

RISE OF THE DIGITAL REGULATOR

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ABSTRACT

The administrative state is leveraging algorithms to influence individuals' private decisions. Agencies have begun to write rules to shape for-profit websites such as Expedia and have launched their own online tools such as the Consumer Financial Protection Bureau's mortgage calculator. These digital intermediaries aim to guide people toward better schools, healthier food, and more savings. But enthusiasm for this regulatory paradigm rests on two questionable assumptions. First, digital intermediaries effectively police consumer markets. Second, they require minimal government involvement. Instead, some for-profit online advisers such as travel websites have become what many mortgage brokers were before the 2008 financial crisis. Although they make buying easier, they can also subtly advance their interests at the expense of those they serve. Publicly run alternatives lack accountability or—like the Affordable Care Act health-insurance exchanges—are massive undertakings. The unpleasant truth is that creating effective digital regulators would require investing heavily in a new oversight regime or sophisticated state machines. Either path would benefit from an interdisciplinary uniform process to modernize administrative, antitrust, commercial, and intellectual property laws. Ideally, a technology meta-agency would then help keep that legal framework updated.

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INTRODUCTION

Policymakers increasingly rely on machines to nudge people toward better choices. Spurred by White House directives, administrative agencies have written rules to empower for-profit price-

comparison engines, such as those used to purchase airline tickets.¹ Diverse agencies also operate their own interactive websites that aid tens of millions of visitors in planning a meal,² choosing a school,³ or owning a home.⁴

These digital intermediaries⁵ are the latest generation of behavioral economics policy tools. They “regulate” by influencing behavior in ways similar to public actors.⁶ As legal scholars, economists, and psychologists have shown in recent decades, people often lack key information and make suboptimal decisions based on the information they do have.⁷ Businesses exacerbate these shortcomings through intentionally complex “marketing schemes.”⁸ Precisely estimating the impact of these problems is difficult.

1. See Enhanced Protections for Airline Passengers, 14 C.F.R. § 259.5 (2016) (requiring airlines to disclose online any “lowest fare offered” elsewhere); U.S. Dep’t of Transp., *U.S. Department of Transportation Announces Enhanced Protections for Air Travelers, Actions to Promote Airline Competition*, TRANSPORTATION.GOV (Oct. 18, 2016), <https://www.transportation.gov/briefing-room/us-department-transportation-announces-enhanced-protections-air-travelers-actions> [<https://perma.cc/G2N9-HHKV>]; Memorandum from Cass R. Sunstein, Administrator, Office of Info. & Regulatory Affairs, to the Heads of Executive Departments and Agencies, *Informing Consumers Through Smart Disclosure 2* (Sept. 8, 2011), <https://www.whitehouse.gov/sites/default/files/omb/info/for-agencies/informing-consumers-through-smart-disclosure.pdf> [<https://perma.cc/L8CE-KFQ8>] (directing all administrative agencies to pursue “smart disclosures” so that “agencies or third-party intermediaries may . . . create tools that use these data sets to provide services that support consumer decision-making”).

2. See Comment Request–SuperTracker Information Collection for Registration, Login, and Food Intake and Physical Activity Assessment Information, 80 Fed. Reg. 17,714, 17,714–15 (Apr. 2, 2015); *SuperTracker*, U.S. DEP’T OF AGRIC., <https://www.supertracker.usda.gov> [<https://perma.cc/223Y-VFGX>].

3. See Todd Park & Jim Shelton, *Open Data for College Affordability and Better Student Outcomes*, WHITE HOUSE BLOG (July 12, 2012, 1:11 PM), <https://www.whitehouse.gov/blog/2012/07/12/open-data-college-affordability-and-better-student-outcomes> [<https://perma.cc/6YHL-QWTP>].

4. *Owning a Home*, CONSUMER FIN. PROT. BUREAU, <http://www.consumerfinance.gov/owning-a-home> [<https://perma.cc/5649-VXFS>].

5. “Digital intermediaries” in this Article refers to the interactive online applications that help people make market decisions. The focus here is on those that receive input from the consumer and algorithmically analyze all sources of data available to provide an output. People can then rely on that output to choose a course of action. Other possible terms for the same concept include information intermediaries, choice engines, and information aggregators.

6. See *infra* Part V.B. This use of “regulate” appears widely in the literature on private actors and public regulation. See, e.g., Omri Ben-Shahar & Kyle D. Logue, *Outsourcing Regulation: How Insurance Reduces Moral Hazard*, 111 MICH. L. REV. 197, 199, 201 (2012); Ryan Calo, *Code, Nudge, or Notice?*, 99 IOWA L. REV. 773, 775 (2014).

7. See, e.g., Christine Jolls, Cass R. Sunstein & Richard Thaler, *A Behavioral Approach to Law and Economics*, 50 STAN. L. REV. 1471, 1473–77 (1998).

8. See, e.g., Xavier Gabaix & David Laibson, *Shrouded Attributes, Consumer Myopia, and Information Suppression in Competitive Markets*, 121 Q.J. ECON. 505, 505–06 (2006).

Economists have found that consumers consequently overpay for a range of products, including around 8 percent on cell phone plans,⁹ up to 9 percent for computer accessories,¹⁰ and 30 percent for health insurance.¹¹ Borrowers have incurred billions of dollars annually in unexpected fees on credit cards.¹² Workers save too little for retirement.¹³ Students attend schools they should have avoided.¹⁴

One of the most prominent policy responses has been to try to position consumers to make better decisions by providing information directly to them. Businesses might, for example, be required to prominently display the calories on a menu or the fees on a monthly bill. However, commentators have broadly criticized this first generation of “mandated disclosures” as ineffective, in part because people have difficulty using the information disclosed.¹⁵

In contrast to disclosures intended for consumers, disclosures intended for sophisticated intermediaries are seen as more promising because those intermediaries are less susceptible to behavioral biases and cognitive limitations.¹⁶ Accordingly, scholars have proposed

9. See Oren Bar-Gill & Rebecca Stone, *Pricing Misperceptions: Explaining Pricing Structure in the Cell Phone Service Market*, 9 J. EMPIRICAL LEGAL STUD. 430, 453 (2012).

10. See Glenn Ellison & Sara Fisher Ellison, *Search, Obfuscation, and Price Elasticities on the Internet*, 77 ECONOMETRICA 427, 427–29 (2009).

11. See Jason Abaluck & Jonathan Gruber, *Choice Inconsistencies Among the Elderly: Evidence from Plan Choice in the Medicare Part D Program*, 101 AM. ECON. REV. 1180, 1190 (2011); Jeffrey R. Kling et al., *Comparison Friction: Experimental Evidence from Medicare Drug Plans*, 127 Q.J. ECON. 199, 215 (2012). The higher price equilibrium may result from diverse behavioral and informational factors varying by person and product.

12. Sumit Agarwal, Souphala Chomisengphet, Neal Mahoney & Johannes Stroebel, *Regulating Consumer Financial Products: Evidence from Credit Cards*, 130 Q. J. ECON. 111, 111 (2015).

13. See Daniel Shaviro, *Multiple Myopias, Multiple Selves, and the Under-Saving Problem*, 47 CONN. L. REV. 1215, 1217 (2015).

14. See Jacob Alderdice, *The Informed Student-Consumer: Regulating For-Profit Colleges by Disclosure*, 50 HARV. C.R.-C.L. L. REV. 215, 254 (2015).

15. See Omri Ben-Shahar & Carl E. Schneider, *The Failure of Mandated Disclosure*, 159 U. PA. L. REV. 647, 647, 649–51 (2011). It is also difficult for regulators to know the best options for each individual. See *id.* Better design of disclosures may address some of this ineffectiveness. See *infra* notes 46–48 and accompanying text.

16. See, e.g., RICHARD H. THALER & CASS R. SUNSTEIN, *NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS* 93–94 (2008) (noting that machine-readable disclosures “greatly improve people’s ability to make good choices”); Lisa Bernstein & Hagay Volvovsky, *Not What You Wanted To Know: The Real Deal and the Paper Deal in Consumer Contracts—Comments on the Work of Florencia Marott-Wurgler*, 12 JERUSALEM REV. LEGAL STUD. 128, 134–35 (“Promising directions include . . . mandating the creation of information intermediaries that have the potential to aggregate and transmit the information about the real terms of these transactions that consumers would most like to know.”); Samuel Issacharoff,

mandated digital disclosures for assorted goals. These include (1) health inspectors making their restaurant grades available online so that dining search websites can include cleanliness scores;¹⁷ (2) wireless carriers giving consumers their personal cell phone usage data in spreadsheets so intermediaries can analyze which carrier's plan would save the most money;¹⁸ (3) large retailers such as Amazon, Walmart, and Target sharing their price databases so shopping apps can tell people which stores offer the greatest savings;¹⁹ and (4) financial firms releasing voluminous unfiltered data for analysis by artificially intelligent "cyborg" investors.²⁰ Even scholars criticizing the "failure of mandated disclosures" acknowledge that digital intermediaries such as Yelp may better achieve the same policy goals by giving consumers what they need: not information, but advice.²¹

Despite digital intermediaries' growing use, widespread support, and potentially sizable societal benefits as policy tools, scholars have mostly only mentioned them in passing.²² Administrative law scholarship has not, to my knowledge, engaged the topic.²³ This Article

Disclosure, Agents, and Consumer Protection, 167 J. INSTITUTIONAL & THEORETICAL ECON. 56, 56, 66 (2001) ("Instead of further overwhelming consumers with information . . . efforts to aid beleaguered consumers should take the form of facilitating a market for intermediaries . . .").

17. See Daniel E. Ho, *Fudging the Nudge: Information Disclosure and Restaurant Grading*, 122 YALE L.J. 574, 650–51 (2012) ("All jurisdictions should follow New York's lead and release full health-inspection data in machine-readable form.").

18. See THALER & SUNSTEIN, *supra* note 16, at 93–94; Bar-Gill & Stone, *supra* note 9, at 453.

19. See Rory Van Loo, *Helping Buyers Beware: The Need For Supervision of Big Retail*, 163 U. PA. L. REV. 1311, 1387–88 (2015). Other proposals for disclosures that would empower digital intermediaries exist in the literature. See, e.g., Issacharoff, *supra* note 16, at 66 (proposing for insurance a "searchable electronic disclosure form" that would enable "online comparison quotes").

20. See Tom C.W. Lin, *The New Financial Industry*, 65 ALA. L. REV. 567, 602 (2014).

21. See, e.g., Ben-Shahar & Schneider, *supra* note 15, at 647, 746–47 (2011) (generally criticizing the "failure of mandated disclosures" but suggesting that the most promising path forward may lie in sophisticated intermediaries such as price-comparison sites).

22. See, e.g., Ryan Bubb & Richard H. Pildes, *How Behavioral Economics Trims Its Sails and Why*, 127 HARV. L. REV. 1593, 1652 (2014); *supra* notes 17–21.

23. The public side of digital regulators lies in uncharted territory at the intersection of internet governance, privatization, and administrative law. Arguably the most likely fit, internet governance, has yet to address digital intermediaries as governmental market-regulatory tools in any sustained manner partly because that literature has often focused on more rights-related—rather than commercially related—interests. More broadly, the seminal internet law scholarship does not focus on the state's reliance on digital tools to influence decisions. See, e.g., YOCHAI BENKLER, *THE WEALTH OF NETWORKS: HOW SOCIAL PRODUCTION TRANSFORMS MARKETS AND FREEDOM* 20–23, 34 (2006) (focusing on social and political opportunities and expressing concern that old "producers of information, culture, and communications—like Hollywood, the recording industry, and perhaps the broadcasters and some of the telecommunications services giants" will retain control of content and infrastructure); Frank Pasquale, *Beyond Innovation and*

explains how, upon closer examination, digital intermediaries as regulatory instruments prove far more challenging than assumed. At the outset, it is complicated and resource intensive to design useful machine-readable disclosures as technology changes, businesses resist, and laws obstruct. If successful in providing for-profit digital intermediaries with the data they need to guide consumers to make optimal decisions, policymakers have no guarantee those intermediaries will not use their power to steer consumers toward suboptimal, or even harmful, decisions. Some, such as travel websites, have become so dominant that they may raise consumer prices overall by imposing inefficient price-restraint clauses on businesses.²⁴ Rather than being a form of “regulation for conservatives” that preserves choice,²⁵ machine-readable disclosures risk empowering digital intermediaries to limit choice.²⁶

Moreover, to earn higher commissions digital intermediaries skew search results without disclosing their bias.²⁷ There is little doubt that online comparison sites make shopping easier by facilitating product comparisons. However, just as cell phone, credit card, and mortgage companies design their products, prices, and contracts to profit from consumer misperceptions,²⁸ digital intermediaries can do the same through their search engines and web interfaces. “Seduction by contract”²⁹ now proceeds alongside seduction by algorithm.

Publicly run alternatives face their own accountability flaws. Although agencies lack the same incentives to manipulate consumers

Competition: The Need for Qualified Transparency in Internet Intermediaries, 104 NW. U. L. REV. 105, 106–07, 121 (2010) (exploring “the noneconomic threats that dominant intermediaries pose, particularly in terms of privacy, reputation, and democratic culture”); Jonathan L. Zittrain, *The Generative Internet*, 119 HARV. L. REV. 1974, 1977, 1999 (2006) (discussing regulatory options for strengthening the generative nature of the internet).

24. See Benjamin G. Edelman & Julian Wright, *Price Coherence and Excessive Intermediation*, 130 Q.J. ECON. 1283, 1283, 1311 (2015) (finding that, when intermediaries restrict the seller from charging buyers less who purchase directly, a reduction in consumer surplus and consumer welfare can result).

25. Colin Camerer, Samuel Issacharoff, George Loewenstein, Ted O’Donoghue & Matthew Rabin, *Regulation for Conservatives: Behavioral Economics and the Case for “Asymmetric Paternalism,”* 151 U. PA. L. REV. 1211, 1211–12 (2003). *But see* JOSEPH SINGER, NO FREEDOM WITHOUT REGULATION: THE HIDDEN LESSON OF THE SUBPRIME CRISIS 2–4 (2015) (arguing that regulation is crucial for freedom).

26. See *infra* Parts II.C, V.A.

27. See *infra* Part II.B. The Department of Transportation (DOT) recently passed rules regulating such conduct. See U.S. Dep’t of Transportation, *supra* note 1.

28. See OREN BAR-GILL, SEDUCTION BY CONTRACT: LAW, ECONOMICS, AND PSYCHOLOGY IN CONSUMER MARKETS 7–22 (2012).

29. See *id.*

for profit, their online tools can be captured by businesses or shut down by new political leaders. Nor is there any clear procedural framework for state-run machines that influence private decisions. Some agencies such as the U.S. Department of Agriculture (USDA) have gone through notice and comment for their online tools, while others such as the Consumer Financial Protection Bureau (CFPB) have not.³⁰ The literature and doctrine provide few direct answers but indirectly raise issues. For example, internet governance scholars have articulated the powerful ways in which digital architecture shapes online behavior. One influential view holds that, in cyberspace, computer code is law. It plays this role because of how it constrains the behavior of those browsing the web.³¹ Linking that view to this Article's depiction of digital intermediaries as regulatory instruments would suggest that digital intermediaries' computer code is not merely the law of cyberspace but increasingly the law of markets. To be sure, bureaucrats writing computer code are not engaging in agency rulemaking. However, agencies have little guidance as to when creating digital tools wielding potentially great market influence conflicts with the legitimacy foundations of the administrative state.

The breadth of laws implicated underscores the complexity facing a policymaker today who might seek to regulate through digital intermediaries. Agencies cannot know whether markets need a public digital intermediary without first analyzing whether private digital intermediaries will suffice. Understanding that tradeoff requires predicting whether varied laws—including intellectual property,³² antitrust, and consumer protection—will help or hurt regulatory efforts. It is no small assignment for a decisionmaker in one agency to divine how different agencies and courts will apply distinct laws to transformative technologies. Additionally, if a specific digital intermediary exhibits features of a natural monopoly, possibilities would include treating it as a public utility or common carrier,³³ or a

30. See *infra* Part V.B.

31. See LAWRENCE LESSIG, CODE 5 (2d ed. 2006) (“[C]ode is cyberspace’s ‘law.’”).

32. See, e.g., Jeffrey Kenneth Hirschey, *Symbiotic Relationships: Pragmatic Acceptance of Data Scraping*, 29 BERKELEY TECH. L.J. 897, 918 (2014) (discussing legal strategies that websites use to block data collection).

33. See Oren Bracha & Frank Pasquale, *Federal Search Commission? Access, Fairness, and Accountability in the Law of Search*, 93 CORNELL L. REV. 1149, 1208–09 (2008) (recommending considering adaptation of public-utility frameworks for information-age businesses such as search engines); Christopher S. Yoo, *Is There a Role for Common Carriage in an Internet-Based World?*, 51 HOUS. L. REV. 545, 608 (2013) (recommending looking at historical shortcomings of common carriage when considering that approach for “regulating Internet-based services”).

model akin to the Securities and Exchange Commission's (SEC) oversight of the New York Stock Exchange (NYSE), a private entity.³⁴ Finally, before deciding to operate a public digital intermediary, the policymaker should predict the likelihood that bureaucrats can build their own high-tech tool and adapt it to fast-changing markets.

One policy response could be to abandon both public and private digital intermediaries as agents of more efficient markets or as substitutes for traditional regulations.³⁵ Alternatively, if the digital regulator paradigm persists, it needs a legal framework that supports it. Today's law of digital intermediaries is like that of commercial law in the early 1900s, prior to the adoption of the Uniform Commercial Code (UCC)—arguably “the most successful codification in American law.”³⁶ As one UCC drafter put it, “Horse law and haystack law are uneasily tolerated in the complex business of mass production and national distribution.”³⁷ Similarly, laws written for an era of paper-and-pencil analyses are inapt in a world of artificially intelligent decisions.

The first step in upgrading the legal framework would ideally be some kind of centralized lawmaking initiative. The goal would be to bring together interdisciplinary experts—in computer science, economics, psychology, and law—to provide a set of model rules and guidelines for agencies, courts, and legislatures at both the federal and state levels. The second key institution would be a federal agency—whether existing or new—with an expansive technology mandate. From an institutional perspective, centralized *ex ante* rulemaking offers the best chance to design a set of truly interdependent administrative, antitrust, consumer protection, commercial, and intellectual property laws. Absent some such comprehensive reform, it would be wise to abandon notions that more digitally intermediated decisions better regulate markets.

The Article is structured as follows. Part I provides an overview of the faith placed in digital intermediaries as regulatory tools and offers a taxonomy to aid in analyzing digital intermediaries. Part II lays out the main reasons private digital intermediaries may fail to achieve the

34. *See infra* Part V.A.

35. Private digital intermediaries would be viewed solely as companies offering a new, complex product. Regulators would then need to take a fresh look at what oversight of digital intermediaries is appropriate, as they would for any other product market.

36. Zipporah Batshaw Wiseman, *The Limits of Vision: Karl Llewellyn and the Merchant Rules*, 100 HARV. L. REV. 465, 466 (1987).

37. Grant Gilmore, *On the Difficulties of Codifying Commercial Law*, 57 YALE L.J. 1341, 1341 (1948).

policy goals expected of them, including inadequate information, protectionist laws, deception, and anticompetitive conduct. Part III looks in depth at two public intermediaries: the Affordable Care Act's (ACA) health-insurance exchanges and the CFPB's mortgage rate checker. Part IV explores substantive legal changes needed to have greater confidence that digital intermediaries were improving markets. Part V identifies accountability issues raised by the regulatory state's increasing reliance on computer algorithms to influence decisions. Finally, Part VI discusses options for pursuing unified legal reform.

