

Architectural Regulation and the Evolution of Social Norms

By Lee Tien[†]

ABSTRACT

Current legal scholarship on architectural regulation of software focuses on how its lack of transparency may frustrate public accountability or, by the same token, enhance its effectiveness. This paper argues that architectural regulation poses deeper dangers to the very concept of law. Ordinarily, we think of law as rules that a person thinks about when deciding how to act, and which human beings must decide to enforce. Law as architecture operates differently: instead of affecting our calculus of choice, it structures the very conditions of action, such as social settings and the resources available in those settings. Thus, architectural regulation operates surreptitiously and may not even be perceived as governmental action. Architectural regulation thus allows government to shape our actions without our perceiving that our experience has been deliberately shaped, engendering a loss of moral agency. Because our norms are often the product of social experience with and discourse about new technologies, architectural regulation poses the danger that government can distort the evolution of constitutional norms like privacy.

I. INTRODUCTION

We normally think of law in terms of textual rules. The ubiquity and malleability of computer software, however, has led scholars like Joel Reidenberg and Larry Lessig to coin and popularize another concept, that of architectural regulation.¹ These scholars argue that software, or computer “code”, regulates human action as do codes of law.² As Lessig puts it, software “constrain[s] some behavior (for example, electronic eavesdropping) by making other behavior possible (encryption).”³

Code and law regulate our behavior in different ways; while the law typically regulates behavior after the fact, code or architecture regulates “more directly,” as “present constraints.”⁴ These differences are important, as a practical matter, to the “legal engineering” choice of how to regulate different kinds of activities.

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¹ See, e.g., Joel Reidenberg, *Lex Informatica: The Formulation of Information Policy Rules Through Technology*, 76 TEX. L. REV. 553 (1998); LAWRENCE LESSIG, CODE AND OTHER LAWS OF CYBERSPACE (1999) [hereinafter “CODE”].

² Reidenberg, *supra* note 1, at 554-555 (“[F]or network environments and the Information Society, however, law and government regulation are not the only source of rule-making. Technological capabilities and system design choices impose rules on participants.”) (citation omitted).

³ Lawrence Lessig, *The Law of the Horse: What Cyberlaw Might Teach*, 113 HARV. L. REV. 501, 510 (1999).

⁴ CODE, *supra* note 1, at 237.

But code-as-law – and architectural regulation more generally – also raises normative issues that transcend both technology and regulatory craftsmanship. Lessig argues that architectural regulation poses a transparency problem, warning that government regulation in the architectural mode can “hide its pedigree.”⁵ He thus contends that “[w]hat a code regulation does should be at least as [apparent] as what a legal regulation does.”⁶ Neal Katyal, on the other hand, argues that the transparency problem is overstated and recommends more government use of architectural regulation.⁷

Lessig is right that architectural regulation poses a serious transparency problem, especially where privacy and “high-tech” architectures are concerned. I suggest, however, that architectural regulation has more transparency problems than Lessig identifies. His concern – that architectural regulation can hide its pedigree – is indeed significant. But it is not that different from the transparency problem posed by many ordinary legal rules. Much law in the modern administrative state is obscure. Agricultural subsidies and tax breaks might as well be invisible to the average person. Indeed, one of Lessig’s best examples of regulatory ball-hiding is about how the federal government required federally funded clinics to tell patients that abortion is “not . . . an appropriate method of family planning,” thus exploiting the fact that patients would be “unlikely to hear the doctor’s statement as political broadcast from the government.”⁸

This essay focuses on an additional aspect of architecture’s transparency problem: that because architectural regulation regulates settings or equipment in order to regulate behavior, it changes the nature of rule-presentation and rule-enforcement in ways that are likely to decrease publicity or visibility. This might be acceptable if all we care about is the effectiveness of social control, but not if we care about law as a public process.

Furthermore, as in the old saying “freedom of the press belongs to those who own them” suggests, our rights often depend on resources. Architectural regulation could shape or foreclose social experience with resources used to exercise or protect rights, thus distorting the evolution of both social norms and the rights tied to those norms. For example, a proposal to “outlaw encryption methods that law enforcement cannot decipher”⁹ could deprive society of experience with a privacy-enhancing technology.¹⁰

We should therefore be extremely careful about the use of architectural regulation. Stripped of its high-tech trappings, architectural regulation is simply government action directed at the real-world conditions of human activity, tangible or intangible, which in turn affects what people can or are likely to do.

Beyond software and computers, architectural regulation thus highlights the relationship between resources, rights and norms. In the short run, government action directed at resources can affect the concrete exercise of rights. In the long run, such government action can affect or distort the evolution of the social norms that give life to

⁵ *Id.* at 98.

⁶ *Id.* at 224.

⁷ Neal Katyal, *Criminal Law in Cyberspace*, 149 U. PA. L. REV. 1003, 1105-1106 (2001); *id.* at 1104 (“It is at least debatable as to whether government regulation of software and hardware would be less transparent than these realspace regulations.”) (noting lack of transparency associated with “informants, undercover cops, and many secret law enforcement techniques”).

