2013

Wireless Localism: Beyond the Shroud of Objectivity in Federal Spectrum Administration

Olivier Sylvain
Fordham University School of Law, sylvain@fordham.edu

WIRELESS LOCALISM: BEYOND THE SHROUD OF OBJECTIVITY IN FEDERAL SPECTRUM ADMINISTRATION

*Olivier Sylvain**

Cite as: Olivier Sylvain, *Wireless Localism: Beyond the Shroud of Objectivity in Federal Spectrum Administration*,
20 MICH. TELECOMM. & TECH. L. REV. 121 (2013).
This manuscript may be accessed online at repository.law.umich.edu.

Recent innovations in mobile wireless technology have instigated a debate between two camps of legal scholars about federal administration of the electromagnetic spectrum. The first camp argues that the Federal Communications Commission ("FCC") should define spectrum use rights more clearly and give spectrum licensees broad property rights in frequencies. The second camp argues that, rather than award exclusive licenses to the highest bidder, the FCC ought to open much, if not most, of the spectrum to unlicensed use by smartphones and tablets equipped with the newest spectrum administration technology.

First, this Article shows that both of these camps comprise a new orthodoxy that eschews conventions in public lawmaking in federal spectrum administration and instead prefers an approach that is sealed away from direct public scrutiny. This new orthodoxy assumes that supply and demand in the market for emergent smart spectrum sharing technologies is a more objective administrator of the public interest than the public lawmaking processes even can be.

Second, this Article challenges the new orthodoxy by arguing that local public participation in federal spectrum administration can align the new technologies with the diverse priorities of each community in ways that neither the technologies alone, nor the markets for them, ever can. It is of no legal or normative consequence, this Article asserts, that substantive federal spectrum policy encourages commercial adoption of the newest technology. Rather, this Article argues, lawmakers in this field ought to create procedural mechanisms in federal spectrum administration that accommodate local communities' diverging interests. Local participation in the formulation of spectrum policy gives a purpose to communication technologies that are otherwise morally ambiguous. In the end, the Article proposes a solution on the basis of relatively recent legal scholarship and developments in public law administration.

---

* Associate Professor, Fordham University School of Law. I am grateful to James Brudney, Nestor Davidson, Sonia Katyal, Aaron Saiger, Peter Shane, and Benjamin Zipursky for comments on earlier drafts. Sarah Jaramillo and Eric Lin provided useful research assistance.

INTRODUCTION

Recent innovations in mobile wireless transmission technology over the past two decades have radically transformed the thinking among legal scholars and policymakers about the structure of telecommunications policymaking.[1] The new orthodoxy at the Federal Communications Commission and in legal scholarship overlooks systematic local community participation in federal spectrum administration for a more sealed off, technologically dependent approach. It assumes that emergent spectrum sharing technology in today's smartphones and tablets can achieve the "public interest" more objectively than conventional public lawmaking processes.[2]

This Article argues that this recent trend offends long-standing administrative law norms and procedural conventions in telecommunications policymaking that explicitly incorporate public participation as a matter of course. Federal spectrum administration has been drifting away from local public participation for at least two decades, but it has existed for much longer. In the 1927 Radio Act, Congress affirmatively chose a rationalized structure for spectrum administration over the then prevailing *laissez faire*

1. Devices equipped with "spectrum sharing" and "spread spectrum" technologies are more efficient than older transmission systems because they make more of the electromagnetic spectrum available. *See infra* Part I.A.

2. This article throughout refers to the "public interest" as a statutory term of art in the 1934 Communications Act. *See, e.g.*, 47 U.S.C. § 157(a) (2012).

approach. The first reformers did this in part to redress what they perceived to be frequency scarcity and interference. But, as Part II.A shows, they also sought to do much more than implement a regulatory fix for a perceived technological problem. The comparative hearings that Congress established under the 1927 Radio Act, this Article argues, were intended to involve local community groups and stakeholders in order to moderate the impact that radio programming might have on local community life. In this formative era, policymakers recognized that new wireless technology would only be as integrated into public life as policymakers and local stakeholders allowed. They recognized that broadcasting technology by itself was unsympathetic to the real life contingencies in diverse local communities across the country. This approach survived, if unevenly, for most of the twentieth century.

Amid the ideological wave of deregulation of the 1980s and 90s, Congress reformed federal spectrum administration to do away with subjective local community participation. The prior system of awarding licenses pursuant to public comparative hearings had grown notoriously inefficient and unresponsive to innovations in telecommunications. Accordingly, in 1993, Congress substituted the cold objective logic of the market for local public participation.

Today, emergent smart spectrum sharing technologies are instigating yet another transformation. In short, the new technologies make the spectrum far more available and flexible than policymakers in the 1920s, or even 1990s, ever imagined. These innovations have occasioned a debate among scholars about how policymakers should further liberalize federal spectrum administration. One camp argues that the FCC should define auctioned spectrum use rights more clearly and give auction winners broad property rights.[3] Others argue that, rather than award exclusive licenses to the highest bidder, the FCC ought to open much of the spectrum to unlicensed use by smartphones and tablets equipped with the newest spectrum administration technology.[4] Both approaches—spectrum-as-property and unlicensed use—are finding

3. *See, e.g.*, WILLIAM BAUMOL & DOROTHY ROBYN, TOWARD AN EVOLUTIONARY REGIME FOR SPECTRUM GOVERNANCE: LICENSING OR UNRESTRICTED ENTRY? (2006); Stuart Minor Benjamin, *Spectrum Abundance and the Choice Between Private and Public Control*, 78 N.Y.U. L. REV. 2007 (2003); Thomas W. Hazlett, *The Wireless Craze, the Unlimited Bandwidth Myth, the Spectrum Auction Faux Pas, and the Punchline to Ronald Coase's "Big Joke": An Essay on Airwave Allocation Policy*, 14 HARV. J.L. & TECH. 335 (2001); Thomas W. Hazlett & Evan T. Leo, *The Case for Liberal Spectrum Licenses: A Technical and Economic Perspective*, 26 BERKELEY TECH. L.J. 1037 (2011); Glen O. Robinson, *Spectrum Property Law 101*, 41 J.L. & ECON. 609, 619–20 (1998).

4. *See, e.g.*, Yochai Benkler, *Open Wireless vs. Licensed Spectrum: Evidence from Market Adoption*, 26 HARV. J.L. & TECH. 69 (2012); Yochai Benkler, *Overcoming Agoraphobia: Building the Commons of the Digitally Networked Environment*, 11 HARV. J.L. & TECH. 287 (1998); Stuart Buck, *Replacing Spectrum Auctions with a Spectrum Commons*, 2002 STAN. TECH. L. REV. 2 (2002); Ellen P. Goodman, *Spectrum Rights in the Telecosm to Come*, 41 SAN DIEGO L. REV. 269 (2004); Kevin Werbach, *Supercommons: Toward a Unified Theory of Wireless Communication*, 82 TEX. L. REV. 863 (2004).

their way to federal spectrum administration today to create something of a mixed approach in federal policy; some spectrum bands are auctioned off to the highest bidder, while others are reserved for unlicensed use, as in Wi-Fi bands and "white spaces" between licensed bands for over-the-air broadcasting.[5]

Both approaches place greater weight on the sophistication of the new spectrum sharing technologies, rather than the articulated priorities of affected local communities. In contrast to both these perspectives, however, this Article proposes a third approach or, rather, an important qualification to the new orthodoxy. It argues that the excision of local stakeholders under both the spectrum-as-property and unlicensed use approaches is deeply troubling. The central argument is that, even in areas as complex as spectrum administration, local public participation legitimizes policymaking in ways that uncritical reliance on technological innovation never can. It is of no legal consequence that federal spectrum administration policy accommodates the newest technology. Now that smart spectrum sharing technologies are with us, policymakers should ensure that there is an organic fit between the technologies on the one hand and the affected communities on the other. They accordingly should implement some mechanism for explicit local participation in administrative decision-making about spectrum use.

Policymakers need not dismantle the auction process altogether. This Article proposes a solution on the basis of relatively recent administrative law scholarship and developments in public law administration of communication network infrastructure.[6] Examples in federal broadband network administration demonstrate that municipal governments can modify federal policy in ways that are adapted to local contingencies.

This Article has three parts. Part I outlines the workings of the new smart spectrum sharing technologies and the manner in which scholars and policymakers have proposed to incorporate them in current policy. Part II puts this emergent approach in historical perspective. It describes the reasons that policymakers almost nine decades ago established a centralized, com-

5. *See* Amendment of the Comm'n's Rules to Provide for Operation of Unlicensed Nii Devices in the 5 Ghz Frequency Range, 12 FCC Rcd. 1576 (1997) [hereinafter 1997 U-NII Order]; Expanding the Econ. & Innovation Opportunities of Spectrum Through Incentive Auctions, 27 FCC Rcd. 12357 (2012) [hereinafter Incentive Auctions NPRM]; Revision of Part 15 of the Comm'n's Rules to Permit Unlicensed Nat'l Info. Infrastructure (U-Nii) Devices in the 5 Ghz Band, 28 FCC Rcd. 1769 (2013) [hereinafter 2013 U-NII NPRM]; Unlicensed Operation in the TV Broad. Bands, 25 FCC Rcd. 18661 (2010) [hereinafter White Spaces Order]; *see also* FED. COMMC'NS COMM'N, CONSUMER GUIDE: GETTING BROADBAND (2013), http://transition.fcc.gov/cgb/consumerfacts/highspeedinternet.pdf (defining "Wi-Fi" or "wireless fidelity" as "a short range technology that is often used in conjunction with a customer's DSL or cable modem service to connect end-user devices, such as PCs, laptops and smartphones, located within the customer's home or business to the Internet.").