I. THE PROMISE OF DIGITAL INTERMEDIARIES

Digital intermediaries are widely lauded. When small start-ups or large businesses such as Amazon launch new price-comparison tools, the media rejoices at the “game changer.”³⁸ Regulators and academics hold out as models the industries in which consumers use those tools.³⁹ The support for digital intermediaries has two main foundations. The first is the belief that digital intermediaries can level the playing field between consumers and businesses. The second is the view of digital intermediaries as enabling less restrictive and less resource-intensive regulation. This Part explores these two drivers of appeal. Then, it offers a taxonomy for digital intermediaries.

A. *Digital Intermediaries as Market Equalizers*

One of the fundamental goals of consumer law is to advance consumer welfare. Yet public officials cannot regulate every transaction. Consequently, policymakers aim for markets to self-regulate as much as possible.⁴⁰ Digital intermediaries have become integral to this aspiration.

38. See, e.g., *Amazon's Price Check App: A Game-Changer for Retail?*, RADIO BOS. (Dec. 19, 2011), <http://radioboston.wbur.org/2011/12/19/amazon-price-check> [<https://perma.cc/E5MQ-FKAX>].

39. See, e.g., Scott R. Peppet, *Freedom of Contract in an Augmented Reality: The Case of Consumer Contracts*, 59 UCLA L. REV. 676, 679 (2012) (“Use your phone’s camera to scan the bar code on a potential purchase, and Amazon or Consumer Reports will instantly return price comparisons and consumer reviews.”).

40. See IAN AYRES & JOHN BRAITHWAITE, *RESPONSIVE REGULATION: TRANSCENDING THE DEREGULATION DEBATE* 3, 101–05 (1992).

Rational⁴¹ and informed consumer decisionmaking is important for self-regulated markets. When a sufficient⁴² number of consumers can easily and quickly know which companies offer the best deals, understand the full implications of a purchase, and compare offerings, it is more difficult for a company to engage in unfair and deceptive business practices. One of the central challenges in consumer market regulation is that consumers often lack the information they need to make optimal decisions. Or they suboptimally process the information that is available.

Businesses can strategically profit from suboptimal decisions. They may provide excess information, such as longer product descriptions that make it harder to figure out whether two products are comparable.⁴³ Or they design complex pricing packages, as telecommunications companies do with teaser rates, multiple data levels, and back-end fees, which make it difficult to know which package is cheaper.⁴⁴

One source of hope in recent years is mandating disclosures.⁴⁵ More companies have to disclose the calories on menus, the interest rates of payday loans, or the defects in used cars. The goal is for individuals to use this disclosed information to make better decisions. Disclosures have in some contexts, such as changing the description of Medicare plan choices, produced more optimal results.⁴⁶ Simple scores, such as those used in restaurant hygiene or for annual percentage rates

41. Rational choices here are those that maximize a party's interests given the information and choices available. It may be rational not to spend the time and energy to find the optimal deal.

42. In theory, a minority of informed consumers may sufficiently regulate the market. See Alan Schwartz & Louis L. Wilde, *Intervening in Markets on the Basis of Imperfect Information: A Legal and Economic Analysis*, 127 U. PA. L. REV. 630, 638–39 (1979). But see Oren Bar-Gill & Elizabeth Warren, *Making Credit Safer*, 157 U. PA. L. REV. 1, 21–22 (2008) (arguing that the “informed minority” does not have the power to “drive the market”).

43. See Ellison & Ellison, *supra* note 10, at 427.

44. See, e.g., Bar-Gill & Stone, *supra* note 9, at 456.

45. See THALER & SUNSTEIN, *supra* note 16, at 1–5.

46. In one field experiment, altering a few phrases in letters sent to Medicare patients saved consumers 5 percent on prescription drug costs. See Kling et al., *supra* note 11, at 215.

(APR), also have promise.⁴⁷ Thus, it is possible that with improved design mandated disclosures could produce better results.⁴⁸

However, some contend mandated disclosures have failed to meet expectations.⁴⁹ Even well-designed disclosures can fail because the effectiveness of a consumer's choice is relative to the context. Importantly, that context is dynamic. As products and pricing become more complex, with increasingly technological products and more numerous choices, a previously helpful disclosure may become insufficient. Also, sellers respond to disclosures in ways that purposefully undermine their helpfulness.⁵⁰

The struggle for optimal consumer decisionmaking has gone technological. Businesses are locked in a multi-billion-dollar “arms race” to develop big data sets; purchase advanced computers; and hire the brightest employees with PhDs in economics, statistics, and psychology.⁵¹ With artificially intelligent computers that engage in “deep learning” similar to that of the human mind,⁵² retailers “nudge customers to higher-margin products.”⁵³ To counter, administrative agencies have invested millions of dollars in building interactive

47. See Oren Bar-Gill, *Defending (Smart) Disclosure: A Comment on More Than You Wanted to Know*, 11 JERUSALEM REV. LEGAL STUD. 75, 76 (2015) (acknowledging the failure of full disclosure but arguing for smart disclosure). *But see* OMRI BEN-SHAHAR & CARL E. SCHNEIDER, *MORE THAN YOU WANTED TO KNOW* 133–35 (2014) (offering reasons why score disclosures are unlikely to prove successful). Professor Ryan Bubb has argued that Professors Omri Ben-Shahar and Carl Schneider's criticism addresses disclosures aimed at providing information for slow thinking (System 2), but disclosures aimed at influencing faster thinking (System 1) may have greater promise. See Ryan Bubb, *TMI? Why the Optimal Architecture of Disclosure Remains TBD*, 113 MICH. L. REV. 1021, 1026–28 (2015).

48. See Ian Ayres & Alan Schwartz, *The No-Reading Problem in Consumer Contract Law*, 66 STAN. L. REV. 545, 545 (2014).

49. See, e.g., Ben-Shahar & Schneider, *supra* note 15, at 651.

50. See, e.g., Lauren E. Willis, *When Nudges Fail: Slippery Defaults*, 80 U. CHI. L. REV. 1155, 1183–84 (2013) (summarizing the failures of overdraft fees' mandated disclosures due to banks' responses).

51. See Charles Duhigg, *How Companies Learn Your Secrets*, N.Y. TIMES (Feb. 16, 2012), <http://www.nytimes.com/2012/02/19/magazine/shopping-habits.html> [<https://perma.cc/9T87-7FQV>].

52. The technique recently powered a computer that, much to the surprise of experts, soundly beat the world's leading player of the board game Go—a game much more complicated than chess and long thought by experts to be beyond the realm of computer dominance. See Scott Santens, *Robots Will Take Your Job*, BOSTON GLOBE, Feb. 24, 2016, at K1.

53. See Stefan Biesdorf, David Court & Paul Willmott, *Big Data: What's Your Plan? Many Companies Don't Have One. Here's How To Get Started.*, MCKINSEY Q. (Mar. 2013), <http://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/big-data-whats-your-plan> [<https://perma.cc/QHU9-PQA2>].

websites and putting together teams of quantitative experts.⁵⁴ These government sites move well beyond traditional information dissemination. They receive an input from an individual, algorithmically analyze that input alongside market data, and provide a tailored output.⁵⁵

Because agencies are significantly out-resourced, they view private digital intermediaries as allies in promoting optimal consumer decisions. Private digital intermediaries leverage their own big data, artificial intelligence, and “the hive mind” of millions of other internet users.⁵⁶ For example, financial technology (“FinTech”) companies such as NerdWallet, Credit Karma, Digit, and Mint collect all relevant financial information by connecting online to a consumer’s bank accounts, credit cards, and bills. They analyze this data to provide advice, such as which of thousands of credit cards, CDs, or IRA accounts would offer the best rates or lowest fees, drawing on what similar consumers have done.⁵⁷ Use of these sites has skyrocketed in recent years. As one systems engineer who uses the FinTech company Digit put it, “I’m someone who places complete faith in technology to make smarter decisions than I would.”⁵⁸ Over the past five years, the financial aggregator Mint has seen its users increase sixfold to 20 million.⁵⁹ Credit Karma has over 50 million users.⁶⁰

Policymakers’ growing reliance on these digital intermediaries stems in part from the need for regulation to respond dynamically to market changes. Whereas businesses may undermine mandated disclosures aimed directly at consumers, businesses have a harder time outmaneuvering nimble digital intermediaries wielding the latest

54. The CFPB has invested millions in information technologies. See CONSUMER FIN. PROT. BUREAU, THE CFPB STRATEGIC PLAN, BUDGET, AND PERFORMANCE PLAN AND REPORT 11–15 (2015) [hereinafter CFPB STRATEGIC PLAN], http://files.consumerfinance.gov/f/201502_cfpb_report_strategic-plan-budget-and-performance-plan_FY2014-2016.pdf [<http://perma.cc/RN98-69VU>].

55. See *infra* Part III.

56. See, e.g., JAMES SUROWIECKI, *THE WISDOM OF CROWDS* 15–17 (2004).

57. See Jessica Silver-Greenberg & Mary Pilon, *The Great Customer Courtship—Banks Are Rolling Out New Incentives To Win Your Business*, WALL STREET J., Feb. 12, 2011, at B7; *About Us*, NERDWALLET, www.nerdwallet.com [<https://perma.cc/W277-WHSZ>]; *How It Works*, MINT, www.mint.com/how-mint-works [<https://perma.cc/Q8UZ-ZPN4>].

58. See Daniel Huang & Peter Rudegeair, *Bank of America Cut Off Finance Sites from Its Data*, WALL STREET J., Nov. 10, 2015, at C1.

59. See *id.*

60. See Press Release, Credit Karma, Credit Karma Now Serves 50 Million Members (Jan. 28, 2016), <https://www.creditkarma.com/about/releases/credit-karma-fifty-50-million-members> [<https://perma.cc/L7SA-82LL>].

technologies. As a result, policymakers wanting self-regulation have understandably looked to digital intermediaries to level the playing field.

B. Digital Intermediaries as Minimally Intrusive Regulation

Digital intermediaries are believed to offer a light regulatory option by both requiring minimal governmental involvement and preserving choice. In terms of minimizing government involvement, machine-readable disclosures are thought to shift work from agencies to businesses. With traditional disclosures aimed directly at people, such as a nutrition label or a loan's APR, producing "even modest results" requires "epic effort, ingenuity, and persistence."⁶¹ Studies suggest people rarely read disclosures or misunderstand them when they do.⁶² Disclosures even cause results opposite to those intended.⁶³

In contrast, when the government releases machine-readable data in raw form or mandates disclosures, an entrepreneur determines how best to communicate that data to consumers. For example, to combat excessive fees by investment funds that cost retirees billions of dollars annually,⁶⁴ the federal government began releasing data on 401(k) fund managers.⁶⁵ Companies such as BrightScope have used the released 401(k) data to start websites enabling users to compare 401(k) plan performance.⁶⁶ As scholars have argued, sophisticated intermediaries can use artificial intelligence to sift through large volumes of unfiltered information and rigorously analyze it, theoretically saving governmental decisionmakers from having to closely design direct-to-consumer disclosures.⁶⁷ For those who either have little faith in the state to take on challenging tasks or want to reduce the resources needed to govern, the prospect of a business voluntarily taking on disclosures is appealing.

61. See BEN-SHAHAR & SCHNEIDER, *supra* note 48, at 116–17.

62. See *id.* at 42–47.

63. See *id.* at 116.

64. See, e.g., Ian Ayres & Quinn Curtis, *Beyond Diversification: The Pervasive Problem of Excessive Fees and "Dominated Funds" in 401(k) Plans*, 124 YALE L.J. 1476, 1480 (2015) (stating that a ten-basis-point reduction in mutual-fund fees can save 401(k) plans \$4.4 billion annually).

65. See, e.g., Vivek Wadhwa, *The Goldmine of Opportunities in Gov 2.0*, TECHCRUNCH (Oct. 23, 2010), <http://techcrunch.com/2010/10/23/the-goldmine-of-opportunities-in-gov-2-0> [<https://perma.cc/E7UZ-24L2>].

66. See *id.* (mentioning the company's rise and profitability).

67. See Lin, *supra* note 20, at 602.

The second driver of light regulation, preserving individual autonomy, is relevant to both public and private digital intermediaries. Renters, for example, used to have almost no information about landlords in New York City, which left them “with little confidence that the leaky faucet [would] be fixed or the roaches [would] be vanquished.” Following city agencies’ release of complaints and violations online, however, a start-up called Rentlogic built an online searchable database consolidating landlord records and building ratings.⁶⁸ Rather than issuing top-down rules prohibiting landlord conduct, an agency may accomplish similar goals by releasing machine-readable data. Citizens can choose to carry on as before, but the increased visibility may give the market a better chance to discipline problematic behavior.

The narrative created by machine-readable disclosures is one of unleashing the power of the digital economy to regulate itself: if the information is released, entrepreneurs will build online tools to improve consumers’ lives one decision at a time. Digital intermediaries are thus expected to advance policy more effectively and efficiently than other options.

C. *Types of Digital Intermediaries*

Digital intermediaries are pervasive and heterogeneous. To aid in analyzing this large universe of online tools, this Section offers a typology. Before articulating key distinctions, however, it is worth clarifying commonalities. This Article examines digital intermediaries that influence people’s decisions in transacting with private entities. Thus, these digital tools are separate from the consumers and end sellers that offer some good or service. This focus means that all types of digital intermediaries provide algorithmic advice. The advice may come in subtle forms, such as the order of search results. Or it may be more explicit, such as recommending waiting to buy airline tickets based on a prediction that prices will drop.⁶⁹

Three main distinctions between different types of intermediaries are useful for this Article’s core analysis. First, digital platforms that process a transaction between a consumer and a seller are called marketplaces. Others are informers. Second, the more an intermediary

68. See Ronda Kaysen, *Grading the Landlord*, N.Y. TIMES, Sept. 25, 2016, at RE3.

69. See Kaiser Fung, *When to Hold Out for a Lower Airfare*, FIVETHIRTYEIGHT (Apr. 20, 2014, 6:00 AM), <http://fivethirtyeight.com/features/when-to-hold-out-for-a-lower-airfare> [<https://perma.cc/EXL8-PY3U>].

favors some sellers over others, the more it is a promoter instead of a neutral. Third, intermediaries are either publicly or privately run. The business model, legal status, and regulatory implications vary for each category.

1. *Marketplaces Versus Informers.* Marketplaces accept payment from the consumer in exchange for a third-party seller providing a product. They generate much of their revenue from keeping a percentage of the transaction that they process or by buying the product and reselling it for a markup. Travelers go to the marketplace Expedia to purchase tickets for flights operated by United, Delta, or American Airlines. At Amazon, shoppers can buy jeans made by Calvin Klein or Levi.⁷⁰ However, marketplaces may also produce their own goods or services in addition to selling those of others. Amazon, for example, is increasingly producing its own Amazon-branded products, ranging from soap to clothing.⁷¹

Digital intermediaries that do not process a monetary transaction for third-party products are informers. Informers earn their revenues from selling information collected from the consumer, from subscriptions to their intermediary services, or through advertising. The mortgage and travel industries demonstrate the range of services offered by informers. Often the intermediary offers answers to specific financial questions. For example, many websites offer mortgage calculators for free.⁷² The borrower enters information such as zip code and income, and the calculator estimates the likely interest rate the borrower could attain. In a related service, mortgage holders can go to Bills.com or related sites and, after entering information, receive a “yes” or a “no” as to whether they should refinance.⁷³ Some sites go a step further and list the specific financial institutions willing to lend at the rates provided.⁷⁴

70. See, e.g., Ananya Bhattacharya, *Amazon Launches Its Own Clothing Brands*, VERGE (Feb. 23, 2016, 3:15 PM), <http://www.theverge.com/2016/2/23/11099968/amazon-fashion-launches-clothing-lines> [<https://perma.cc/9YW8-95HB>].

71. See *Amazon Basics*, AMAZON, www.amazon.com/AmazonBasics [<https://perma.cc/L4SC-6E8Z>].

72. See M.P. McQueen, *Refinancing: Whom Can You Trust?*, WALL STREET J., Sept. 18, 2010, at B7.

73. See *id.*

74. See *Get Your Mortgage Rates for Home Loans*, BILLS.COM, <http://www.bills.com/mortgage-rates> [<https://perma.cc/SQG6-B8QS>].

In the travel industry, marketplaces and informers compete for control of consumers' searches. The marketplaces Expedia and Travelocity were the early U.S. market leaders for searches. On those sites, consumers can purchase tickets. Now, however, 80 percent of all searches go through Kayak.⁷⁵ The links in Kayak's search results refer consumers either directly to sellers, such as Delta or American Airlines, or to marketplaces, such as Expedia and Travelocity, to make a purchase.

2. Neutrals Versus Promoters. Another key distinction is between neutrals and promoters. The extent to which an intermediary is more of a promoter, as opposed to a neutral, depends on the degree to which its automated advice is designed to earn more money by steering consumers toward certain products. This advice may or may not hurt the consumer. The distinction between neutrals and promoters is less binary and clear-cut than that between marketplaces and informers.

Most digital intermediaries promote to some extent. Promotion can come in many forms. More intense promotion results when an intermediary receives a higher commission or markup for some products than for others. This promotion may be driven by the seller, just as banks have given mortgage brokers higher commissions for higher-priced loans.⁷⁶ Or it may be driven by the intermediary's business model. Marketplaces such as Amazon vary their markups on different products depending on the deals they get with sellers. They also earn higher markups from their own manufactured products (for example, Amazon batteries) than they do on products they purchase from third parties (for example, Duracell batteries).⁷⁷

In contrast to Amazon, eBay does not sell its own products and earns a flat commission on all sales. Accordingly, eBay is far more of a neutral, with little, if any, incentive to steer consumers toward specific products. To be sure, even more neutral marketplaces like eBay want to increase any given consumer's overall purchases, since it would then earn a commission on a higher base. However, neutral marketplaces have far less incentive, if any, to nudge consumers toward higher-

75. See Chabeli Herrera, *Travel Search Engine Skyscanner Eyes U.S. Market After Miami Office Opens*, MIAMI HERALD (Feb. 28, 2016, 2:00 PM), <http://www.miamiherald.com/news/business/biz-monday/article62789137.html> [<https://perma.cc/58CE-N4EN>].

76. See, e.g., William N. Eskridge, Jr., *One Hundred Years of Ineptitude: The Need for Mortgage Rules Consonant with the Economic and Psychological Dynamics of the Home Sale and Loan Transaction*, 70 VA. L. REV. 1083, 1123, 1129–30, 1140 n.179 (1984).

77. See, e.g., Bhattacharya, *supra* note 70.

priced products since they earn only a fraction (typically about 10 percent) of any price increase.⁷⁸ Promoter marketplaces, such as Amazon, earn 100 percent of any price increase on a significant portion of their products.

The existence of advertising may, but need not, decrease neutrality. Yelp, for example, allows paid advertising alongside users' ratings of companies, but academics have found that Yelp does not bias search results in accordance with those advertisements.⁷⁹ Instead, it distinguishes paid links from unpaid ones. Maintaining an air of neutrality is crucial for earning consumers' trust and thus for profitability. Reputational concerns provide some market constraints on detectable bias.