⁸ CODE, *supra* note 1, at 96-97.

⁹ Katyal, *supra* note 7, at 1049 (citation omitted).

¹⁰ See generally NATIONAL RESEARCH COUNCIL, COMPUTER SCIENCE AND TELECOMMUNICATIONS BOARD, CRYPTOGRAPHY’S ROLE IN SECURING THE INFORMATION SOCIETY 167-215, 265-273 (1996) (discussing government efforts to promote “law-enforcement-friendly” encryption) [hereinafter “CRISIS Report”].

those rights.

II. COMPARING LEGAL RULES AND ARCHITECTURAL REGULATION

In this section, I argue that architectural regulation, provisionally defined as regulation intended to influence acts by shaping, structuring, or reconfiguring the practical conditions or preconditions of acts, challenges the traditional view of law as rules.

Architecture inhabits the realm of context, not text: it is embedded in settings or equipment, and can affect us directly without our being aware of what it does. As a result, architectural regulation exploits asymmetries in the social distribution of knowledge. Its effects are normatively significant because we often are not aware that architecture is deliberately being used to constrain our action. And even if we are aware of it, we might not understand how we are being constrained.

A. Differentiating Legal Rules and Architectural Regulation

We generally think of law in terms of rules and of “the law” as a system of rules.¹¹ Law as social control is often described in terms of rules¹² that state primary norms of conduct. We apply sanctions to those who breach these norms¹³ in hopes of inducing compliance.¹⁴ As sociologist Howard Becker puts it, “[a]ll social groups make rules and attempt, at some times and under some circumstances, to enforce them. Social rules define situations and the kind of behavior appropriate to them, specifying some actions as ‘right’ and forbidding others as ‘wrong.’”¹⁵

One difference between legal and other social rules or norms lies in the administration of sanctions, *i.e.*, how rules are enforced.¹⁶ Social norms are informally enforced through sanctions like social disapproval and motivated by the desire for esteem or to be perceived as a good potential transaction partner; legal rules are formally enforced.¹⁷ On this view, both legal rules and social norms are backed by independently applied sanctions.

In short, legal rules are typically backed by sanctions and aimed at an actor’s

¹¹See, e.g., H.L.A. Hart, *Definition and Theory in Jurisprudence*, 70 LAW Q. REV. 37, 42–49 (1954) (using as a metaphor the rules of a game).

¹²ROBERT ELLICKSON, *ORDER WITHOUT LAW: HOW NEIGHBORS SETTLE DISPUTES* 124 (1991) (describing social control in terms of different orders of rules and sanctions).

¹³Ellickson uses the existence of “nonhierarchical systems of social control” to argue that social order often arises “spontaneously.” *Id.* at 4. But his notion of spontaneous social order is directed primarily against legal centralism, the presumption that the law is the center of social order. His characterization of social control remains grounded in “rules of normatively appropriate human behavior” that are “enforced through sanctions.” *Id.* at 124.

¹⁴ELLICKSON, *supra* note 12, at 124. (Alternatively, a rule that carries no penalty for its breach may not really be a rule at all, at least not a legal rule).

¹⁵HOWARD BECKER, *OUTSIDERS: STUDIES IN THE SOCIOLOGY OF DEVIANCE* 1 (1997 ed.); *id.* at 129-134 (using legislation as a model to analyze the career of both formal and informal rules).

¹⁶ELLICKSON, *supra* note 12, at 130-131 (typing sanctions); see also ERVING GOFFMAN, *RELATIONS IN PUBLIC* 95 (1971) (“[a] social norm is that kind of guide for action which is supported by sanctions”) (classifying sanctions as organized/formal or diffuse/informal).

¹⁷See, e.g., Richard McAdams, *The Origin, Development, and Regulation of Norms*, 96 MICH. L. REV. 338 (1997) (developing esteem theory); Daniel Gilman, *Of Fruitcakes and Patriot Games*, 90 GEO. L. J. 2387 (2002) (reviewing ERIC POSNER, *LAW AND SOCIAL NORMS* (2002) (arguing that compliance with social norms signals that one is a good cooperative partner)).

decision to act. For economists and utilitarians, legal rules influence behavior by changing the behavior's "price," *i.e.*, by decreasing its expected value to the potential wrongdoer. For those who emphasize law's expressive function, legal rules also signify our belief in, and commitment to, particular norms of conduct.¹⁸ Either way, the point is to shape the actor's preferences among available options.

Architectural regulation does not work this way. Consider the following situation: in a drug-infested neighborhood, dealers use public coin telephones so that their calls cannot be traced to their home phones. The coin phones are then removed to stop such calls. Such regulation is not fully captured by the model of sanction-backed or duty-declaring rules. Neither sanctions nor duties are imposed upon the drug dealers by such action. They remain "free" to act, but their conditions of action have been changed through the elimination of a resource (phones) with a design feature that facilitated drug dealing (untraceability).¹⁹

While both architectural and legal regulation are intended to affect people's actions, the typical sanction-backed rule targets the actor's decision whether to act. The legal rule is an attempt to alter preferences. The implicit vision of the actor here is as one who chooses.