6. *See* Olivier Sylvain, *Broadband Localism*, 73 OHIO ST. L.J. 795 (2012) (showing that the federal government has carved out a positive role for local governments in an array of legislative fields, including telecommunications and cable, the forbearers of broadband).

mand-and-control, licensure regime to administer spectrum. Part II also reviews the relatively recent history of competitive bidding in federal spectrum assignment, the regulatory arrangement on which current proposals for reform now rest. Part III makes an affirmative argument for the inclusion of local public participation in federal spectrum administration by relying on current practices in broadband network infrastructure management and other federal-local regulatory regimes. Municipal governments in particular are promising legitimated forums for local public lawmaking. In the end, this Article argues that local public participation ought to remain in federal spectrum administration for all time—well after the smartphones of today give way to the next best thing.[7]

I. The Promise of Smart Spectrum Technology

A. *Smart Spectrum Sharing Technology*

Wireless broadband transmission technologies have created opportunities for users to communicate and share more information with more people than ever before. The market for wireless applications and services has grown exponentially in the past five years.[8] Mobile data traffic will increase anywhere from 10 to 25 fold in the next five years.[9] The number of wireless subscribers is already 50 percent greater than the number of wired customers.[10] By the end of 2013, mobile device connections on our planet will outnumber people.[11]

Emergent wireless transmission and administration technologies will allow consumers and businesses to exploit the electromagnetic spectrum through which wireless devices transmit and receive voice and data commu-

---

7. *See, e.g.*, Anthony Wing Kosner, *Confirmed: Google Glass Will Tether with Android and iPhone for 3G and 4G Data*, Forbes (Feb. 23, 2013), http://www.forbes.com/sites/anthonykosner/2013/02/23/confirmed-google-glass-will-tether-with-android-and-iphone-for-3g-or-4g-data/; David Zax, *Why Your Car Now Is a Giant Smartphone on Wheels*, Fast Company (Mar. 18, 2013), http://www.fastcompany.com/3007085/innovation-agents/why-your-car-now-giant-smartphonewheels?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+fastcompany%2Fheadlines+%28Fast+Company%29.

8. *See* Claire Cain Miller, *Mobile Apps Drive Rapid Change in Searches*, N.Y. Times, Jan. 7, 2013, at B1.

9. Org. for Econ. Cooperation & Dev., Machine-to-Machine Communications: Connecting billions of Devices (2012), *available at* dx.doi.org/10.1787/5k9gsh2gp043-en; *see also* David Talbot, *The Spectrum Crunch that Wasn't*, MIT Tech. Rev., Nov. 26, 2012, *available at* http://www.technologyreview.com/news/507486/the-spectrum-crunch-that-never-really-was/.

10. Fed. Commc'ns Comm'n, Internet Access Services: Status as of June 30, 2012 1 (2013).

11. Craig Timberg, *Mobile Device Connections Growing Quickly*, Wash. Post (Feb. 25, 2013), http://www.washingtonpost.com/business/technology/mobile-device-connections-growing-quickly/2013/02/25/ca98ea98-7f51-11e2-a350-49866afab584_story.html?wprss=rss_technology.

nications.[12] Consider, for example, "spectrum sensing" technology that transmits signals over unused frequencies in the local environment as they become available.[13] Devices equipped with this technology can opportunistically transmit over those available unused frequencies, effectively making more of the spectrum available than older wireless transmission technologies. Although not without limitations,[14] "spectrum sensing" technology avoids interference by design. Devices equipped with spectrum sensing capability operate on the assumption that spectrum is infinitely renewable and immediately available, whenever someone else is not actively using that spectrum.[15]

Moreover, consider "spread spectrum" technology that can transmit and receive a single communications over a distributed range of frequencies. Communications through conventional wireless transmission technology sends and receives signals on one stable frequency. Spread spectrum systems, to contrast, "hop" the digital signal between a variety of frequencies, making it harder to eavesdrop, jam, or interfere with the signal. To put it slightly differently, they disperse the power density of the transmitted signals across a wide range of frequencies and, by doing so, lowers the chances of interference with other signals sent at those same frequencies.[16]

Before the emergence of these technologies, prior to the mid-1990s, regulators faced the significant challenge that spectrum frequencies were too scarce to accommodate all comers — that only one broadcaster based in a metropolitan area or town could air its signal over a discrete spectrum band at any given time. As the Article explains in more detail in Part II below, Congress created the Federal Communications Commission and its predecessor, the Federal Radio Commission, to administer spectrum use under this "scarcity" constraint.[17] Pursuant to the regulatory regime, the FCC (and

---

12. Policymakers really have two different kinds of sharing proposals from which to consider. The first would open to the public spectrum that is currently assigned exclusively to federal agencies. Under this approach, individuals and companies in designated locations would gain unrestricted access to certain frequencies at certain times of the day. Many federal agencies, including the Department of Defense, by far the largest holder of exclusive spectrum use rights, are supportive of such sharing approaches. Marguerite Reardon, *Defense Department Pushes Spectrum Sharing as Solution to Wireless Crunch*, CNET (Oct. 10, 2012, 11:30 AM), http://news.cnet.com/8301-1035_3-57529959-94/defense-department-pushes-spectrum-sharing-as-solution-to-wireless-crunch/. The second set of solutions for the looming spectrum shortage is far more prominent and is the subject of this article.

13. *See* 2013 U-NII NPRM, *supra* note 5.

14. *See* Charles Jackson et al., *Spread Spectrum Is Good – But It Does Not Obsolete NBC v. U.S.!*, 58 FED. COMM. L.J. 245 (2006).

15. *See* PRESIDENT'S COUNCIL OF ADVISORS ON SCI. & TECH., REPORT TO THE PRESIDENT: REALIZING THE FULL POTENTIAL OF GOVERNMENT-HELD SPECTRUM TO SPUR ECONOMIC GROWTH 16 (July 2012) [hereinafter PCAST REPORT].

16. FED. COMMC'NS COMM'N SPECTRUM POLICY TASK FORCE, REPORT OF THE UNRESTRICTED DEVICES AND EXPERIMENTAL LICENSES WORKING GROUP 8 n.13 (Nov. 15, 2002).

17. *See infra* Part II.A.

the FRC before it) played a central role for most of the twentieth century in awarding exclusive licenses to applicants. The Article refers to this throughout as the command-and-control exclusive licensing regime.[18]

These spectrum sharing technologies have upended the political economy and regulation of the wireless industry. On the other hand, smart spectrum sharing technologies greatly minimize the problem of scarcity. As such, they are game changers. Add to this the innovations of the past two decades in broadband transmission technology, and it was really just a matter of time before the mass media command-and-control licensure regime of the twentieth century would give way to a new regulatory framework. The FCC has adapted spectrum administration policy to accommodate the new sharing technologies and the smartphones, tablets, and mobile applications that rely on them.[19] Recent developments in such areas as wireless health monitoring, inventory management, and smartgrid administration have raised the stakes all the more.[20]

Of course, as technologies for digital data storage, wireless broadband transmission, and integrated circuitry continue to improve apace,[21] the smartphones and tablets of today, too, will become old news. The rapidly increasing demand for mobile wireless communications services, devices, and applications has given new urgency to reform of spectrum administration policy. A memorandum from the office of President Barack Obama declared in June 2010 that "the wireless broadband revolution" was "the next transformation in information technology."[22] In order to facilitate the transition, the memorandum in no uncertain terms directed the Commerce Department, through the National Information and Technology Administration, to collaborate with the FCC "to make available a total of 500 MHz" of

18. Pursuant to its authority under the Communications Act, the FCC convened public hearings to determine whether any given applicant should be awarded an exclusive license to broadcast over the airwaves in a town, county, or city. In each case, the agency would base its licensing decision on its staff's own findings, as well as evidence received from local civic leaders, businesses, educators, and individuals about whether the applicant would be a better steward of the public airwaves in the local affected communities than any other potential broadcaster. Congress in the 1920s and 30s concluded that the comparative hearing process was the most effective way of regulating spectrum assignment and use. Economists and historians have since convincingly shown that the licensing process was rife with self-dealing and inefficiency. I return to this in Part II below.

19. *See infra* Part II.C.

20. *See* Benkler, *Open Wireless vs. Licensed Spectrum: Evidence from Market Adoption*, *supra* note 4, at 117-18.

21. Intel cofounder Gordon Moore famously observed almost fifty years ago that the number of transistors on integrated circuits doubles about every two years. Gordon Moore, *Cramming More Components onto Integrated Circuits*, ELECTRONICS, April 19, 1965. This notion has come to be known today as Moore's Law.

22. Memorandum from President Barack Obama: Unleashing the Wireless Broadband Revolution (June 28, 2010), http://www.whitehouse.gov/the-press-office/presidential-memorandum-unleashing-wireless-broadband-revolution.

spectrum by 2020 for a variety of wireless broadband uses.[23] This statement echoed the high-profile recommendations from the FCC in 2009, which also recommended making available spectrum bands for unlicensed use "expeditiously."[24] And, just last year, the President's Council of Advisors on Science and Technology (PCAST) concluded that smart spectrum sharing technologies would help to redress the looming "spectrum shortage."[25] It proposed that, with the ascendance of spectrum sharing devices in particular, spectrum bands currently assigned to government uses should be shared with mass-market uses.[26]

Policymakers have heeded the call. The FCC recently authorized unlicensed use by smart spectrum sharing devices in the unused "guard channels" that exist between broadcast television channels.[27] The agency approved devices that can operate in these "white spaces."[28] The agency also is considering unleashing frequencies reserved exclusively today for federal agencies to unlicensed use by the public.[29] For example, the FCC recently granted to T-Mobile the temporary authority to explore whether commercial mobile broadband services could feasibly share spectrum in certain limited geographic locations with government agencies like the Department of Defense.[30]

Moreover, pursuant to the Middle Class Tax Relief and Job Creation Act of 2012, the FCC has initiated at least two important rulemakings that will make smart spectrum sharing devices more widespread. The first concerns the design of the administrative process for voluntary incentive auctions that would allow over-the-air broadcasters to relinquish their

---

23. *Id.* § 1(a); *see also id.* § 4 (suggesting strongly that the FCC, an independent agency, collaborate with the NTIA).

24. *See* FED. COMMC'NS COMM'N, NATIONAL BROADBAND PLAN: CONNECTING AMERICA 94-95 (2010), http://www.broadband.gov/plan/.

25. *See* PCAST REPORT, *supra* note 15, at 4.

26. *Id.*

27. *See* White Spaces Order, *supra* note 5.

28. *See, e.g.*, Letter from Julius P. Knapp Chief of the Fed. Commc'ns Comm'n's Office of Eng'g and Tech., to John Malyar, Chief Architect Interconnection Solutions at Telcordia Techs. (Mar. 26, 2012), http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-12-465A1.pdf. This development also underscores the idea that the term "unlicensed" or "unrestricted use" in this area is a misnomer. A user may use unrestricted frequencies as long as the FCC has certified that their device conforms with the FCC's Part 15 rules governing harmful interference. *See* 47 C.F.R. §§ 15.701-707 (2013).

