small businesses and state, local and tribal governments. And the President continues to impose yet additional considerations by executive orders.

Id.

For example, genetic engineering is framed as just a faster version of selective breeding (in the agricultural context) or assortative mating (in the human context).⁴⁸ Cognitive enhancement is viewed as a more efficient version of education: “Much of what we learn in school is ‘mental software’ for managing various cognitive domains: mathematics, categories of concepts, language, and problem solving in particular subjects.”⁴⁹ Along these lines, one might claim that the equality-eroding effects of the aforementioned technologies are trivial in comparison with social sources of inequality. We can deem this line of thought “complacent continuumism” (CC). On the CC view, technology is just one more way of accomplishing ends that would once have been attained via slower or less efficient cultural or social methods.

However, the CC view is based on analogies that fall apart under scrutiny. Technology is often far more sudden, effective, and commodifiable than social or cultural methods of accomplishing ends. In the case of cognitive enhancement, many educational institutions have made a point of assuring some kind of equality of access.⁵⁰ Have we any guarantees that “smart pills” would come with similar assurances? Moreover, educational gains in ability come very slowly in comparison with potential chemical interventions. There are more opportunities to regulate, more “pressure points,” and more cultural traditions of access, in the case of educational institutions, than in the case of their potential chemical or genetic enhancers.

Indeed, any hope of an egalitarian program depends on some coherent and durable store of human values capable of guiding our regulation of technology. However, self-manipulation via technology may itself affect those values.⁵¹

48. Assortative mating refers to the tendency of individuals to marry other individuals of a similar socioeconomic status and IQ. See MICKEY KAUS, *THE END OF EQUALITY* (1992); Kate Zernike, *Why Are There So Many Single Americans*, N.Y. TIMES, Jan. 21, 2007, § 4, at 1.

49. Nick Bostrom & Anders Sandberg, *Cognitive Enhancement: Methods, Ethics, Regulatory Challenges*, SCI. AND ENGINEERING ETHICS (forthcoming 2007) (manuscript at 3), available at <http://www.nickbostrom.com/cognitive.pdf>.

50. See FULLINWIDER & LICHTENBERG, *supra* note 14 (on higher education); Karen W. Arenson, *Harvard Extends Breaks for Low-Income Parents*, N.Y. TIMES, Mar. 31, 2006, at A10.

51. Admittedly, technology can give us a better understanding of the

As Joel Garreau has argued, human beings are not merely the authors of technological change, but also its objects, to an extent barely imaginable in earlier times.⁵² The convergence of genetics, robotics, information technology, and nanotechnology (GRIN) has radically altered our sense of the possible in the realm of self-manipulation.

Consider the potential for cosmetic psychopharmacology to dampen or reverse negative emotional states.⁵³ On a purely individualist and hedonist account of well-being, we should welcome such a development—surely no more effective method of attaining subjective satisfaction could be designed.⁵⁴ But if we share Martha Nussbaum's account of emotions as judgments of value, a great deal may be lost.⁵⁵ The technology

world and ourselves. Technology can play a crucial role in revealing to us the partiality or error of our assumptions. The telescope revealed the shortcomings of a geocentric worldview, occasioning all manner of responsive revisions in elite and popular thought. Philosopher Charles Taylor would call such breakthroughs, and many of their social repercussions, “epistemic gains,” which permit us a clearer and better view of the world and ourselves. CHARLES TAYLOR, *PHILOSOPHICAL ARGUMENTS* 17-18 (1995).

52. JOEL GARREAU, *RADICAL EVOLUTION: THE PROMISE AND PERIL OF ENHANCING OUR MINDS, OUR BODIES – AND WHAT IT MEANS TO BE HUMAN* (2005).

53. See RONALD DWORIN, *ARTIFICIAL HAPPINESS: THE DARK SIDE OF THE NEW HAPPY CLASS* 17 (2006) (“Since the mind sets limits on behavior, small changes in the mind may have serious social consequences. When a man silences his misery through Artificial Happiness, he also silences his conscience.”). See also MARY EBERSTADT, *HOME-ALONE AMERICA: THE HIDDEN TOLL OF DAY CARE, BEHAVIORAL DRUGS, AND OTHER PARENT SUBSTITUTES* 68 (2004) (“[A] great deal of what was yesterday judged normal behavior is now pathologized and stigmatized in unprecedented degree.”). I focus on the term “cosmetic” to distinguish between the therapeutic alleviation of abnormal states (such as depression), and the enhancement of emotion to the point of feeling “better than well.” So “cosmetic” is meant to designate, not the triviality or superficiality of the intervention, but rather, how different it is from classic methods of restoring health to a norm.

54. Wayne Sumner, a University of Toronto philosopher, has stated that “[t]ime and philosophical fashion have not been kind to hedonism . . . Although hedonistic theories of various sorts flourished for three centuries or so in the congenial empiricist habitat, they have all but disappeared from the scene.” Will Wilkinson, *In Pursuit of Happiness Research: Is It Reliable? What Does It Imply for Policy?*, POLICY ANALYSIS, Apr. 11, 2007, at 1, available at <http://www.cato.org/pubs/pas/pa590.pdf>.

55. See MARTHA C. NUSSBAUM, *UPHEAVALS OF THOUGHT: THE INTELLIGENCE OF EMOTIONS* (2001); Frank Pasquale, *Two Concepts of Immortality: Reframing Public Debate on Stem-Cell Research*, 14 *YALE J.L. & HUMAN.* 73, 110 (2002) (“Ideally, we aim not merely to maximize our own pleasure, but to lead a balanced life of self-fulfillment and obligation to work, family, friends, and civil society. When psychopharmacology helps us

may well have “extended human capacity,” but for what end? More importantly, will it diminish the possibility of our rightly discerning our ends?