Architectural regulation, by contrast, structures the conditions of action, *e.g.*, social settings and/or the resources available in those settings. It thus regulates the behavior that occurs in those settings or that utilizes those resources. In my payphone example, the option of making anonymous phone calls was simply removed. Choices, not preferences, were targeted. The implicit vision of the actor here is as one who can be manipulated.

Architectural regulation is also enforced differently than sanction-backed rules. It creates a present constraint on action: no human being or social institution need impose a cost after the fact. As Lessig puts it: "think of the constraints blocking your access to the air-conditioned home of a neighbor who is gone for the weekend. Law constrains you – if you break in, you will be trespassing. Norms constrain you as well – it is unneighborly to break into your neighbor's house. Both of these constrains, however, would be imposed on you *after* you broke into the house. They are the prices you might have to pay later. The architectural constraint is the lock on the door – it blocks you *as you are trying to enter* the house."²⁰

In addition, the regulatory target need not be aware that there has been a decision to constrain his or her actions.²¹ While the deterrent effect of a sanction-backed rule generally requires some knowledge about the rule, and may be enhanced by the target's awareness, architectural regulation may be more effective when it is not perceived as a deliberate constraint. Most parents know that an effective way to keep a small child from playing with a noisy toy is to secretly remove it.

Given the importance of social settings, resources, and equipment to people's everyday behavior, it is clear that architectural regulation as I have defined it can take many forms. The criminal justice literature has long considered these possibilities under

¹⁸ See Ted Sampsell-Jones, *Culture and Contempt: The Limitations of Expressive Criminal Law*, 27 SEATTLE U. L. REV. 133, 136-137 (2003) (showing how drug control laws have been championed as ways of expressing society's disapproval of drug use).

¹⁹ For an extended discussion of architectural crime-control techniques, see Neal Katyal, *Architecture as Crime Control*, 111 YALE L. J. 1039 (2002).

²⁰ CODE, *supra* note 1, at 237.

²¹ Katyal *supra* note 19, at 1072 (noting that "crime-control strategies based on legal sanctions or public norms . . . generally work best when a potential offender has knowledge of them.").

the rubrics of “situational crime prevention” and “crime prevention through environmental design.”²² My payphone example illustrates one of the simplest forms: changing the availability or distribution of resources in social settings. Changing the design of resources is another architectural technique. The coin payphones could have been reconfigured as credit-card phones, creating traceability. Facilitation of surveillance or information-gathering within a social setting or via equipment is a key technique of architectural regulation.²³

More subtle forms can be imagined. If the government encourages equipment with a preferred design feature and discourages those without it, more behavior is regulated. Instead of requiring the elimination of coin payphones, or their replacement by credit-card phones, the government could change the incentives faced by private telephone companies. Credit-card phones themselves, or the removal of coin payphones, could be subsidized. Such techniques were used to attempt to control encryption. A national study of encryption policy explained that government officials hoped that “law-enforcement-friendly” encryption would become “a de facto standard for use in the private sector,” perhaps eventually depriving consumers of a “genuine choice.”²⁴

B. Comparing the Careers of Legal Rules and Architectural Regulation

I have described, from a relatively static perspective, how architectural regulation is not like sanction-backed legal rules, and why this should matter. In this section I use a more dynamic perspective in order to emphasize the transparency issues associated with architectural regulation.

1. Legal Rules Have Careers

From a sociological perspective, legal rules and the norms they promote are often objects of social conflict. Becker observes that legal rules and the norms they embody have careers.²⁵ A rule’s career begins with its promulgation or creation, and then continues in its enforcement (or lack of it).

For the most part, legal rules are publicly created and presented. We should not overstate the degree to which the process of rule-creation really is public, of course. Much legislative activity takes place behind closed doors in the realm of lobbying, arm-twisting, and influence-peddling. Administrative regulation in federal agencies is also public – but again with a significant back-room component. Nevertheless, the ultimate outputs – the rules themselves – are generally published and available, theoretically, to everyone.

Rules, moreover, need some minimal level of enforcement to be meaningful. Enforcement of rules is normally a complex, enterprising human activity. Rule-breaking must be detected; someone must bring that detected breach to the attention of the

²² See generally Nancy G. La Vigne, *Safe Transport: Security by Design on the Washington Metro*, in SITUATIONAL CRIME PREVENTION: SUCCESSFUL CASE STUDIES (R.V. Clarke ed., 1997).

²³ Nancy LaVigne, *Visibility and Vigilance: Metro’s Situational Approach to Preventing Subway Crime*, in NATIONAL INSTITUTE OF JUSTICE: RESEARCH IN BRIEF, (Jeremy Travis, dir., Nov. 1997) (noting that situational crime prevention “aims to reduce criminal opportunities.”), available at <http://www.ncjrs.org/pdffiles/166372.pdf> (last accessed Nov. 8, 2004).

²⁴ CRISIS Report, *supra* note 10, at 187-188.