29. *See, e.g.*, U-NII NPRM, *supra* note 5; *see also* Letter from Lawrence Strickling, Assistant Sec'y for Commc'ns & Info., to FCC Chairman Genachowski (Feb. 19, 2013), http://0-op.bna.com.lawpac.lawnet.fordham.edu/der.nsf/id/sbay-953svl/$File/pb0219.pdf.

30. *See* Press Release, Fed. Commc'ns Comm'n, Statement of FCC Chairman Julius Genachowski on FCC Granting the First Authorization of Testing in the 1755-1780 MHz Band (Aug. 14, 2012), http://transition.fcc.gov/Daily_Releases/Daily_Business/2012/db0814/DOC-315799A1.pdf; Phil Goldstein, *FCC Allows T-Mobile to Test Spectrum Sharing in 1755-1780 MHz Band*, FIERCEWIRELESS (Aug. 15, 2012), http://www.fiercewireless.com/ story/fcc-allows-t-mobile-test-spectrum-sharing-1755-1780-mhz-band/2012-08-15.

government-issued exclusive licenses.[31] This effort will open 300 MHz of spectrum currently licensed to television broadcasters by 2014 for use by incumbent wireless service providers.[32] In addition, some contested fraction of this newly cleared band will be devoted to unlicensed use by smart spectrum sharing devices.[33] The debate among policymakers and scholars today is just how much of the cleared spectrum should be devoted to unlicensed use.[34]

The second rulemaking would make a large swath of the 5 GHz band available for unlicensed "ultra-high-speed, high-capacity Wi-Fi" use by anyone with certain kinds of devices.[35] Under the Act, the FCC can only permit use of unlicensed devices if current licensed uses are "protected by technical solutions, including use of existing, modified, or new spectrum sharing technologies" and the "primary mission of federal spectrum users" in that band "will not be compromised by the introduction of unlicensed devices."[36]

B. *The New Orthodoxy in Spectrum Administration*

These reforms have been years in the making, but they nevertheless represent a significant shift from the approach that prevailed during most of the twentieth century.[37] Prior to these most recent reforms, the most pertinent changes came in the 1980s when the FCC authorized a limited set of devices to operate without licenses in certain spectrum bands. This effort made possible such things as cordless phones, Bluetooth, and Wi-Fi.[38]

---

31. Incentive Auctions NPRM, *supra* note 5; *see also* Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. 112–96, 126 Stat. 156. Together, the major over-the-air broadcasters meanwhile stand to make nearly two billion dollars through them. *See* Fostering Innovation and Investment in the Wireless Communications Market, 33 (2009), *available at* http://newamerica.net/sites/newamerica.net/files/policydocs/PISC_09-157_COMMENTS.pdf.

32. Incentive Auctions NPRM, *supra* note 4.

33. *See* Marguerite Reardon, *FCC Kicks Off Effort to Reclaim TV Spectrum for Wireless*, CNET (Sept. 28, 2012, 11:30 AM), http://news.cnet.com/8301-13578_3-57522584-38/fcc-kicks-off-effort-to-reclaim-tv-spectrum-for-wireless/.

34. *See, e.g.*, Cecilia Kang, *Tech, Telecom Giants Take Sides as FCC Proposes Large Public WiFi Networks*, WASH. POST (Feb. 3, 2013), http://www.washingtonpost.com/ business/technology/tech-telecom-giants-take-sides-as-fcc-proposes-large-public-wifi-networks/2013/02/03/eb27d3e0-698b-11e2-ada3-d86a4806d5ee_story.html; Jon Brodkin, *No, Free Wi-Fi Isn't Coming to Every U.S. City*, ARSTECHNICA (Feb. 4, 2013, 7:45 PM), http://arstechnica.com/tech-policy/2013/02/no-free-wi-fi-isnt-coming-to-every-us-city/.

35. U-NII NPRM, *supra* note 5, at 1819.

36. Middle Class Tax Relief and Job Creation Act of 2012, 47 U.S.C. § 1453 (a)(2) (2012).

37. The FCC, for example, had implemented unlicensed spectrum use regimes as early as 1938. *See, e.g.*, FED. COMMC'NS COMM'N SPECTRUM POLICY TASK FORCE, *supra* note 16, at 7.

38. *See* 47 C.F.R. §§ 15.215-15.255 (2013); *see also* Revision of Part 15 of the Rules Regarding the Operation of Radio Frequency Devices Without an Individual License, 4 FCC Rcd. 3493 (1989). In the early to mid-1990s, the agency also designated small bands of spectrum for unrestricted, low power, use. *See* 47 C.F.R. §§ 15.301-15.323 (2013).

In addition, the FCC significantly transformed the market in 1997 when it authorized unlicensed use in certain spectrum bands allocated for spectrum sharing technologies.[39] Essentially, these rules set specific power limits in the designated spectrum bands and required devices operating at those bands to transmit nothing more than necessary.[40] Soon afterward, the Institute of Electrical and Electronics Engineers (IEEE), the preeminent nongovernmental standard-setting body, approved Wi-Fi standards for public and commercial use in the late 1990s.[41] At that point, Wi-Fi took off, appearing prominently at venues such as Starbucks and airports across the country. This success set the stage for further innovations to network design infrastructure and wireless digital transmission technology that, in turn, has made broadband service more available in more places. These improvements also have triggered the extraordinary proliferation of smartphone and tablet applications.

Along the way, a persuasive chorus of legal scholars and economists has been making the case for abandoning the centralized exclusive licensing regime and systematically incorporating shared spectrum technology into federal spectrum administration policy.[42] To be sure, scholars had criticized the licensing regime as inefficient just a generation after Congress created it.[43] In a provocative 1959 article, economist Ronald Coase argued that Congress was mistaken when it created a centralized comparative hearing licensure regime for spectrum assignment in the 1920s.[44] Through this system, he argued, broadcasters obtained spectrum use rights for the price of political obsequiousness. The unrestrained price mechanism, he argued, would be more efficient at assigning and distributing spectrum use rights because it

---

39. *See, e.g.*, Incentive Auctions NPRM, *supra* note 5 (amending 47 C.F.R. Pts. 1, 2, & 15).

40. *See* 47 C.F.R. § 15.407.

41. *See* WOLTER LEMSTRA ET AL., THE INNOVATION JOURNEY OF WI-FI: THE ROAD TO GLOBAL SUCCESS (Cambridge 2010); FED. COMMC'NS COMM'N SPECTRUM POLICY TASK FORCE, *supra* note 16, at 14.

42. *See, e.g.*, GEORGE GILDER, TELECOSM: HOW INFINITE BANDWIDTH WILL REVOLUTIONIZE OUR WORLD (2000); LAWRENCE LESSIG, THE FUTURE OF IDEAS: THE FACT OF THE COMMONS IN A CONNECTED WORLD (1999); Benkler, *Overcoming Agoraphobia: Building the Commons of the Digitally Networked Environment*, *supra* note 4; Eli Noam, *Spectrum Auctions: Yesterday's Heresy, Today's Orthodoxy, Tomorrow's Anachronism. Taking the Next Step to Open Spectrum Access*, 41 J.L. & ECON. 765 (1998); Werbach, *supra* note 4; George Gilder, *Auctioning The Airwaves*, FORBES, Apr. 11, 1994, *available at* http://www.seas.upenn.edu/~gajl/auctngg.html. In fact, researchers have recognized the potential of smart spectrum management technologies for decades now. *See* MARVIN K. SIMON ET AL., SPREAD SPECTRUM COMMUNICATIONS HANDBOOK 47 (1994).

43. *See e.g.*, Ronald Coase, *The Federal Communications Commission*, 2 J.L. & ECON. 1 (1959); Leo Herzel, *"Public Interest" and the Market in Color Television Regulation*, 18 CHIC. L. REV. 802 (1951). Coase's article foreshadowed the publication of the groundbreaking article for which is most commonly identified. *See* Ronald Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960).

44. *See* Coase, *supra* note 43, at 32-34.

allows broadcasters to pay the objective price for what they think the spectrum is worth.[45] Real costs and market incentives, he explained, are not as fickle as arbitrary agency fiat.[46] Through competitive bidding, moreover, the FCC could capture the real worth of frequencies in cash that it could then direct to other worthwhile government projects.

Coase's critique was prescient. Historians have suggested that the command-and-control regime for broadcast regulation and licensing was not the most efficient or objective way of assigning licenses.[47] Huge swaths of the spectrum were unused or underutilized.[48] The Commission very rarely denied an application for a license renewal,[49] effectively administering until at least the 1980s a corruptible system of private property preservation for the large incumbent broadcast networks.

As correct as Coase was, it took Congress almost four decades to begin substituting competitive bidding for the comparative hearing regime for most wireless services.[50]The FCC further liberalized spectrum administration policy when it permitted auction awardees to sell or license their winnings in a secondary market.[51] But for the limited duration of these auctioned licenses, Congress and the FCC have effectively realized Coase's proposal for a property regime for federal spectrum administration.

Ever since authorized auctions, a generation of legal scholars and economists has been arguing for further reform.[52] They cite smart spectrum sharing technologies as objective evidence that Coase was right; by the late 1990s, innovations in computation capacity in handheld devices, networked communications, and wireless broadband network technology had rendered command-and-control licensing obsolete.[53] In 1998, for example, Eli Noam argued that auctions, while a good idea, did not liberalize federal spectrum administration policy enough. Smart sharing technologies opened the spec-

45. *See id.* at 19.

46. *See id.* at 18.

47. ROBERT A. CARO, THE YEARS OF LYNDON JOHNSON: MEANS OF ASCENT 90 (1991) ("If there was a single year of maximum susceptibility to congressional pressures at the FCC, it was 1943, the year in which Lady Bird Johnson purchased her radio station. In 1943, the Commission was fighting with Congress not over increases in its budget or definitions of its power, but for its very existence."); James L. Baughman, TELEVISION' S GUARDIANS: THE FCC AND THE POLITICS OF PROGRAMMING, 1958-1967, 11, 13 (1985).

48. Hazlett & Leo, *supra* note 3, at 1092.

49. RICHARD BUNCE, TELEVISION IN THE CORPORATE INTEREST 14 (1976).

50. *See generally* Philip J. Weiser & Dale Hatfield, *Spectrum Policy Reform and the Next Frontier of Property Rights*, 15 GEO. MASON L. REV. 549, 555 (2008) (speculating that technological complexity has made reform in this area difficult). I will return to this below in Part II.C.

