

## Is Uber a Common Carrier?

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The title of this essay may seem surprising. What does Uber, a transportation service considered an exemplar of the “sharing economy,” have to do with Internet regulation? What does common carriage, a regulatory construct most commonly associated with railroads in the nineteenth century and telephones in the twentieth century, have to do with Uber? Also, why does the answer even matter? These are precisely the sort of questions we should ponder if we truly care about the *future* of Internet regulation.

Twenty years after the privatization of the network backbone and the birth of the commercial web, the world has changed. The Internet is no longer just a communications network to move digital bits. Its most significant manifestations involve reshaping markets and social relationships in the physical world. These “Internet-enabled” services use digital and mobile connectivity to coordinate the distribution of resources, such as transportation services and lodging. The scale of such online/offline hybrids, including Uber, Airbnb, TaskRabbit, and Lyft, now frequently exceeds that of their long-established competitors. Additionally, their influence on basic social functions, such as transportation and housing, promises to be even more significant than their financial impact.

In such an environment, we must look at regulation differently. It makes little sense to enforce a strict separation between the cyber world and the physical world when firms increasingly straddle both. Moving beyond the rhetoric of regulatory obligations primarily as limitations to be overcome, the positive value of public policy to stimulate investment and innovation should be disinterred. Notions of common carriage and public utilities, once unmoored from their historical associations with sanctioned monopolies and rate

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regulation, can function as framing devices for the regulatory questions of the twenty years to come. Increasingly, their application will be to companies that operate over the network, rather than to just connectivity providers.

This essay explores a future of Internet regulation that draws on the valuable attributes of longstanding doctrines to craft a viable regime for the future. Part I describes the rise of Internet-enabled network services, with Uber as the paradigmatic case. Part II explains how these services function as utilities and identifies the major regulatory conflict points. Part III speculates on how these issues may be resolved.

### INTERNET-ENABLED NETWORK SERVICES

Uber, launched in 2010 as an aggregator of “black car” services in San Francisco, has quickly become one of the world’s most influential companies.<sup>1</sup> Startups pitch venture capitalists on “the Uber for x,” as they once talked of imitating Amazon.com or Google.<sup>2</sup> Moreover, investors have thrown money at the startup at an unprecedented pace. Worth over \$50 billion as of mid-2015, Uber is the world’s most highly-valued, venture-backed private company.<sup>3</sup> It now operates in over 300 cities worldwide and has over one million drivers in its network.<sup>4</sup> Uber’s revenues are already in the billions of dollars and may hit \$10 billion in 2015.<sup>5</sup>

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<sup>1</sup> See Kara Swisher, *Man and Uber Man*, VANITY FAIR, Dec. 2014, <http://www.vanityfair.com/news/2014/12/uber-travis-kalanick-controversy>.

<sup>2</sup> See Erin Griffith, *The Problem With "Uber for X"*, FORTUNE, Aug. 11, 2015, <http://fortune.com/2015/08/11/uber-profitable-business-model/>; Adrienne LaFrance, *The Web Is the Real World*, THE ATLANTIC, Dec. 22, 2014, <http://www.theatlantic.com/technology/archive/2014/12/the-web-is-the-real-world/383985/>; Jason Gilbert, *Poem: There's an Uber for X*, QUARTZ, Dec. 12, 2014, <http://qz.com/311217/poem-theres-an-uber-for-x/>.

<sup>3</sup> See Edward Moyer, *Uber to be Valued at \$50 Billion in New Funding Round, Say Reports*, CNET, May 9, 2015, <http://www.cnet.com/news/uber-to-be-valued-at-50-billion-in-new-funding-round-say-reports/>.

<sup>4</sup> See Luz Lazo, *Uber turns 5, reaches 1 million drivers and 300 cities worldwide. Now what?*, WASH. POST, June 4, 2015, <https://www.washingtonpost.com/blogs/dr-gridlock/wp/2015/06/04/uber-turns-5-reaches-1-million-drivers-and-300-cities-worldwide-now-what/>.

<sup>5</sup> See Alyson Shontell, *LEAKED: Internal Uber Deck Reveals Staggering Revenue And Growth Metrics*, BUSINESS INSIDER, Nov. 20, 2014, <http://www.businessinsider.com/uber-revenue-rides-drivers-and-fares-2014-11>. As a private company, Uber does not report

The excitement about Uber reflects the awe-inspiring scope of its potential. In early 2015, Uber CEO, Travis Kalanick, revealed that the company's annual revenues in San Francisco (\$500 million) were more than triple the size of the taxi industry in the city (\$140 million), and still rapidly growing.<sup>6</sup> This indicates that the company is not just beating established competitors, but creating significant new demand by expanding the ride-sharing market. Uber is now exploring entirely new market opportunities, such as delivery,<sup>7</sup> and developing self-driving car technology,<sup>8</sup> suggesting an ambition far beyond the taxi market.

Uber is the most prominent example of a deeply important trend. However, it is widely misunderstood. Descriptions of Uber and its competitors usually lump them as examples of “the Sharing Economy” or “Collaborative Consumption” because they encourage private drivers to share their cars with paying passengers on an on-demand basis, or the descriptions focus on the functionality of its smartphone-based, ride-hailing app.<sup>9</sup> While these descriptions have some validity, they miss the larger picture. At its core, Uber is an Internet-enabled network utility.

The critical aspect of Uber is that it provides a broad-scale service, involving physical assets, that is seamlessly enabled by network connectivity. In the words of early Facebook executive Matt Cohler,

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detailed financial information. These numbers are based on selective information the company has disclosed in the past, plus leaked investor presentation materials.

<sup>6</sup> See Henry Blodget, *Uber CEO Reveals Mind-Boggling New Statistic That Skeptics Will Hate*, BUSINESS INSIDER, Jan. 19, 2015, <http://www.businessinsider.com/uber-revenue-san-francisco-2015-1>.

<sup>7</sup> See Douglas Macmillan, *The \$50 Billion Question: Can Uber Deliver?*, WALL ST. J., June 15, 2015, <http://www.wsj.com/articles/the-50-billion-question-can-uber-deliver-1434422042>.

<sup>8</sup> See Andrew J. Hawkins, *Google vs. Uber and the Race to Self-Driving Taxis*, THE VERGE, Dec. 16, 2015, <http://www.theverge.com/2015/12/16/10309960/google-vs-uber-competition-self-driving-cars>.

