

Technology, Law, and Affordance: A Review of *Smart Technologies and the End(s) of Law*

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Abstract

This essay reviews *Smart Technologies and the Ends(s) of Law*, a rigorous and insightful exploration of the nature of contemporary technology and law by a leader of the field. The essay concludes, first, that the book is a must-read for scholars and students interested in law and technology; second, that the work would be improved were it explicitly organized around a theory of affordances; and, third, that the solutions the author proposes are unlikely to address the challenges she so masterfully lays out.

I. Introduction

Noted technology scholar Mireille Hildebrandt's new book, *Smart Technologies and the End(s) of Law*, is a profound and thorough meditation on the nature of contemporary technology and law.¹ The work opens in narrative form; we hear the story of any-woman Diana who experiences an all-too-familiar series of alerts and nudges as she traverses her heavily mediated world.² Where do these forces that shape Diana's life come from? How are they justified? And what is policy's role in this blended environment of the physical and digital? The remainder of Hildebrandt's book examines these and related themes in remarkable depth, introducing such notions as the "onli/e" and "data driven agency" to explore the various techno-social forces that constitute our contemporary reality. She unpacks technology, law, and their interdependence in lucid detail and makes the case for restraint in pursuit of data autonomy. Hildebrandt even treats the reader to a comparative perspective with a neat chapter on the Japanese experience with smart technology.

As an American law professor reviewing the work of a European information scientist, I'm all too aware of the many ways our disciplines may diverge. Lawyers are trained to state a thesis and defend it as strongly as possible with available materials. We are also keenly conscious of the ramifications of law as a societal construct. "Legal interpretation," as Robert Cover puts it, "takes place in a field of pain and death."³ Law *coerces*, and so legal interventions require special justification.

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¹ Mireille Hildebrandt, *Smart Technologies and the End(s) of Law* (2015).

² *Id.* at 1-7.

³ Robert M. Cover, *Violence and the Word*, 95 *Yale L.J.* 1601, 1601 (1986).

These professional commitments likely animate the two critiques I will level at Hildebrandt's important book in the pages that follow. The first is that *Smart Technologies and the End(s) of Law*, while rigorous and subtle, might benefit from a more specific overarching thesis. Perhaps the most obvious candidate for a unifying theory of the onlife is James Gibson's theory of affordances, which already makes several appearances in the book and has the potential to bring together the discussion. The second critique is that Hildebrandt's proposed solution is notably less sophisticated than her development of the problem. I don't believe even the hero Odysseus can safely do the work the author is asking of him.

But before I develop these critiques in greater detail, I want to pause again to appreciate what an accomplishment this book represents and what great value it adds to the discourse around law and technology. Hildebrandt is deeply invested in representing both technology and law with accuracy and nuance. She canvasses and somehow integrates a wide variety of scholarship from multiple disciplines. She also offers some deeply insightful commentary of her own. In particular, I found her discussion of the ways the printing press shaped modern law fascinating—and will return to it below. Nothing that follows should be taken to question in any way the importance or power of this fine meditation on technology and law.

II. Technology and Law as Affordance

According to Hildebrandt, the purpose of her book is “to sensitize readers to the urgency of the task, sharing provocations, analyses and a coherent framework to face life in a world beyond offline and online.”⁴ I think *Smart Technologies and the End(s) of Law* succeeds in conveying urgency, provoking thought, and furnishing helpful and subtle analysis. But I'm not sure what coherent framework is on offer. Rather, I think a great strength of the work is that it draws together many different ways of looking at technology, law, and their interaction. The reader is treated to a veritable safari of analytic method—science and technology studies, legal positivism, the New Chicago School—deftly interwoven in an admirable effort to capture the complexity of the author's subject matter.