51. *See* Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Dev. of Secondary Markets, 19 FCC Rcd. 17503 (2004). Before the auction regime, parties have to obtain FCC approval before acquiring or selling the companies that had the licenses.

52. *See infra* notes 54-57.

53. *See, e.g.*, YOCHAI BENKLER, THE WEALTH OF NETWORKS 87-88 (2006).

trum up to wider, more exhaustive use.[54] He proposed that the FCC or, better, some central clearinghouse could provision use rights for a fee.[55] The clearinghouse would charge users for whatever portion of the spectrum they actually use over a given period of time.[56]

Noam's article was an important contribution to the scholarship on federal spectrum administration. Before, scholars focused almost exclusively on whether the FCC ought to rationalize and prescribe exclusive use in the first instance. Now that smart spectrum sharing technologies are ascendant, scholars writing in this area have focused on the extent to which federal spectrum policy should be based on a model of propriety, exclusive licensing through auctioning or open, unlicensed, use.[57]

One set of scholars argues that the new technologies have effectively transformed the spectrum resource into a nearly inexhaustible public good.[58] The FCC, they argue, should facilitate innovation and cooperation on device specific problems such as harmful interference and battery power, and less on the development of a regime of quasi-property rights in spectrum.[59] For example, Yochai Benkler argues that the FCC should employ exclusive licensing reluctantly. Unlicensed use regimes, he asserts, lower entry costs for device manufacturers and application developers. The incumbent service providers no longer assert exclusive control over coveted spectrum bands or the devices through which they provide service. Accordingly, sharing protocols and standards would disintermediate the wireless market by allowing developers (commercial and amateur alike) to develop new mobile transceivers, services, and applications at a lower cost.[60]

Although most observers recognize that some unlicensed use should be permitted and incorporated into federal spectrum policy, there has been some sobering pushback among legal scholars and economists. These economists have argued that unqualified, unlicensed use would create uncertainty about the availability of spectrum and, as a result, cause a disincentive to innovate and invest in the network infrastructure necessary to provide new services.[61] Others have argued that auction winners should be able to acquire something close to fee simple property rights in spectrum that, in turn, they

54. *See* Noam, *supra* note 42, at 769.

55. *See id.* at 780-81.

56. *See id.* at 781.

57. *See* Benkler, *Overcoming Agoraphobia: Building the Commons of the Digitally Networked Environment*, *supra* note 4, at 359; Buck, *supra* note 4, ¶ 38.

58. *See* Benkler, *Overcoming Agoraphobia: Building the Commons of the Digitally Networked Environment*, *supra note 4*, at 361-62.

59. *See id.*, at 333-36.

60. BENKLER, supra note 53, at 87-88, 88 n.11.

61. *See, e.g.*, BAUMOL & ROBYN, *supra* note 3; Benjamin, *supra* note 3; Hazlett, *supra* note 3; Hazlett & Leo, *supra* note 3; Robinson, *supra* note 3.

can sell in whole or in part in a secondary market.[62] Even if government see a public interest in demarcating certain networks for unlicensed use, these critics explain, governments would have to enlist service providers to administer access to them.[63]

This resistance to unlicensed use, mostly from law and economics scholars, has given rise to the mixed approach currently adopted by the FCC. Today, the agency licenses commercial use of most of the spectrum over which it has jurisdiction. But, under the new orthodoxy, the FCC also recognizes the utility of spectrum sharing technology in certain limited bands. The most prominent example of these is the frequency bands reserved for Wi-Fi. These pockets of the spectrum are growing, but are still smaller than those that remain subject to the auctioned spectrum-as-property approach.

These law and economics critics would rather see an auction regime of clear property rights, in which providers would actually have an incentive to build network infrastructure and sell or assign secondary uses.[64] After all, the existence of smart spectrum sharing technologies does not resolve the problem of building and maintaining efficient wireless networks for mass-market use. Even the most agile of technologies will never redress "willful or malicious interference."[65] As the technology becomes smarter, scholars have argued, there will likely be a heightened need for a clear, dynamic, and enforceable regime of property rights.[66]

Despite the pushback, the FCC is nonetheless moving quickly to redress the high demand for spectrum by making meaningful swaths of the spectrum available for unlicensed use. This response by the agency is a testament to its recognition of the remarkable advances and rapid deployment of smart spectrum technologies, in spite of the law and economics critique.[67] And, as the technology matures, advocates of unlicensed use have proposed schemes for its effective administration. Most proposals suggest managing unlicensed use through collaboration among service providers, device manufacturers, and trade groups. According to the PCAST reform proposal—to date, the most prominent governmental proposal for unlicensed use administration—a consortium of commercial providers would operate a federal "Spectrum Access System" (SAS) in collaboration with the federal regula-

62. *See* John W. Mayo & Scott J. Wallsten, *Secondary Spectrum Markets as Complements to Incentive Auctions*, SELECTEDWORKS OF SCOTT J. WALLSTEN, June 2011, at 3, *available at* http://works.bepress.com/scott_wallsten/68/.

63. *See* PCAST Report, *supra* note 15, at 15, 24.

64. *See, e.g.*, BAUMOL & ROBYN, *supra* note 3, at 63; Hazlett & Leo, *supra* note 3, at 1066, 1070-71; Robinson, *supra* note 3, at 619–20.

65. *See* 47 U.S.C. § 333 (2012) (regulating willful or malicious interference).

66. *See* Hazlett & Leo, *supra* note 3, at 1079-80.

67. *See* Benkler, *Open Wireless vs. Licensed Spectrum: Evidence from Market Adoption*, *supra* note 4, at 163.

tors.[68] The SAS would be an information and control clearinghouse for registrations and conditions of use in certain specified spectrum bands.[69]

The PCAST proposal owes much to the few legal scholars who have given considerable thought to unlicensed use administration. Philip Weiser and Dale Hatfield, for example, argue that the FCC should consider applying existing regulations that already govern harmful interference under the agency's current certification and registration standards for unlicensed devices.[70] The FCC could deputize an established nongovernmental standard setting organization like the Institute of Electrical and Electronics Engineers to develop further functional requirements for devices.[71] These rules, Weiser and Hatfield concede, might have some effect of diminishing the incentive to innovate, but they argue that this is the cost of assuring a quality of service that can compete realistically with extant broadband service.[72]

On the other hand, Stuart Buck has advocated a system of "co-management" between the FCC and nongovernmental stakeholders. In such an arrangement, he argues, the agency would draw clear boundaries on spectrum allocation, formulate clear rules about who may participate in deliberations about use, manage the standard-setting process generally, provide information about institutional arrangements and technical standards, and, where appropriate, enforce violations of law.[73]

Other proposals have not been as nuanced as those of Weiser and Hatfield or Buck.[74] Some argue, for example, for a centralized database that

---

68. *See* PCAST REPORT, *supra* note 15, at 15, 24.

69. *Id.* at 15.

70. Philip J. Weiser & Dale N. Hatfield, *Policing the Spectrum Commons*, 74 FORD. L. REV. 663, 688-91 (2005) (discussing 47 C.F.R. § 15 (2005)).

71. *See id.* at 689-90.

72. *Id.* at 689. They accordingly recommend that experimentation be permitted in some spectrum bands, while other bands allow "more wide-ranging uses." *Id.* at 689-90. Weiser and Hatfield acknowledge that, historically, the FCC has not been a good enforcer of certification or registration requirements in the event of jamming or hogging by unauthorized and even certified users. They recommend that the FCC just begin bringing enforcement actions for willful or malicious interference, even as they concede that such an effort probably be difficult in light of the decentralized nature and diversity of spectrum sharing devices. The agency accordingly would enlist volunteers in local communities to act as *de facto* enforcement deputies. *Id.* at 693 (citing 47 C.F.R. § 101 (2005) rules on dispute resolution between licensed users of spectrum).

73. Buck, *supra* note 4, ¶ 41; *see also id.* ¶¶ 44-77 (drawing from ELINOR OLSTROM, GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION (1990)).

74. By his own account, Benkler has not offered any detailed plan on how interference in unlicensed use regimes would be monitored and effectively prohibited. *See* Benkler, *Open Wireless vs. Licensed Spectrum: Evidence from Market Adoption*, *supra* note 4, at 90. His proposal, such as it is, would have the FCC develop a wireless device certification process that complies with "minimal non-harmfulness requirements" established by standard setting organizations like the IEEE. Yochai Benkler, *Some Economics of Wireless Communications*, 16 HARV. J.L. & TECH. 25, 77-78 (2002). An alternative system, he argues, would be administered by a nongovernmental public trust that would also permit devices that meet minimal

could identify and make available spectrum in discrete geographic locations.[75] Others are far less sanguine about any positive role for the FCC or any centralized federal administration regime.[76] They would leave such matters chiefly to property law.[77]

Underlying all these approaches is the assumption that policymakers would, at best, only be charged with developing the "rules of the road" to facilitate dealings and adjudicate disputes between stakeholders.[78] Proponents of this view argue that government's only function in this area is to make things work.[79]

These proposals all have significant merits, but all offer scant guidance on how to integrate the administration of spectrum policy in conventional public lawmaking processes. Spectrum policy has taken its most recent turn away from centralized command-and-control largely because the policymakers and scholars who argue for reform have understood federal spectrum administration policy to be solely an instrumentalist, problem-solving endeavor.[80] Technological scarcity and interference are the problems for which, they argue, smart spectrum sharing technologies provide an objective remedy. Now that smart spectrum sharing technologies can deliver near-abundance, they argue, there is little left for the FCC or any other governmental entity to do. It is no wonder, therefore, that some scholars argue for removing the FCC from the business of spectrum administration altogether.[81]

---

sharing standards. *Id.* at 78. Benkler associates this loose framework with the comprehensive one set out by Philip Weiser and Dale Hatfield. Benkler, *Open Wireless vs. Licensed Spectrum: Evidence from Market Adoption*, *supra* note 4, at 90 n. 109 (citing Weiser & Hatfield, *supra* note 74).

75. *See* Michael Calabrese, *The End of Spectrum 'Scarcity': Building on the TV Bands Database to Access Unused Public Airwaves* 8-9 (New Am. Found., Working Paper No. 25, 2009).

76. *See* Werbach, *supra* note 4, at 920-23 (looking to property law generally for enforcement against interfering or harmful devices and uses).