<sup>9</sup> See generally Raj Kapoor, *Lessons From the Sharing Economy*, TECHCRUNCH, Aug. 30, 2014, <http://techcrunch.com/2014/08/30/critical-lessons-from-the-sharing-economy/>; *The Rise of the Sharing Economy*, ECONOMIST, Mar. 9, 2013, <http://www.economist.com/news/leaders/21573104-internet-everything-hire-rise-sharing-economy>; Russell Belk, *You are what you can access: Sharing and collaborative consumption online*, 67 J. BUS. RES. 1595 (2014); Jeremiah Owyang, *Infographic: A Day in the Life of the Collaborative Economy*, COLLABORATIVE ECONOMY (Sept. 29, 2014), <http://www.web-strategist.com/blog/2014/09/29/a-day-in-the-life-of/version1-2>.

Uber is “a remote control for real life.”<sup>10</sup> To its users, those one million drivers and their automobiles around the world are poised to appear in minutes at the touch of a smartphone screen, just like web pages in a Google search or music on Spotify. Uber is the invisible platform that provides an essential service, on demand and at scale, analogous to water, electric, and telecommunications providers.

Uber is the largest, most controversial, and best known of the Internet-enabled utilities. It has attracted tremendous attention and raised a host of policy challenges, so I use it throughout this section as the exemplar of the category. Uber, however, is far from the only company using smartphones or networked sensors to reconfigure major industries through utility platforms,<sup>11</sup> nor is it the only service to generate massive revenues and achieve a shockingly high valuation: Peer-to-peer lodging service Airbnb was valued by investors at \$20 billion in early 2015.<sup>12</sup>

Without the Internet, such services would require the kind of direct hierarchical management used in earlier transportation systems such as trains, airplanes, or express delivery companies. The U.S. Postal Service can get your package to you because it employs the drivers and owns the trucks. Uber does neither (at least, not yet).<sup>13</sup>

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<sup>10</sup> See Swisher, *supra* note 1.

<sup>11</sup> The brand council, Crowd Companies, has identified over 500 funded Sharing Economy companies. See Jeremiah Owyang, *Collaborative Economy Honeycomb 2 – Watch it Grow*, CROWDCOMPANIES (Dec. 14, 2014), <http://crowdcompanies.com/blog/collaborative-economy-honeycomb-2-watch-it-grow/>.

<sup>12</sup> See Ingrid Lunden, *Airbnb is Raising a Monster Round at a \$20B Valuation*, TECHCRUNCH, Feb. 27, 2015, <http://techcrunch.com/2015/02/27/airbnb-2/>; Sarah Cannon & Lawrence H. Summers, *How Uber and the Sharing Economy Can Win Over Regulators*, HARV. BUS. REV. (Oct. 13, 2014), <https://hbr.org/2014/10/how-uber-and-the-sharing-economy-can-win-over-regulators/>. There are a limited number of markets capable of generating the scale of revenues that Uber and Airbnb have achieved, and the dynamics of network effects and platform competition suggest the “winner take all” division of market share they are demonstrating is likely to continue. As a result, there will ultimately be a relatively small number of massive players, just as there are today in traditional utility markets.

<sup>13</sup> Uber’s legal relationship with its drivers is under challenge. Uber claims they are independent contractors, but two lawsuits assert they should be classified as employees. See Rachel Emma Silverman, *Uber, Lyft Cases Focus on Drivers’ Legal Status*, WALL ST. J. (Mar. 15, 2015), <http://www.wsj.com/articles/uber-lyft-cases-could-help-clarify-drivers-legal-status-1426456519>; Tom Risen, *Employee or Contractor? Uber Ruling Could Affect Other Companies*, U.S. NEWS & WORLD REPORT (June 18, 2015), <http://www.usnews.com/news/articles/2015/06/18/employee-or-contractor-uber-ruling-could-affect-other-companies>.

Instead, Uber uses smartphones in the hands of drivers and customers, connected through the Internet, to tie together independently-operated vehicles into a mass of transportation resources. Using Uber makes it seem as though there is an undifferentiated pool of cars available for use at whatever moment they are needed, similar to the pool of electricity, natural gas, or water going into a home or business.

The main difference between Uber and traditional utilities is that it does not own or operate its own network; it functions as a cloud service on top of the existing mobile Internet fabric. Uber and its customers both rely on wireless data networks to communicate, but Uber does not control, manage, or financially benefit from their data transport services. Uber leverages those connectivity utilities to provide its functionality; hence the term “Internet-enabled.” Where broadband access providers such as AT&T and Verizon deliver digital connectivity as a networked resource, Uber delivers transportation capacity.

To a network engineer, Uber is no different from a web-hosting company such as Netflix. These are applications and services on top of the network, and, under the end-to-end approach to networking, their particular needs should be excluded from consideration in network design.<sup>14</sup> This separation of regulated, lower-level connectivity from unregulated, higher-level services or content is a hallmark of modern communications policy. However, there is an important corollary to the layered vision of networks. The lower-level protocols can ignore the particularities of the higher-level applications, but, equally important, those higher-level applications can ignore the complexities of the infrastructure.<sup>15</sup> From the perspective of Uber’s users and partners, Uber is the network. Addressing the concerns at the connectivity layer below does not guarantee an innovative, fair, and competitive market on top.

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<sup>14</sup> See Mark A. Lemley & Lawrence Lessig, *The End of End-to-End: Preserving the Architecture of the Internet in the Broadband Era*, 48 UCLA L. REV. 925 (2001); Kevin Werbach, *A Layered Model for Internet Policy*, 1 J. ON TELECOMM. & HIGH-TECH L. 37 (2002). Not all scholars agree that the end-to-end model implies that broadband providers should be prohibited from combining layers to optimize services. See Christopher S. Yoo, *Network Neutrality and the Economics of Congestion*, 94 GEO. L.J. 1847 (2006).

<sup>15</sup>This is not strictly true. Content delivery networks (CDNs) and other forms of traffic engineering come into play for large-scale services, especially those requiring low latency or high reliability. For the kinds of utility services described in this essay, however, such complexities are generally not necessary.

Appropriately, when states and localities create new legal categories for services such as Uber, they typically do not call them taxi or transportation providers. They are generally labeled in these new statutes as “transportation network companies” (TNCs).<sup>16</sup> The same could be said about Internet-enabled utilities in other industries. Facebook is called a social-network company. Airbnb could, equivalently, be described as a lodging-network company. TaskRabbit or Homejoy could be called people-networking companies for “handyman” and cleaning tasks. Nest (now part of Google), which makes smart thermostats and similar devices, is a home-automation-network company. Amazon.com, through its Amazon web services, is a cloud-network company. All of these companies—and many others—provide services that aggregate pools of physical resources through Internet connectivity.