The idea of the onlife recurs. As I see it, the onlife is less an analytic framework along the lines of Husserl's life-world⁵ than a repudiation of the lingering dichotomy between online and offline experience.⁶ Hildebrandt also introduces the notion of Legal Protection by Design (LPbD) in the final chapter in order to “weav[e] together some of the open endings of previous chapters.”⁷ Presumably a close cousin of Privacy by Design, LPbD would channel the “technological normativity that regulates our lives” along three specific lines. First, LPbD seeks to ensure that our regulation by technological normativity is consistent with the democratic will. Second, LPbD seeks to ensure that this regulation

⁴ Hildebrandt, *supra* note 1, at xiii.

⁵ Edmund Husserl, *Die Krisis der europäischen Wissenschaften und die transzendente Phänomenologie: Eine Einleitung in die phänomenologische Philosophie* (1936).

⁶ Hildebrandt, *supra* note 1, at 42 (introducing the concept of the onlife).

⁷ *Id.* at 214.

can be resisted. And third, LPbD seeks to ensure that regulation by technological normativity may be contested in a court of law. As examples, Hildebrandt briefly offers European privacy regulation, the idea of “counter-profiling” data brokers, and the broad application of “morphological computation” for assistive robotics.⁸

LPbD is tantalizing but generates puzzles. For example, how do political minorities fare in a world where technological normativity reflects back the larger democratic will? Should citizens be able to resist *all* technological normativity, even if it exists to protect the vulnerable?⁹ And in what way is our ability to contest technological normativity in court distinct from the ability to resist its regulation in general?

I’m ultimately doubtful that Hildebrandt intends the handful of pages she devotes to LPbD to furnish the coherent framework promised in her Preface. And I am not sure she needs to do more than she has: shed enormous light on our collective transition to the onlife. This is a complex topic; perfect coherence may be illusory, or at least come at a substantial cost to accuracy. The contribution of *Smart Technologies and the End(s) of Law* lies precisely in its masterful integration of the many disparate concepts swirling around technology and law. I know that when next I teach a course on law and technology, I will assign this book. And were an academic in virtually any discipline to express an interest in law and technology, I would lend it to them.

Nevertheless, I would have preferred the arguments in *Smart Technologies and the End(s) of Law* to unfold according to a more precisely stated overarching thesis. Hildebrandt already has the scaffolding for such a thesis in place in her multiple allusions to James Gibson’s theory of affordances. A venerated perceptual psychologist, Gibson observes that living creatures share the same environment but perceive it differently in accordance to their “affordances,” i.e., their capacity to be harmed or benefited by a particular feature of the environment.¹⁰ Thus, for example, a tree affords hiding to a squirrel but not a bear and a cliff’s edge affords opportunity to a bird but danger to a dog. Gibson prefers this understanding in part because it acknowledges both the objectivity of the physical world and the subjectivity of its individual perception.

Hildebrandt borrows from Gibson (and Don Norman, who popularized affordances in the context of design) at times throughout the book mainly to explore the opportunities and limitations generated by contemporary information and communication infrastructures (ICIs).¹¹ I can scarcely do service to the full complexity of her argument in these few pages but affordance theory does two kinds of work in the book: (1) it helps show how technologies and built environments afford different possibilities for humans

⁸ Id. at 222-26.

⁹ I’m reminded of Jack Balkin’s review of Julie Cohen’s *Configuring the Networked Self*, wherein Balkin notes that gaps in enforcement as often benefit the powerful and predatory as they do the weak. Jack M. Balkin, Room for Maneuver: Julie Cohen’s Theory of Freedom in the Information State, 6 *Jerusalem Rev. Legal Stud.* 79, 85 (2012).

¹⁰ See James J. Gibson, *The Theory of Affordances*, in *Perceiving, Acting, and Knowing: Toward an Ecological Psychology* 67 (Robert Shaw & John Bransford eds., 1977).

¹¹ Hildebrandt, *supra* note 1, at 47, 170.

and other agents, which is how Hildebrandt comes to speak of the “technological normativity that regulates our lives,” and (2) it suggests technology cannot be defined except by reference to its adoption and use. The insight that architectures shape behavior is consistent with notions of choice architecture, in the parlance of libertarian paternalism,¹² and with the famous cyberlaw claim that “code is law.”¹³ The insight that technology cannot be defined except by reference to its adoption follows from science and technology studies and is part of the standard repudiation of technological determinism.