77. *See id.*

78. *See, e.g.*, Promoting Interoperability in the 700 MHz Commercial Spectrum, 27 FCC Rcd. 3521 (2012); *see also* Michael Calabrese, *The Need for Well-Defined yet Non-Exclusive Radio Operating Rights*, 9 J. ON TELECOMM. & HIGH TECH. L. 512, 512-13 (2011); Gregory Rosston & Scott Wallsten, *Economic Principles for Ex Ante Rules for Radio*, 9 J. ON TELECOMM. & HIGH TECH. L. 509, 509 (2011); Kevin Werbach, *Castle in the Air: A Domain Name System for Spectrum*, 104 NW. U. L. REV. 613 (2010). *See generally* PCAST REPORT, *supra* note 15, at 27.

79. *See, e.g.*, Benkler, *Overcoming Agoraphobia: Building the Commons of the Digitally Networked Environment*, *supra* note 4, at 91.

80. They overlook, for example, the intrinsic value of public participation in the public lawmaking processes. *See infra* Part III.

81. *See, e.g.*, PETER HUBER, LAW AND DISORDER IN CYBERSPACE: ABOLISH THE FCC AND LET COMMON LAW RULE THE TELECOSM (1997); Thomas Hazlett, *Optimal Abolition of FCC Spectrum Allocation*, 22 J. ECON. PERSP. 103 (2008); Lawrence Lessig, *Reboot the FCC*, NEWSWEEK, Dec. 22, 2008, *reprinted in* THE DAILY BEAST, *available at* http://www.thedailybeast.com/newsweek/2008/12/22/reboot-the-fcc.html.

In Part Two below, I contextualize the prevailing view of federal spectrum administration by describing the reasons on which reformers in the 1920s—the formative era for federal administration—relied to make their institutional choices for administering spectrum use. I argue that, until Congress authorized competitive bidding only two decades ago, legislators and policymakers generally believed that spectrum administration was a geographically contingent endeavor that required local public input. They consistently averred that licensing decisions could not be left to engineers, the licensees themselves, or even to the FCC without the consideration of the affected local communities. This history underscores how utterly silent current approaches are on how to integrate unlicensed use administration in public lawmaking today. This analysis sets the stage for Part Three, where I will attempt to recapture some of what was good about these early efforts in a way that will put U.S. federal spectrum administration back on track.

The historical account that the Article providers here is important because it demonstrates that legal scholars and policymakers have faced the very same questions about how to structure federal spectrum administration before and resolved to go a different way. This account invites the question: why excise local community participation from federal spectrum administration? The answer might simply be that it is not necessary for the objective operation of the technology—public participation would only render federal spectrum administration inefficient. And, in this way, the spectrum-as-property and unlicensed use approaches have more in common than they admit. But the answer to the question would do more: it would also force scholars to confront the question of whether and when public participation is ever necessary in public lawmaking. As I show in Part III, necessity and convenience have almost always taken a backseat to a core normative and structural interest in public participation in public lawmaking.

II. The Transformation of Spectrum Administration

In the Communications Act, Congress gave the FCC broad authority to "encourage the larger and more effective use of radio in the public interest."[82] This was not an unlimited "standard of judgment," however; it was to be implemented through the comparative hearing processes.[83] The FCC's authority, moreover, was addressed to more than "technical and engineering" matters.[84] The agency's role was to ensure that broadcast licensees provide the "best practicable service to the community reached by its broadcasts."[85] Comparative hearings were to be the forums through which

82. NBC v. United States, 319 U.S. 190, 215 (1943) (citing 47 U.S.C. 303(g) (1942)).
83. *Id.*
84. *Id.* at 217.
85. *Id.* at 216 (quoting Fed. Commc'ns. Comm's. v. Sanders Bros. Radio Station, 309 U.S. 470, 475 (1940)).

local listeners, elected officials, civic groups, and businesses could weigh in. They could petition to have a license application denied if the applicant could not demonstrate a commitment to the local "public interest."[86]

As I explain in Part II.B., Congress replaced comparative hearings with the competitive bidding processes in the 1990s in order to redress economic rent-seeking and other well-documented inefficiencies and administrative problems that were incident to the nearly unqualified (but not unintelligible) authority to attend to the "public interest." Despite this, the broad "standard of judgment" remains a feature of the statutory scheme for competitive bidding at the FCC; Congress never repealed it.[87] The auction provisions explicitly invoke the original high-minded language of the Communications Act in provisions addressing auction design, substantive regulations related to auctions, and the agency's consideration of auction revenues.[88] Competitive bidding only replaced the comparative hearing process for a limited range of spectrum uses, including certain telecommunications services and broadcasting. Under the current law governing auctions, the FCC continues to have expansive authority to assign licenses to nongovernmental entities and condition those licenses to prevent interference.[89] The auction provisions did nothing to diminish the standard of judgment on which the agency must rely to do exercise this authority.

The reforms to spectrum auctions and administration that scholars and policymakers advocate today fail to acknowledge this legal and institutional history. The recent report by PCAST, for example, mentions the "public interest" just once and is completely silent on public participation, as though that period in communications policymaking history never happened. For their part, the developers of unlicensed use technologies have little incentive to do anything more than deploy popular devices, services, and applications, no matter their claims of enlightened benevolence.

This failure on the part of scholars and regulators is not apocryphal. At a minimum, however, it suggests something very important about the emergent approach. There is little doubt that the command-and-control public interest hearings of the twentieth century were flawed. But this Article argues that they were not as ineffective as their near-complete removal from spectrum policymaking suggests. I assert that an important but forgotten lesson of spectrum policymaking in the twentieth century is that it can be a

86. 47 U.S.C. § 309(d) (2012).

87. *See, e.g., id.* §§ 309(a), 309(j), 310(d).

88. *Id.* §§ 309(j)(3), 309(j)(4)(c), 309(j)(7).

89. *See id.* §§ 301, 303(b), 303(g), 303(r); *see also id.* § 316(a)(1) (FCC may modify existing licenses if such action "will promote the public interest, convenience, and necessity"). By comparison, the Communications Act confers on the President (and, by extension, the National Telecommunications and Information Administration in the Commerce Department) the power to authorize spectrum use by federal agencies. *See id.* § 305(a).

community-building endeavor as much as an instrumentalist, problem-solving one.

In the end, this may sound like nothing more than an elaborate lament about the damage that the spectrum sharing technologies have wrought to a romantic view of how things were in the golden age of broadcasting. But this Article intends something different. It argues that public participation is important in order to facilitate the organic incorporation of the new spectrum administration technologies into public life. It is a process of discovery, for local communities as much as policymakers.

A. *Command-and-Control Exclusive Licensing*

The emergent proposals for reform represent a radical departure from the command-and-control licensing regime set out by Congress almost nine decades ago. The drafters of the 1927 Radio Act, the defining precursor of the current statute, were reluctant to do anything short of conferring broad licensing powers to an all-powerful federal agency.[90] Policymakers and casual radio listeners had become exasperated with the hundreds of broadcasters competing for a scarce number of available frequencies allocated for commercial broadcasting.[91] Back then, advocates and policymakers were concerned that the airwaves had become a free-for-all in which all manner of broadcaster, amateur or network-affiliate, could use any frequency desired to reach audiences. This was a relatively new ecosystem with various broadcasters relying on different models for spectrum management and program content development.[92]

Policymakers in the 1920s responded by creating a centralized government administered institution for assigning licenses, defining permitted uses, and revoking licenses. They did this with the lofty ambition of stemming airwave chaos. Reformers believed that anything less than a centralized government overhaul of spectrum administration would not resolve the cacophony of signals. Command-and-control, they concluded, would be a remedy for disorder over the airwaves.[93]

These advocates of "radio control" were not completely correct. First, frequency scarcity was an incident of the Commerce Department's decision to allocate only a few frequencies for military and shipping purposes in the

90. *See, e.g.*, *Radio Control Bill Covers Wide Range*, N.Y. TIMES, Feb. 20, 1927, at 17.

91. *See* Red Lion Broad. v. FCC, 395 U.S. 367, 376 (1969) ("Without government control, the medium would be of little use because of the cacophony of competing voices, none of which could be clearly and predictably heard.").

92. *See* Susan Crawford, *The Radio and the Internet*, 23 BERKELEY TECH. L.J. 933, 992 (2008).

93. *See* ERIK BARNOUW, A TOWER IN BABEL: A HISTORY OF BROADCASTING IN THE UNITED STATES TO 1933, VOL. 1 199 (1966); Olivier Sylvain, Domesticating "the Great, Throbbing, Common Pulse of America": A Study of the Ideological Origins of the Radio Act of 1927 24 (2010) (unpublished Ph.D. dissertation, Columbia University).

1910s and then to public and commercial broadcasting in the 1920s. It simply chose not to allocate large portions of the electromagnetic spectrum. The hundreds of potential licensees had no choice but to share a very narrow band of frequencies. Second, scarcity is a fact of almost all of economic life. Neither frequency scarcity nor signal interference could alone justify a centralized licensure regime or Congressional action.[94] The technical design of transmitters and receivers compounded the problem of interference, but, even in the early 1920s, some reformers appreciated that innovations could eventually fix the problems.[95]

Not unlike today, reformers in the 1920s chose from several alternative institutional designs to address the interference problem. Where modern-day scholars, Congress, and officials at the FCC have committed to the mixed, spectrum-as-property and unlicensed use approach, reformers in the formative era chose centralized control. But they could have chosen other alternatives. These early reformers could have developed a government-administered adjudication process through local registration bureaus on the basis of the model of public land disposal during the nineteenth and twentieth centuries.[96] The 1862 Homestead Act, the first and most notable of these, sought to promote land ownership among farmers. The arguments about how public land should be distributed for private use by the federal government are strikingly similar to those associated with wireless policy today: some favored land distribution as a source of revenue for the federal Treasury Department, while others favored giving title to land away for free or at a nominal price in order to promote a small land-holding rural society.[97]

Reformers also could have left disputes over signal interference to the interested private parties themselves. For centuries, principles in the Anglo-American common law tradition supplied the background rules on which people and institutions assumed property rights and duties in relation to each other. These principles could presumably have done the same for frequency use in the 1920s. In 1926, for example, an Illinois state court in *Tribune Co. v. Oak Leaves Broadcasting* turned to "analogous cases and equitable principles" to conclude that a broadcast licensee had "a superiority in right" over a broadcaster who used the same frequency.[98] Relying chiefly on unfair competition principles and cases concerning running water rights in the western United States, the court found that the plaintiff licensee's property rights

94. Sylvain, *supra* note 93, at 24.

95. ITHIEL DE SOLA POOL, TECHNOLOGIES OF FREEDOM 114 (1984).

96. *See* JERRY L. MASHAW, CREATING THE ADMINISTRATIVE CONSTITUTION: THE LOST ONE HUNDRED YEARS OF AMERICAN ADMINISTRATIVE LAW 121-37 (2012).