Internet-enabled utilities could not exist until recently. They depend not just on the existence of Internet connectivity (as do Google and Amazon.com), or its ubiquity (as does Facebook), or broadband (as does Netflix), or on mobile data connectivity (as do Twitter or Instagram). They generally require widespread penetration of smartphones, plus a cloud-computing infrastructure, ancillary services such as payments and mapping, and the software engineering techniques of Big Data. They often require a comfort level about the associated human interactions, such as a willingness to step into a car not driven by a licensed taxi driver or to stay in a stranger’s private residence—opportunities that did not exist a decade ago. These associated human interactions are hurdles that companies like Uber had to overcome, just as comfort with using credit cards online was an earlier barrier to e-Commerce. All of these factors have come together in recent years to allow Internet-enabled utilities to grow with stunning rapidity.

#### PUBLIC POLICY FOR THE NEW UTILITIES

The category of Internet-enabled utilities is still new and rapidly evolving. It has reached a level of significance, however, that can no longer be ignored in public policy discussions. We may still be

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<sup>16</sup> See, e.g., California Public Utilities Commission, Decision Adopting Rules And Regulations To Protect Public Safety While Allowing New Entrants To The Transportation Industry, Rulemaking 12-12-011 (July 30, 2013), <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M077/K112/77112285.PDF>; Illinois Transportation Network Providers Act, 625 ILCS 57, available at <http://www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=3589&ChapterID=49>.

fighting in ten years about network neutrality for broadband providers and privacy restrictions for advertising-funded services, but those are not the emerging issues of the future. Instead, Internet-enabled utilities will be the locus of foundational regulatory debates in the coming years.

The past and present of Internet regulation focuses on four main categories of activity: online content (e.g., YouTube), online services (e.g., Facebook, Google, and Twitter), electronic commerce (e.g., Amazon.com), and communications networks (e.g., AT&T and Comcast). While there is certainly no shortage of ongoing controversies in these areas, the basic regulatory approach in each category is fairly well established. The debates and fault lines are, by now, familiar.

The future is more uncertain. Renting a room in someone's apartment through Airbnb is not the same kind of interaction as ordering a book on Amazon.com or posting a video to YouTube. The user must deal not just with the digital platform provider, but also with the individuals and assets the provider aggregates and connects. It is conceivable, though also problematic, to ignore the digital glue and treat the physical endpoints as the "real" aspects of the service. Doing so naturally emphasizes their particular industry sectors over the common factor of Internet-enabled market making. Ultimately, though, the most significant and difficult public policy questions these platforms raise derive from their digital attributes.

### WHAT MAKES A UTILITY?

The term "utility" in the label for Uber and related services is not an accident. The best way to find regulatory models for this emerging class of powerful platforms is to look to the way public utilities are treated.

What actually makes something a "utility"? There is great confusion about the term.<sup>17</sup> The most familiar examples of utilities are public and partially-public services such as electricity and water.<sup>18</sup> A

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<sup>17</sup> See Kevin Werbach, *The Network Utility*, 60 DUKE L.J. 1761 (2010). The use of the term is often circular.

<sup>18</sup> See COLUM. ELECTRONIC ENCYCLOPEDIA (6th ed. 2015) ("[I]ndustry required by law to render adequate service in its field at reasonable prices to all who apply for it. Public utilities frequently operate as monopolies in their market. In the United States, public utilities are most commonly involved in the business of supplying consumers with water, electricity, telephone, natural gas, and other necessary services."); WEST'S ENCYCLOPEDIA OF AMERICAN LAW 173 (2d ed. 1998) ("Public utilities are businesses that provide the public with necessities, such as water, electricity, natural gas, and telegraph communication.").

utility, however, can be a private company that is not limited to a defined set of services. Since the FCC was created in 1934, telephone networks have been regulated in the United States as utilities, even though they are privately-operated and deliver technologically novel communications services. The rules governing AT&T are not the same as those governing electric and natural gas providers, nor are they identical to those covering other historical utility-like networks, such as trains and stagecoaches. There are, however, commonalities among all those systems, and among their regulatory treatment.

Economists generally define utilities as services with large sunk costs, economies of scale, and massive consumption.<sup>19</sup> This is a rather capacious category. It is important to note that the rationale for utility treatment need not include status as a monopoly, or the legally-enforced exclusive franchises that pre-divestiture AT&T and early cable television systems enjoyed. Moreover, while legal regimes governing utilities go back many years, significantly more recent (and generally less intrusive) laws also bear traces of the same categorization.

At the root of utility treatment is the determination, going back at least to the 1876 case of *Munn v. Illinois* in American jurisprudence, that not all private companies operate in the same relationship to the public interest.<sup>20</sup> Certain industries and firms produce both greater potential benefits and larger potential harms to cherished social and economic values. As a result, despite some inconsistency in their rationales, courts allowed legislatures to impose special obligations on (and provide special benefits to) those companies.

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<sup>19</sup> See Pablo T. Spiller & Mariano Tommasi, *The Institutions of Regulation: An Application to Public Utilities*, in HANDBOOK OF NEW INSTITUTIONAL ECONOMICS 515, 519 (Claude Menard & Mary M. Shirley eds., 2005); Rick Geddes, *Public Utilities*, in ENCYCLOPEDIA OF LAW AND ECONOMICS 1162 (Boudewijn Bouckaert & Gerrit De Geest eds., 2000).

<sup>20</sup> *Munn v. Illinois*, 94 U.S. 113, 153 (1876). See Werbach, *supra* note 15; Oren Bracha & Frank Pasquale, *Federal Search Commission? Access, Fairness, And Accountability In The Law Of Search*, 93 CORNELL L. REV. 1149, 1175 (2008) (“When a private party occupies an extraordinary position of power that makes it indispensable to others for obtaining certain important resources, goods, or services, and when alternatives are very limited, traditionally there has been more receptiveness to the application of fairness and accountability norms.”).



In general terms, utilities share several characteristics:

- Societally significant markets

Functions such as energy, plumbing, communications, housing, and transportation are baseline requirements for members of a modern society. They are either necessary for a minimal standard of living or essential for full-fledged participation in the economy and as a citizen. This list is not static. It changes over time with the advance of technology and changes in society. Telephone connections and, increasingly, broadband and mobile Internet access are newer additions to the list.