Pure neutrals are mostly nonprofits or publicly run companies, but they need not be. Craigslist is technically for-profit but has limited its revenues to certain posting categories, such as employers who want to list a job. The site has steadfastly refused advertisements or any manipulation of the results.⁸⁰ Some sites earn money solely by collecting information. For example, Intuit offers a mortgage calculator into which consumers enter income, location, and credit score to obtain advice about mortgage options. The company sells the information collected to DoubleClick, an internet advertising firm owned by Google.⁸¹ Also, companies purchase informers' information to estimate a consumer's overall net worth, which then determines service levels, such as whether to direct a phone call to a VIP customer service line or to an unhelpful call center.⁸² The market value of data means mortgage calculators can be profitable even if designed to offer unbiased analysis.

Generally, marketplaces and promoters establish closer legal relationships with sellers than do informers and neutrals. Informers can provide information and analysis to consumers about a third-party seller regardless of whether that seller cooperates. But to process a transaction on behalf of a seller, marketplaces must generally establish

78. Nudging consumers toward higher prices risks making them purchase nothing.

79. See Michael Luca & Georgios Zervas, *Fake It Till You Make It: Reputation, Competition, and Yelp Review Fraud*, 62 *MGMT. SCI.* 3412, 3426 (2016).

80. See Steven Rosenbaum, *The Craigslist Economy Is Booming*, *FORBES* (Jan. 26, 2015, 10:38 AM), <http://www.forbes.com/sites/stevenrosenbaum/2015/01/26/the-craigslist-economy-is-booming/#31209c5a7c1e> [<https://perma.cc/26QE-Y3TV>].

81. See Glenn R. Simpson, *Intuit Acts to Curb Leaks on Web Site*, *WALL STREET J.*, Mar. 2, 2000, at A3.

82. See Rory Van Loo, *The Corporation as Courthouse*, 33 *YALE J. REG.* 547, 565–66 (2016).

an ongoing contractual arrangement or at least transact at some point to purchase the seller's products. Similarly, to receive commissions that would provide the incentive to promote, an intermediary must enter into a more formal contractual relationship.

In one case, subprime credit card seller First Premier Bank sued CardHub, which offers a credit card comparison tool.⁸³ First Premier—described by Consumer Reports as offering “America’s Worst Credit Card”⁸⁴—did not dispute CardHub’s ability to provide information about its credit cards.⁸⁵ However, CardHub used a link, “Apply Now,” that directed consumers to an application at First Premier’s website that the company reserved for authorized partners.⁸⁶ First Premier argued that this use of the link implied that CardHub was affiliated with First Premier in a way it was not—as if the consumer were applying for the credit card through CardHub, or as if CardHub were an authorized agent.⁸⁷ Stated otherwise, First Premier accused CardHub of holding itself out to be a marketplace or promoter when the two companies had no such legal relationship. Thus, the distinction between neutral and promoter—and between marketplace and informer—is valuable for considering the legal and policy implications of digital intermediaries.

3. *Public Versus Private.* Digital intermediaries may be public or private. The private versus public distinction refers to the ownership and ongoing management of the intermediary, not the source of the data. For example, public initiatives have given consumers access to digital information about their personal home energy usage.⁸⁸ Private companies have used this public data to create energy-saving products such as an “ambient orb” that changes colors throughout the day and flashes red when electricity prices peak, thereby enabling people to

83. Memorandum in Support of Defendants’ Motion to Dismiss and Opposition to Plaintiffs’ Preliminary-Injunction Motion at 2, *First Premier Bank v. Papadimitriou*, 2015 WL 127845 (D.S.D. Jan. 7, 2015) (Civ. No. 14–4055).

84. *America’s Worst Credit Card*, CONSUMER REP., Nov. 2010, at 14, 14.

85. See *First Premier Bank v. Papadimitriou*, 2015 WL 127845, at *4 (D.S.D. Jan. 7, 2015).

86. See *id.* at *3.

87. See *id.*

88. See Aneesh Chopra, *Modeling a Green Energy Challenge After a Blue Button*, WHITE HOUSE BLOG (Sept. 15, 2011, 4:55 PM), <https://www.whitehouse.gov/blog/2011/09/15/modeling-green-energy-challenge-after-blue-button> [<https://perma.cc/Q8D7-LKPO>]; Matt Nauman, *PUC Approves PG&E’s SmartMeter Program*, SAN JOSE MERCURY NEWS (Mar. 12, 2009, 8:06 AM), http://www.mercurynews.com/green/ci_11897831 [<https://perma.cc/Q2DR-CU66>].

save money on electricity.⁸⁹ Although enabled by public actions, these companies are private intermediaries.

Hybrid arrangements have also emerged. Public-private partnerships have created intermediaries in select industries such as the education and health sectors. Federal agencies have coordinated with private sector lenders and schools to provide an array of digital tools. These tools assist students in financing their education and adopting learning goals tailored to their educational history and aspirations.⁹⁰ Many public health-insurance exchanges operate through public-private partnerships because the government relies on private contractors on an ongoing basis.⁹¹ Despite some hybrids, the vast majority of intermediaries are run by either private or public entities. The next two Parts explore limits of each.

II. WHY PRIVATE INTERMEDIARIES FALL SHORT

Despite great enthusiasm among scholars and policymakers, digital intermediaries face challenges in regulating markets. Initially, it is difficult for a company to get started due to informational and legal barriers. Even if digital intermediaries fully launch, consumers and markets may benefit less than assumed.

A. *Start-Up Barriers*

The literature fails to sufficiently acknowledge two key challenges to digital intermediaries' ascension. First, digital intermediaries often cannot compete in the first place because information is difficult to acquire or established companies use laws to repel them. Second, machine-readable mandatory disclosures can require substantial government involvement.⁹²

Barriers to entry arise from the difficulty in obtaining key data. This is true for both of the main types of information that digital intermediaries seek: general product information and consumer-specific usage information. For a cell phone plan, general information would include the base monthly price, amount of data allowed in

89. See Clive Thompson, *Desktop Orb Could Reform Energy Hogs*, WIRE MAG. (July 24, 2007, 12:00 PM), http://www.wired.com/techbiz/people/magazine/15-08/st_thompson [<https://perma.cc/G8MV-L97C>].

90. See *Education Data and Tools*, DATA.GOV, <https://www.data.gov/education/education-apps> [<https://perma.cc/B8VZ-3TQ8>].

91. See *infra* Part III.A.

92. See *supra* Part I.B.

different plans, and rules for fees. Consumer-specific usage information would include a particular consumer's history of fees paid or the average amount of data downloaded.⁹³

Customer-specific information is crucial in many markets, but because it is not publicly available companies can easily block intermediaries from accessing it. Digital intermediaries such as NerdWallet operate by first obtaining consumers' permission and password information for online financial accounts. They then send an information-collecting bot into consumers' bank and credit card accounts, with the goal of using that information to advise consumers about which financial products best serve their particular needs.⁹⁴ But somewhat recently, after millions of consumers had provided such access, Bank of America and other financial institutions tried to completely block these bots.⁹⁵ Because this blocking angered customers, financial institutions ultimately decided to limit what information the bots can access.⁹⁶ Other industries have erected similar barriers. Airlines have blocked third-party aggregator sites' attempts to let passengers see all of their frequent-flier-mile balances in one place.⁹⁷

It is less well understood that digital intermediaries may face difficulties collecting even general product information. In-store data is costly to collect. Amazon at one point offered to pay shoppers up to five dollars per item for passing on price information from brick-and-mortar stores.⁹⁸ Sellers have steadfastly blocked online intermediaries' efforts to set up pharmaceutical price-comparison websites.⁹⁹ Enterprise and Avis similarly blocked a popular website, Autoslash, from monitoring prices to advise consumers when to rent, a service that reportedly saved shoppers on average 25 percent.¹⁰⁰

93. Oren Bar-Gill emphasizes this distinction for disclosures. See Bar-Gill, *supra* note 47, at 82.

94. See, e.g., *Cracking the Vault; Retail Banking*, ECONOMIST, Oct. 24, 2015, at 66–67.

95. See Huang & Rudegeair, *supra* note 58.

96. See, e.g., Bryan Yurcan, *Warning to Banking Industry: Innovate or Die*, FIN. BRAND (July 6, 2015), <https://thefinancialbrand.com/52725/banking-innovation-imperative> [<https://perma.cc/6VHQ-GUZA>].

97. See Ron Lieber, *Swatting Down Start-Ups that Help Consumers*, N.Y. TIMES, Apr. 7, 2012, at B1.

98. See Richard Russo, *Amazon's Jungle Logic*, N.Y. TIMES, Dec. 13, 2011, at A35.

99. See Katie Thomas, *New Online Tools Offer Path to Lower Drug Prices*, N.Y. TIMES, Feb. 10, 2016, at B1.

100. See Ron Lieber, *A Rate Sleuth Making Rental Car Companies Squirm*, N.Y. TIMES, Feb. 18, 2012, at B1.

Part of the problem is that bots often cannot legally obtain the information they would like to aggregate and analyze, even if that information seems freely available on the web. For online data, sellers have used the law to prevent web scraping, by which intermediaries use web crawlers or spiders to gather online information.¹⁰¹ Sellers have successfully challenged web scraping as a violation of contract law, the Computer Fraud and Abuse Act, the Digital Millennium Copyright Act, and electronic trespass to chattel.¹⁰² For example, eBay's commanding market position in online auctions, with over 90 percent of the market, was cemented by blocking would-be competitors, such as Bidder's Edge, from collecting data.¹⁰³

Industry-specific protectionist laws, including in the automobile and real estate industry, also block digital intermediaries' access to marketplaces and information. When an entrepreneur attempted to create the Amazon of the new car market, and thereby enable consumers to purchase cars online directly from manufacturers,¹⁰⁴ his effort was blocked by laws in all fifty states that grant monopolies to local auto dealers.¹⁰⁵ These laws are estimated to cost consumers about \$40 billion each year.¹⁰⁶ Relatedly, state-law-empowered commissions have historically limited price competition among real estate

101. See Urs Gasser, *Regulating Search Engines: Taking Stock and Looking Ahead*, 8 YALE J.L. & TECH. 201, 213–14 (2006).

102. See James Grimmelmann, *The Structure of Search Engine Law*, 93 IOWA L. REV. 1, 24 (2007); Hirschey, *supra* note 32, at 899, 918.

103. See Ryan T. Holte, *The Misinterpretation of eBay v. Merexchange and Why: An Analysis of the Case History, Precedent, and Parties*, 18 CHAP. L. REV. 677, 706 (2015); David S. Shevitz, *Does Current Antitrust Regulation Provide Free Parking for eBay and Paypal in the Monopoly Game of Online Auction Sites and Person-to-Person Online Payment Systems?*, 30 LOY. L.A. ENT. L. REV. 175, 211–12 (2009).

104. See Sonari Ginton, *Why Buying a Car Never Changes*, NPR: PLANET MONEY (Feb. 19, 2013, 2:18 PM), <http://www.npr.org/templates/transcript/transcript.php?storyId=172402376> [<https://perma.cc/V3XE-XSZY>].

105. Consumers cannot buy directly from Ford, and must instead buy at the local auto dealer. See, e.g., Daniel A. Crane, *Tesla and the Car Dealers' Lobby*, REGULATION, Summer 2014, at 10, 12.

106. See GERALD R. BODISCH, ECON. ANALYSIS GRP., U.S. DEP'T OF JUSTICE ANTITRUST DIV., ECONOMIC EFFECTS OF STATE BANS ON DIRECT MANUFACTURER SALES TO CAR BUYERS 4 (2009), <https://www.justice.gov/sites/default/files/atr/legacy/2009/05/28/246374.pdf> [<https://perma.cc/E3AH-SX8Z>] (estimating automobile price increases due to territorial monopolies at 8.6 percent). The U.S. Department of Commerce estimates automobile spending at \$455 to \$478 billion in 2016. See *National Data*, BUREAU OF ECON. ANALYSIS, U.S. DEP'T OF COMMERCE, http://www.bea.gov/iTable/index_nipa.cfm [<https://perma.cc/ZY4C-NCJP>] (click on "Begin using the data . . ." button; then scroll to and click on tbl. 2.3.5). 8.6 percent of \$460 billion is \$40 billion.

brokers.¹⁰⁷ For example, some states prohibit brokers from unbundling their services and only charging for listing the home (rather than the whole slate of broker services).¹⁰⁸ In states such as New Jersey without those restrictive laws, real estate listing websites have thrived, cutting the commission rate by several percentage points.¹⁰⁹ These cuts save consumers over seven thousand dollars on the median home.¹¹⁰

Businesses have also used contract law to limit information flow, such as “gag clauses” or “non-disparagement clauses.” When one customer wrote a negative review at RipoffReport after not receiving a few trinkets she ordered, the retailer Kleargear billed her \$3500 for violating a clause stating “your acceptance of this sales contract prohibits you from taking any action that negatively impacts [our company], its reputation, products, services, management or employees.”¹¹¹ These clauses became so widespread that Congress ultimately passed a bill outlawing them.¹¹²

The second major obstacle to digital intermediaries obtaining information is that it is more difficult than commonly assumed for agencies to design machine-readable mandated disclosures. No regulator wants to mandate unnecessary disclosures. Yet it may be hard to know what information digital intermediaries and sellers have. When markets do provide substitutes for mandated disclosures, it may happen subtly, through diverse firms that individually safeguard knowledge but collectively contribute that knowledge to, for example, informed prices for publicly traded shares.¹¹³ Moreover, markets will often only provide partial information relevant for policymakers’

107. See Complaint at 5–6, *United States v. Ky. Real Estate Comm’n*, No. 3:05-cv-00188-S, 2005 WL 1978692 (W.D. Ky. July 15, 2005); Eskridge, *supra* note 76, at 1148.

108. See B. Douglas Bernheim & Jonathan Meer, *Do Real Estate Brokers Add Value When Listing Services Are Unbundled?*, 51 *ECON. INQUIRY* 1166, 1167 (2013).

109. See Pui-Wing Tam, *The Best Way To . . . Buy a House*, *WALL STREET J.*, Nov. 18, 2002, at R4 (reporting on the reduction of commission from 6 percent to 2 percent).

110. See *Rebates Make Buying a Home Less Expensive*, U.S. DEP’T OF JUSTICE (July 2, 2015), <http://www.justice.gov/atr/rebates-make-buying-home-less-expensive> [<https://perma.cc/XX7Q-RK7A>] (“A 1% rebate on the median-priced home would save the homebuyer \$1,843.”).

111. See Mary Beth Quirk, *Customer Writes Negative Review After Never Receiving Order, Site Fines Her \$3.5K*, *CONSUMERIST* (Nov. 14, 2013), <https://consumerist.com/2013/11/14/customer-writes-negative-review-after-never-receiving-order-site-fines-her-3-5k> [<https://perma.cc/B22T-Z4HX>].

112. Consumer Review Fairness Act of 2016, Pub. L. No. 114-258, 130 Stat. 1355 (codified at 15 U.S.C. §§ 45b, 58).

113. See Colleen Honigsberg, Robert J. Jackson, Jr. & Yu-Ting Forester Wong, *Mandatory Disclosure and Individual Investors: Evidence from the JOBS Act*, 93 *WASH. U. L. REV.* 293, 327 (2015).

goals. Online product reviews such as those on Amazon, TripAdvisor, and Yelp may miss less salient attributes such as unfavorable contract clauses.¹¹⁴ Further complicating this is that data collected by all parties evolves. Consequently, an agency would need to stay up-to-date on the latest information and perhaps rewrite specific disclosure requirements regularly.¹¹⁵ Many relevant agencies, such as the Federal Trade Commission (FTC), do not have monitoring programs to collect firms' internal information for such purposes.¹¹⁶ Even if they did, collecting and analyzing the data would be resource intensive.

Policymakers rarely undertake such complex inquiries and analyses in designing mandated disclosures.¹¹⁷ More commonly, they assume either that the information is readily available or that simple machine-readable disclosures will suffice. Underestimating the difficulty of setting digital intermediaries up for success thereby constitutes a policy obstacle. One congressman recently asked in exasperation, "Why isn't it possible . . . to just have a price where anybody who wants to know what that price is can go to a website and see?"¹¹⁸ The counterintuitive answer in the information age is that laws and entrenched companies get in the way.¹¹⁹

B. Misperception and Deception

Digital intermediaries are seen as protecting consumers from end sellers. However, digital intermediaries sell something: use of their algorithms. These products raise concerns analogous to those demonstrated for cell phone plans, credit cards, mortgages, and other products.

1. *Misperception.* Firms can leverage complexity to decrease efficiency and raise prices. Manufacturers price printers low and ink cartridges high. This practice can make it more difficult for consumers to compare the full costs of owning the printer.¹²⁰ Scholars have found that "misperceptions" of wireless carriers' strategically complex

114. See Florencia Marotta-Wurgler, *Even More Than You Wanted to Know About the Failures of Disclosure*, 11 JERUSALEM REV. LEGAL STUD. 63, 71 (2015).

115. Alternatives, such as broader disclosure rules, are possible but raise challenges of their own.

116. See Van Loo, *supra* note 19, at 1381.

117. See, e.g., Honigsberg et al., *supra* note 113, at 296.

118. Thomas, *supra* note 99 (quoting Representative Peter Welch).

119. See Van Loo, *supra* note 19, at 1330.

120. Gabaix & Laibson, *supra* note 8, at 506–07.

pricing packages help explain why many subscribers wind up paying 20 percent more than they would if they had selected the optimal plan.¹²¹ Thus, sellers in a variety of industries use complexity and “shrouded attributes”¹²² such as expensive ink to raise prices.

Digital intermediaries at first appear straightforward. The user enters basic information and receives a list. However, printers and ink, and to some extent cell phone plans and credit cards, also appear straightforward. The more important behavioral economics inquiry is whether decisionmaking is sufficiently complex that digital intermediaries are “hiding the true costs of the product from the imperfectly rational consumer.”¹²³ One driver of such complexity can be the multidimensional nature of the price and product.¹²⁴

Many digital intermediaries’ services involve complexity and multidimensionality. A seminal study of online decisionmaking found that delivery fees, minor product distinctions, and information overload from online searches enable sellers to inflate prices for even what seem like straightforward items, such as computer accessories.¹²⁵ Instacart and Postmates, which deliver products from brick-and-mortar retailers, list prices for each item on their website under the corresponding store, such as Whole Foods or CVS. Consumers would understandably assume that these are the brick-and-mortar stores’ prices and that Instacart and Postmates earn money from the delivery fee. However, those digital marketplaces’ prices have included an undisclosed and varying markup over the price that the intermediary pays. A recent report found that the extent of the hidden markup varies greatly and tends to be substantial, ranging from 22 percent on Costco dental floss to 120 percent on a rock-climbing carabiner from a local sporting goods store.¹²⁶ A consumer wanting to calculate the per-use price of a digital marketplace’s services would need to consider these markups along with delivery fees, membership fees, and manufacturing fees.¹²⁷

121. Bar-Gill & Stone, *supra* note 9, at 453.

122. Gabaix & Laibson, *supra* note 8, at 505.

123. BAR-GILL, *supra* note 28, at 18.

124. *Id.*

125. See Ellison & Ellison, *supra* note 10, at 427.

126. See Brian X. Chen, *The High Price of Delivery App Convenience*, N.Y. TIMES, Nov. 4, 2015, at B9. Markups also vary significantly among items from the same store. See *id.*

127. Yan Deng, *A Look at Instacart’s Pricing as Delivery and Membership Fees Evolve*, PROFITERO BLOG, Feb. 16, 2016, <https://www.profitero.com/2016/02/a-look-at-instacarts-pricing-as-delivery-and-membership-fees-evolve> [<https://perma.cc/7TSN-5ECE>].