²⁵ BECKER, *supra* note 15, at 129; see also Edna Ullmann-Margalit, *Revision of Norms*, 100 ETHICS 756 (1990) (“Norms, as social institutions, have careers. They emerge, endure, pass away.”).

appropriate agency; that agency must decide to address the breach in some way, ranging from ignoring it to taking it to court. The human actors who perform these tasks generally possess discretion and exercise judgment about when, and under what circumstances, to act. Enforcement activities require resources, and many take place in public arenas that permit social contest over the meaning and legitimacy of the rule itself. Resource allocation in public agencies is part of the more-or-less public budgetary process; prosecuting offenders requires public accusations.

That these choices exist is integral to the social organization of law as we know it, because public processes like resource allocation and punishment tell us about the consequences of our rules. Rules perceived to be unjust may lead to social outcry, amendment, or even repeal. To some extent, rule-enforcement operates as a social feedback mechanism.

2. *Architectural Regulations Have Different Careers*

We should expect the careers of architectural regulations to be quite different. It is not clear, for instance, how the removal of payphones in my example would be “enacted.” It might have been the phone company’s or the government’s decision; the ordinary phone user is unlikely to know. Indeed, we may not even perceive that a decision intended to regulate our actions was made. Often, we simply have no clue as to who made the key design decisions regarding our settings or equipment.

Enforcement often occurs simply as a consequence of finding oneself in the architected setting or using the architected equipment or system. The role of human beings in enforcement is greatly reduced. Once the payphones are removed, drug dealers simply cannot make untraceable coin payphone calls.

The nature of noncompliance also changes. Drug dealers can continue to ply their illicit trade if they go to a neighborhood with coin payphones. Or they might use cheap, disposable cell phones. Disobedience of architectural regulation, in other words, involves either exit from the architected system or circumvention of the architected constraint.

Architectural regulation can be a quite blunt enforcement instrument, lacking a mitigating feedback loop. Removing the payphones affects everyone, not just the drug dealers. But if the payphone removal is not perceived as regulation in the first place, no one will complain that the government acted unwisely. The constraint will simply persist. Changed conditions could lead to new payphones being installed, of course, but the government’s hand might still remain invisible.

From the enforcement perspective, then, architectural regulation bypasses many of the possibilities for human actors to modulate the effects or meaning of a rule in the enforcement process. Enforcement is instead delegated to equipment or social settings, lessening the possibility of social contest over the rule. The ordinarily public process of social conflict over rules may be short-circuited simply because we do not see what is happening.

C. **Architectural Regulation and its Vicissitudes**

The metaphor of “architecture” suggests that architectural regulation possesses a structural nature, *i.e.*, it is built into or embedded in the practical conditions of everyday life. Two obvious candidates for architecting are the things we use – equipment – as well as social settings, most of which contain equipment. This metaphor also suggests the

important role of architects: those actors or groups, or successions of actors, who designed or shaped equipment and social settings.

The metaphor suggests third, beyond architecture and architecting, that there is something distinctive about how we perceive architecture. Walter Benjamin says, “[a]rchitecture has always represented the prototype of a work of art the reception of which is consummated by a collectivity in a state of distraction.”²⁶ Unlike a painting, which announces itself as art and before which one may concentrate, “[b]uildings are appropriated in a twofold manner: by use and by perception.”²⁷ We experience architecture “not so much by attention as by habit. . . . [E]ven optical reception . . . occurs much less through rapt attention than by noticing the object in incidental fashion.”²⁸

1. *Law as Law: Issues of Visibility or Recognition*

We often take the architecture of our physical and social worlds for granted. A good architect or urban planner designs spaces and thoroughways to regulate flow; drivers and pedestrians need not be aware of his intent.

We should pay close attention to “law as architecture” because part of what distinguishes law from social control is that it is perceived *as* law. Law at some level appeals to legitimacy: our vision of law as rules is linked to notions of public processes of competing readings, and appeals to metaphors of textuality, authorship, and audience reception.

By contrast, an architected setting or piece of equipment often appears to us as a *fait accompli*. A danger of architectural regulation, then, is that we may perceive it, as Benjamin suggests, only “in incidental fashion.” Architectural regulations are at the extreme perceived more as conditions than as rules to be followed or disobeyed consciously. Unlike ordinary sanction-backed rules, architecture achieves compliance by default rather than through active enforcement. To the extent that legitimacy and public deliberation are integral to our notion of law, the surreptitious enactment and enforcement of norms via architecture should give us pause.

2. *Norms and Social Practices*

The danger of architectural regulation runs even deeper, I suggest. Even without a good theory of how social norms evolve, it should be uncontroversial to assert that law’s normative grounding is a function of social experience, the environment in which social norms are born, live, and evolve, or die. Social experience and norms, in turn, are often reference points for law. Government action aimed at shaping equipment or organizing social settings directly alters the conditions of social experience.

Studies of disputes, for instance, suggest that a threshold factor in believing that one has a legal claim is the perception of an event as injurious.²⁹ If norms are architected

²⁶WALTER BENJAMIN, ILLUMINATIONS 239 (Hannah Arendt ed., Harry Zohn trans., 1988).