- “Connection” infrastructure

Utilities are networks that knit together local connections into integrated service systems. They function as platforms that link users to each other or to other communities of providers. The importance of utilities is magnified because they occupy this role.

- Tendency toward monopolies

The public policy significance of utilities arises not only from their importance and structure, but also because of their tendency toward market failure. With significant fixed costs and typically strong network effects, utilities services are not easily delivered through competitive markets. This fact, combined with utilities’ status as connective infrastructure, gives them the ability and incentives to leverage their bottleneck control in ways that can significantly harm competition and innovation.

- Personal information via data exhaust

Finally, utilities automatically collect personal information through their processes of operation, and that “data exhaust” has significant potential for misuse. All major digital systems raise significant privacy questions, but utilities are particularly dangerous in this regard. They *must* collect information through the course of their operations. For example, a telephone company knows the origin and destination of every call a user is involved with, and mobile communications companies know a user’s physical location in real time. How those companies may leverage that data is subject to regulation, but the fact they obtain it is inevitable.

Under these criteria, Internet-enabled network services bear many of the indicia of utilities. Uber, for example, provides transportation functionality that could be, for many, essential to daily life (especially where it reaches a scale that displaces competing forms of transportation in local areas). It stitches together a virtual network of riders, drivers, mapping, payments, and other functions into an integrated platform. Though the market is still developing, Uber has a dominant share in most cities where it operates, with both traditional taxi operators and smaller rivals such as Lyft struggling to maintain footholds. It also collects extensive information about riders’ locations and activities as an outgrowth of its business.

These factors alone do not mean that Uber is harming the public interest or even that it has reached a sufficient scale to justify regulatory scrutiny. They simply imply that Uber can be accurately classified as a utility, which is the starting point, rather than the endpoint, for regulatory analysis. Other Internet-enabled networked services have similar attributes.

#### UTILITY REGULATION

One of the signal attributes of utilities is their regulatory status. As previously noted, utilities are firms that are, in the language of

nineteenth and early twentieth century jurisprudence, “affected with a public interest.”<sup>21</sup> In some cases, utilities are operated by governments or other public authorities, but they can also be organized as private, for-profit firms. In those latter cases, the public significance of the utilities is addressed through special regulatory benefits and obligations. These can take many different forms based on the market sector and structure.

The past several decades have witnessed a dramatic shift from top-down regulation of economic activity toward approaches focused on competition and market forces. As a result, utility regulation faded to the margins of public policy conversations. It became associated with a particular heavy-handed, monopoly-friendly, bureaucratic approach, which was viewed with increasing skepticism. However, the concept of utility regulation can be distinguished from its historical implementations. The rationale for distinctive treatment of utilities remains operative.

The most prominent area in which public utility regulation has returned to the fore is network neutrality. For years, the loudest debate in Internet regulation has been about “open Internet” obligations for broadband access providers.<sup>22</sup> Originally, the battle was about the substance of FCC rules to prevent unreasonable blocking and discrimination. In 2014, however, there was an important shift. After the District of Columbia Circuit Court of Appeals rejected the FCC’s 2010 Open Internet rules for exceeding the proffered source of legal authority, the focus of the debate moved from the substance of the rules to their legal vehicle. Network neutrality advocates argued strenuously, and eventually successfully, that the FCC should reclassify broadband access under Title II of the Communications Act, the section governing traditional telecommunications carriers.<sup>23</sup>

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<sup>21</sup> See Walton H. Hamilton, *Affection with Public Interest*, 39 YALE L.J. 1089, 1100–01 (1930); Bruce Wyman, *The Special Law Governing Public Service Corporations and All Others Engaged in Public Employment* (1911); Charles Fairman, *The So-Called Granger Cases, Lord Hale, and Justice Bradley*, 5 STAN. L. REV. 587 (1953); Breck P. McAllister, *Lord Hale and Business Affected with a Public Interest*, 43 HARV. L. REV. 759 (1930).

<sup>22</sup> See Kevin Werbach, *Off the Hook*, 95 CORNELL L. REV. 535 (2009).

<sup>23</sup> See Lily Hay Newman, *A Happy Day for Network Neutrality Advocates as FCC Votes to Reclassify Broadband*, SLATE, (Feb. 26, 2015), [http://www.slate.com/blogs/future\\_tense/2015/02/26/the\\_fcc\\_will\\_reclassify\\_broadband\\_as\\_a\\_utility\\_under\\_title\\_ii\\_so\\_it\\_can.html](http://www.slate.com/blogs/future_tense/2015/02/26/the_fcc_will_reclassify_broadband_as_a_utility_under_title_ii_so_it_can.html).

The rallying cry of the reclassification fight was to treat broadband access as a public utility.<sup>24</sup> Opponents used the same assumptions to attack broadband reclassification, drawing unfavorable comparisons to intrusive historical examples of utility regulation.<sup>25</sup> Largely absent from the claims and counterclaims about “regulating the Internet as a public utility” was any clear sense of what that meant. FCC Chairman, Tom Wheeler, argued that reclassification was merely a way to put the Open Internet rules on a sounder legal footing.<sup>26</sup> By exercising its forbearance authority, he further claimed, the Commission would avoid extending most of the obligations on common carriers to broadband providers.<sup>27</sup> If price regulation and other detailed specifications of service terms are off the table, what is left of utility regulation?

Fortunately, there are useful precedents that suggest an answer. The notion that emerging online services and platforms may operate as utilities did not originate with the current wave of Internet-enabled services. The basic legal obligations of the Communications Act were designed with legacy communications networks, most notably the telephone network, in mind. However, policy makers have on multiple occasions considered whether similar principles might be operative elsewhere, for newer network-based services.

In the 1960s, computer scientists and the FCC recognized that the growth of data processing services on the telephone network gave rise to a new and significant sphere of activity.<sup>28</sup> The researchers labeled

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<sup>24</sup> See Larry Downes, *How Wheeler's "Net Neutrality" Became Obama's "Public Utility"*, FORBES, Feb. 12, 2015, <http://www.forbes.com/sites/larrydownes/2015/02/12/how-wheeler-s-net-neutrality-became-obamas-public-utility/>; Rebecca R. Ruiz & Steve Lohr, *F.C.C. Approves Net Neutrality Rules, Classifying Broadband Internet Service as a Utility*, N.Y. TIMES, Feb. 26, 2015, [http://www.nytimes.com/2015/02/27/technology/net-neutrality-fcc-vote-internet-utility.html?\\_r=0](http://www.nytimes.com/2015/02/27/technology/net-neutrality-fcc-vote-internet-utility.html?_r=0).