97. BENJAMIN HORACE HIBBARD, A HISTORY OF THE PUBLIC LAND POLICIES 362 (1965).

98. Tribune Co. v. Oak Leaves Broad. Station, Inc. (Ill. Cir. Ct. Nov. 17, 1926), *reprinted in* 68 Cong. Rec. 215, 219 (1926). *See generally* Thomas W. Hazlett, *Oak Leaves and the Origins of the 1927 Radio Act: Comment*, 95 PUB. CHOICE 277, 279 (1998).

arose largely out of the duration of time he held the frequency and its commercial development.[99] The defendant, on the other hand, was "newly in the field and [would] not suffer as a result of an injunction in proportion to the damage that would be sustained by the complainant."[100] In lieu of some legislative intervention by the federal government, the *Oak Leaves* court found that broadcast licensees could rely on "equitable principles" in common law to protect their ostensible property interest in the licensed frequency.[101]

Such an approach was not uncommon in the early 1920s. Courts already had resolved that Congress had not granted federal agencies any real discretion in administering or awarding licenses.[102] At most, the Commerce Department could only select times and wavelengths in order to minimize interference and, as such, could only act as a kind of registration bureau.[103] The logic of the then-governing 1912 Act was simply to rationalize distribution and access to the spectrum for safe naval and civilian maritime uses.[104] The Department's role, the courts explained, was purely ministerial; it was to issue licenses to whomever asked. The *Oak Leaves* court believed, therefore, that it had no choice but to apply common law property principles.

These two approaches—centralized executive administration of licensing on the one hand and a relatively *laissez faire* forbearance on the other—encapsulated the limited range of choices that reformers believed they had at their disposal in the 1920s. Reformers, after all, could not have anticipated the spectrum sharing technologies of today. Yet they addressed a version of the very same problem in the context of the debate over unlicensed and spectrum-as-property approaches. In the end, reformers in 1927 chose centralization over *laissez faire* forbearance. Commerce Secretary Herbert Hoover and other reformers mobilized an effort in the early to mid-1920s to enlarge and consolidate federal control over the airwaves. Hoover explained that, if these courts were right and the Commerce Department did not have the authority to assign wavelengths and impose time-of-day limits, broadcasters could proceed to make their own self-interested choices at the expense of order and any regard for public service generally.[105] A new radio

99. 68 Cong. Rec. 215, 219 (1926).

100. *Id.*

101. *See* Jora R. Minasian, *The Political Economy of Broadcasting in the 1920s*, 12 J.L. & ECON. 391 (1969). Some have gone further, and argued that licensees, after *Oak Leaves* in particular, could negotiate the terms of conveyance and use to subsequent licensees as if it was theirs to sell. *See* Paul M. Segal & Harry P. Warner, *Ownership of Broadcasting Frequencies: A Review*, 19 ROCKY MTN. L. REV. 111, 113, 121 (1947).

102. *See* Hoover v. Intercity Radio Co., 286 F. 1003, 1006 (D.C. Cir. 1923); United States v. Zenith Radio Corp., 12 F.2d 614, 617 (N.D. Ill. 1926).

103. *See Hoover*, 286 F. at 1007. *But see Zenith Radio Corp.*, 12 F.2d at 617 (finding that department had any discretion over licensing or even time-of-day and wavelength assignment).

104. *Hoover*, 286 F. at 1005.

105. *Text of Ruling Denying Radio Control*, N.Y. TIMES, July 10, 1926, at 5.

law could redress this problem, Hoover argued, by empowering a federal agency to determine "who may broadcast," prescribe a standard for the administration of these decisions, and further the interests of listeners and of the industry.[106]

After years of trying, Congress passed a bill in 1927 in which a new agency, the Federal Radio Commission (the FCC's predecessor), would have complete control over wireless communications.[107] The FRC was to be composed of five impartial members. Together, they would have the quasi-judicial authority to award frequency licenses to applicants with a demonstrable commitment to the "public interest, convenience, and necessity" in their programming and operations.[108]

The logic on which reformers relied to substantiate the FRC's broad authority has important implications for current debates about spectrum-as-property and unlicensed use approaches: the spectrum, those early reformers explained, is "public property" that could not be abused for "private gain."[109] The federal government, through the Commission, preemptively asserted a monopoly over broadcast spectrum in order to ensure that licensees act as the public's trustees.[110] Under the new law, the "public interest, convenience, and necessity" would be the standard to guide regulation and measure broadcasters' programming.[111]

The statute said very little about how the "public interest" should be interpreted or what the phrase meant with any particularity. Critics and proponents at the time both recognized that it was an ambiguous legal standard.[112] More recent critics have rejected the public interest standard as dangerously "vacuous" or, worse, the representation of premeditated legisla-

106. *Hoover Sees Chaos without Radio Law*, N.Y. TIMES, Apr. 21, 1926, at 5.

107. Act of Feb. 23, 1927, ch. 169, 44 Stat. 1162. After one year, the FRC would have only final appellate authority, while the Secretary of Commerce would be the licensing administrator in the first instance. *See* Associated Press, *U.S. Radio Control Legislation Ready for Congress Vote*, WASH. POST, Jan. 27, 1927, at 4. Congress amended the law in 1928 so that the Commerce Department really played no part in broadcast regulation. *See* Act of March 28, 1928, ch. 263, 45 Stat. 373.

108. Act of Feb. 23, 1927, ch. 169, 44 Stat. 1162.

109. *Radio Regulation Is Urged by Hoover*, N.Y. TIMES, Mar. 12, 1924, at 1; *see also Implementation of FCC Spectrum Auctions: Hearing Before the Comm. on the Budget*, 103d Cong. 7 (1994) (testimony of Chairman Reed Hundt).

110. *Cf.* Matthew L. Spitzer, *The Constitutionality of Licensing Broadcasters*, 64 N.Y.U. L. REV. 990, 1041-66 (1989) (arguing that government ownership of the broadcast spectrum violates the First Amendment).

111. *See generally* NEWTON N. MINOW & CRAIG L. LAMAY, ABANDONED IN THE WASTELAND: CHILDREN, TELEVISION AND THE FIRST AMENDMENT 4 (1995).

112. 67 CONG. REC. 12,355 (1926); *see also Radio Control: Hearings on S. 1 and S. 1754 Before the Comm. On Interstate Commerce*, 69th Cong. 37 (1926) [hereinafter *Radio Control Hearings*] (testimony of Stephen Davis, Solicitor of the Department of Commerce).

tive quid pro quo between legislators and the major industry players that the FRC was to regulate.[113]

The historical record bears this latter point out: from 1927 to the 1990s, few, if any, large broadcast incumbents ever actually lost their licenses.[114] There is also every reason to believe that the public interest standard helped to justify Secretary Hoover's own strong preference for having the proverbial Radio Trust (*i.e.*, RCA, Westinghouse, General Electric, and AT&T) develop the institutional logic for broadcasting. Those companies already had secured comfortable dominance in the markets for radio sets and other hardware by 1927 through a series of exclusive patent pools.[115] Station interconnection technologies developed by Westinghouse, RCA, and AT&T, led almost immediately to the creation of the National Broadcasting Company and all the attendant network agreements and programming that came to define broadcasting in the decades that followed.[116]

In the end, Hoover and the reformers agreed to give the FRC the administrative discretion to interpret the "public interest" standard on a case-by-case basis.[117] This, they believed, was the best way to rationalize spectrum use.[118] In 1933, the Court upheld the FRC's authority over a nondelegation doctrine challenge, explaining that the "public interest, convenience, and necessity" standard did not confer an "indefinite" or "unlimited power."[119] The standard, the Court continued, was sufficiently circumscribed to protect against "official favoritism" but broad enough to ensure that the agency had "the authority to make a fair and equitable allocation" of licenses.[120]

Congress reformed this administrative regime in the 1934 Communications Act, but not to further define the "public interest" standard explicitly. Through the new statute, legislators consolidated in a new federal agency the authority to administer spectrum policy (formerly delegated to the FRC through the 1927 Act) and telephony and telegraphy (formerly delegated to the ICC through the 1910 Mann-Elkins Act). Under the statute, the new FCC obtained authority to minimize signal interference, "make a fair and equitable allocation" of licenses, and give interested members of the public

113. *See* Glen O. Robinson, *The Federal Communications Act: An Essay on Origins and Regulatory Purpose*, *in* A LEGISLATIVE HISTORY OF THE COMMUNICATIONS ACT OF 1934 14 (Max D. Paglin, ed., Oxford 1989); *see also* Hazlett, supra note 81, at 103.

114. Jennifer M. Proffitt & Michael Brown, *Regulating the Radio Monopoly: Ewin Davis and His Legislative Debates, 1923-1928*, 11 J. RADIO STUD. 100, 109 (2004).

115. ROBERT BRITT HORWITZ, THE IRONY OF REGULATION REFORM: THE DEREGULATION OF AMERICAN TELECOMMUNICATIONS 116-17 (1988).

116. Sylvain, *supra* note 93, at 20-21, 45-48.

117. *See Radio Control Hearings*, *supra* note 112 (testimony of Stephen Davis, Solicitor of the Department of Commerce).

118. *Id.*

119. Fed. Radio Comm'n v. Nelson Bros. Bond & Mortg., 289 U.S. 266, 285 (1933) (citing N.Y. Cent. Sec. Corp. v. United States, 287 U.S. 12, 24 (1932)).