²⁷*Id.* at 240.

²⁸*Id.*; see also Katyal, *supra* note 19, at 1072 (quoting an architecture dean as saying “you live in architecture, and it affects you whether you’re even conscious of it.”) (citation omitted).

²⁹William L. F. Felstiner, et al., *The Emergence and Transformation of Disputes: Naming, Blaming, and Claiming*, 15 L. & SOC’Y REV. 631 (1981) (noting the role of “perceived injurious event”). Such perceptions can change over time; for many years, the vast majority of Americans likely conceived of curbs as those lacking wheelchair ramps, which thus restricted the mobility of disabled persons. Those confined to wheelchairs probably thought of curbs differently.

into settings or equipment, however, they may seem like mere design features. As a result, we may not perceive architecture normatively, as something intended to control us, but rather as experienced background conditions that just happen to exist.

Much law acts on background conditions. Seatbelt and airbag regulations, for instance, clearly architect automobiles in order to preclude social experience with unsafe cars. But the potential “distortion” of social experience is especially problematic when constitutional rights are at issue. Constitutional rights are supposed to constrain or limit government. But government power over the design and distribution of resources can influence the exercise of rights. The First Amendment, for example, protects the right to speak anonymously,³⁰ but our ability to exercise that right depends on our having equipment, like coin payphones, that does not “log” who we are. A common software program, like the Apache Web server offers a different example. This program, by default, records those who visit a website and post information³¹; architectural regulation aimed at preventing a non-logging configuration would make anonymous browsing harder.

It seems uncontroversial to think that the practical exercise of rights is important to sustaining them as rights. When social norms have a constitutional dimension — when they breathe content into constitutional law — architectural regulation of social settings in which these norms evolve,³² possibly constraining the exercise or practice of rights, may weaken constitutional protections.

This issue is particularly important with respect to Fourth Amendment privacy. Our legal “reasonable expectation of privacy” supposedly turns on social conventions, norms, or “understandings”³³ that “are in large part reflections of laws that translate into rules the customs and values of the past and present.”³⁴ And because the Fourth Amendment is meant to check government discretion,³⁵ government ought not be free to strategically manipulate our privacy customs or practices.³⁶ Indeed, the Supreme Court has warned that if the government sought to manipulate our actual privacy expectations by announcing on national TV that all homes are subject to warrantless entry, those expectations “could play no meaningful role” in determining the scope of Fourth Amendment protection.³⁷

Architectural regulation, however, can manipulate the very resources we use to

³⁰ *E.g.*, *McIntyre v. Ohio Elec. Comm’n*, 514 U.S. 334 (1995).

³¹ *See, e.g.*, Russell Dyer, *Apache Logs*, UNIX REVIEW, July 2004, at <http://www.unixreview.com/documents/s=8989/ur0407i/>.

³² Current legal scholarship views norms as evolving under competition. *See, e.g.*, Randal Picker, *Simple Games in a Complex World: A Generative Approach to the Adoption of Norms*, 64 U. CHI. L. REV. 1225 (1997); Symposium, *Law, Economics, & Norms*, 144 U. PA. L. REV. 1643 (1996).

³³ *Rakas v. Illinois*, 439 U.S. 128, 143 n.12 (1978) (noting that Fourth Amendment turns on social “understandings,” and that “legitimation of expectations of privacy by law must have a source outside of the Fourth Amendment”).

³⁴ *United States v. White*, 401 U.S. 745, 786 (1971) (Harlan, J., dissenting); *cf. Rakas*, 439 U.S. at 143 n.12 (noting that it is “merely tautological” to base legitimate expectations “primarily on cases deciding exclusionary-rule issues in criminal cases”).

³⁵ *United States v. U.S. District Court*, 407 U.S. 297, 317 (1972) (Fourth Amendment embodies “historical judgment”, under which “unreviewed executive discretion” may endanger privacy and speech).

³⁶ Cass Sunstein, *Social Norms and Social Roles*, 96 COLUM. L. REV. 903, 966 (1996) (“efforts to change norms . . . should not be allowed to invade rights”).

³⁷ *Smith v. Maryland*, 442 U.S. 735, 740 n.5 (1979) (“when an individual's subjective expectations had been ‘conditioned’ by influences alien to well-recognized Fourth Amendment freedoms, those subjective expectations obviously could play no meaningful role in ascertaining the scope of Fourth Amendment protection . . . a normative inquiry would be proper.”).

create or protect privacy. Our privacy is often a function of the design of social settings. One who works in an office can create some privacy by closing a door; one who works in an open cubicle cannot.