<sup>25</sup> See L. Gordon Crovitz, *A Taxi Commission for the Internet*, WALL ST. J., Aug. 17, 2014, <http://www.wsj.com/articles/gordon-crovitz-a-taxi-commission-for-the-internet-1408317784>.

<sup>26</sup> Federal Communications Commission, *Chairman Wheeler Proposes New Rules for Protecting the Open Internet* (Feb. 4, 2015), <https://www.fcc.gov/document/chairman-wheeler-proposes-new-rules-protecting-open-internet>; Jay Cassano, *FCC Braces for Legal Backlash Against Proposed Net Neutrality Rules*, FAST COMPANY (Feb. 9, 2015), <http://www.fastcompany.com/3042164/fast-feed/fcc-braces-for-legal-backlash-against-proposed-net-neutrality-rules>.

<sup>27</sup> See Federal Communications Commission, *supra* note 26.

<sup>28</sup> See Werbach, *supra* note 17.

this new phenomenon the “computer utility.”<sup>29</sup> When the FCC took up the issues in its *Computer Inquiry* proceedings, it used different terminology, but the concept remained the same.<sup>30</sup> In the words of one prominent researcher at the time, “[the word ‘utility’] merely denotes a service that is shared among many users, with each user bearing only a small fraction of the total cost of providing that service.”<sup>31</sup> Looking at networked computing platforms as utilities was the starting point to investigate a variety of both economic and public interest considerations.<sup>32</sup> A similar analysis today would identify the significant areas of public policy concern that Internet-enabled networked services raise, where generic contract and antitrust principles may not provide sufficient responses.

This, at last, brings us to the title of this essay. Common carriage is a legal construct that recognizes the need to treat utilities differently. The category is not limited to monopoly telephone networks or even to communications providers. It has been applied to stagecoaches, taxis, trucking, gas pipelines, and even roller coasters, cruise ships, and elevator operators.<sup>33</sup> Even within federal communications law, common carriers are defined elliptically, leaving the boundaries of the category disputable. A “telecommunications carrier” is a common carrier if, and only if, it is providing “telecommunications services,” which means offering telecommunications to the public for a fee.<sup>34</sup> This circular definition incorporates an important concept: a common

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<sup>29</sup> See C.C. BARNETT, JR. ET AL., B.R. ANDERSON, W.N. BANCROFT, R.T. BRADY, D.L. HANSEN, H. SIMMONS, D.C. SNYDER, D. WECHSLER & J.L. WILCOX, *THE FUTURE OF THE COMPUTER UTILITY* (1967); DOUGLAS PARKHILL, *THE CHALLENGE OF THE COMPUTER UTILITY* (1966); DOUGLAS PARKHILL, *THE CHALLENGE OF THE COMPUTER UTILITY* (1966); Elizabeth Fowler, *Computer Utility Set*, N.Y. TIMES, Apr. 15, 1965, at 45; J.C.R. Lickliger & Robert W. Taylor, *The Computer as a Communication Device*, SCIENCE & TECH., Apr. 1968; Paul Baran, *Communication Policy Issues for the Coming Computer Utility* (RAND Paper Series, Paper No. P-3685, 1968).

<sup>30</sup> Werbach, *supra* note 17.

<sup>31</sup> See Parkhill, *supra* note 29, at 3.

<sup>32</sup> Elsewhere, I have argued that an updated list of issues for modern-day “network utilities” would include connectivity, capacity and robustness, data integrity and privacy, and transparency. See Werbach, *supra* note 17.

<sup>33</sup> See Timothy Karr, *The Biggest Lie About Net Neutrality*, HUFFINGTON POST, Aug. 7, 2014, [http://www.huffingtonpost.com/timothy-karr/the-biggest-lie-about-net\\_b\\_5657250.html](http://www.huffingtonpost.com/timothy-karr/the-biggest-lie-about-net_b_5657250.html).

<sup>34</sup> 47 U.S.C. § 153(51), (53) (2006).

carrier must hold itself out as such. Private services are private, but if a company chooses to provide fee-based offerings to the public at large, it may take on corresponding obligations.

In 2014, the Maryland Public Service Commission, parsing the definition in its state statute, concluded that Uber was, in fact, a common carrier under Maryland law.<sup>35</sup> The key requirement was that it “engaged in the public transportation of persons for hire.”<sup>36</sup> Though Uber styles itself as a software platform used by independent drivers to deliver private services, its entire value proposition derives from operations as an Internet-enabled, coherent virtual platform. Whether or not the Maryland decision is upheld, it raises important questions.<sup>37</sup> Public platforms that provide a significant share of important public services necessarily raise questions of public policy. The domain of common carriage is where such questions have long been debated.

### A NEW COMMON CARRIAGE

Many of the regulatory interventions historically associated with common carriage, intrusive rate regulation in particular, have been subject to sustained criticism from economists and free-market scholars.<sup>38</sup> Rules that restrict companies from pricing and service agility introduce inefficiencies and may stand in the way of emergent competition. Moreover, companies subject to common carrier regulation typically look for ways to circumvent its burdens, distorting investment, and further shifting behavior away from a focus on

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<sup>35</sup> See Maryland Public Service Commission, Investigation to Consider the Nature and Extent of Regulation Over the Operations of Uber Technologies, Inc. and Other Similar Companies, Case No. 9325 (Aug. 6, 2014), [http://webapp.psc.state.md.us/newIntranet/casenum/NewIndex3\\_VOpenFile.cfm?ServerFilePath=C:\Casenum\9300-9399\9325\104.pdf](http://webapp.psc.state.md.us/newIntranet/casenum/NewIndex3_VOpenFile.cfm?ServerFilePath=C:\Casenum\9300-9399\9325\104.pdf); Andrew Zaleski, *Welcome to the Uber Wars*, POLITICO, Sept. 2, 2014, <http://www.politico.com/magazine/story/2014/09/welcome-to-the-uber-wars-110498>.