120. *Id.* (internal quotations omitted); *see also* Schechter Poultry Corp. v. United States, 295 U.S. 495, 540 (1935).

an opportunity to argue in a hearing against the award of a license to any given applicant.[121]

When faced with a challenge to the new statute in 1943, the Court reiterated that the FCC's authority was sufficiently cabined by the "public interest" standard and statutorily defined administrative procedures.[122] In *NBC v. U.S.*, the Court reviewed FCC regulations of "chain broadcasting" arrangements between the major broadcast networks and affiliated local stations. Those agreements basically gave local broadcast stations the right to air a single network's content fare (in this case, NBC's) to the exclusion of all programming by other networks. The Court held that the agency could promulgate such rules and that the underlying congressional delegation was not too broad.[123]

The Court recognized that the problem of frequency scarcity was the chief rationale for the regulatory arrangement; radio frequencies, it explained, are too scarce "to be left to wasteful use without detriment to the public interest."[124] The Court understood the "public interest" standard to be a benchmark through which Congress conferred on the agency the authority to rationalize unforeseeable uses of such a scarce but potentially dynamic resource.[125]

After *NBC v. U.S.*, frequency scarcity was a prominent justification for the FCC's broad authority over broadcasting for most of the twentieth century, allowing the agency to regulate, among other things, license renewals and technical transmission terms.[126] It even provided the basis for content regulation of broadcasting, an otherwise difficult terrain for government agencies to regulate lawfully as a constitutional matter.[127]

B. *Local Public Participation*

Frequency scarcity was never the only supporting rationale for legislative intervention, however, although it was the justification on which most legislators appeared to rely in the 1920s. Nor did scarcity require Congress to create a federal agency whose charge was to award exclusive licenses on the basis of "the public interest, convenience, and necessity." The impetus for such large scale, command-and-control regulatory intervention was more ambitious.

---

121. *See* 47 U.S.C. § 309(a), (d)-(e) (2012).
122. *NBC v. United States*, 319 U.S. 190, 225-26 (1943).
123. *Id.* at 216 (citing 47 U.S.C. § 303(g)).
124. *Id.* at 216, 218.
125. *Id.* at 219.
126. *See* Red Lion Broad. Co. v. FCC, 395 U.S. 367 (1969) (rejecting First Amendment challenge to "fairness doctrine" regulation of broadcast content because spectrum frequencies are scarce).
127. *Id.*

The early reformers believed that broadcasting was a "new art" that required something more subtle than the ministerial awarding of licenses. Evoking the Progressive Era conception of enlightened government administration,[128] the President and Congress would appoint FRC members for their "understanding of the public's interest, and particularly with a view to the future development of the radio art for the social and economic good of our people."[129]

Reformers in the 1920s invoked the notion of scarcity to articulate a view of broadcasting as a morally ambiguous artifact of modern life.[130] After all, when it first appeared, radio competed with and potentially crowded out more parochial and geographically contingent methods of mass communication like newspapers and movie halls. As such, for reformers and policymakers throughout the twentieth century, interference was not just a technological problem that required a regulatory fix. It was a salient metaphor for more general anxieties about the preservation of local community life in the face of modernity. Reformers believed that other public interest objectives, including the sovereign character of local communities, were among the most paramount.[131] As I explain in more detail below,[132] this early focus on localism has been lost in today's most prominent reform proposals for federal spectrum administration policy.

Under the 1927 Radio Act, licensing decisions were conducted through comparative hearings that, in effect, were community events in which local civic groups, elected officials, and businesses could weigh in on the merits of a potential broadcaster's application to build and operate a local station.[133] Applicants would have to prove their value to the communities to which they intended to transmit their signals. They would generally do this by demonstrating their commitment to local priorities and institutions—often by showcasing their support for local institutions and events.[134] Local participation in the decision-making about how licensees ought to use the assigned frequencies was an important way of vindicating the public interest objectives of the Radio Act. This localist approach was markedly different than the wholly centralized system in Europe.[135]

That scarcity might have this grander meaning—one addressing more than the problem of technological interference—squares with reformers'

128. *See* Woodrow Wilson, *The Study of Administration*, 2 POL. SCI. Q. 197 (1887).

129. 67 CONG. REC. 12,358 (1926) (statement of Sen. Clarence Dill).

130. *Id.*

131. *See* ROBERT L. HILLIARD & MICHAEL C. KEITH, THE QUIET VOICE: THE RISE AND DEMISE OF LOCALISM IN AMERICAN RADIO 25-26 (2005).

132. *See infra* Parts II.D and III.

133. *See* 47 U.S.C. § 309 (d)-(e) (2012). *See generally* Robert Buck, Comment, *FCC Comparative Renewal Hearings: The Role of the Commissions and the Role of the Court*, 21 B.C. L. REV. 421, 422 (1980).

134. *See* HILLIARD & KEITH, *supra* note 131, at 25-26.

135. *Id.* at 25.

general approach to public policy problems in the period immediately following World War I. Interference was not just a technological problem for which an engineering fix was necessary. It signified a threat to what Warren Harding called "normalcy" in his Presidential campaign—that is, a threat to traditional American life.[136] Interference also appeared vividly in policy debates over immigration and transportation, as much as it did in the context of spectrum administration.[137] In this way, the 1927 Radio Act was only part of a larger "Progressive Era" reform effort against the threat that modernity posed to a certain vision of the American way of life. Through the Act, the FRC would guard against the creeping threat to the sovereign character of local communities. Most reformers, including Hoover, believed that, without legislative intervention, programming aimed at rural audiences would be crowded out by the powerful signals emanating from the large city stations.[138] According to social historian Warren Susman, policymakers were "haunted by the fears that the new urban, industrial world of mass communications would destroy real community."[139]

To be clear, interference and scarcity was the uncontroversial reason that Congress passed the 1927 law.[140] Interference connoted the technological difficulty of accommodating all broadcasters who operated within the same given frequency in a given community. But, just as importantly, policymakers also meant to address the more general demographic transformations that had been underway since the very late nineteenth century. They honed in on radio because it was the most conspicuous manifestation of these changes. An explosion of new industry and amateur broadcasts

136. Sylvain, *supra* note 93, at 183-86, 206-09. *See generally* PAUL BOYER, URBAN MASSES AND MORAL ORDER IN AMERICA, 1820-1920 at 266-84 (1978) (discussing progressivism, positive environmentalism, and the general moral tenor of social control efforts in cities in the 1900s and 1910s); ELLIS W. HAWLEY, THE GREAT WAR AND THE SEARCH FOR MODERN ORDER: A HISTORY OF THE AMERICAN PEOPLE AND THEIR INSTITUTIONS, 1917-1933 50, 58, 72-73 (1979) (discussing general concerns about fracturing of the social fabric in post-war era).

137. Sylvain, *supra* note 93, at 183-86, 206-09.

138. The U.S. Senate Commerce Committee heard testimony from educators and agriculturists, for example, that addressed the ways in which stations in Chicago and New York regularly interrupted over-the-air "courses of instruction in agriculture, home economics, and general science subjects" for Kansas and southern New Jersey farmers. *Radio Control Hearings*, *supra* note 112; *see also* 1 EDWARD EYRE HUNT, RECENT ECONOMIC CHANGES IN THE UNITED STATES: REPORT OF THE COMMITTEE ON RECENT ECONOMIC CHANGES OF THE PRESIDENT'S CONFERENCE ON UNEMPLOYMENT 322 (1929). Commerce Secretary Solicitor General Stephen Davis testified that several dozen licensed stations jammed the airwaves in the fifty mile radius area outside of Chicago. *Radio Control Hearings*, *supra* note 112.

139. WARREN I. SUSMAN, CULTURE AS HISTORY: THE TRANSFORMATION OF AMERICAN SOCIETY IN THE TWENTIETH CENTURY 257 (1985).

140. The die was cast seven years earlier. In the lead-up to passing the 1927 Act, policymakers and reformers sought to develop an institutional framework for distributing rights to use the spectrum because there was none of which to speak. Hugh G. J. Aitken, *Allocating the Spectrum: The Origins of Radio Regulation*, 35 TECH. & CULTURE 686, 689 (1994).

jammed the airwaves of local communities and, the argument went, crowded out local community life.[141] With the passage of the 1927 Act, Congress intervened in order to mitigate the chaos. Its creation of the comparative hearing process served as a bulwark against the threat that radio broadcasting generally posed to small town America.

Localism, along with competition and diversity, was one of the prominent "cornerstones of broadcast regulation" throughout the twentieth century.[142] But its function from the 1960s to the 1990s was far more substantive than procedural.[143] The Supreme Court explained in the late 1960s, for example, that broadcasters owe a noble civic duty to their local audiences to provide "suitable access to social, political, esthetic, moral, and other ideas and experiences" due largely to their structural gatekeeping function.[144]

In a 1994 case involving the FCC's regulation of competition in the market for video programming, the Court upheld an agency rule that required cable operators to carry local broadcast signals.[145] Free over-the-air local television, the Court explained, is one of the important interests that overcome First Amendment concerns about agency regulation of commercial speech. Free over-the-air local broadcasting, it held, was essential to the operation of democracy.[146] Even into the early 2000s, when interest in substantive localism as such began to wane, the Commission expressed its interest in "promoting localism in broadcasting" through such things as public interest obligations, license renewals, and protecting the rights of local stations to make programming decision for their communities.[147]

Reformers in the 1920s did not invoke scarcity merely as an engineering justification for regulatory intervention. They recognized that accommodating local community sovereignty was an important institutional objective because it gave purpose to a technology that was otherwise morally ambiguous.[148]

The procedural sense of localism or geographic contingency embodied in the comparative hearing is absent from the new orthodoxy in federal spec-

141. PHILIP T. ROSEN, THE MODERN STENTORS: RADIO BROADCASTERS AND THE FEDERAL GOVERNMENT, 1920-1934 7 (1980) (noting that proliferation of technology "caused society to question its growth and expansion.").

142. *See* Broad. Localism, 19 FCC Rcd. 14849, 14849 (2004). *See generally* Cynthia Conti, *Accepting the Mutability of Broadcast Localism: An Analytic Position*, 21 COMMLAW CONSPECTUS 106 (2012).

143. *See, e.g.*, Editorializing Broadcast Licenses, 13 F.C.C. 1246, 1247 (1949) (making case for regulation that imposes burden on broadcasters to provide adequate coverage of local public issues). *See generally* Donald P. Mullally, *The Fairness Doctrine: Benefits and Costs*, 33 PUB. OPINION Q. 577, 577 (1970).

144. Red Lion Broad. Co. v. FCC, 395 U.S. 367, 390 (1969).

145. Turner Broad. Sys., Inc. v. FCC, 512 U.S. 622, 662 (1994).

146. *See id.*

147. *See generally* HILLIARD & KEITH, *supra* note 131, at 99.