Basic complexity enables digital intermediaries to leverage subtle psychological influences on consumers' perceptions. Sites can anchor a consumer's price perception by placing a high-priced item at the top of search results. This has the psychological effect of causing consumers to perceive subsequent items as more affordable than they would had they not seen a high-priced item first.¹²⁸ More generally, given the complexity of most digital intermediaries and the subtle ways they can alter advice, comparing different digital intermediaries would—like comparing credit card offers with teaser rates and rewards programs—require analyzing many variables. Digital intermediaries thus have shrouded attributes that—like shifting costs to ink cartridges or offering complex cell phone pricing packages—may enable companies to increase equilibrium prices and inefficiencies.¹²⁹

Arguably, it is even more difficult for consumers to know how digital intermediaries are manipulating them than in traditional decisionmaking contexts. Few consumers read contracts—let alone understand the legal terms—but they have access to them.¹³⁰ Consumers could study credit card fees in the fine print or build a spreadsheet to analyze complex cell phone pricing plans or printer costs. Indeed, many consumers do choose the optimal cell phone plan.¹³¹ Alternatively, consumers can rely on third parties, such as Consumer Reports, to conduct those analyses. In contrast, digital intermediaries guard their algorithms just as Coca-Cola guards its beverage formula.¹³² Besides undermining optimal consumer choice among digital intermediaries, this secrecy clouds the debate about how algorithms may contribute to economic and racial inequality.¹³³

128. See KLEIMANN COMMC'N GRP. & CONSUMERS UNION, CHOICE ARCHITECTURE: DESIGN DECISIONS THAT AFFECT CONSUMERS' HEALTH PLAN CHOICES 3 (2012), http://www.consumersunion.org/pdf/Choice_Architecture_Report.pdf [<https://perma.cc/5A3F-G52L>].

129. See BAR-GILL, *supra* note 28, at 17–20; Gabaix & Laibson, *supra* note 8, at 505.

130. See, e.g., Ayres & Schwartz, *supra* note 48, at 546–48 (reviewing the literature finding that few people read contracts).

131. See Bar-Gill & Stone, *supra* note 9, at 453.

132. See Pasquale, *supra* note 23, at 106.

133. See, e.g., FRANK PASQUALE, THE BLACK BOX SOCIETY: THE SECRET ALGORITHMS THAT CONTROL MONEY AND INFORMATION 18 (2015) (arguing that automated algorithms have discriminatory implications); Anupam Chander, *The Racist Algorithm?*, 115 MICH. L. REV. (forthcoming 2017) (manuscript at 1), <https://ssrn.com/abstract=2795203> [<https://perma.cc/Q66F-DYTQ>] (“[A]lgorithms trained or operated on a world pervaded by discriminatory effects are likely to reproduce that discrimination.”); Van Loo, *supra* note 82, at 579–80 (concluding that companies' dispute-resolution algorithms may provide unequal redress while reducing human bias).

Theory would predict that these practices ultimately raise prices and add inefficiency, as they do for other products.¹³⁴ Empirical data provides some support for that conclusion. Most directly, one study found eBay's algorithmic changes made a 5 to 15 percent difference in prices paid for many searches.¹³⁵ The actual numbers are in flux as markets shift and digital intermediaries run tests year-round to identify which algorithms earn higher profits.¹³⁶

2. *Deception.* A potential source of deception relates to undisclosed bias. Economists have shown how human financial advisers successfully recommend higher-priced products when consumers are unaware of a financial conflict of interest.¹³⁷ Consumers also pay significantly more if a mortgage broker's commission is part of the loan—which makes it far less salient—than if they pay the broker separately.¹³⁸

Digital intermediaries have recreated the financial industry's commission structure. Most sites receive pay for each click or purchase following the click.¹³⁹ Some products pay more commission than

134. See generally BAR-GILL, *supra* note 28 (discussing behavioral economic effects in contracts).

135. See Michael Dinerstein, Liran Einav, Jonathan Levin & Neel Sundaresan, *Consumer Price Search and Platform Design in Internet Commerce 2* (Nat'l Bureau of Econ. Research, Working Paper No. 20415, 2014), <http://www.nber.org/papers/w20415.pdf> [<https://perma.cc/2H7H-RBEM>]. The eBay changes reduced prices paid. See *id.* Subtle changes to algorithms can more broadly benefit consumers. See Eric Goldman, *Search Engine Bias and the Demise of Search Engine Utopianism*, 8 YALE J.L. & TECH. 188, 189, 191–93 (2006). However, the eBay study illustrates how digital intermediaries can meaningfully alter the prices paid by providing consumers with a different set of search results. Another study with access to firms' internal data concluded that consumers searching online paid about 6 to 9 percent above the competitive level due to sellers' behavioral economics-related business factors. See Ellison & Ellison, *supra* note 10, at 427–29.

136. See, e.g., Scott McCartney, *The Middle Seat: The Secret Logic to Hotel Listings on Travel Sites*, WALL STREET J., Jan. 28, 2016, at D1 (describing Expedia's testing).

137. See Mark Armstrong & Jidong Zhou, *Paying for Prominence*, 121 ECON. J. F368, F368 (2011); Roman Inderst & Marco Ottaviani, *How (Not) to Pay for Advice: A Framework for Consumer Financial Protection*, 105 J. FIN. ECON. 393, 393 (2012); Sendhil Mullainathan, Markus Noeth & Antoinette Schoar, *The Market for Financial Advice: An Audit Study* 18 (Nat'l Bureau of Econ. Research, Working Paper No. 17929, 2012), <http://www.nber.org/papers/w17929.pdf> [<https://perma.cc/H6PW-KV96>].

138. See Susan E. Woodward & Robert E. Hall, *Consumer Confusion in the Mortgage Market: Evidence of Less than a Perfectly Transparent and Competitive Market*, 100 AM. ECON. REV. 511, 513 (2010).

139. See, e.g., *First Premier Bank v. Papadimitriou*, Civ. No. 14–4055, 2015 WL 127845, at *1 (D.S.D. Jan. 7, 2015).

others.¹⁴⁰ Sites “recommend” higher-commission products.¹⁴¹ Yet they freely disclose neither their overall commission nor the commission variation among products.¹⁴² Many omit some of the lowest-priced products altogether. Many users are unaware of the bias underlying the digital intermediary advice they receive, just as many were unaware mortgage brokers did not have borrowers’ best interests in mind.

A range of disclosures and other regulations govern consumer products such as cell phone contracts, credit cards, and mortgages.¹⁴³ Despite structural similarities, digital intermediaries remain largely unregulated.¹⁴⁴ Like mortgage brokers and other human intermediaries, digital intermediaries make sorting through difficult choices easier. Many consumers are surely better off using them than not, given the options available. However, as regulatory instruments, it is problematic to expect them to reduce the same deception and misperception they can create.

C. *Excess Intermediation*

Empirical data about digital intermediaries’ overall market impact is limited. Thus, they may overall increase efficiency in specific markets. Nonetheless, scholars have begun to identify potentially anticompetitive conduct. This conduct may mean either that intermediaries bring fewer benefits than typically assumed, or that their presence overall lowers consumer welfare in some contexts.

Digital intermediaries often obtain high market shares. Much of this concentration results organically, as did iTunes’s 70 percent share of online music.¹⁴⁵ Acquisitions have also played a role. After

140. McCartney, *supra* note 136.

141. *Id.*

142. See *Dependable Sales & Serv. Inc. v. Truecar, Inc.*, No. 15-cv-1742 (PKC), 2016 WL 79992, at *7 (S.D.N.Y. Jan. 6, 2016); McCartney, *supra* note 136. Even in the highly regulated consumer-finance space, the online lending portal site LendingTree, in one of its hundred disclosures, explains only generally that the compensation it receives from lenders “may impact how and where products appear on [its] site (including, for example, the order in which they appear).” *Advertising Disclosures*, LENDINGTREE, <https://www.lendingtree.com/legal/advertising-disclosures-offers?disclosures=00031,00001,00059,00094,00101,00109,00116,00117> [<https://perma.cc/QCR2-LFU9>].

143. See generally CFPB STRATEGIC PLAN, *supra* note 54 (reporting consumer-finance protections).

144. See *infra* Part IV.A.3.

145. Ed Christman, *Digital Developments Could Be Tipping Point for MP3*, REUTERS (Dec. 1, 2007), <http://www.reuters.com/article/us-mp-idUSN0132743320071203> [<https://perma.cc/VFA5-A5D4>].

purchasing its leading competitor Trulia, online real estate listing service Zillow reached a 63 percent share.¹⁴⁶ Scholars have begun to identify issues related to such concentration among digital companies that are relevant—but not necessarily specific—to digital intermediaries.¹⁴⁷ Some believe the consumer harms resulting from digital-service concentration may be “massive” even independent of price, though the evidence remains limited.¹⁴⁸ Through online platforms, firms use artificially intelligent price-setting software that can facilitate collusion.¹⁴⁹ This “sea change in commerce” may increase the risk of harm to consumers from supracompetitive prices.¹⁵⁰

Economists have also turned their attention to conduct more specific to digital intermediaries. In particular, many digital intermediaries use price-parity clauses, or “most-favored-nation provisions.” Amazon, for example, requires sellers to “ensure that the item price and total price of an item [listed] on Amazon.com are at or below the item price and total price at which [the seller lists] the item via any other online sales channel.”¹⁵¹ Applied to Sony, this clause would prohibit the manufacturer from selling its Playstation on other websites or on its own website for less than the price at which it lists the item on Amazon. Price-comparison sites have used similar clauses in other industries such as for hotels, airfare, and insurance.¹⁵²

Some digital marketplaces can insist on price parity clauses because of their ability to exclude sellers from large portions of the

146. See Palbir Nijjar, *Zillow Group, Inc. Impresses a Year After the Trulia Acquisition*, MOTLEY FOOL (May 12, 2016, 1:13PM), <http://www.fool.com/investing/general/2016/05/12/zillow-group-inc-impresses-a-year-after-the-trulia.aspx> [<https://perma.cc/5JCZ-HD5F>].

147. The businesses studied tend to overlap with digital intermediaries even if they often include sellers and other online companies, such as social media platforms.

148. See John M. Newman, *Antitrust in Zero-Price Markets: Foundations*, 164 U. PA. L. REV. 149, 153, 192–93 (2015).

149. See Maurice E. Stucke & Ariel Ezrachi, *Artificial Intelligence & Collusion: When Computers Inhibit Competition* 14–16 (Univ. of Tenn. Knoxville Coll. Of Law Legal Studies Research Paper Series, Research Paper No. 267, 2015), <https://ssrn.com/abstract=2591874> [<https://perma.cc/4D2S-S7NN>].

150. See Salil K. Mehra, *Antitrust and the Robo-Seller: Competition in the Time of Algorithms*, 100 MINN. L. REV. 1323, 1327–28 (2016).

151. See *Selling at Amazon.com: Fees and Pricing*, AMAZON, <http://www.amazon.com/gp/help/customer/display.html?nodeId=1161240> [<https://perma.cc/8WSL-G9UY>].

152. See, e.g., Ruth Bender & Tom Fairless, *Booking.com to Soften Price Parity Clause in Hotel Contracts*, WALL STREET J. (Dec. 15, 2014, 8:52 AM), <https://www.wsj.com/articles/booking-com-to-soften-price-parity-clause-in-hotel-contracts-1418651553> [<https://perma.cc/A556-AHAW>]; Press Release, U.K. Competition & Markets Authority, CMA Sets Out Changes for Private Motor Insurance (June 12, 2014), <https://www.gov.uk/government/news/cma-sets-out-changes-for-private-motor-insurance> [<https://perma.cc/H6AX-36EG>].

market. This influence holds even over powerful end sellers, such as the top four airlines that operate 75 percent of flights.¹⁵³ When only two of the leading travel marketplaces, Expedia and Orbitz, delisted American Airlines for refusing to pay their commissions, the airline lost the equivalent of over \$100 million annually and quickly caved.¹⁵⁴

Courts have historically viewed price-parity clauses as improving competition and efficiency.¹⁵⁵ Clauses might increase efficiency by reducing the costs of ongoing bargaining. Also, digital intermediaries such as hotel websites might be more willing to invest in promoting small, independent hotels if those hotels agree not to sell at lower prices on their own websites.¹⁵⁶

More recently, however, many have come to believe that such clauses may harm consumers. Building off the work of 2014 Nobel Prize-winner Jean Tirole, regulators and economists have found that digital intermediaries can use their market power to raise consumer prices to an anticompetitive level.¹⁵⁷ For example, for a \$500 airline ticket, about \$75 to \$100 go to companies such as Expedia as commission.¹⁵⁸ If Expedia set that price in a hypothetical market without price-restraint clauses, the consumer might have the option of deciding whether saving \$100 is worth going to airline websites directly to look at prices. Because some consumers would presumably go to the airline website to save money, the existence of that option could theoretically put competitive pressure on Expedia to lower its commission on all flights. Price-restraint clauses remove that consumer

153. See Steven Davidoff Solomon, *Changing Old Antitrust Thinking for a New Gilded Age*, N.Y. TIMES: DEALBOOK, July 23, 2014, at B5.

154. See Volodymyr Bilotkach, Nicholas Rupp & Vivek Pai, Value of a Platform to a Seller: Case of American Airlines and Online Travel Agencies 19 (Apr. 2014) (unpublished manuscript), http://www.law.northwestern.edu/research-faculty/searlecenter/events/internet/documents/BilotkachPaiRupp_April11_2014-1.pdf [<https://perma.cc/U8JK-J7MK>]. Courts allow intermediaries to remove sellers from their search engines. See *Search King, Inc. v. Google Tech., Inc.*, No. CIV-02-1457-M, 2003 WL 21464568, at *4-5 (W.D. Okla. 2003).

155. See *Ocean State Physicians Health Plan, Inc. v. Blue Cross & Blue Shield of R.I.*, 883 F.2d 1101, 1112 (1st Cir. 1989); Jonathan B. Baker, *Vertical Restraints with Horizontal Consequences: Competitive Effects of “Most-Favored-Customer” Clauses*, 64 ANTITRUST L.J. 517, 531 (1996).

156. See Bender & Fairless, *supra* note 152.

157. See, e.g., Edelman & Wright, *supra* note 24, at 1283; Steven C. Salop & Carl Shapiro, *Jean Tirole’s Nobel Prize in Economics: The Rigorous Foundations of Post-Chicago Antitrust Economics*, 29 ANTITRUST 76, 80 (2015); U.K. Competition & Markets Authority, *supra* note 152.

158. This assessment is based on a 15 to 20 percent commission. See Scott Mayerowitz, *Hotels Woo Guests to Book Directly Online with Discounts*, SALON (Apr. 18, 2016 9:31AM), http://www.salon.com/2016/04/18/hotels_woo_guests_to_book_directly_online_with_discounts [<https://perma.cc/7QQE-8NG2>].

choice of going straight to the airline's website to save money because the price is the same whether the consumer buys from Expedia or United.¹⁵⁹ Price-restraint clauses thus can promote excess use of digital intermediaries, thereby increasing inefficiency and raising equilibrium market prices.¹⁶⁰

Price-parity clauses can also harm consumers by limiting horizontal competition and new entrants. A start-up digital intermediary wanting to compete may not be able to use a more efficient business model to reduce commissions and thereby attract more consumers through lower prices.¹⁶¹ Price-parity clauses could impede such an entry strategy because the seller would need to give any discount negotiated by the start-up to established intermediaries as well.¹⁶²

* * *

Overall, private digital intermediaries can fall short of expectations. They may lack the information they need to enhance decisionmaking. Even when they have the necessary information, they can add a new layer of exploitation by inserting shrouded fees or raising prices. Although one perceived benefit of intermediaries is the avoidance of choice-limiting governmental regulation, digital intermediaries may restrain seller autonomy. Like markets heavily influenced by financial intermediaries,¹⁶³ markets heavily dependent on digital intermediaries can have lower efficiency and consumer welfare.

III. THE LIMITS OF PUBLIC INTERMEDIARIES

Public digital intermediaries, like their private counterparts, are proliferating. Some assist in daily activities, such as the USDA's "SuperTracker," which tallies nutrition and exercise.¹⁶⁴ Others guide people through life-altering decisions. For example, the Department of

159. Some sites may, however, offer nonprice incentives to buy directly.

160. See Edelman & Wright, *supra* note 24, at 1292.

161. Cf. C. Scott Hemphill & Tim Wu, *Parallel Exclusion*, 122 YALE L.J. 1182, 1209 (2013) (discussing how most-favored-nation provisions in contracts can be used to exclude new distributors).

162. See *id.* (discussing the effect of multiple buyers having most-favored-nation provisions with a seller).

163. See Kathryn Judge, *Intermediary Influence*, 82 U. CHI. L. REV. 573, 624–26 (2015).

164. See *SuperTracker*, *supra* note 2.

Education has a College Navigator site where prospective students can learn what previous students with similar characteristics paid to attend a particular school and what their job prospects were afterward.¹⁶⁵ Also, state and federal online tools enable people to assess products for physical safety, financial soundness, environmental health, and (in the case of cell phones or the internet) communications-network quality.¹⁶⁶ Finally, many federal agencies let consumers learn from others' bad experiences through searchable complaint data for most industries, including airline travel, bank accounts, and automobiles.¹⁶⁷ Public digital intermediaries are a large and growing part of regulation by digital intermediation.

This Part examines two examples in greater depth: one marketplace and one informer. First, the ACA created online exchanges for purchasing health-insurance plans—in other words, a marketplace. Second, the CFPB offers a Rate Checker to inform people about how to choose a mortgage. Each of these intermediaries is structurally considered for consumer decision improvement and cost-effectiveness. Although public digital intermediaries are idiosyncratic and rigorous empirical evidence about their operation is limited, these two cases illustrate some broad themes for each type.

A. *Health-Insurance Exchanges*

The ACA established heavily regulated online health-insurance marketplaces.¹⁶⁸ These websites list private companies' insurance plans to facilitate comparison and enrollment. Some states, such as Massachusetts, already ran exchanges, but most did not.¹⁶⁹ The ACA

165. See *Education Data and Tools*, *supra* note 90.

166. See Matthew McFeeley, *Falling Through the Cracks: Public Information and the Patchwork of Hydraulic Fracturing Disclosure Laws*, 38 VT. L. REV. 849, 866 (2014); CONSUMER PROD. SAFETY COMM'N, <https://www.data.gov/safety> [<https://perma.cc/A64J-LT7C>]; *Search FCC Databases*, FED. COMM'N. COMM'N, <https://www.fcc.gov/licensing-databases/general/search-fcc-databases> [<https://perma.cc/48G5-GC9S>].

167. See *Consumer Complaint Database*, CONSUMER FIN. PROT. BUREAU, <http://www.consumerfinance.gov/complaintdatabase> [<https://perma.cc/MM89-9UTM>]; *File a Consumer Complaint*, U.S. DEP'T OF TRANSP., <https://www.transportation.gov/airconsumer/file-consumer-complaint> [<https://perma.cc/45D7-5PMY>].