<sup>36</sup> *Id.*

<sup>37</sup> Legislation is pending in Maryland to create a new “Transportation Network Company” category, as in other states, which would supersede the common carrier designation. See Luz Lazo, *Uber bill passes Maryland Senate, heads to House*, WASH. POST, Apr. 13, 2015, <https://www.washingtonpost.com/blogs/dr-gridlock/wp/2015/04/13/uber-bill-passes-maryland-senate-heads-to-house/>.

<sup>38</sup> See Christopher S. Yoo, *Is There a Role for Common Carriage in an Internet-Based World?*, 51 HOUS. L. REV. 545 (2013).

consumer benefits and innovation. This, in turn, leads to expansion of the regulatory requirements to address questionable practices not explicitly covered before. Eventually, when applied to then-monopolies such as AT&T and electric utilities, common carriage was associated with an expansive set of obligations with little flexibility.

Common carriage is a fluid concept, however, not a set of requirements chiseled in stone. The obligations of common carriers have varied by industry and time period. In telecommunications today, the treatment of companies, such as Verizon, in a converged broadband world where competition is encouraged, differs greatly from the way the same title of the Communications Act was applied to AT&T in 1960. When adapting common carriage principles to emerging Internet-enabled utilities, the relevant key will be to identify the appropriate problems and define the appropriate responses. While this initial overview cannot address all the major issues, perhaps the two most central are non-discrimination and consumer protection.

### 1. *Non-Discrimination*

Non-discrimination is one of the core common carriage principles and is the central element of network neutrality.<sup>39</sup> Like all aspects of common carriage, it ties into the basic bargain in which providers hold themselves out to serve the public and, in return, are held to standards to ensure they do so. In the broadband context, non-discrimination concerns how access providers treat unaffiliated content and services that travel across their networks. For Internet-enabled networks, the relevant “content and services” are, for the most part, people.

In most interactions in the physical world, firms and other organizations can choose with whom they interact. Private contracts are private and, therefore, the contracting parties have absolute freedom in choosing their counterparties. In some situations, however, absolute freedom of contract enables and enshrines invidious discrimination such that the balance tips. Much of civil rights law is based on this idea. Thus, for example, under Title II of the Civil Rights Act of 1964, public accommodations may not discriminate on grounds of race.<sup>40</sup> The rationale is similar to the common carriage theory that important services held out to the public take on special obligations.

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<sup>39</sup> Kevin Werbach, *Only Connect*, 22 BERKELEY TECH. L.J. 1233, 1270 (2008).

<sup>40</sup> 42 U.S.C. § 2000(a) (2011).

A good example of how this may play out is Uber's battle over access for the disabled. Under the Americans With Disabilities Act (ADA),<sup>41</sup> providers of public accommodations and other services are required to take remedial steps to make services accessible to those with disabilities. So, when a customer in a wheelchair was refused service by an Uber driver, she sued, claiming Uber violated this requirement.<sup>42</sup> Uber responded that the company itself was not providing any covered service—the drivers were. In Uber's view, it was merely a software provider.

Putting aside the specific language of the ADA, which will govern the resolution of the court case, the public policy issue is simple. As a matter of justice and equity, people with disabilities should have access to essential services, so society as a whole, should internalize the costs to make public accommodations accessible to them. If taxi and limousine services are subject to the ADA, Uber's distributed network of drivers should be as well. This is especially true if, as seems possible, that network replaces legacy transportation providers as the dominant form of on-demand urban transportation.

It might be that the societal goal can be achieved more efficiently without formally placing Uber within the ADA's mandates. Other discriminatory access issues involving Uber, as well as other Internet-enabled services, may involve their own particularities. The important point is that calling Uber just a software provider, by claiming it provides no transportation services, is a willful blindness to reality.

A more nuanced set of issues involves pricing. Uber, for example, employs "surge pricing" to raise fares during busy periods. The company argues this mechanism is necessary to match supply and demand. When drivers are scarce (either because demand is high or conditions such as weather make drivers stay home), the financial incentive of higher fares is necessary to get more of them on the road. Because Uber's pricing model is not transparent, however, there is no way to determine how much changes in prices are necessary to perform this real-time optimization and how much they, instead, reflect rent extraction or the even less justified differentiation among prices charged to different riders. The traditional response of

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<sup>41</sup> Pub. L. No. 101-336, 104 Stat. 327 (1990) (codified as amended at 42 U.S.C. §§ 12101-12117 (2000)).

<sup>42</sup> See Nina Strocholic, *Uber: Disability Laws Don't Apply to Us*, THE DAILY BEAST, May 21, 2015, <http://www.thedailybeast.com/articles/2015/05/21/uber-disability-laws-don-t-apply-to-us.html>; Jen Wieczner, *Why the Disabled are Suing Uber and Lyft*, FORTUNE, May 22, 2015, <http://time.com/3895021/why-the-disabled-are-suing-uber-and-lyft/>.



common carriage law—barring any differential pricing of similarly situated customers—may be too extreme in these contexts. Many times price discrimination is economically efficient and beneficial to virtually all customers. An “anything goes” approach, however, is equally problematic.

## 2. *Consumer Protection*

An often ignored aspect of common carriage is the way it operates to encourage appropriate care by network operators. Historically, one of the foundations of common carriage is bailment law, which governs situations in which one person gives property to another for a limited purpose such as delivery.<sup>43</sup> Old English cases held that the bailee (the one possessing the property) was subject to a strict liability standard, rather than a negligence standard, if it operated as a common carrier.<sup>44</sup> One of the responsibilities of a common carrier is, thus, to assume responsibility for harms that occur when it provides services, even if not due to its own malfeasance. In some cases, as with communications carriers, this obligation is removed when the operators are prohibited from exercising any control over the activities on their platforms, thus, precluding them from preventing the injury. Outside of such contexts, however, the broader foundation of common carriage is to impose greater responsibility on the carrier.

Uber has been involved in a number of controversies over crimes committed by its drivers and other situations that have resulted in injuries to riders.<sup>45</sup> Similarly, Airbnb has been embroiled in controversy when, for example, guests robbed the homes of their hosts.<sup>46</sup> In perhaps the most shocking example, a woman in India was

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<sup>43</sup> See Oliver Wendell Holmes, Jr., *Common Carriers and the Common Law*, 13 AM. L. REV. 609, 610 (1879).

<sup>44</sup> See Joseph H. Beale, Jr., *The Carrier's Liability: Its History*, 11 HARV. L. REV. 158 (1897).