To bioethicist Carl Elliott, using drugs to alleviate mild alienation may lead to self-betrayal, since intuitions about the worth or worthlessness of forms of life around us are constitutive of our identity.⁵⁶ Peter Kramer counters that current drugs do not dispatch such intuitions, but only relieve the negative affect they generate in those who hold them.⁵⁷ This response does not begin to address the potential social concerns raised by future technological interventions. When designer drugs become focused not merely on the alleviation of depression, but on the destruction of all manner of negative mental states, their users may well become incapable of feeling the force of reasons that might once have led them to promote or accept the regulation of such drugs.

The difficult question for regulators of various performance-enhancing neuropharmacological interventions is whether they have the potential to blunt users’ perceptions of the deep changes they wreak in users themselves. Substance addiction has been modeled as a case of “increasing marginal utility,” in which the more one uses, the more one wants. New neural performance enhancement addiction might work in a far subtler way—by blunting the appeal of alternate sources of value and satisfaction.

The same competitive dynamics described above in the case of education, salience (in search results), and competence, may lead to the commodification of mood in the modern workplace. Management consultants and career counselors value positivity, team players, and “people persons.” Those who do not fit this increasingly Procrustean mold are less likely to be tolerated in the workforce when quick and easy

constructively connect to these realms, it is to be applauded. To the extent that it enables us to endure or ignore disconnection, it is suspect.”).

56. Carl Elliott, *Medicate Your Dissent*, <http://www.tc.umn.edu/~ellio023/medicate.htm> (last visited Dec. 14, 2006).

57. PETER KRAMER, LISTENING TO PROZAC (1993); PETER D. KRAMER, AGAINST DEPRESSION (2005) (making “an insistent argument that depression is a disease, one we would do well to oppose wholeheartedly.”); David DeGrazia, *Prozac, Enhancement, and Self-Creation*, 30 HASTINGS CTR. REPORT no. 2, at 35 (2000) (arguing that new psychotropic drugs promote autonomy by widening the range of projects one can conceivably take on).

pharmaceutical interventions could “cure” them.⁵⁸ As Nikolas Rose notes, new techniques of self-manipulation create ever more pressure toward responsabilization, in which individuals are held responsible for aspects of the self that in the past were not deemed under their control.⁵⁹ Today, parents who “insist” on having children with Down’s Syndrome are greeted with increasing incomprehension; perhaps tomorrow will see increasing intolerance of any mood profiles that fail to conduce to maximum productivity.

CONCLUSION

The great techno-skeptics Jacques Ellul and Langdon Winner have argued that technological change has its own logic, bending to its ends the legal structures originally designed to constrain it.⁶⁰ Ellul’s writing style is often opaque, and it is not clear how technology has the *agency* necessary to create the effects he describes.⁶¹ In this brief essay, I have attempted to fill this causal aporia by tracing interrelationships

58. Compare Lindsey A. Vacco, Comment, *Preimplantation Genetic Diagnosis: From Preventing Genetic Disease to Customizing Children. Can the Technology be Regulated Based on the Parents’ Intent?*, 49 ST. LOUIS L.J. 1181 (2005), with William Saletan, *Better than Sex: The growing practice of embryo eugenics*, SLATE, Sept. 16, 2006, <http://www.slate.com/id/2149772/> (“P.G.D. prevents hellish diseases. In those cases, you have to say yes. And once you start saying yes, it’s hard to say no. That’s why they call it a slippery slope.”). In the case of preimplantation genetic diagnosis, many worry that society will become less tolerant of those disabled by conditions that their parents could have selected against either before or at an early stage of pregnancy. In the case of mood-alteration, those with difficult or just shy personalities may not be tolerated as well in the future as society begins to expect such individuals to take drugs to “cure” their diffidence. Of course, we should welcome interventions that curb genuinely abusive behavior. See, e.g., ROBERT I. SUTTON, *THE NO ASSHOLE RULE: BUILDING A CIVILIZED WORKPLACE AND SURVIVING ONE THAT ISN’T* (2007) (best-selling business book arguing for “zero tolerance” of cruelty in the workplace).

59. See NIKOLAS ROSE, *THE POLITICS OF LIFE ITSELF: BIOMEDICINE, POWER, AND SUBJECTIVITY IN THE TWENTY-FIRST CENTURY* 134 (2007).

60. See JACQUES ELLUL, *THE TECHNOLOGICAL SOCIETY* (1964); LANGDON WINNER, *AUTONOMOUS TECHNOLOGY: TECHNICS-OUT-OF-CONTROL AS A THEME IN POLITICAL THOUGHT* (1977)

61. For a definition of agency, see CHARLES TAYLOR, *PHILOSOPHICAL PAPERS VOL. I: HUMAN AGENCY AND LANGUAGE* 15-16 (“What is it that we attribute to ourselves as human agents which we would not attribute to animals? . . . [W]hat is distinctively human is the power to *evaluate* our desires, to regard some as desirable and others as undesirable.”). Given this sense of the nature of agency and free will, it is difficult to understand how technology can possess it.

among technology, competition, commodification, and values in an array of human endeavors.

Technology in itself cannot force individuals to do anything. However, structures of competition and inequality can raise the price of failure to adopt technology such that acquiescence is all but inevitable.⁶² Moreover, as technology promises to cure the stress and anxiety attendant on recognition of such realities, it may lull us into an acceptance of “realities” that our better selves would abjure. Theories of law and technology must address these situations in the future.

62. See ALAN WERTHEIMER, *COERCION* (1987).