168. Patient Protection and Affordable Care Act §§ 1311, 10104(e)-(h), Pub. L. No. 111-148, 124 Stat. 119, 173, 900, 927 (2010) (codified at 42 U.S.C. § 18031).

169. See Amanda Kowalski, *The Early Impact of the Affordable Care Act, State by State*, BROOKINGS PAPERS ON ECON. ACTIVITY, Fall 2014, at 277–78.

also required states to establish human navigators to advise people about coverage options and how to enroll.¹⁷⁰

Distinct from the issue of the ACA's larger substantive success or failure, there is a question of how well governmentally controlled health-insurance intermediaries perform. Isolating the digital-marketplace dimension of the ACA is difficult. In particular, it is hard to determine how much of any success or failure is attributable to the substantive legislation—such as the individual mandate, subsidies, and restrictions on insurance company margins—rather than to the actual design and implementation of the exchanges. Nor is it possible to know precisely how a privately owned health-insurance marketplace would have performed instead.¹⁷¹

1. *Consumer Decisionmaking.* To assess the health exchanges' impact on consumer decisionmaking, several indicators are relevant: the number of people and insurers using the exchanges, the prices and quality of the plans purchased, the choice architecture of the interface, and the institutional incentives of the exchange operators. For the exchanges to have a meaningful impact, people must use them. About 12 million people had insurance in 2016 due to transactions on the ACA exchanges.¹⁷²

As for plan quality, there is little evidence that purchasing through public exchanges matters. Enrollees had equal or higher satisfaction with their exchange-purchased insurance plans compared to those who purchased through private markets.¹⁷³ As for prices, an early analysis suggested that premiums for comparable insurance plans on the

170. To further complicate the matter, the federal government has at times relied on private contractors to help build and operate the exchanges. See KAREN POLLITZ, JENNIFER TOLBERT & ROSA MA, KAISER FAMILY FOUND., SURVEY OF HEALTH INSURANCE MARKETPLACE ASSISTER PROGRAMS: A FIRST LOOK AT CONSUMER ASSISTANCE UNDER THE AFFORDABLE CARE ACT 1 (2014), http://www.statecoverage.org/files/KFF_Survey-of-marketplace-assisters1.pdf [<https://perma.cc/4VQ9-VFJ3>].

171. See U.S. DEP'T. HEALTH & HUM. SERVS., OFF. OF. INSPECTOR GEN., CMS DID NOT IDENTIFY ALL FEDERAL MARKETPLACE CONTRACT COSTS AND DID NOT PROPERLY VALIDATE THE AMOUNT TO WITHHOLD FOR DEFECT RESOLUTION ON THE PRINCIPAL FEDERAL MARKETPLACE CONTRACT 3 (2015), <https://oig.hhs.gov/oas/reports/region3/31403002.pdf> [<https://perma.cc/8K36-V7W2>].

172. See Robert Pear, *Health Care Law Sign-Ups Dip Amid Uncertainty and Attacks by Trump*, N.Y. TIMES, Feb. 4, 2017, at A9.

173. See Press Release, J.D. Power, Health Insurance Marketplace Exchange Enrollment Satisfaction Improves Significantly in Second Year (Apr. 23, 2015), <http://www.jdpower.com/press-releases/2015-health-insurance-marketplace-exchange-shopper-and-re-enrollment-hix-study#sthash.KwUwuOP5.dpuf> [<https://perma.cc/H73C-QD4Y>].

exchange were lower than they were in private markets; in one analysis, plans on the exchange were 7 percent lower for small-business employees.¹⁷⁴ Even if accurate, such lower prices are likely unsustainable. Several sizable health insurers, including United Health, decided to leave many ACA exchanges in the 2016–2017 enrollment period due to large losses.¹⁷⁵ By one estimate, United Health’s complete exit alone would raise overall prices by 5 percent.¹⁷⁶ Thus, prices could increase considerably in the short term, and it is too early to draw strong conclusions based on past data.

Institutional design factors indicate that the exchanges may lead to lower prices and better plan choices. Private health markets largely rely on insurance agents to sell plans for insurance companies.¹⁷⁷ Agent commissions amount to between 4 and 6 percent of annual premiums paid, and as high as 30 percent of the first year’s premium.¹⁷⁸ Insurance agents are not allowed to sell on the insurance exchanges—only the insurance companies can.¹⁷⁹ As neutrals, the ACA navigators may thus remove not only a costly intermediary but also a source of consumer deception and misperception. Because exchange operators do not receive different levels of commissions from different insurers, they lack the incentive to steer consumers toward high-commission plans that are less beneficial to the consumers.¹⁸⁰ Exchanges may lower prices

174. See Jon R. Gabel et al., *An Early Look at SHOP Marketplaces: Low Premiums, Adequate Plan Choice in Many, But Not All, States*, 34 HEALTH AFF. 732, 732 (2015) (“Premiums for plans offered through SHOP Marketplaces were, on average, 7 percent less than those in the same metal tier offered only outside of the Marketplaces.”); see also LAURA SKOPEC & RICHARD KRONICK, U.S. DEP’T. HEALTH & HUM. SERVS., MARKET COMPETITION WORKS: SILVER PREMIUMS IN THE 2014 INDIVIDUAL MARKET ARE SUBSTANTIALLY LOWER THAN EXPECTED 1–2 (2013), http://aspe.hhs.gov/health/reports/2013/MarketCompetitionPremiums/ib_premiums_update.cfm [<https://perma.cc/32KL-LZ5K>] (finding premiums for “Silver Plans” to be lower than expected).

175. See Anna Wilde Mathews & Stephanie Armour, *Health-Plan Choices Shrink*, WALL STREET J., Aug. 29, 2016, at A1.

176. See Leemore Dafny, Jonathan Gruber & Christopher Ody, *More Insurers Lower Premiums: Evidence from Initial Pricing in the Health Insurance Marketplaces*, AM. J. HEALTH ECON., Winter 2015, at 53, 53–54.

177. See POLLITZ et al., *supra* note 170, at 23.

178. See Mark Schoofs & Avery Johnson, *Health Overhaul Hits Sales Commissions*, WALL STREET J., May 18, 2010, at B1.

179. Insurers can still pay agents to promote the exchanges. See FAMILIES USA, BROKERS AND AGENTS AND HEALTH INSURANCE EXCHANGES 3, 7, 9 (2012), http://familiesusa.org/sites/default/files/product_documents/Exchanges-Brokers-and-Agents.pdf [<https://perma.cc/L7HG-UUQ7>].

180. See *id.* at 4.

partly by filtering out plans believed to benefit patients less.¹⁸¹ This removes some choice, but less complex choices can also reduce equilibrium prices.¹⁸²

The question remains whether a private neutral health exchange, akin to the eBay model,¹⁸³ would work better than a public one. Like a private marketplace, public health-exchange operators have incentives to increase transactions. After all, enrollment is a publicly salient measure of success. Also, the exchanges' administration is funded through a surcharge on the sales.¹⁸⁴ Thus, the pursuit of funding and reputation could drive the exchange's governmental directors to design the exchanges to encourage purchases without regard to enrollees' interests. Legal scholars have identified such skewed administrative agency incentives elsewhere.¹⁸⁵ This bureaucratic self-interest could encourage overconsumption of the exchanges' services, just as private travel websites do with their price-comparison services or more neutral marketplaces such as eBay might do with respect to overall purchases.

Although such skewed incentives are possible, public and private marketplaces theoretically differ in at least two important respects. First, whereas with a private marketplace the total revenues are important to investors and constantly reported in the media, with a public marketplace the more important aggregate metrics highlighted are the millions of people enrolled. This means that public marketplaces have less, if any, incentive to encourage users to pay high prices than their private counterparts. Second, private marketplaces have an institutional incentive to lower prices only when consumers would notice, which is often not the case.¹⁸⁶ Public marketplaces, in contrast, have an institutional incentive to lower prices even when the individuals would not notice, as doing so demonstrates societal value to a broader set of stakeholders such as taxpayers and policymakers.

It would be ideal to know what can be expected as the ACA marketplaces mature. The Massachusetts Health Connector (MHC),

181. See Jon Kingsdale, *Health Insurance Exchanges—Key Link in a Better-Value Chain*, 362 NEW ENG. J. MED. 2147, 2149 (2010).

182. Cf. Ellison & Ellison, *supra* note 10, at 427 (finding price increases due to choice complexity).

183. See *supra* Part I.C.2.

184. See Kingsdale, *supra* note 181, at 2147.

185. See, e.g., Margaret H. Lemos & Max Minzner, *For-Profit Public Enforcement*, 127 HARV. L. REV. 853, 854 (2014) (concluding that incentives such as reputation and agency revenue generation can lead regulators to pursue excessive monetary awards).

186. See *supra* Part I.A (discussing the literature on behavioral economics).

which has operated for longer and was a model for the ACA exchanges, provides some perspective. It succeeded on a number of fronts related to consumer welfare. It made comparison shopping easy, providing convenience and saving time.¹⁸⁷ It encouraged new market entrants in what had previously been a market dominated by entrenched insurers.¹⁸⁸ It increased transparency by requiring concrete disclosures and filtering out problematic plans.¹⁸⁹ While it is difficult to know the overall price-competition impact of such an exchange, consumers on the exchange behaved differently than those purchasing plans elsewhere and “gravitate[d] toward the cheapest and least generous plans.”¹⁹⁰ In assessing any savings from lower prices paid, public taxpayer costs are relevant. Also, the quality of coverage, rather than only price and convenience, must be considered. Although questions remain about the long-term effects of the ACA exchanges on consumer welfare, in particular on price, early results combined with the MHC’s long-term success suggest that sustainable consumer protection advances are possible.

To be sure, decisionmaking challenges still exist in the ACA health exchanges. One study found that even highly educated participants had difficulty matching plans to their preferences in the ACA marketplaces.¹⁹¹ The amount of information was overwhelming, and key terms were not adequately explained.¹⁹² This context likely still makes it possible for sophisticated private insurance companies to influence enrollees’ decisions within the allowable parameters of the exchange. But despite these caveats and the limited empirical evidence, the health-insurance exchanges illustrate how public digital marketplaces can structurally reduce many of the factors that contribute to suboptimal consumer choices.

2. *Resource-Allocation Effectiveness.* Another important metric for public marketplaces is public managers’ ability to appropriately allocate resources. If intermediaries advance consumer

187. See Kingsdale, *supra* note 181, at 2149.

188. *Id.*

189. *See id.*

190. See Keith Marzilli Ericson & Amanda Starc, *Heuristics and Heterogeneity in Health Insurance Exchanges: Evidence from the Massachusetts Connector*, 102 AM. ECON. REV. 493, 497 (2012).

191. Charlene A. Wong et al., *The Experience of Young Adults on HealthCare.gov: Suggestions for Improvement*, 161 ANNALS INTERNAL MED. 231, 231 (2014).

192. *See id.*

decisionmaking through excessive tax expenditures, the benefits would be illusory. Alternatively, inadequate funding could limit intermediaries' success.

The federal exchange systems cost over \$400 million to build, with further investments needed for state sites.¹⁹³ Though massive, these start-up costs are consistent with the investments made in large-scale intermediary start-ups, which can run in the billions.¹⁹⁴ Moreover, the exchanges are self-funding off a percentage of sales,¹⁹⁵ which means that they will need to prove themselves continually in the market by attracting and retaining customers. This business model provides some confidence that ongoing operations will not involve excessive annual tax expenditures.

More importantly, public exchanges appear to serve the previously uninsured more cost-effectively than do private distribution channels. The Massachusetts predecessor exchange operated on an administrative budget of 3 percent of total premiums. The ACA reports a similar level of annual expenditures. This is significantly lower than conventional private sector channels' operation costs of 5 to 20 percent of premiums.¹⁹⁶

Despite managing costs well, the exchanges raise concerns about ongoing allocation of adequate resources because they are vulnerable to the political process. In the private sector, those in control of a company—the board and its executives—have strong incentives to maintain or strengthen operations. The equivalent leaders of health exchanges—elected officials—are less unified. This creates two main problems: operating constraints and funding discontinuity.

Politics likely constrained the exchanges' rollout and design. To avoid hurting their campaigns, Democrats put off proposing necessary rules until after elections. Republicans in Congress delayed funds.¹⁹⁷ Both of these moves decreased the likelihood that the exchanges would be fully functional by the launch date. Further rollout problems resulted from Republican-controlled state legislatures passing laws creating barriers to implementation of the federal Democrat-driven

193. Robert Pear, Sharon LaFraniere & Ian Austen, *From the Start, Signs of Trouble at Health Portal*, N.Y. TIMES, Oct. 12, 2013, at A1.

194. See, e.g., *Another Digital Gold Rush; Internet Businesses*, ECONOMIST, May 14, 2011 at 85.

195. See Kingsdale, *supra* note 181, at 2147.

196. See *id.*; Abby Goodnough, *In Kentucky, Abandoning Health Plan Sows Doubts*, N.Y. TIMES, Jan. 14, 2016, at A14.

197. See Pear, LaFraniere & Austen, *supra* note 192.

ACA.¹⁹⁸ For example, nineteen states passed laws allowing only licensed navigators to supply information about the ACA exchanges.¹⁹⁹ This curtailed outreach by preventing community health centers and others from informing consumers.²⁰⁰ Public digital intermediaries, like private ones,²⁰¹ can increase inefficiencies due to protectionist laws.

Sustainability threats likely result from the political wrangling between states and the federal government. For instance, the need to build consensus may explain the allowance of state-run exchanges when a single federal model would be more efficient.²⁰² Indeed, the political process is built into the exchanges' ongoing operations because agency directors are accountable to elected politicians. If the exchanges need to make strategic moves that stray from the exchanges' statutory mandate, this could introduce delays that prevent appropriately responding to market demands. The legislative process can delay action for weeks or months, while markets and businesses can shift drastically on a daily, if not hourly, basis.

The political process also creates discontinuity. Kentucky's new health-insurance exchange, kynect, has been touted as an ACA model because it slashed the state's number of uninsured in half.²⁰³ Nonetheless, in 2016, the state's new governor began dismantling it

198. See Richard Cauchi, *State Laws and Actions Challenging Certain Health Reforms*, NAT'L CONF. STATE LEGISLATURES (July 1, 2016), <http://www.ncsl.org/research/health/state-laws-and-actions-challenging-ppaca.aspx> [<https://perma.cc/GP2X-49BL>]; *2016 Governors and Legislatures*, MULTISTATE ASSOCS. INC., <https://www.multistate.com/state-resources/governors-legislatures> [<https://perma.cc/P3X2-MARN>].

199. See PETER SHIN et al., *ASSESSING THE POTENTIAL IMPACT OF STATE POLICIES ON COMMUNITY HEALTH CENTERS' OUTREACH AND ENROLLMENT ACTIVITIES* 3, 19 (2014), <http://go.gwu.edu/ggrchnbrief35> [<https://perma.cc/BV9A-JTL6>]; Kirsten Dunham, *Navigating the Health Insurance Exchanges: Will State Regulations Guide Consumers or Chart Them Off-Course?*, 79 MO. L. REV. 1047, 1047 (2014).

200. See Katherine T. Vukadin, *Obamacare Interrupted: Obstructive Federalism and the Consumer Information Blockade*, 63 BUFF. L. REV. 421, 422 (2015); Kelly Kennedy, *Study: Navigator Laws Limit Health Exchange Outreach*, USA TODAY (Jan. 14, 2014, 11:19 AM), <http://www.usatoday.com/story/news/nation/2014/01/14/navigator-laws-limit-health-outreach-efforts/4462759> [<https://perma.cc/ZTM2-8EMB>].

201. See *supra* Part II.

202. See, e.g., Carla Anderson, *The Federal Exchange Option*, HEALTHINSURANCE.ORG (Aug. 16, 2016), <https://www.healthinsurance.org/obamacare/federal-exchange-option> [<https://perma.cc/Z949-MMWH>].

203. See Amber Phillips, *Kentucky, Once an Obamacare Exchange Success Story, Now Moves to Shut It Down*, WASH. POST (Jan. 14, 2016), <https://www.washingtonpost.com/news/the-fix/wp/2016/01/14/a-republican-governors-move-to-shutter-kentuckys-obamacare-exchange-explained> [<https://perma.cc/8SYB-976S>].

after running on a campaign slogan of ending Obamacare.²⁰⁴ The exchanges were self-funding at that point, and \$136 million had gone into setting them up.²⁰⁵ Moreover, it cost an estimated \$23 million to take the site down.²⁰⁶ In a state in which the ACA was politically unpopular, however, the shutdown made political sense.

Overall, the health-insurance exchanges raise some concerns about digital marketplaces offering sustained solutions. It is possible an excessive focus on consumers has failed to produce a marketplace in which businesses will continue to participate. To the extent intermediaries must rely on slow-moving legislatures to adapt and continue operations, they are disadvantaged compared to private sector intermediaries capable of adjusting to rapid market shifts and accessing reliable funding sources. At the same time, the health-insurance exchanges have increased access to health insurance, reduced consumer protection concerns, and possibly lowered prices for consumers. They may have done so at reasonable costs. The long-term equilibrium market effects of the exchanges remain unknown. Yet initial results indicate that, with substantial investments, public digital marketplaces have the potential to advance consumer welfare in ways that—at least in some markets—private marketplaces do not.

B. Mortgage Rate Checker

Businesses and governmental entities offer digital tools to help home buyers select mortgages.²⁰⁷ These tools are in some ways competing to attract users. During the 2016 Super Bowl, the nation's third-largest mortgage lender, Quicken, announced a new "Rocket Mortgage" tool that lets consumers find home loans by pressing a button on their phone. Within minutes, the CFPB had tweeted its rebuke, encouraging consumers to "know" before they "owe."²⁰⁸ This tweet presumably referred to its suite of "know before you owe" mortgage tools, including a Rate Checker tool that the CFPB rolled out in 2015. The tool provides tailored interest rates based on actual

204. *See id.*

205. *See id.*

206. *See id.*

207. *See, e.g.,* Kristen David Adams, *Homeownership: American Dream or Illusion of Empowerment?*, 60 S.C. L. REV. 573, 583 nn.46–47 (2009) (discussing the mortgage tools offered by the Federal Housing Administration and Freddie Mac).

208. *See, e.g.,* John Niemann, *Super Bowl Ad Criticized by CFPB*, CFPB J. (Feb. 9, 2016), <http://cfpbjournal.com/issue/cfpb-journal/article/super-bowl-ad-criticized-by-cfpb> [<https://perma.cc/28LN-RMPN>].

mortgages offered to consumers across the country.²⁰⁹ Unlike the ACA exchanges, which are marketplaces, the CFPB mortgage tool is an informer.

1. *Consumer Decisionmaking.* One of the CFPB site's primary goals is to encourage home buyers to shop for loans just as they shop for homes. Nearly half of home buyers go with the first mortgage quote they get.²¹⁰ To change this, the Rate Checker gives consumers a range of actual mortgage interest rates that similar borrowers obtained nearby.²¹¹ After entering data such as credit score, location, loan amount, and loan duration, consumers learn how much they would save on interest over the first five years of the loan if they obtain the lowest comparable rate.²¹²

The CFPB's early results demonstrate some major challenges for public informers. Only a tiny fraction of borrowers—well under 5 percent—uses the tool.²¹³ Such limited market adoption makes it less likely a tool will have much of an impact on consumer welfare.²¹⁴ A larger problem is that the Rate Checker offers uncertain value even for those who use it. The tool provides interest rates as its output. It does not, however, calculate the APR, which includes closing costs, mortgage insurance, and miscellaneous fixed-dollar fees.²¹⁵ Other private sector mortgage tools, including informers, analyze some of

209. See Lydia Wheeler, *CFPB Creates Online Tool to Help Homebuyers with Mortgages*, THE HILL (Sept. 17, 2015, 5:02 PM), <http://thehill.com/regulation/254059-cfpb-creates-online-tool-to-help-homebuyers-with-mortgages> [<https://perma.cc/9549-BJEW>].