I’m rather more excited by the way Hildebrandt extends the theory of affordances into the study of law itself. Specifically, she argues that the contemporary ICIs change the character of governance by offering different affordances than the printing press.¹⁴ Indeed, the most ambitious and exciting passages in *Smart Technologies and the End(s) of Law* flow from Hildebrandt’s insight that “modern law is dependent on and shares the affordances of the printing press”¹⁵ and these affordances are in flux. It is not just that social or technical affordances have a regulatory effect on agents but that law itself, as an institution, takes the shape of available affordances. This notion positions Hildebrandt to argue that ICIs not only supplant law but alter the law’s essential character.

Given its application to both technology and law, it is curious that the theory of affordances only makes select appearances in the book. I personally see Gibson’s theory as offering a unifying thesis for Hildebrandt: law and technology represent distinct but related affordances that change with time and with interaction. Hildebrandt does not go so far as to characterize law as an affordance. I would (and I do, in other work).¹⁶ That positive law can be usefully understood as an affordance follows, I think, from Gibson’s own observation that “[t]he richest and most elaborate affordances of the environment are provided by other animals and, for us, other people.”¹⁷ Law mediates those relationships by providing a common normative backdrop as well as potential levers to influence the behavior of others.

What would the book look like if organized explicitly around the theory of affordance? It might be more human-centric. It would see Diana, for instance, as embedded in a technical and legal environment that affords her dangers, limits, but also opportunities—to the extent she can perceive and seize them.¹⁸ An affordance approach would

¹² See generally Richard H. Thaler & Cass R. Sunstein, *Nudge* (2008).

¹³ See Lawrence Lessig, *Code 2.0* (2006).

¹⁴ Hildebrandt, *supra* note 1, at 180-81.

¹⁵ *Id.* at 176.

¹⁶ See Ryan Calo, *Can Americans Resist Surveillance?*, 82 *U. Chi. L. Rev.* 23 (2016); Ryan Calo, *Privacy, Vulnerability, and Affordance*, in *Cambridge Handbook of Consumer Privacy* (Jules Polonetsky et al. eds., forthcoming 2017).

¹⁷ Gibson, *supra* note 10, at 135.

¹⁸ Hildebrandt might bristle at this characterization of law insofar as it tends to “instrumentalize” law. Hildebrandt, *supra* note 1, at 184. But, in my view, studying law as an affordance helps justify law by recognizing the interdependence of people in society. Where law furnishes an affordance (or different affordances) to one population but not another, it helps us discover and hopefully address inequality. And finally, the capacity of the

foreground the role of people in building and maintaining both technology and the rule of law. The ICI is a product, after all, of the techniques and materials afforded to its architects. The printing press shapes law by furnishing a set of affordances to the people who author, interpret, and experience its violence.

III. The Limits of Odysseus

My first critique boils down to the intuition that Hildebrandt misses an opportunity in *Smart Technologies and the End(s) of Law* to bring both technology and law under a common intellectual umbrella. But Hildebrandt does not merely diagnose the maladies of the onlife. In the last few chapters, she offers interventions.

I'm increasingly convinced that a full diagnosis of the digital condition is incompatible with concrete policy prescriptions. It's difficult at any rate. The least convincing aspect of Julie Cohen's masterful *Configuring the Networked Self* is Cohen's series of policy proposals at the end, which feel disconnected from the rest of the book and incapable of addressing the borderline existential problems she identifies.¹⁹ It was arguably wiser, or at least safer, of the sociologist Gary Marx to eschew policy prescriptions entirely in his recent *Windows of the Soul*—an exhaustive meditation on the nature and dangers of surveillance—in favor of a series of pointed questions. The better one's capacity to answer these questions, Marx argues, the greater the likelihood that a given instance of surveillance may be justified.²⁰

Hildebrandt follows Cohen over Marx in making specific policy prescriptions toward the end of the book. They mostly have to do with exercising restraint in the use and collection of data. Hildebrandt unifies her prescriptions rhetorically by reference to the Greek myth of Odysseus, who famously tied himself to the mast of his ship so that he could hear the song of the Sirens without succumbing to their deadly temptations. I was not convinced that the interventions were ultimately up to the challenge.