<sup>45</sup> See Adrienne LaFrance & Rose Eveleth, *Are Taxis Safer Than Uber?*, THE ATLANTIC, Mar. 3, 2015, <http://www.theatlantic.com/technology/archive/2015/03/are-taxis-safer-than-uber/386207/>; Stacy Perman, *Is Uber Dangerous for Women?*, MARIE CLAIRE, May 20, 2015, <http://www.marieclaire.com/culture/news/a14480/uber-rides-dangerous-for-women/>.

<sup>46</sup> See Hayley Tsukayama, *Airbnb Burglary Victim Says Company Tried to Quiet Her*, WASH. POST, July 29, 2011, [http://www.washingtonpost.com/blogs/faster-forward/post/airbnb-robbery-victim-says-company-tried-to-quiet-her/2011/07/29/gIQA7R03gI\\_blog.html](http://www.washingtonpost.com/blogs/faster-forward/post/airbnb-robbery-victim-says-company-tried-to-quiet-her/2011/07/29/gIQA7R03gI_blog.html).

raped by an Uber driver—generating significant outcry in that country against Uber.<sup>47</sup> She is now suing the company for damages in the United States.

In these cases, Uber disclaims any responsibility for drivers' actions. In Uber's view, the drivers are independent contractors who own a license to Uber's software application, not employees or extensions of Uber's transportation services platform.<sup>48</sup> Treating Uber as a mere software provider allows the company and its drivers a valuable degree of flexibility. In a sense, the drivers, rather than the cars, are the resource that Uber is allocating using its Internet-enabled platform. The transformational aspect of its service is tied to the scalability and flexibility of the associated work model. However, this arrangement distances Uber, which is what its users think they are using, from direct responsibility for their experiences. Insurance may fill some of the gap, and Uber has imposed a number of voluntary measures to screen drivers and police their conduct.<sup>49</sup> This may be sufficient in most cases, but this overall attempt at distancing does nothing to incentivize network providers to ensure adequate safety of its users.

In communications and Internet regulation, these types of issues have been addressed through two distinct responses. The law has created safe harbors for the platform provider, granting them immunity from liability for the actions of their users, so long as they take certain affirmative steps to police activity. Most prominently,

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<sup>47</sup> See Nilanjana Bhowmick, *Indian Woman Sues Uber in the U.S. Over Alleged New Delhi Taxi Rape*, TIME, Jan. 30, 2015, <http://time.com/3689041/india-uber-lawsuit-new-delhi-rape/>; Dominic Rush, *Delhi woman sues Uber for 'negligence and fraud' after alleged rape*, THE GUARDIAN, Jan. 29, 2015, <http://www.theguardian.com/world/2015/jan/29/delhi-woman-sues-uber-rape-negligence>.

<sup>48</sup> See Silverman, *supra* note 13. Two pending California class actions are challenging this classification, arguing the drivers are under sufficient control of Uber to be classified as employees, and, thus, entitled to benefits and other protections. See Ellen Huet, *Juries To Decide Landmark Cases Against Uber and Lyft*, FORBES, Mar. 11, 2015, <http://www.forbes.com/sites/ellenhuet/2015/03/11/lyft-uber-employee-jury-trial-ruling/>. The California Labor Commission recently decided that an Uber driver was an employee and entitled to reimbursement for costs, although five other states have reached contrary conclusions. See Mike Isaac & Natasha Singer, *California Says Uber Driver Is Employee, Not a Contractor*, N.Y. TIMES, June 17, 2015, <http://www.nytimes.com/2015/06/18/business/uber-contests-california-labor-ruling-that-says-drivers-should-be-employees.html>.

<sup>49</sup> See Matthew Feeney, *Is Ridesharing Safe?*, CATO Institute Policy Analysis No. 767, Jan. 27, 2015, [www.memphistn.gov/Portals/0/pdf\\_forms/CATO.pdf](http://www.memphistn.gov/Portals/0/pdf_forms/CATO.pdf).

Section 230 of the Communications Act and Section 512 of the Digital Millennium Copyright Act define “notice and takedown” regimes for harmful and infringing content.<sup>50</sup> For communications common carriers, stringent non-discrimination and non-interference rules that prohibit their interference with content also immunize them from liability for that content.<sup>51</sup>

These mechanisms recognize that the platforms cannot realistically be expected to preclude any improper conduct, at least not without destroying the very factors that make them so valuable. The platforms, however, should have some incentives to police their users and respond when violations are identified.

Similar safe harbors for Internet-enabled utilities might, for example, grant Uber protections from liability for its drivers, so long as it has met defined requirements for training, mandatory insurance, and responsiveness to accusations of improper conduct. Analogous structures could be developed for Internet-enabled utilities in other industries. It is true that Uber has incentives to take actions of these kinds without regulation, in order to protect its own reputation with its riders. However, for a utility service, a baseline level of consumer protection is important. Moreover, the certainty afforded by safe harbor provisions can make them attractive to the platforms. Firms generally prefer the absence of liability guaranteed by law, rather than merely by a successful litigation outcome.

The second dimension of consumer protection is for an agency, most likely the Federal Trade Commission (FTC), to define best practices and prosecute companies that deceive or mistreat their customers. Over the years, the FTC has taken on significant and thorny issues relating to online privacy and advertising through both of these techniques.<sup>52</sup> As Internet-enabled utilities become more significant, having enforcement and oversight mechanisms of this sort will grow in importance.

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<sup>50</sup> 47 U.S.C. § 230; 17 U.S.C. § 512.

<sup>51</sup> See Fred Cate, *Telephone Companies, the First Amendment, and Technological Convergence*, 45 DEPAUL L. REV. 1035, 1055 (1996); RESTATEMENT (SECOND) OF TORTS § 612 (1977).

<sup>52</sup> See Federal Trade Commission, *Protecting Consumer Privacy in an Era of Rapid Change: Recommendations For Businesses and Policymakers* (Mar. 2012), available at <https://www.ftc.gov/sites/default/files/documents/reports/federal-trade-commission-report-protecting-consumer-privacy-era-rapid-change-recommendations/120326privacyreport.pdf>.

## HOW TO GET THERE

If it makes sense to think of Uber and other network-enabled utilities as something like common carriers, how can this result be realized?