210. See, e.g., CONSUMER FIN. PROT. BUREAU, CONSUMERS' MORTGAGE SHOPPING EXPERIENCE 10 (2015), http://files.consumerfinance.gov/f/201501_cfpb_consumers-mortgage-shopping-experience.pdf [<https://perma.cc/S4EV-RHHW>].

211. See *Explore Interest Rates*, CONSUMER FIN. PROT. BUREAU, <http://www.consumerfinance.gov/owning-a-home/check-rates> [<https://perma.cc/2A6J-EE6V>].

212. See *id.*

213. See Interview with Consumer Fin. Prot. Bureau Anonymous Employee (Mar. 14, 2016) (notes on file with the *Duke Law Journal*) (confirming that the number of people using the tool is very small); Kenneth Harney, *Home Buyers Don't Seem to Be Using New Tool to Shop for Mortgages*, WASH. POST (Jan. 13, 2016), https://www.washingtonpost.com/realestate/home-buyers-dont-seem-to-be-using-new-tool-to-shop-for-mortgages/2016/01/11/f174ccbc-b87f-11e5-99f3-184bc379b12d_story.html [<https://perma.cc/85RB-GMPP>] (interviewing a group of lenders and brokers and concluding that fewer than 5 percent of borrowers are using the CFPB's mortgage tools).

214. For a discussion of the possibility of an informed minority improving markets, see *supra* note 42.

215. See *Explore Interest Rates*, *supra* note 211.

these fees in addition to the interest rate.²¹⁶ It is thus possible that consumers would get a more comprehensive basis for mortgage comparison from other online tools. Because one of the main policy goals in deploying digital intermediaries is to aid people to make optimal decisions in the face of complexity, incomplete advice is a major flaw.

Additionally, omitting these fees may enable lenders to shift more of the price paid to less salient aspects of the loan. If borrowers use the interest rate as the basis for comparison because of the CFPB tool, then a lender could lure such borrowers in by lowering the interest rate and raising the cost of more hidden fees that consumers are less able to compare. This shifting of fees is precisely the type of shrouded attribute that behavioral economics regulations, which informed the CFPB's creation, aim to diminish.²¹⁷ The Federal Truth in Lending Act, for example, requires that lenders disclose the APR prominently in their mortgage offers, and the CFPB is the primary federal enforcer of that law.²¹⁸ Thus, the CFPB's inclusion of only the interest rate is inconsistent with a primary aim of the disclosure rules it enforces on private actors.

Another challenge is that the CFPB's Rate Checker provides a more cautious perspective on the price of the loan than alternate private digital intermediaries. For example, an interest rate calculator offered by the "Mortgage Professor," of the University of Pennsylvania's Wharton School, provides a "shopping price."²¹⁹ This is a single price that the borrower can ask the lender to match or beat. In contrast, the CFPB offers a range of interest rates obtained by similarly situated borrowers.²²⁰ Offering a range insulates the agency from charges that it is setting a particular price. The range also lessens the illusion of precision. However, it makes it more difficult for the borrower to know how to use that information. Should the borrower

216. See, e.g., *Mortgage Annual Percentage Rate Calculator*, BANKRATE, <http://www.bankrate.com/calculators/mortgages/mortgage-apr-calculator.aspx> [<https://perma.cc/8PMS-DUPR>]; *Pricing Tool*, MORTGAGE PROFESSOR, <http://www.mtgprofessor.com/ext/partners/pricingtool.aspx> [<https://perma.cc/YGS7-GT4R>].

217. See, e.g., Gabaix & Laibson, *supra* note 8, at 505.

218. See Dodd-Frank Wall Street Reform and Consumer Protection Act §§ 2(3), 2(4), 1061(b)(1)(A), Pub. L. No. 111-203, 124 Stat. 1376, 1387, 2036 (2010) (codified as amended in scattered sections of 7, 12, 15 U.S.C.) (transferring authority over the Truth in Lending Act from the Federal Reserve to the CFPB).

219. See *Explore Interest Rates*, *supra* note 210.

220. See *id.*

ask for the lowest rate in the range provided by the CFPB? The average of that range? The answer is unclear.

Theoretically, it is possible that knowledge of the low-end rate would drive consumers to bargain harder. However, the CFPB has so far produced no such evidence. Instead, media and industry groups have found that the CFPB's tool produced higher interest rates than those suggested through other sources.²²¹ If this is systematically true, the tool would risk influencing consumers to settle for higher interest rates than they should. Although the tool would not intentionally lead consumers astray, as promoters might, it could have the same ultimate impact on consumer welfare.

More broadly, this industry criticism raises concerns about the accuracy and utility of the Rate Checker's data. For its mortgage calculator, the CFPB purchases interest rate data from the private sector—the same data that any private actor could purchase. As a result, it is likely that for-profit mortgage calculators have informational advantages because they purchase or collect other data sources that the CFPB does not.

2. *Resource-Allocation Effectiveness.* Running an effective public digital informer that can compete with private informers in the mortgage industry likely requires more resources than the CFPB has allocated. These resource imbalances may explain the Rate Checker's minimal usage by consumers and possibly its questionable design. The CFPB's total budget for providing the public with digital tools and databases is about \$9 million.²²² Yet the Rate Checker is one of many digital projects, including databases for consumer complaints, credit card agreements, financial regulations, and college tuition payments.²²³ Any one initiative such as the mortgage toolkit would be hard-pressed to have even a million dollars put toward it annually. Private sector digital informers' budgets can run in the tens of millions or hundreds of millions of dollars.²²⁴

Moreover, the CFPB Rate Checker must compete not only with private intermediaries but also with the third-party sellers offering

221. See Rachel Witkowski, *Banks to CFPB: Tear Down This Rate Calculator*, AM. BANKER (Mar. 16, 2015, 6:14 PM) <http://www.americanbanker.com/news/law-regulation/banks-to-cfpb-tear-down-this-rate-calculator-1073273-1.html> [<https://perma.cc/73CX-6SGP>].

222. See CFPB STRATEGIC PLAN, *supra* note 54, at 89 tbl.47.

223. See *id.* at 88–89.

224. See, e.g., Chelsey Dulaney & Drew FitzGerald, *Expedia to Buy Rental Site*, WALL STREET J., Nov. 5, 2015, at B3.

online tools. For example, the nation's third-largest mortgage lender, Quicken Loans, is putting \$100 million into advertising alone for its Rocket Mortgage online tool.²²⁵ In contrast, the CFPB has no advertising budget for its Rate Checker.²²⁶ This resource disparity played out in the 2016 Super Bowl. In Quicken Loan's \$5 million ad, it explained that Rocket Mortgage aims to do for mortgages what "the Internet did for buying music and plane tickets and shoes . . . press a button, buy a mortgage."²²⁷ The CFPB's response tweet to its 54,000 Twitter followers²²⁸ and any publicity from media and grass-roots organizations are not inconsequential. Still, those outlets fall short of the Super Bowl's 112 million viewers.²²⁹

From a technological and design perspective, 450 Quicken employees spent five years developing Rocket Mortgage.²³⁰ Only six people worked on the CFPB's Rate Checker for about a year.²³¹ Furthermore, the CFPB must also compete directly with financial institutions far better resourced than Quicken Loans. The nation's largest banks—JPMorgan Chase and Wells Fargo, each with annual incomes of over \$20 billion²³²—offer mortgage calculators that could substitute for the CFPB's Rate Checker.²³³

Overall, the CFPB's mortgage tool demonstrates fundamental challenges with public digital intermediaries. If a private digital informer has too few consumers using it or is ineffective at offering consumers what they want, it must adapt or close. Many for-profit

225. See Matt Burns, *This Could Be the Mortgage Industry's iPhone Moment*, TECHCRUNCH (Nov. 24, 2015), <http://techcrunch.com/2015/11/24/this-could-be-the-mortgage-industrys-iphone-moment> [https://perma.cc/K5SQ-R5WD].

226. See CFPB STRATEGIC PLAN, *supra* note 54, at 88–89; Interview with Anonymous Employee, *supra* note 213.

227. See Niemann, *supra* note 208; Quicken Loans, *#RocketMortgage Super Bowl Ad: What We Were Thinking*, YOUTUBE (Jan. 27, 2016), <https://www.youtube.com/watch?v=QIRm6Y5iVfw> [https://perma.cc/PB8A-LTJ3].

228. See @CFPB, TWITTER (Feb. 7, 2016, 4:30 PM), <https://twitter.com/CFPB/status/696491147708002308> [https://perma.cc/A8EY-FDDG].

229. See Richard Sandomir, *Game Short of TV Record*, N.Y. TIMES, Feb. 9, 2016, at B8.

230. See Burns, *supra* note 224.

231. CFPB STRATEGIC PLAN, *supra* note 54, at 88–89; Interview with Anonymous Employee, *supra* note 213.

232. See *Wall Street's 4th Quarter Earnings*, N.Y. TIMES: DEALBOOK (Jan. 20, 2016), <http://www.nytimes.com/interactive/2015/04/13/business/dealbook/13db-wall-street-earnings.html> [https://perma.cc/TL56-H4E9].

233. See *Mortgage Calculators & Resources*, CHASE, <https://www.chase.com/mortgage/mortgage-resources> [https://perma.cc/MQ5E-GDU7]; *Mortgage Rate and Payment Calculator*, WELLS FARGO, <https://www.wellsfargo.com/mortgage/rates/calculator> [https://perma.cc/GJV5-3C6E].

companies have set up online financial advisors but failed. For example, despite favorable press coverage, the website MoneyAisle folded.²³⁴ By contrast, an unused or ineffective public mortgage rate checker has less incentive to adapt or close. In the face of industry criticism of its effectiveness and calls to take the Rate Checker down in early 2015, the CFPB replied that it would update the tool as part of an “overall upgrade” later in the year.²³⁵ It is difficult to know what that update entailed or whether it happened, but the tool has not responded to the main critiques.²³⁶ Nor has the agency released data about the number of its users or how much the Rate Checker benefits consumers.

C. Summary of Public Digital Intermediary Limits

Public digital intermediaries have the advantage of being able to operate more neutrally with respect to consumers’ interests. This tendency toward neutrality may come at the expense of performance. Public informers have limited resources and are confined to whatever outcome assessments the agency running them chooses, which may be nothing. These limitations are especially troublesome given that public informers compete with well-funded private alternatives that continually run statistical self-assessments²³⁷ and can go bankrupt if they perform poorly. Public marketplaces such as the health-insurance exchanges solve some of these accountability and resource problems if they operate off a percentage of sales. However, they require large up-front financial and legislative support and are subject to the whims of the political process. Additionally, industry influence over agencies could subtly over time make their advice less helpful to consumers.²³⁸ The specter of capture is particularly concerning given the opaque nature of algorithms and the potential for people to place even greater trust in government tools due to the assumption of neutrality.

These benefits and drawbacks present difficult choices. Consumers seeking digital advice may face a choice between a more trustworthy but limited public informer and an insightful but manipulative private informer. Alternatively, they would need to foot

234. See Emily Glazer, *Refinance Auto Loan*, WALL STREET J., Dec. 19, 2010.

235. See Witkowski, *supra* note 221.

236. See *Explore Interest Rates*, *supra* note 211.

237. See, e.g., McCartney, *supra* note 136 (describing Expedia’s testing).

238. See Rachel E. Barkow, *Insulating Agencies: Avoiding Capture Through Institutional Design*, 89 TEX. L. REV. 15, 46–47 (2010).

a greater tax bill for a more sophisticated public digital intermediary that opponents could ultimately neutralize.

IV. EFFECTIVE DIGITAL REGULATORS

The shortcomings of digital intermediaries in their current manifestations raise the question of what reforms would be needed for these tools to be more likely to advance society's interests. For policymakers to have confidence that private digital intermediaries are effectively regulating markets, agencies would need to vigorously pursue mandated disclosures, antitrust, and consumer protections. Effective publicly run digital intermediaries would require well-funded, capture-resistant agencies committed to performance metrics and perhaps pushing the bounds of allowable governmental data collection. These analyses do not serve as proposals. Rather, they aim to provide a more realistic perspective on what is required to accomplish reformers' typical goals for digital regulators.

A. *Effective Private Digital Regulators*

1. *Holistic Mandated Disclosures.* Providing digital intermediaries with the information they need to help consumers optimize decisions would require extensive government involvement. Determining precisely what information to target is no small task. For many markets, information on both the product and its consumer-specific usage would be valuable.²³⁹ Requiring the release of person-specific data, even with a consumer's approval, raises privacy issues that would need to be considered as part of a holistic disclosure regime.²⁴⁰ More broadly, given how artificial intelligence functions, identifying valuable data may be possible only after machines have analyzed big data sets. One solution to this would be to require sweeping data disclosures, but this could be burdensome. Alternatively, regulators could attempt to determine precisely what data should be released. To do this, regulators would need to run sophisticated big-data analyses on their own or understand firms' internal analyses.

Additionally, sellers will seek to undermine digital disclosures just as they have with traditional disclosure mandates.²⁴¹ Likely strategies

239. See *supra* Part II.A.

240. For an analysis of privacy regulation, see generally Kenneth A. Bamberger & Deirdre K. Mulligan, *Privacy on the Books and on the Ground*, 63 STAN. L. REV. 247 (2011).

241. See PASQUALE, *supra* 133, at 16.

include delaying the disclosures long enough to disadvantage intermediaries in fast-moving markets. Or businesses could change their internal operations so that similar data targeted by previous disclosures is no longer covered. Overcoming such business resistance would mean ongoing regulatory involvement.

From a government-resource perspective, digital disclosures have the benefit of making intermediaries, rather than regulators, carry the burden of analyzing how to use the data to advance consumer decisionmaking. Regardless, in the cost-benefit analysis, it is important to recognize that mandated digital disclosures involve significant investment by both regulators and businesses.²⁴²

2. *Competition Policy.* Competition policy is essential for digital intermediaries to advance policy goals. Authorities would first need to ensure protectionist laws do not prevent digital intermediaries from fully functioning. Then, once digital intermediaries were established, authorities would need to guard against intermediaries engaging in anticompetitive practices.

Copyright law, the Computer Fraud and Abuse Act, restrictive license statutes, and other laws hinder digital intermediaries' ability to serve consumers.²⁴³ Possible legislative responses include amending each area of law to create exceptions or passing a new law explicitly exempting digital intermediaries from restrictions. In some cases, agencies might act: other countries' regulators have issued rules preventing banks from refusing to provide consumers' information to third parties when the consumer has given consent.²⁴⁴ Alternatively, antitrust suits could work. The Department of Justice (DOJ) has successfully prosecuted such cases against real estate commissions that used their state-granted licensing authority to ban brokers from competing on commission prices.²⁴⁵ The DOJ and FTC have also recognized that real estate brokers' efforts to hinder access to multiple listing-service databases may violate antitrust law.²⁴⁶

242. See, e.g., Joanna Shepherd, *Is More Information Always Better? Mandatory Disclosure Regulations in the Prescription Drug Market*, 99 CORNELL L. REV. ONLINE 1, 17 (2013).

243. See *supra* Part II.A.

244. See *Cracking the Vault; Retail Banking*, *supra* note 94, at 67.

245. See generally *United States v. Ky. Real Estate Comm'n*, No. 3:05-cv-00188-S, 2005 WL 1978692 (W.D. Ky. July 15, 2005) (stipulating to a final judgment in a case involving a rebate ban).

246. U.S. DEP'T JUSTICE & FED. TRADE COMM'N, *COMPETITION IN THE REAL ESTATE BROKERAGE INDUSTRY* 9–14, 71 (2007).

Once established, digital intermediaries raise concerns about collusion. Mandating the disclosure of price information can facilitate collusion among sellers if competitors use that information to coordinate prices.²⁴⁷ Disclosure-driven collusion is less likely in the consumer context than in business-to-business contexts in which such pricing data is less readily available.²⁴⁸ Nonetheless, attentiveness to this issue, and readiness to prosecute any collusion, should be part of a digital-disclosure regime. The possibility of algorithm-driven price-fixing through the interplay between the algorithms used by intermediaries and sellers is more complicated. Even if the effect is collusive pricing above the competitive level, the lack of human intent may mean antitrust law does not cover such activity.²⁴⁹

A larger competition problem is how to handle digital intermediaries with commanding market positions. Scholars have argued that “if network effects entrench a dominant arrangement and a more efficient alternative appears viable, regulators may have a role to play in facilitating movement to the more efficient alternative.”²⁵⁰ Outside of the United States, competition authorities have heightened antitrust scrutiny of dominant platforms. Attention from European competition authorities caused Amazon to withdraw its price-parity clause from contracts in Europe.²⁵¹ U.K. competition regulators issued a rule “ban[ning] agreements between price comparison websites . . . and insurers which stop insurers from making their

247. U.S. DEP’T JUSTICE & FED. TRADE COMM’N, HORIZONTAL MERGER GUIDELINES 24 (2010), <https://www.ftc.gov/sites/default/files/attachments/merger-review/100819hmg.pdf> [<https://perma.cc/7SAR-X3TL>].

248. It is unclear how likely collusion would be from mandating digital disclosures for individual decisionmaking. Evidence of mandate-driven collusion comes mostly from more opaque business-to-business markets. See PER BALTZER OVERGAARD & H. PETER MØLLGAARD, INFORMATION EXCHANGE, MARKET TRANSPARENCY AND DYNAMIC OLIGOPOLY 2 (2007). In retail settings, such information is typically freely available. It is common practice for sellers to monitor their competitors’ prices. See Dana Mattioli, *Retailers try To Thwart Price Apps—Programs Like RedLaser Prompt Bricks-and-Mortar Stores to Develop Exclusive Product Lines*, WALL STREET J., Dec. 23, 2011, at B3. They have the resources and incentives to collect and process this information. It is only consumers—and the often budget-constrained intermediary start-ups—that lack the ability to collect and analyze this information. Indeed, because sellers today devote resources to collecting competitors’ prices, making such information digitally available could lower their costs and improve efficiency.

249. See Ezrachi & Stucke, *supra* note 149, at 7.

250. Judge, *supra* note 162, at 641.

251. See *Amazon to Alter Pricing Policy for Traders*, BBC (Aug. 29, 2013), <http://www.bbc.com/news/business-23881202> [<http://perma.cc/3U8C-F9W2>].

products available more cheaply on other online platforms.”²⁵² In the United States, digital intermediaries’ price-restraint clauses have escaped regulatory objections.²⁵³

Some precedent for more antitrust activity can be found in analogous industries. The DOJ has brought multi-billion-dollar antitrust lawsuits against credit card issuers such as Visa and MasterCard for price restraints.²⁵⁴ These credit card cases involve similar economic analyses of two-sided network markets as would apply to digital intermediaries.²⁵⁵ Still, U.S. antitrust law has yet to adapt to new issues presented by digital services.²⁵⁶ Effective digital regulators thus may require reform not only to antitrust laws but also to the agencies, such as the FTC, that enforce them.²⁵⁷

3. *Consumer Protection.* More consumer protection would be needed to ensure that digital intermediaries—especially promoters—do not exploit consumers. Federal laws protect individuals served by human intermediaries, such as financial advisers, mortgage brokers, stock traders, and accountants.²⁵⁸ Fiduciary laws have even—in limited contexts—protected those receiving guidance from other nondigital

252. See *CMA Publishes Final Motor Insurance Order*, Gov.UK (Mar. 18, 2015), <https://www.gov.uk/government/news/cma-publishes-final-motor-insurance-order> [<https://perma.cc/3U8C-F9W2>].