Similarly, our social expectations of privacy are meaningless without boundaries of some sort. We produce privacy, when we can, by doing things like closing doors. An act like door-closing not only produces some physical privacy by limiting physical and sensory access, it also invokes a common privacy norm – every well-socialized person understands that closing a door signals a desire for privacy. It is no accident that when the Supreme Court found that telephone calls from phone booths were entitled to legal privacy protection, it appealed to the fact that the defendant closed the phone booth door behind him.³⁸

What if there had been no door to close? When a person makes a telephone call from an unenclosed public telephone, he or she has no privacy expectation against a nearby police officer listening in.³⁹ If the government facilitated surveillance by inducing telephone companies to remove phone booth doors, or had never permitted phone booth doors in the first place, would the Fourth Amendment apply? Government proposals to restrict the availability, strength or use of privacy-enhancing technology like encryption present a similar possibility: we are prevented from exercising our right to privacy and we are deprived of social experience with that right.

The design and deployment of equipment reflects a normative vision of social activity. The differences between law as sanction-backed rules and law as architecture – most of which revolve around lack of transparency – produce normative effects that are especially obvious when equipment is involved.

III. HOW HIGH TECHNOLOGY EXACERBATES ARCHITECTURAL REGULATION'S PROBLEMS

So far, I have argued that architectural regulation poses a risk of distorting the “normal” social processes of norm formation for two major reasons. On the one hand, architectural regulation is likely to be less perceptible to the general public as law than legal rules. On the other hand, architectural regulation can affect social practices in a more direct way: it can put some practices in play, and take others off the field entirely (or at least marginalize them).

Although architectural regulation is not inherently associated with technological change, these issues are raised most clearly in that context. In this section I explain in more detail how architectural regulation is less perceptible than sanction-backed legal rules and argue that these problems are more serious in the high-technology context.

A. Enactment, Authorship, and the Content of Architectural Norms

Lessig has highlighted the transparency problem mainly in terms of the government's attempting to “hide the pedigree” of regulation⁴⁰: the public may be misled as to the fact that government sought to architect the situation. He is right, but the problems are more serious.

³⁸ *Katz v. United States*, 389 U.S. 347, 352 (1967). The holding in *Katz* may illustrate Robert Sugden's point that conventions can spread by analogy. Robert Sugden, *Spontaneous Order*, 3 J. ECON. PERSP. 85, 93-94 (1989).

³⁹ *United States v. Muckenthaler*, 548 F.2d 240, 245 (9th Cir. 1978).

⁴⁰ CODE, *supra* note 1, at 98.

First, it may not be obvious to the ordinary person that anyone, much less the government, sought to architect the situation, that is, that equipment or a social setting was deliberately designed to regulate behavior. Second, the “content” of the architectural regulation, what it actually does and why, may not be obvious either.

1. Systems and Time

Although architectural regulation is not inherently associated with technological change, these issues are raised most clearly in that context. First, embedding regulation in equipment or settings affects how rules are presented to us. Equipment like e-mail and Web browser software embodies various default settings that affect users’ privacy, but they are buried in the program’s code. For instance, when you click on a hyperlink to go to a new web page, your browser by default automatically sends the URL of the page you came from to the next site. If you used a search engine to find a site, the entire query, including the search terms you used, is usually passed along to the sites you then clicked on.⁴¹ How many people know that this happens?

These default settings may seem “normal” because the equipment is common, or have become “legitimate” as people have grown accustomed to the situation presented by the equipment.⁴² This problem is especially significant for privacy rights, because privacy is already easily violated in secret.

Second, the perceptibility of architectural regulation (either at all or as an architected rather than “natural” constraint) can depend on apprehending the setting and the system to which it belongs. But as we do not experience the entire system of social settings all at once, the meaning of the overall design may be obscure. Small or gradual changes might go unnoticed. Not only might we be unable to “see” the entire setting or system at one time, we might not understand what we see without extra knowledge as mundane as how a setting had previously been organized.

After the original payphones had disappeared from the drug-infested neighborhood, people might not even realize that the setting had been deliberately architected at all. A visitor frustrated by being unable to find a payphone might perceive no act of social control, simply an annoying circumstance.

These effects are greater with new technologies precisely because we have had less experience with them. We may notice payphones that cannot receive calls because traditional payphones did receive calls, but most of us have no basis for evaluating changes in the default settings of newer systems like the Internet. Thus, architectural regulation of new technological settings is more likely to be perceived as a “normal” part of social practice than a rule expressly declared to apply to that setting.

Finally, we cannot easily exit large-scale socio-technical systems like telecommunications. The ordinary person who wants to make telephone calls or send electronic mail will be subject to the architecture of the public telephone network and the Internet.

⁴¹ JUNKBUSTERS CORPORATION, JUNKBUSTERS ALERT ON WEB PRIVACY, at <http://www.junkbusters.com/cgi-bin/privacy> (last visited Nov. 10, 2004).

⁴² See Cass Sunstein, *Switching the Default Rule*, 77 N.Y.U. L. REV. 106 (2002) (discussing the power of defaults, especially in the employment context).