For all of its sophistication, *Smart Technologies and the End(s) of Law* settles upon some rather well-worn solutions to the problems of the onlife. The primary intervention is data minimization, i.e., the notion that public and private institutions should collect no more information from data subjects than is necessary to provide the services they are offering. The second is secondary use restriction, i.e., the notion that firms must secure fresh consent from data subjects to use their data for any reason beyond the original purpose for which it was collected. These ideas date back at least to the Organization for Economic Cooperation and Development fair information practice principles, first articulated in 1980.²¹

governed to change law (reform as affordance) tells us much about the state of the social contract. If people can change laws and they don't, then perhaps there exists a better case for consent of the governed.

¹⁹ Julie E. Cohen, *Configuring the Networked Self* (2012).

²⁰ Gary T. Marx, *Windows into the Soul* 279-83 (2016).

²¹ OECD Guidelines on the Protection of Privacy and Transborder Flows of Personal Data (Sept. 23, 1980). Hildebrandt also cites with approval the more recent European commitment that data subjects have a right to expect a human being, not an ICI system, to make material decisions about them.

The OECD principles work reasonably well in a world where the value of data is known in advance. In an age of machine learning, where seemingly spurious correlations may hold the key to unlocking enormous commercial, health, or other value, these principles have a significant downside. Firms cannot know in advance what data they ought to be collecting. Imagine the hospital that limits the fields it collects in medical records for reasons of privacy or justice only to miss a correlation between race and morbidity in the preferred treatment of asthma. A central value proposition of artificial intelligence is that its techniques yield insights no person would, in part because it sees patterns in data no person would look for let alone detect.²² That is why Amazon spent \$770 million on a company, Kiva Systems, which uses machine learning to organize warehouses more efficiently. And that is why U.S. President Obama’s “Cancer Moonlight” focuses on assembling an unparalleled database of patient information for a new generation of data scientists to explore.

Like Hildebrandt, I am deeply concerned with the ways ICIs mediate human experience and channel behavior toward unknown, sometimes deleterious ends. I see all the same dangers in data-driven agency. But I would also acknowledge more fully the wondrous potential of advances in data science to address human suffering. This potential at least partially underpins society’s embrace of contemporary ICIs. My second critique of *Smart Technologies and the End(s) of Law*, then, is that I wish the work confronted the tension between threat and utility head on. In a world that restricts in advance what data gets collected and how it is used, Odysseus does not get to hear the Sirens in the first place.

IV. Conclusion

As an exploration of the complex interface between contemporary technology and law, *Smart Technologies and the End(s) of Law* is a masterpiece. It is hard to envision a more nuanced and comprehensive account of how technological developments are influencing not only individual and collective behavior but the rule of law itself. At the risk of repeating myself, I couldn’t recommend this book strongly enough to students of law and technology at any stage of their career.

I have nevertheless levied two critiques of the book. The first is that Hildebrandt promises, but never fully delivers, a unified conception of law and technology. I see the theory of affordances as potentially offering that bridge and hope Hildebrandt returns to it. The second is that Hildebrandt’s prescriptions of data minimization and restriction of secondary use fail to grapple with an essential tension: machine learning is transformative precisely for its ability to draw inferences from data that humans cannot anticipate. Overall *Smart Technologies and the End(s) of Law* is a wonderful and I imagine enduring contribution to the study of technology and law.

²² Ryan Calo, *Robotics and the Lessons of Cyberlaw*, 103 Cal. L. Rev. 513, 538-45 (2015).