253. Private lawsuits by businesses such as American Airlines have, however, been brought. See Michael L. Weiner & Craig G. Falls, *Counseling on MFNs After E-Books*, 28 ANTITRUST 68, 72 (2014); Heather Struck, *American Airlines Renews Antitrust Battle; Down 3% After Hours*, FORBES (June 1, 2011, 6:10 PM), <http://www.forbes.com/sites/heatherstruck/2011/06/01/american-airlines-renews-antitrust-battle-down-3-after-hours/#4275eed6a2ad> [<https://perma.cc/S5B2-SKF7>].

254. See, e.g., Andrew Martin, *Visa and Master Card Settle Antitrust Suit*, N.Y. TIMES, Oct. 5, 2010, at B1. Credit card companies had long contractually forbidden merchants from offering lower prices to customers for using cash. See *id.* In 2016, the DOJ was also involved in a class action against the major credit card companies for colluding to set interchange fees. See *In re Payment Card Interchange Fee & Merch. Disc. Antitrust Litig.*, 986 F. Supp. 2d 207, 213, 215 (E.D.N.Y. 2013), *vacated*, 827 F.3d 223 (2d Cir. 2016).

255. See Edelman & Wright, *supra* note 24, at 1283, 1289; Jean Tirole, *Market Failures and Public Policy*, 105 AM. ECON. REV. 1665, 1674, fig. 4 (2015) (applying a similar analysis to search portals and credit card companies).

256. See Newman, *supra* note 148, at 195–99. See generally Stucke & Ezrachi, *supra* note 149 (discussing the problems posed by artificial intelligence’s accelerated development).

257. Cf. Mehra, *supra* note 150, at 1361–74 (discussing potential changes to antitrust law to account for the effects that robo-sellers’ algorithmic pricing has on consumers).

258. See, e.g., Investment Advisers Act of 1940 § 202(a)(11)(C), 15 U.S.C. § 80b-2(a)(11)(C) (2012); Loan Originator Compensation Requirements Under the Truth in Lending Act (Regulation Z), 12 C.F.R. pt. 1026 (2016); John C. Coffee, Jr., *The Attorney as Gatekeeper: An Agenda for the SEC*, 103 COLUM. L. REV. 1293, 1303 (2003).

intermediaries, such as travel agents.²⁵⁹ In contrast, little has been done to regulate digital intermediaries' unfair or deceptive conduct.

The agency that has most actively regulated such conduct, the Department of Transportation (DOT), oversees one of the most advanced digital intermediary industries. The DOT recently issued a rule requiring online travel websites, such as Kayak, Expedia, and Travelocity, to disclose bias in price-search results.²⁶⁰

The main consumer protection agencies—the FTC and CFPB—have made it clear that intermediaries' practices are within their regulatory authority. In 2015, the CFPB took steps toward regulating intermediaries when it began looking into Bankrate's online mortgage-comparison tool.²⁶¹ The FTC has also investigated Yelp to see if it was prioritizing recommendations in accordance with advertisement dollars.²⁶² These actions were presumably taken under the agencies' authority to regulate unfair and deceptive acts and practices.²⁶³

Although the CFPB and FTC have issued no rules targeted at digital intermediaries, the FTC has sent letters to search engines warning them to make it clear when results are influenced by advertisements.²⁶⁴ Yet the FTC's efforts to influence online entities' behavior through voluntary compliance have not always proved successful.²⁶⁵ This piecemeal approach leaves many questions unanswered. It is unclear, for example, whether intermediaries' most subtle nudges—those buried in the algorithms or website design—are on regulators' radars.

259. *United Airlines, Inc. v. Lerner*, 87 Ill. App. 3d 801 (Ill. App. Ct. 1980).

260. See U.S. Dep't of Transportation, *supra* note 1.

261. See Ben Lane, *CFPB Launches Investigation into Bankrate Mortgage Rate Tracker*, HOUSINGWIRE (June 19, 2015), <http://www.housingwire.com/articles/34251-cfpb-launches-investigation-into-bankrate-mortgage-rate-tracker> [<https://perma.cc/F44N-JTFM>].

262. Benjamin Snyder, *Yelp Says FTC Has Dropped Inquiry into Its Reviews*, FORTUNE (Jan. 6, 2015, 8:03 PM), <http://fortune.com/2015/01/06/yelp-ftc-inquiry> [<https://perma.cc/2644-T5DV>].

263. See 12 U.S.C. § 5531(a) (2012); 15 U.S.C. § 45(a)(1) (2012).

264. *Final Rules*, CONSUMER FIN. PROT. BUREAU, <http://www.consumerfinance.gov/policy-compliance/rulemaking/final-rules> [<https://perma.cc/7QLA-5JB2>]; Letter from Mary K. Engle, Associate Director for Advertising Services, Fed. Trade Comm'n, to Operators of Search Engines (June 24, 2013), <https://www.ftc.gov/sites/default/files/attachments/press-releases/ftc-consumer-protection-staff-updates-agencys-guidance-search-engine-industryon-need-distinguish/130625searchenginegeneralletter.pdf> [<https://perma.cc/Q7Y3-5ATX>]. The absence of CFPB rulemaking related to digital intermediaries likely results from the many other rules that Congress required the CFPB to write in its early years. See *Final Rules*, *supra*.

265. See Florencia Marotta-Wurgler, *Understanding Privacy Policies: Content, Self-Regulation, and Markets* 1, 4, 26 (Law & Econ. Research Paper Series, Working Paper No. 16-18, 2016), <https://ssrn.com/abstract=2736513> [<https://perma.cc/62K6-UENF>].

Nor is there any sign that digital intermediaries will be required to disclose commissions anytime soon. TrueCar, which compares local automobile prices online, was recently hit with private lawsuits for not disclosing to consumers fees of \$299 to \$399 per automobile that it charged to dealers.²⁶⁶ However, it was the automobile dealers who brought the lawsuits, not consumers. Overall, a range of practices that move digital intermediaries further from neutrals and more toward promoters are unregulated.²⁶⁷

B. Effective Public Digital Regulators

The keys to maximizing the chance of any public digital intermediary succeeding are straightforward: adequate funding, anticapture mechanisms, performance metrics, and fully exercising information-collection powers. One of the main reasons to consider the public option is the possibility of having neutrals rather than only promoters available to consumers. The expected value of a public digital intermediary's neutrality must be discounted for the risk of agency capture. Scholars have developed a range of institutional design features, such as independent funding, that make an agency more resistant to capture.²⁶⁸ It is also possible to imagine external oversight mechanisms through OIRA or other governmental entities.²⁶⁹

Adequate funding and performance metrics are also crucial. For public marketplaces, these issues are largely resolved by markets. Public marketplaces can take a percentage of each transaction and the market will hold them somewhat accountable, provided private marketplaces are also allowed.²⁷⁰ Independent of what one thinks about the ACA overall, the exchanges (and their state predecessors) show that government-run marketplaces can facilitate transactions with appropriate start-up investment and supporting legislation.²⁷¹

For agencies to operate public informers, they would need to divert considerable funding from other activities or seek new

266. *Dependable Sales & Serv. Inc. v. Truecar, Inc.*, No. 15-cv-1742 (PKC), 2016 WL 79992, at *7 (S.D.N.Y. Jan. 6, 2016).

267. For a discussion of diverse business models that lead to promotion, see *supra* Part I.C.2.

268. See generally Barkow, *supra* note 237 (discussing institutional design and agency capture).

269. See generally, e.g., Michael A. Livermore & Richard L. Revesz, *Regulatory Review, Capture, and Agency Inaction*, 101 GEO. L.J. 1337 (2013) (proposing OIRA reform for anticapture goals).

270. See *supra* Part III.

271. See *supra* Part III.A.

congressional funding. With public informers it also becomes far more important to develop rigorous performance metrics, such as measuring the number and type of decisions influenced. Such metrics would require more organizational transformation than may be readily apparent: a recent bipartisan estimate concluded that “less than \$1 out of every \$100 of government spending is backed by even the most basic evidence that the money is being spent wisely.”²⁷²

It is worth mentioning an alternative path for creating powerful public informers. One of the main determinants of whether informers can help consumers make optimal decisions is the quality of data analyzed. Many regulators have far-reaching information-collection authority that businesses do not. For example, the CFPB conducts regulatory examinations of financial institutions during which it routinely collects nonpublic data about sales, products, and other internal operations.²⁷³ If the CFPB’s Rate Checker were to run sophisticated analyses of such data, it could offer unparalleled advice.

However, this approach would have downsides. It would likely provoke industry backlash and legal challenges because such data is traditionally used only for assessing compliance with the law. Supervisory data cannot, for example, be obtained through FOIA requests.²⁷⁴ Also, the costs to businesses of such information collection could be high, although these costs could be minimized if the agency only uses data it already collects. Finally, the prospect of government agencies amassing and using big data to influence widespread decisions rings of a dystopian novel. At the same time, the administrative state already has troves of data that it uses in secretive ways. Making those uses explicit for digital intermediaries and in service of clear policy goals could improve consumer welfare and governmental transparency.

Thus, creating effective public digital informers involves spending many millions of dollars on technology, reorganizing agencies to resist capture, or exercising intrusive information-collection powers. Public digital intermediaries, particularly marketplaces, may still be worth considering as an alternative to the heavy regulation—including mandated disclosures, consumer protection regulation, and antitrust enforcement—required to make private digital intermediaries

272. See Peter Orszag & John Bridgeland, *Can Government Play Moneyball?*, ATLANTIC, Aug. 2013, at 62.

273. See Van Loo, *supra* note 19, at 1380–81 (summarizing the CFPB’s supervisory powers).

274. See 5 U.S.C. § 552(b)(8) (2012).

effective. Regardless, the larger point is that whether the public or private option is chosen, it is crucial to make this decision with a full understanding of what each path involves. Effectively regulating through digital intermediaries is a more complex and extensive undertaking than policy discussions explicitly acknowledge.

V. ACCOUNTABLE DIGITAL REGULATORS

The previous Parts focused on the substantive legal changes that would set digital intermediaries up to regulate markets effectively. This Part turns to procedural accountability, in its broader sense of “checks on decision making.”²⁷⁵ Although administrative law, privatization, and internet governance scholarship do not directly analyze the subject of this Article, they provide foundations for exploring two central questions. First, when adopting regulatory strategies that rely on private digital intermediaries, what additional responsibility should administrative agencies have for the market consequences? Second, when administrative agencies seek to run their own digital intermediaries, what external constraints are appropriate?

Given agencies’ great discretion in policymaking, this Part focuses on what accountability should be rather than what accountability the law currently imposes.²⁷⁶ Nonetheless, the discussion could gain judicial relevance following the D.C. Circuit’s skepticism of unenumerated agency authority in a recent case, *PHH Corp. v. Consumer Financial Protection Bureau*.²⁷⁷ Regardless, the main goal below is to highlight accountability and legitimacy questions worthy of further research by experts in the relevant fields. These inquiries will become more

275. See Jody Freeman, *The Private Role in Public Governance*, 75 N.Y.U. L. REV. 543, 664 (2000).

276. See Jody Freeman, *Extending Public Law Norms Through Privatization*, 116 HARV. L. REV. 1285, 1287 (2003); M. Elizabeth Magill, *Agency Choice of Policymaking Form*, 71 U. CHI. L. REV. 1383, 1390 (2004) (“[T]oday, promulgating an important legislative rule is a labor-intensive enterprise.”).

277. *PHH Corp. v. Consumer Fin. Prot. Bureau*, 839 F.3d 1 (D.C. Cir. 2016). In *PHH Corp. v. Consumer Financial Protection Bureau*, the court expressed concern about “broad and unaccountable power wielded by independent agencies.” *Id.* at 8. It ruled against the CFPB by imposing a three-year statute of limitations on its administrative actions to match what the agency would have faced in court. While acknowledging that Congress likely would say that the CFPB had no statute of limitations for its administrative actions, the three-judge panel noted that the statute creating the CFPB “says no such thing.” *Id.* at 54. It is thus possible that some courts would block some agencies from launching digital intermediaries if the authorizing statute says nothing about digital regulators.

important for policymakers as digital intermediaries' regulatory roles expand.

A. Accountable Private Digital Regulators

A vast literature has probed the appropriate level of accountability for increasingly blurred lines between public and private actors. Linking private digital intermediaries to this scholarship touches on two related questions. First, to what extent are private digital intermediaries playing a public role? Second, how should we think about the governmental involvement in generating that private power?

First, scholars have shown how companies can serve a “public regulatory function” through their contracts.²⁷⁸ For-profit insurers, for example, cause those they insure to engage in safer behavior by offering lower premiums to those who go to the gym regularly or equip their cars with speed-monitoring devices. In this role, insurers arguably “perform some rulemaking and adjudication, thereby replacing or complementing government regulation.”²⁷⁹ Walmart requires suppliers to comply with environmental standards above those required by law.²⁸⁰ Digital intermediaries also arguably perform a public regulatory function. In particular, they police problematic business practices. FinTech digital assistants can now alert consumers when their credit card issuers raise rates, and they can suggest alternative issuers.²⁸¹ This service—making consumer-finance fees more salient to consumers—is a task that Congress has taken on in recent years through legislation such as the CARD Act²⁸² and is one of the major roles of the CFPB. A prominent article on this topic notes that, in deciding whether “to intervene, either to regulate contract terms or to require information disclosure . . . the normative question should be whether the existence of imperfect information has produced noncompetitive prices and terms.”²⁸³ Price-comparison websites can address such imperfect

278. See Michael P. Vandenbergh, *The New Wal-Mart Effect: The Role of Private Contracting in Global Governance*, 54 UCLA L. REV. 913, 914–15 (2007).

279. Ben-Shahar & Logue, *supra* note 6, at 199, 201, 208.

280. See Vandenbergh, *supra* note 278, at 913.

281. See *supra* notes 57–58 and accompanying text.

282. Credit Card Accountability Responsibility and Disclosure (CARD) Act of 2009, Pub. L. No 111-24, 123 Stat. 1734 (codified as amended in scattered sections of 15 U.S.C.).

283. See Schwartz & Wilde, *supra* note 42, at 631.

information, which is why their presence has prompted calls for deregulation.²⁸⁴

The mere fact that a private company performs a public function does not answer the question of appropriate accountability. Walmart is not heavily regulated despite some arguably public functions. Countless private third-party actors, including magazines such as Consumer Reports, help consumers sift through market information without governmental oversight.

If digital intermediaries are viewed as playing a public role because of how they police businesses, the scope of their market influence is relevant. Commentators have debated whether internet service companies like Google should be treated as public utilities or common carriers.²⁸⁵ A closer commercial reference point for digital marketplaces is the NYSE. The NYSE is a private entity but the SEC oversees its rules and structure.²⁸⁶ Influential congressional testimony for the legislation that ended the NYSE's autonomy acknowledged that the exchange likely "has to be something of a monopoly. But after all it is essentially a public institution."²⁸⁷ Among the Supreme Court's articulated concerns in moving to a regulatory model were "manipulative or deceptive practices."²⁸⁸

A small number of digital intermediaries have become "super-nodes" providing access to important sectors of the economy.²⁸⁹ With this position comes the capacity for manipulation and deception.²⁹⁰ Digital marketplaces write the rules governing an ever-larger portion of commercial transactions. They even adjudicate disputes in ways analogous to courthouses, with eBay alone resolving over 60 million disputes each year between buyers and sellers.²⁹¹

284. See Max N. Helveston, *Regulating Digital Markets*, 13 N.Y.U. J.L. & BUS. 33, 36 (2016) (discussing the experts' calls for deregulation in response to digital technologies).

285. For examples of this debate, see generally Bracha & Pasquale, *supra* note 33; Yoo, *supra* note 33.

286. See Jennifer M. Pacella, *If the Shoe of the SEC Doesn't Fit: Self-Regulatory Organizations and Absolute Immunity*, 58 WAYNE L. REV. 201, 206 (2012).

287. See *Gordon v. N.Y. Stock Exch., Inc.*, 422 U.S. 659, 665 (1975) (describing the excerpted testimony as part of "[p]erhaps the most pertinent" testimony in the hearings for the Securities Exchange Act of 1934 on the subject of monopoly power).

288. See *Merrill Lynch, Pierce, Fenner & Smith v. Ware*, 414 U.S. 117, 127–28 (1973).

289. See Tom Fairless, *The EU Eyes a Tech 'Super-Regulator'*, WALL STREET J., Apr. 24, 2015, at B1.

290. See *supra* Part II.B.

291. See Van Loo, *supra* note 82, at 549.

There are valid reasons to distinguish stock exchanges as needing greater regulation than digital intermediaries.²⁹² Still, the NYSE illustrates how at some point a private digital marketplace might merit greater public involvement due to its centrality to commercial markets. Such public involvement may be appropriate even if that marketplace position has characteristics of a natural monopoly, as the NYSE arguably did.²⁹³

Second, it is worth inquiring into the steps taken by government actors to promote private digital intermediaries' power. Some administrative law scholars have called for a broadening of the concept of delegation of agency authority. The idea is that when agencies rely on private entities to exercise regulatory discretion—such as telling banks to determine internally how to safeguard consumer information—the agency is delegating its authority in a manner analogous to Congress delegating its regulatory authority to administrative agencies. Consequently, agencies should apply “an accountability paradigm” to private actors asked to regulate for public ends.²⁹⁴

Delegation is less relevant to private digital intermediaries because, when agencies release digital data or mandate data disclosures, no public actor is explicitly instructing a private entity to undertake any particular activity. Agencies simply make machine-readable data available. To the extent private digital intermediaries regulate, they do so voluntarily.²⁹⁵

Still, the digital intermediary may not otherwise exist—or might be less powerful—without an agency's action.²⁹⁶ A governmental decision about mandating machine-readable disclosures may

292. One possible distinction is the heightened securities law concern with systemic risk. See Steven L. Schwarcz, *Systemic Risk*, 97 GEO. L.J. 193, 205–06 (2008). However, efficiency is “a central goal of U.S. securities law” and includes maintaining competition and preventing fraud. See *id.* Those considerations also apply to digital intermediaries. Moreover, many have concluded that some digital intermediaries are of “systemic” importance for the economy. See Fairless, *supra* note 289.

293. See Hans R. Stoll, *The Causes and Consequences of the Rise in Third Market and Regional Trading*, 19 J. CORP. L. 509, 514 (1994).

294. See Kenneth A. Bamberger, *Regulation as Delegation: Private Firms, Decisionmaking, and Accountability in the Administrative State*, 56 DUKE L.J. 377, 383, 386, 400–01 (2006) (arguing for a broader application of the delegation doctrine); Gillian E. Metzger, *Privatization as Delegation*, 103 COLUM. L. REV. 1367, 1367 (2003) (describing privatization as state-action delegation).