2. *Intermediaries and the Multiple Actor Problem*

Intermediated settings present additional problems. When there are multiple actors, it may be difficult to link an architectural change to the responsible party. Most of us know that speed bumps are the product of government action because we know that the government regulates public streets. But if a social setting is private, or has both private and public aspects, it may be difficult to say whether any state action has occurred. In my hypothetical, the telephone company might have removed the neighborhood payphones out of its own private concern about bad public relations about drug dealing, or the local government might have induced it to do so. It is plausible that the government's role might not be apparent to the public; the government might even seek to hide its role.⁴³

B. Technical Ignorance

These effects are enhanced by the public's lack of technical knowledge about computers, software, and the Internet. Most people know little about such equipment: what it does, and what they can do about it if they do not like it. They may be unaware that a setting has changed in an important way, or that their expectations about the setting are false. For example, a typical web page with banner advertisements looks like a single web page, but two banner ads on the same page can come from two different companies.⁴⁴ Also, we interface with only small parts of extended systems like the telephone system or the Internet. Such systems involve many intermediaries and much equipment that we cannot access; partly as a result, we know little about and have little control over what is going on inside the system.

This ignorance has normative implications. To say that a system is wrongly designed, or that it should have been designed differently, requires knowledge about design options and tradeoffs. If information about alternative design options does not reach the public, a basis for such normative judgments vanishes. But even if the public did perceive *bad* design, it might not perceive it as *wrong* design without knowledge that there was a decision to design it that way. Where equipment affects privacy, lack of knowledge is especially important because it is often difficult to detect privacy invasions.

C. Opportunities for Government Manipulation

The government often plays an important role in funding or shaping the infrastructure of these large, dispersed systems by endorsing standards for their deployment and design. Equipment usually becomes standardized around some design

⁴³ The FBI's recent petition to the Federal Communications Commission, which seeks to clarify telecommunications carriers' duties under the Communications Assistance to Law Enforcement Act of 1994, argues that "a carrier would not be permitted to describe any end-user surcharge applied by the carrier to recover its CALEA implementation and compliance costs as mandated by the Commission or the federal government (*e.g.*, the FBI)." U.S. DEPARTMENT OF JUSTICE, FEDERAL BUREAU OF INVESTIGATION, AND DRUG ENFORCEMENT AGENCY, JOINT PETITION FOR EXPEDITED RULEMAKING TO RESOLVE VARIOUS OUTSTANDING ISSUES CONCERNING THE IMPLEMENTATION OF THE COMMUNICATIONS ASSISTANCE FOR LAW ENFORCEMENT ACT, RM-10865, at 67 n.13 (Mar. 10, 2004).

⁴⁴ JUNKBUSTERS CORPORATION, *supra* note 41.

feature or feature set. Not only are there economies associated with standards, many types of equipment must work together, requiring standard protocols.

Many standards are purely technical and may have no impact on constitutional rights, but some do directly affect our privacy or civil liberties. One example is the law enforcement-friendly Escrowed Encryption Standard (“EES”), which was promulgated as a Federal Information Processing Standard Publication (“FIPS”)⁴⁵. FIPs (which are commonly used by federal agencies in their procurement specifications) “can have enormous significance to the private sector” even though private actors are not required to adopt them. In this case:

[t]he government hoped that the adoption of the EES to ensure secure communications within the federal government and for communication of other parties with the federal government would lead to a significant demand for EES-compliant devices, thus making possible production in larger quantities and thereby driving unit costs down and making EES-compliant devices more attractive to other users.⁴⁶

A current example is the Communications Assistance for Law Enforcement Act of 1994 (“CALEA”).⁴⁷ CALEA responded to the FBI’s complaint that advanced telephone technologies would hinder law enforcement attempts to intercept communications. CALEA requires telephone companies to be able to provide law enforcement with the entire contents of a wiretapping target’s communications. It also requires that they be able to provide “call setup information,” *i.e.*, information about who is calling, who is being called, and other information not directly related to the content of the phone conversation. CALEA in effect mandates that telephone systems be designed to facilitate government surveillance.

Absent government interference, technological and economic change might have led some telecommunications service providers (“TSPs”) to offer encrypted telephone calls and other privacy enhancements that would safeguard call content and call-identifying information. These possibilities were largely foreclosed by CALEA. Today, the FBI and other law enforcement agencies are seeking to extend CALEA to apply to certain Internet services such as the “voice over Internet protocol.”

CALEA exemplifies how the State can make law with equipment, causing rules to be built into social practices. The design feature of “tappability” is embedded into the telephone system, and we have no choice about using TSPs if we are to make phone calls. We cannot exit the system.

In essence, the government is acting as a “norm entrepreneur”: it has embedded a norm of tappability into the phone system, and seeks to embed that norm into other communications systems. Doing so may distort social processes of norm formation, and a further concern is that courts may find that these equipment-defined parameters reflect a social consensus.⁴⁸ In my view, the government ought not act as a norm entrepreneur

⁴⁵ NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY, U.S. COMMERCE DEP’T’S TECHNOLOGY ADMINISTRATION, FEDERAL INFORMATION PROCESSING STANDARD PUB. 185, ESCROWED ENCRYPTION STANDARD (1994).

⁴⁶ CRISIS Report, *supra* note 10, at 222-225.

⁴⁷ See PUB. L. NO. 103-414, 108 Stat. 4279 (codified at 47 U.S.C. §§ 1001-1010 and various sections of Title 18 and Title 47 of the U.S. Code).