One possible path is through voluntary efforts. Companies such as Uber and Airbnb have taken many steps to address the kinds of issues discussed in this essay without any legal obligations. Uber has an extensive screening process for drivers (if not the same one applied to taxis)<sup>53</sup> and Airbnb has negotiated to pay hotel occupancy taxes to several cities where it operates.<sup>54</sup> Some advocates of these companies claim that “delegated regulation” is the best way to address public policy concerns without stifling the entrepreneurial dynamism of innovative new companies.<sup>55</sup> While there is some merit to this view, an attitude of “hope for the best” is rather unlikely to produce arrangements that resolve the major public interest concerns. Effective delegated regulation must be paired with some mechanisms to ensure adherence to baseline norms. The essential question, therefore, is: What will those baseline norms be?

Some states, such as Illinois, have adopted legislation to define the regulatory obligations in certain sectors such as transportation services.<sup>56</sup> These laws generally define a new category of Transportation Network Services (TNS) and set forth their obligations. The advantage of this approach is that it makes a clean break from legacy services, overcoming the objection that old rules, built for old providers, are a poor fit for today’s new generation of Internet-enabled services. The disadvantage is that it requires legislation, which must go through a political process that often does

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<sup>53</sup> See Feeney, *supra* note 49.

<sup>54</sup> See Phillip Matier & Andrew Ross, *Airbnb Pays Tax Bill of “Tens of Millions” to S.F.*, SFGATE (Feb. 18, 2015), <http://www.sfgate.com/bayarea/matier-ross/article/M-R-Airbnb-pays-tens-of-millions-in-back-6087802.php>.

<sup>55</sup> See Emily Badger, *What Happens When Uber and AirBnB Become Their Own Regulators*, WASH. POST, Feb. 4, 2015, <http://www.washingtonpost.com/news/wonkblog/wp/2015/02/04/what-happens-when-uber-and-airbnb-become-their-own-regulators/>; Molly Cohen & Arun Sundarajan, *Self-Regulation and Innovation in the Peer-to-Peer Sharing Economy*, 82 U. CHI. L. REV. DIALOGUE 116 (2014).

<sup>56</sup> See Illinois Transportation Network Providers Act, *supra* note 16.

not lend itself to rational tradeoffs. Laws are often overly solicitous of both incumbents and favored new companies, and that assumes legislation is passed to begin with. With many of the important issues situated at the state level and the variety of different industry categories involved, the legislative battles could number in the hundreds.

An alternative path is through regulatory agencies such as the FTC, which has expertise in consumer protection matters. Indeed, the FTC just opened a new Office of Technology Research and Investigations,<sup>57</sup> but the FTC's jurisdiction explicitly excludes common carriers.<sup>58</sup> The genesis of this limitation, however, was to avoid duplication with the FCC, not to prevent those providers from being subject to consumer protection requirements.<sup>59</sup> This division is proving to be increasingly awkward as the lines between common carriers and other digital service providers blur.

The FCC's reclassification of broadband access under Title II has brought the issue to the fore.<sup>60</sup> Fortunately, an examination of common carriage principles to illuminate the regulatory treatment of Internet-enabled utilities does not require a formal legal classification under the terms of the Communications Act. These companies can be thought of as analogous to common carriers, or even classified as such under state laws like in Maryland,<sup>61</sup> without placing them outside the reach of FTC authority.

Finally, the basis for heightened obligations on Internet-enabled utilities might come from a different source than that from which common carriage principles originated. Jack Balkin and Jonathan Zittrain have suggested the concept of "information fiduciaries,"

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<sup>57</sup> See Andrea Peterson, *The FTC Beefs Up Technology Investigations With New Office*, WASH. POST THE SWITCH BLOG (Mar. 23, 2015), <https://www.washingtonpost.com/news/the-switch/wp/2015/03/23/the-ftc-beefs-up-technology-investigations-with-new-office/>.

<sup>58</sup> See Brian Fung, *How to End a Fight Over Who Should Regulate Internet Providers*, WASH. POST THE SWITCH BLOG (Mar. 26, 2015), <https://www.washingtonpost.com/news/the-switch/wp/2015/03/26/could-the-ftcs-inability-to-regulate-internet-providers-come-to-an-end/>.

<sup>59</sup> See Scott Cooper, *Technology and Competition Come to Telecommunications: Reexamining Exemptions to the Federal Trade Commission Act*, 49 ADMIN. L. REV. 963, 964-65 (1997).

<sup>60</sup> See *id.*

<sup>61</sup> 47 U.S.C. §153(51),(53).

which are digital service providers subject to heightened legal duties.<sup>62</sup> The notion is that, just as certain professional relationships generate special obligations for fiduciaries, certain digital platforms occupy a sufficiently significant relationship to personal information that they should be held to a higher standard than ordinary firms.<sup>63</sup> The categories of information fiduciaries and Internet-enabled services are not entirely coterminous, and the primary concern of Balkin and Zittrain is on privacy and associated concerns. So, even if the information fiduciary notion takes hold, it will not fully address the concerns raised in this essay. It may, however, serve as a useful conceptual starting point.

As should be evident, there are many unresolved theoretical and practical questions for the future of Internet-enabled utility regulation. Despite its lofty valuation, Uber is not yet at the scale of Amazon or Google, and most other companies using similar models are far smaller. There is still an opportunity to consider what a regulatory regime for a world of Internet-enabled utilities might look like.

Science fiction author William Gibson famously declared that, “the future is already here—it’s just not very evenly distributed.”<sup>64</sup> His aphorism is instructive for debates about Internet regulation. Too often, discussion centers on what services and conflicts may appear in the future, not on the challenges already visible today. Alternatively and equally problematic, the focus is on narrow present-day questions that technology or market developments will soon obviate. Internet-enabled utilities are now in a sweet spot—they are big and successful enough to provide confidence in that they will be of great importance, but are still small and young enough to adapt as the environment changes. The time to consider their place in the evolving ecosystem of Internet regulation is now.

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<sup>62</sup> See Jack Balkin, *Information Fiduciaries in the Digital Age*, BALKINIZATION BLOG (Mar. 5, 2014), [balkin.blogspot.com/2014/03/information-fiduciaries-in-digital-age.html](http://balkin.blogspot.com/2014/03/information-fiduciaries-in-digital-age.html); Jonathan Zittrain, *Facebook Could Decide an Election Without Anyone Ever Finding Out*, NEW REPUBLIC, June 1, 2014, <http://www.newrepublic.com/article/117878/information-fiduciary-solution-facebook-digital-gerrymandering>.

<sup>63</sup> See Balkin, *supra* note 62.

<sup>64</sup> *The Science in Science Fiction*, NPR, Nov. 30, 1999, <http://www.npr.org/templates/story/story.php?storyId=1067220>.