295. For a discussion of the limited oversight of digital intermediaries, see *supra* Part IV.A.

296. For a discussion of the lack of digital intermediaries in some industries, see *supra* Part II.A.

determine whether a monopolistic, manipulative digital intermediary serves as gatekeeper for an industry. The machine-readable disclosure is arguably made with the purpose of enabling a private entity to play a public function. The fact that an agency gave no instructions on how to use the disclosed data should not serve as an accountability shield. To the contrary, the assumption that minimal involvement suffices is part of the problem. Regardless of existing doctrinal boxes, unchecked agency reliance on potentially manipulative and deceptive machines serving as market gatekeepers at some point is in tension with an accountable administrative state.

B. Accountable Public Digital Regulators

When administrative agencies operate digital intermediaries, it is worth examining under what authority such action is taken and what constraints are appropriate. Some agencies offer these tools online without any public input beforehand or any public oversight afterwards, as the CFPB did with its mortgage calculator.²⁹⁷ Others, such as the USDA, have solicited public comments in the initial phase.²⁹⁸

One explanation for some agencies' lack of procedural constraints may be that public digital intermediaries fall under agencies' communications or public education mandates. Most but not all agencies can publish information without any prior constraints.²⁹⁹ Some interactive agency websites do little more than provide easier access to and organization of information. Entering a company's name in the simple search engine on an agency complaint database, for example, is only making it easier and quicker for a citizen to find what could be published in print.

For three reasons, justifying digital tools through an agency's communication powers may fall short. First, some static information put out by administrative agencies is held to a higher accountability standard. The USDA solicits public input before publishing guidelines,

297. For example, the CFPB's authority for its suite of online tools may be the statutory requirement that it establish an office of Financial Education "responsible for developing and implementing initiatives intended to educate and empower consumers to make better informed financial decisions." See Dodd-Frank Wall Street Reform and Consumer Protection Act § 1013(d)(1), Pub. L. No. 111-203, 124 Stat. 1376, 1970 (2010) (codified as amended at 12 U.S.C. § 5493(d)(1)).

298. See Submission of SuperTracker for OMB Review; Comment Request, 77 Fed. Reg. 43,045, 43,045 (July 23, 2012).

299. See Barkow, *supra* note 238, at 46–47.

which have significant implications for food markets.³⁰⁰ Digital intermediaries also can influence a large number of decisions, especially because their interactive nature allows agencies to give personalized advice. If passive information with the potential to influence a large number of market decisions can prompt public constraints, interactive digital tools presumably should sometimes as well.

Second, it may matter that digital intermediaries' influence can happen in a more hidden manner. To be sure, even print communications can influence people in subtle ways. On the other hand, the only reason the public knows that Facebook can influence voting is that the company released results from its internal study.³⁰¹ Scholars or public interest groups have all they need to analyze data relevant to passive information published on agencies' websites or in pamphlets. They do not have easy access to public digital intermediaries' algorithms or usage data. This means it is difficult for external groups to understand how those tools might influence people. This opacity raises the stakes of agency capture, as it would be difficult to determine how the digital intermediary may advance industry interests.

Third, some public online tools may constrain behavior in ways analogous to legal rules. Regulations can occur by changing "a physical or digital environment to make undesirable conduct difficult."³⁰² If the CFPB wanted to mandate that credit card companies divulge new information on consumers' monthly bills, it would first provide public notice and the opportunity for comments before issuing any such rule.³⁰³ Agencies' writing of digital intermediaries' computer code is not close enough to agency rulemaking to classify it as such. However, one implication of this architecture-as-law scholarship is that if an agency such as the CFPB were to build a web portal that required the same thing of credit card companies as a rule—such as divulging of specific information or otherwise making "undesirable conduct difficult"—such activity is arguably a form of regulation. The conversation about procedural constraints should unfold accordingly.

300. 7 U.S.C. § 5341 (2012).

301. See Jonathan Zittrain, Response, *Engineering an Election*, 127 HARV. L. REV. F. 335, 33536 (2014).

302. See Calo, *supra* note 6, at 773; LESSIG, *supra* note 31.

303. See 5 U.S.C. § 553 (2012).

In designing procedural constraints, it would be important to consider not only a tool's launch but also ongoing operations. Law and technology scholars' calls for transparency of the algorithms of large digital platforms such as Facebook and Google may be appropriate for governmental commercial algorithms.³⁰⁴ Contract law scholars' proposals that companies disclose usage information³⁰⁵ may also prove suitable. Though aimed at private companies, if applied to public digital intermediaries these ideas would further the administrative law goal of "democratic enforcement."³⁰⁶ Transparency and disclosures for public digital intermediaries would enable external observers to assess the impact of agencies' tools and spotlight any captured influence or poor performance.

Ongoing accountability mechanisms may be all the more important under a digital regulatory regime. Congress expects high-level agency officials to "have effective control over the bureaucracies that they manage."³⁰⁷ Digital intermediaries are becoming part of that bureaucracy. Scholars are predicting "self-driving laws" that use artificial intelligence to update automatically.³⁰⁸ Crucially, agencies' digital intermediaries are competing with those in industry.³⁰⁹ To keep up, agencies will need to develop increasingly sophisticated and automated tools. Wall Street engineers who write robo-trading algorithms learned through near catastrophes such as the 2008 financial crisis and the "flash crash" of 2010 that it is difficult, if not impossible, to know precisely what will happen once advanced computer code intersects with the real world.³¹⁰ Agencies will need mechanisms to supervise these rapid upgrades and their inevitably unpredictable interaction with complex markets.

304. See generally PASQUALE, *supra* note 133 (broadly calling for greater transparency of companies' "black box" algorithms).

305. See Bar-Gill, *supra* note 47, at 82.

306. See Margaret H. Lemos, *Democratic Enforcement? Accountability and Independence in Public Enforcement*, 102 CORNELL L. REV. (forthcoming 2017) (manuscript at 7–13).

307. Jerry L. Mashaw, *Recovering American Administrative Law: Federalist Foundations, 1787–1801*, 115 YALE L.J. 1256, 1261 (2006).

308. Anthony J. Casey & Anthony Niblett, *Self-Driving Laws*, 66 U. TORONTO L.J. 429, 429 (2016).

309. See *supra* Part III.B.

310. See SCOTT PATTERSON, *THE QUANTS: HOW A NEW BREED OF MATH WHIZZES CONQUERED WALL STREET AND NEARLY DESTROYED IT* 238 (2010); U.S. COMMODITY FUTURES TRADING COMM'N & U.S. SECS. & EXCH. COMM'N, *FINDINGS REGARDING THE MARKET EVENTS OF MAY 6, 2010* 1–6 (2010), <http://www.sec.gov/news/studies/2010/market-events-report.pdf> [<https://perma.cc/3GLV-549J>].

The bigger implication is that there is work to be done in determining when public digital intermediaries cross the line from simple information sharing to something more involved. As the digital tool asks for more information from the user, analyzes with greater algorithmic sophistication, and shapes more online behavior, accountability becomes more essential. Distinctions are already drawn among the types of public digital intermediaries. Marketplaces like the ACA are mentioned in statutes.³¹¹ This implies public digital marketplaces merit more procedural constraints than informers. As public intermediaries proliferate, more attention is needed to developing these distinctions and making them explicit.

VI. A HOLISTIC LAW OF INTERMEDIARIES

Digital regulators' shortcomings call for at least a shift to more realistic policymaking. A larger question is whether and how to pursue broad reform. Despite downsides,³¹² a uniform lawmaking initiative offers the chance to (1) produce rules and guidelines relevant to diverse institutions—agencies, legislatures, and courts at both the state and federal level; (2) design an interdependent set of laws; and (3) leverage interdisciplinary expertise. Also, because digital intermediaries evolve fast, an agency with an expanded technology mandate should be part of any comprehensive reform.

The law of digital intermediaries today is analogous to mid-1900s commercial law. UCC drafter Grant Gilmore described pre-UCC law “as closely resembling that obscure wood in which Dante discovered the gates of hell.”³¹³ In the early 1900s, with the increasing mechanization of transportation, trade increasingly crossed state borders.³¹⁴ Novel trade arrangements also resulted from new technologies of mass production.³¹⁵ Not only did the law fail to keep up with these changes, but it also presented a perplexing lack of uniformity.³¹⁶ A sales transaction might have been governed by any

311. For a discussion of the ACA exchanges, see *supra* Part III.A.

312. See generally Alan Schwartz & Robert E. Scott, *The Political Economy of Private Legislatures*, 143 U. PA. L. REV. 595 (1995) (identifying the structural characteristics of “large private law-making groups” such as the American Law Institute and the National Conference of Commissioners on Uniform State Laws).

313. Grant Gilmore, *The Good Faith Purchase Idea and the Uniform Commercial Code: Confessions of a Repentant Draftsman*, 15 GA. L. REV. 605, 620 (1981).

314. See Gilmore, *supra* note 37, at 1341–46.

315. See, e.g., *id.*

316. See, e.g., *id.*

number of state or federal acts, most of which were out of touch with practices in the marketplace.³¹⁷

Although the UCC modernized and standardized commercial rules, a patchwork of outdated state and federal laws now govern digital intermediaries.³¹⁸ In recent years, sellers have tried to rein in price-comparison sites by raising state and federal claims of false advertising, unfair competition, and deceptive acts.³¹⁹ Other battles feature “non-disparagement clauses” seeking to prevent consumers from leaving negative reviews online, reports of which surfaced as far back as 2009.³²⁰ When given the chance, judges have penalized individual businesses hundreds of thousands of dollars for using these “gag clauses.”³²¹ In 2014, state statutes also began outlawing the practice.³²² In the seven years before Congress banned these clauses in 2016, incalculable costs were incurred by courts, legislatures, businesses, consumers, and markets.

A centralized process would also prevent duplicative efforts across agencies. In 2016, the DOT adopted a rule stating, “Online travel sites that display and sell airline tickets are prohibited from biasing on behalf of certain airlines how they present available flights for purchase without disclosing this bias.”³²³ To reach this point, the DOT undertook a resource-intensive economic analysis and rulemaking process.³²⁴ Yet undisclosed bias is not a problem specific to

317. See Karl Llewellyn, *On the Good, the True, the Beautiful, in Law*, 9 U. CHI. L. REV. 224, 230, 264 (1941) (discussing the disconnect between the law and markets).

318. These laws include those governing financial advisers, anticompetitive practices, and unfair and deceptive acts. See *supra* Part IV.A.

319. See, e.g., *Dependable Sales & Serv. Inc. v. Truecar, Inc.*, No. 15-cv-2016 WL 79992, at *2 (S.D.N.Y. Jan. 6, 2016).

320. See Chris Walters, *Going to The Doc? Be Sure You Don't Sign a Gag Order*, CONSUMERIST (Mar. 4, 2009), <https://consumerist.com/2009/03/04/going-to-the-doc-be-sure-you-dont-sign-a-gag-order> [<https://perma.cc?CG86-5MY6>].

321. See Chris Morran, *Complain All You Want, California! State Outlaws Silly Non-Disparagement Clauses*, CONSUMERIST (Sept. 10, 2014), <https://consumerist.com/2014/09/10/complain-all-you-want-california-state-outlaws-silly-non-disparagement-clauses> [<https://perma.cc/EJ7S-8DL6>].

322. See *id.*

323. See U.S. Dep't of Transp., *supra* note 1.

324. In 2014, the DOT released an extensive regulatory impact report on the topic. See HDR/HLB DECISION ECONOMICS INC., U.S. DEP'T. OF TRANSP., INITIAL REGULATORY IMPACT ANALYSIS FOR PROPOSED CONSUMER RULEMAKING REGARDING TRANSPARENCY OF AIRLINE ANCILLARY FEES AND OTHER CONSUMER PROTECTION ISSUES 66 (2014), https://www.transportation.gov/sites/dot.gov/files/docs/Reg_Eval_NPRM%20_rule_3.pdf [<https://perma.cc/Q6NN-FALR>].

the travel industry.³²⁵ The CFPB, the FTC, and every agency involved with search algorithms may now need to repeat the DOT's resource-intensive process to address the same problem.³²⁶

Granted, not all markets should have the same rules. Default rules may often be more appropriate. An amended APA might require any administrative agency operating a digital intermediary to solicit public input during the computer-coding phase and make the underlying algorithms open-source. If Congress believes that an existing agency should be exempt from such a requirement, perhaps to prevent strategic behavior by banks, it could make such an exception. A federal law against undisclosed bias might serve as a default that the agency overseeing a given market could alter.

Further complications arise from some agencies' circumscribed authority even in the markets they regulate. For the CFPB to determine how much machine-readable mandated disclosures will benefit borrowers, it will need to know whether those disclosures will empower a digital intermediary to exercise monopoly power.³²⁷ The CFPB does not, however, enforce antitrust laws. That authority at the federal level largely rests with the FTC and the DOJ.³²⁸ Businesses have also brought antitrust suits against digital intermediaries.³²⁹

As daunting of a task as addressing these interconnected issues may seem, a wealth of scholarship aimed at related issues already provides foundations.³³⁰ Law and technology scholars have argued for an "information fiduciary" standard that would require online service companies not to put their own interests above those of their users.³³¹ That standard is particularly relevant for those digital tools that have become many people's trusted advisers.³³² Computer scientists have developed encryption methods for analyzing algorithms without

325. See *supra* Part II.B.2.

326. Reputational tools policing problematic business practices offer some promise, but public support may be needed given business opposition. See Helveston, *supra* note 284, at 33; Van Loo, *supra* note 82, at 569–70, 597.

327. See *supra* Part II.

328. See U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, *supra* note 247.

329. See *supra* note 253.

330. Much of the literature discussed throughout this Article has relevant proposals.

331. See Jack M. Balkin & Jonathan Zittrain, *A Grand Bargain to Make Tech Companies Trustworthy*, ATLANTIC (Oct. 3, 2016), <http://www.theatlantic.com/technology/archive/2016/10/information-fiduciary/502346> [https://perma.cc/FZ93-Y4ER].

332. See Jonathan Zittrain, Keynote Speech, Black Box Society Conference, Yale Law School (Apr. 2, 2016).

revealing trade secrets.³³³ Such techniques could help monitor problematic activity such as racially disparate treatment.³³⁴

Isolated scholarly proposals, judicial decisions, and agency rules have begun to create pieces of a governance framework, but that work has yet to be brought together to draft a comprehensive blueprint. In the early 1900s it would have been impractical and inefficient for each state to undertake the duplicative process of creating a commercial code or for that effort to be repeated for each industry. Today it would be even more impractical, inefficient, and duplicative for various agencies, state legislatures, and courts to gather interdisciplinary experts to reinvent a complete set of rules governing digital intermediaries. An interdisciplinary group of economists, lawyers, psychologists, computer scientists, and others would be better architects for an integrated system of rules, and more equipped to think through difficult questions about whether private, public, or hybrid models would work best.

Even with a holistic legal framework in place, a final institutional challenge is how to continually update that new framework with fast-changing digital markets. Courts should continue to play a meaningful role, particularly to balance out capture risks.³³⁵ Still, as consumer protection, law and economics, and law and technology scholars have argued in analogous contexts, focused agencies offer the benefits of institutional expertise and faster *ex ante*, rather than *ex post*, rulemaking.³³⁶ Agencies are thus preferable to courts or legislatures. But coordinating scattered authority across the FCC, DOT, CFPB,

333. See Cade Metz, *7,500 Faceless Coders Paid in Bitcoin Built a Hedge Fund's Brain*, WIRED (Dec. 12, 2016, 7:00 AM), <https://www.wired.com/2016/12/7500-faceless-coders-paid-bitcoin-built-hedge-funds-brain> [<https://perma.cc/8R7V-KZRE>].

334. See generally Chander, *supra* note 133 (arguing that algorithms may reduce invidious discrimination as compared to human decisionmakers).

335. See Arti K. Rai, *Engaging Facts and Policy: A Multi-Institutional Approach to Patent System Reform*, 103 COLUM. L. REV. 1035, 1066 (2003).

336. The judicial process faces institutional limits on convening necessary expertise, responding quickly and comprehensively across diverse geographic markets, and taking a broad systems lens to interdisciplinary laws that may not be raised in any given case. See Bar-Gill & Warren, *supra* note 42, at 70, 98–99 (calling for a federal agency focused on consumer finance in part because of the institutional advantages, including expertise and *ex ante* rulemaking, of agencies over courts in regulating consumer financial markets); Ryan Calo, *Why We Need a Federal Agency on Robotics*, SCI. AM. (Dec. 1, 2014), <https://www.scientificamerican.com/article/why-we-need-a-federal-agency-on-robotics> [<https://perma.cc/QZD4-YRAE>] (citing a lack of robotics expertise as a reason for creating a federal robotics agency). *But see* Viva R. Moffat, *Regulating Search*, 22 HARV. J.L. & TECH. 475–78 (2009) (suggesting that federal courts, not agencies, should regulate search engines).

FTC, and others would prove challenging. Moreover, the problems created by data-driven consumer products range far, including the threat of fake news to the democratic process and life-or-death decisions made by driverless cars. Expanding the regulatory mandate of an existing agency, most practically the FTC, would improve the institutional landscape.³³⁷ For a broader solution, ideas such as a Federal Search Commission³³⁸ and Federal Robotics Agency³³⁹ could be combined into a technology meta-agency that provides oversight, rulemaking, and technical updates for an inevitably digital administrative state.

CONCLUSION

The current regulatory paradigm increasingly depends on using online agents to pursue offline goals. This approach routinely assumes that digital intermediaries offer a powerful and light-touch regulatory option. In reality, they often lack the information they need to help consumers make optimal choices. If they obtain that information, private versions may inefficiently exploit consumers and constrain choice. Public versions are susceptible to political turbulence and capture. Traditional administrative law accountability mechanisms provide little clarity.

Comprehensively addressing these weaknesses would require massive government supervision, agency restructuring, or sweeping legislation. This imperfect set of options does not necessarily bury digital intermediaries. The alternatives also have shortcomings. Rules prohibiting seller behavior may limit product innovation and growth. The stakes for ignoring intermediaries can also be high. In the decades leading up to the 2008 financial crisis, lenders paid brokers to steer home buyers toward costlier loans.³⁴⁰ Policymakers embrace today's algorithms as market guardians, rather than recognizing them as possible digital reincarnations of yesterday's market predators. Among

337. Indeed, the FTC has joint authority with the DOT over online travel agents. *See* James C. Cooper, *The Costs of Regulatory Redundancy: Consumer Protection Oversight of Online Travel Agents and the Advantages of Sole FTC Jurisdiction*, 17 N.C. J.L. & TECH. 179, 181 (2015). Thus, the FTC presumably could have written an undisclosed-bias rule covering diverse industries it regulates instead of the DOT undertaking that process solely for one industry. *See* U.S. Dep't of Transp., *supra* note 1. However, FTC rulemaking is more constrained. *See* Cooper, *supra*, at 214.

338. *See generally* Bracha & Pasquale, *supra* note 33 (considering, but stopping short of suggesting, a commission for overseeing search engines).

339. *See* Calo, *supra* note 336.

340. *See* Eskridge, *supra* note 76, at 1129–30.

the paths forward, investing in digital regulators may, in many markets, produce the best results. At a minimum, the state's expanding reach into private decisions deserves closer scrutiny.