⁴⁸ Thus, in *Katz* the Supreme Court found that given phone booths with doors, closing the door clearly constituted a privacy precaution, while in *Smith* making phone calls given that the telephone company

when the norms at issue concern constitutional rights.

D. Norms and Uncommon Knowledge

Obviously, a major theme in my discussion has been the role of knowledge – knowledge of equipment and social settings. But from the perspective of social norms, other kinds of knowledge are also important: knowledge about what other people think and do, and why.

For instance, privacy conventions or norms should be expected to arise from privacy practices – patterns of action that emerge over time, like our closing doors to protect our privacy, or our treating eavesdropping at keyholes as being improper.⁴⁹ When two people converse quietly in a park away from bystanders, they expect not to be approached or attended to by strangers, because a well-socialized person would recognize that they are speaking privately. If someone approaches or appears to eavesdrop, they adjust: stare silently, move away, or change the subject. The key relation here is between precautions and risks; precautions are geared to perceived likely risks, and vice versa.

Privacy behavior is thus interdependent: people “respond . . . to an environment that consists of other people responding to their environment, which consists of people responding to an environment of people's responses.”⁵⁰ How privacy norms evolve remains unclear, but theorists suggest that behavior in repeated interactions can over time coordinate toward a norm, much as a well-trod footpath visibly displays its popularity.⁵¹ It is not implausible to hypothesize a “critical mass” model in which expectations “depend . . . on how many are behaving a particular way, or how much they are behaving that way.”⁵²

But the evolution of a convention or social expectation depends not only on the amount or frequency of behavior, but on our “common knowledge” of it.⁵³ Although we all may treat like situations alike, our actions are not “normal” without the second-order knowledge that others do and think the same as well, that we know they know, and so on.

In general, the coordination that leads to the emergence of norms requires common knowledge or at least publicity.⁵⁴ But a problem with privacy is that privacy risks and privacy behavior (*e.g.*, taking precautions) are often invisible. You might know that email is easily viewed by your Internet Service Provider (“ISP”), or that surfing the Internet exposes your browsing activity to your ISP, but you might not know whether others are also aware. Similarly, the precautions you take to protect your email or

logged one's calling records negated any possible privacy claim.

⁴⁹ See EDNA ULLMAN-MARGOLIT, *THE EMERGENCE OF NORMS* 8 (1977) (norms are “the resultant of complex patterns of behavior of a large number of people over a protracted period of time”).

⁵⁰ THOMAS SCHELLING, *MICROMOTIVES AND MACROBEHAVIOR* 14 (1978).

⁵¹ “Everyone conforms, everyone expects others to conform, and everyone has good reason to conform because conforming is in each person's best interest when everyone else plans to conform.” H. Peyton Young, *The Economics of Convention*, 10 *J. ECON. PERSP.* 105 (1996).

⁵² SCHELLING, *supra* note 50, at 94.

⁵³ “A proposition is ‘common knowledge’ among a group of individuals if all know the proposition to be true, all know that the others know the proposition to be true, all know that all others know the proposition to be true, and so on.” Paul Mahoney and Chris Sanchirico, *Norms, Repeated Games, and the Role of Law*, 91 *CAL. L. REV.* 1281, 1301 n.42 (2003); see Michael Chwe, *Culture, Circles, and Commercials: Publicity, Common Knowledge, and Social Coordination*, 10 *RATIONALITY & SOC'Y* 47, 49-50 (1998).

⁵⁴ See, *e.g.*, McAdams, *supra* note 17, at 388, 400-405 (discussing role of publicity and visible consensus to norm formation).

browsing, such as encrypting your email or browsing via an anonymizing service, tend to be private and are not visible to others as precautions.

Notions like critical mass and common knowledge help explain why public concern about privacy often has a “crisis” character. Many people are concerned about their privacy, but privacy breaches often happen in the background. And even when people are victims and know about the problem, they may think that theirs are isolated cases. But when at some point a privacy issue like identity theft becomes a mass media subject, the victims’ private knowledge may become common knowledge that can support a normative judgment that something is wrong.⁵⁵

IV. CONCLUSION

We have come to accept that the law must adjust to the rapid pace of technological change. However, we should be alert to the possibility that government adjustments will also affect constitutional rights and norms. Government action that architects social settings and equipment can regulate our behavior as effectively as can sanction-backed rules.

In two respects, however, “law as architecture” is more dangerous than ordinary sanction-backed legal rules to the concept of law. Architectural regulation is less visible as law, not only because it can be surreptitiously embedded into settings or equipment but also because its enforcement is less public. Furthermore, it can be used to foreclose possibilities of social experience. It thus has a more secret social career than law as sanction-backed rules, and these effects are magnified with each new technology. Architectural regulation thus raises two important issues for law: the relationship between resources and rights, and the relationship between resources and social norms that translate content into constitutional law.

⁵⁵ Cf. Chwe, *supra* note 53, at 59 (noting that network TV is “best mass common knowledge generator”).