148. *Cf.* Sylvain, *supra* note 6, at 830-31.

trum administration. Of course, we now know that the command-and-control regime for spectrum administration was not the most efficient way of assigning licenses. Its history is rife with stories of capture and rent-seeking.[149] Among the more notorious episodes involves Lady Bird Johnson's license to build and operate a radio station in Texas that she procured through the influence of her powerful husband.[150]

This and other political trades were probably what Newton Minow, a former FCC chairman, had in mind when he dubbed the period from the end of World War Two to the mid-1960s the "whorehouse era" of broadcast regulation.[151] Spectrum licenses were, from this perspective, chits in the political horse-trading that characterized midcentury political life in Washington, D.C. The Commission rarely if ever denied an application for a license renewal pursuant to local resistance to a noncommercial broadcaster on programming grounds, effectively making the licensure regime a system of private property preservation,[152] at least until the 1980s. Accordingly, the relative quality of the various programs that broadcasters aired was highly variable, notwithstanding the Radio Act's high-minded ambitions.[153]

That command-and-control public interest licensing was subject to political manipulation, however, is not a measure of the rightness of incorporating local community concerns in the agency decision-making about spectrum use. Even today, most observers recognize that, during emergencies in particular, broadcast television stations serve a vital role by providing local news and information to residents.[154] Similarly, Congress's decision to incorporate local community participation as a matter of course in licensing decisions contained crucial normative insights. The challenge for us today is to recapture these insights while minimizing their flaws.[155]

C. *Spectrum Auctions*

Comparative hearings formed the basis of the FCC's licensing decisions for most of the twentieth century. Frequency scarcity was the governing

149. *See* Thomas W. Hazlett, *Assigning Property Rights to Radio Spectrum Users: Why Did FCC License Auctions Take 67 Years*, 41 J.L. & ECON. 529, 552 (1998). All but one licensee in the history of broadcast regulation had its renewal application denied. *See* Buck, *supra* note 133, at 423-24.

150. CARO, *supra* note 47.

151. FRED J. MACDONALD, ONE NATION UNDER TELEVISION: THE RISE AND DECLINE OF NETWORK TV 24 (1994).

152. BUNCE, *supra* note 49, at 14.

153. MACDONALD, *supra* note 151, at 106–29.

154. *See* STEVE WALDMAN, WORKING GROUP ON INFORMATION NEEDS OF COMMUNITIES, THE INFORMATION NEEDS OF COMMUNITIES: THE CHANGING MEDIA LANDSCAPE IN A BROADBAND AGE 76 (2011), *available at* http://transition.fcc.gov/osp/inc-report/The_Information_Needs_of_Communities.pdf.

155. *Cf.* John Fabien Witt, *Two Conceptions of Suffering in War*, *in* KNOWING THE SUFFERING OF OTHERS (Austin Sarat ed., forthcoming) (on file with author).

rationale for this approach. But, as I explain above, that justification always provided weak support for FCC intervention. To be sure, scarcity arose from real concerns about interference. The resource was considered scarce because reformers believed that only one broadcaster could use a frequency band in a certain geographic area at a time. In fact, however, the concept of technological interference was always a function of the limitations of transmitters and receivers and the consequence of the artificial constraints imposed by federal spectrum allocation and assignment policy.

1. Congressional Authorization

As explained in Part I above, the FCC today assumes that its role is limited to addressing problems in spectrum assignment, administration, and competition, without concern for the impact those decisions have on local communities. Today, Congress rarely grants authority to the FCC (or most agencies for that matter) that is as broad as the "public interest, convenience, and necessity."[156] When Congress delegates regulatory responsibility today under the Communications Act, it generally does so with much more articulated precision. In the early 1960s, for example, Congress granted to the FCC the limited authority to develop a regulatory regime for cable television based only on the broadly worded public interest mandate.[157] In 1984 and again in 1992, however, Congress narrowed the scope of the FCC's authority, creating a formalized role for municipal governance of local cable franchises.[158]

Similarly, Congress purposefully elaborated the FCC's authority over spectrum under the Communications Act in 1993, explicitly giving the agency the limited authority to award licenses to use spectrum through competitive bidding.[159] Congress concluded that "spectrum congestion" had made it difficult for the agency to accommodate or promote new wireless

156. The Court has not struck down a statute on nondelegation grounds since 1935, which makes sense. After all, the modern administrative state would not function if Congress could not delegate legislative functions to agencies or if the Court decided to adhere to a narrow and formalist conception of delegation theory. *See, e.g.*, American Power & Light Co. v. SEC, 329 U.S. 90 (1946); Yakus v. United States, 321 U.S. 414 (1944); NBC v. United States, 319 U.S. 190 (1943); *see also* Whitman v. Am. Trucking Assoc., 531 U.S. 457 (2001) (discussing cases where the Court has not struck down a statue on nondelegation grounds). Today, delegation analysis appears to have been subsumed under the Chevron analysis and canons of statutory interpretation.

157. United States v. Sw. Cable, 392 U.S. 157 (1968) (holding that an agency may regulate cable television because that medium is ancillary to broadcasting).

158. *See* 47 U.S.C. §§ 541–42 (2012); *see also id.* § 332(c)(7)(A) (authorizing state and local governments to make "decisions regarding the placement, construction, and modification of personal wireless service facilities," at the exclusion of the FCC in most circumstances).

159. Omnibus Budget Reconciliation Act of 1993, Pub. L. 103-66, § 6002, 107 Stat. 312; 47 U.S.C. § 309(j)(1). I do not discuss here the misadventure of random selection as a congressionally authorized method of assigning licenses. *See id.* § 309(i).

technologies and services.[160] Auctions, legislators believed, would distribute licenses to service providers who would hasten the delivery of new services to the public, make the most productive and efficient use of assigned frequencies, avoid rent-seeking by politically-connected applicants, and generate revenue for the Treasury.[161]

Under the 1993 law, Congress authorized the FCC to implement a competitive bidding process when mutually exclusive applicants seek to use the same frequencies.[162] Even for limited ranges of licenses, however, Congress explicitly charged the FCC to attend to specific objectives, including the development of new wireless technology and the promotion of economic opportunity and competition.[163] Here, Congress chose particularity over the grab-bag "public interest" term of art with which regulators had become cozy for decades.[164]

Recognizing that competitive bidding could lead to a significant increase in the market concentration of incumbent service providers, Congress explicitly targeted small businesses, rural telephone companies, and businesses owned by members of minority groups and women as potential licensees whose participation the FCC should especially facilitate and encourage.[165] Congress also commanded the FCC to design auctions in order to accommodate these groups.[166] The auction provisions required the FCC to promote "an equitable distribution of licenses among geographic areas," presumably obligating the agency to attend to local community contingencies.[167] Congress authorized the FCC to do all of these things without taking into account the revenues such auctions would generate for the Treasury.[168] Congress concluded that some public interest priorities were far more important than the size of the auction purse.

A few years later, Congress broadened the original auction authorization to include flexible use technologies.[169] Congress cabined this authority only by warning that the Commission must first find that "such use is in the public interest, will not deter investment in telecommunications services and technology, and will not produce harmful interference" before allocating spectrum for flexible use.[170]

---

160. H.R. REP. No. 103-111, at 250 (1993) (Conf. Report).

161. *Id.*; *see also* Thomas W. Hazlett et. al., *What Really Matters in Spectrum Allocation Design*, 10 NW. J. TECH. & INTELL. PROP. 93 (2012).

162. H.R. REP No. 103-111, at 253-254 (1993) (Conf. Report).

163. 47 U.S.C. § 309 (j)(3)(A)-(B).

164. *See id.* § 309 (j)(3).

165. *Id.* § 309 (j)(3)(A)-(B); *see also* H.R. REP. No. 103-111, at 254 (1993) (Conf. Report).

166. 47 U.S.C. § 309 (j)(4)(A); *id.* § 309 (j)(4)(C)(ii).

167. *Id.* § 309 (j)(4)(C)(i).

168. *Id.* § 309 (j)(7).

169. Balanced Budget Act of 1997, Pub.L. No.105-33, 111 Stat. 251.

170. H.R. REP. No. 103-111, at 254 (1993) (Conf. Report).

2. Spectrum Auctions Today

Almost two decades after the first legislative auction authorization, the FCC has completed 93 auctions.[171] They have generated billions of dollars for the U.S. Treasury, lowered transaction costs for many stakeholders, and brought broadband service to more people in more places than ever before. Mobile wireless service is now central to the FCC's agenda to promote broadband infrastructure and innovation, accelerate universal broadband access and adoption, foster competition, and maximize consumer benefits.[172]

One of the more celebrated auctions occurred in 2007 and 2008 for the coveted 700 MHz band formerly held by television broadcasters to transmit their analog signal.[173] That auction concluded with 1090 provisionally winning bids and generated almost $20 billion for the U.S. Treasury. AT&T and Verizon, together with their subsidiaries, paid a combined $16.3 billion for the most desired portions of the band and effectively won the right to provide service around the country.[174] The two companies have since committed to providing the most advanced mobile communication service networks for the next ten years.[175]

With each amendment to the Communications Act, and certainly with the auction authorizations of the 1990s, Congress remade the administrative regime it established almost seven decades before. The 1927 regime was born from a political economy and technology in which the radio broadcaster was the public trustee gatekeeper. On the other hand, the contemporary 1993 competitive bidding regime is a creature of a political economy in which broadcast stations, while still important, are no longer central or so powerful. By the early 1990s, cable and satellite television service providers posed a substantial competitive threat to broadcasters, undercutting daily broadcast viewership by more than half.[176]

Today, broadcasters are no longer even the archetypal spectrum licensee: large telecommunications service providers are. Just consider the extraordinary amounts of money companies like AT&T and Verizon are spending to acquire spectrum licenses by auction and in secondary markets. The rapid commercial deployment of the Internet since the early to mid-1990s has only further dislodged the centrality of broadcasting. Mobile

171. *Auctions Summary*, FED. COMM. COMMISSION, http://wireless.fcc.gov/auctions/default.htm?job=auctions_all (last updated Aug. 12, 2013).

172. *See* FED. COMMC'NS COMM'N, *supra* note 24.

173. The broadcasters now transmit a digital signal through a different spectrum band.

174. AT&T won the right to provide services in 176 "economic areas" and Verizon won the right to provide wireless services in 734 "cellular market areas." EAs are generally larger than CMAs.

175. Adam LaMore, The 700 MHz Band: Recent Developments and Future Plans, (Apr. 21, 2008) (unpublished manuscript), *available at* http://www.cse.wustl.edu/~jain/cse574-08/ftp/700mhz/index.html.

176. *Cable: Then and Now (1992-2012)*, NAT'L CABLE AND TELECOMM. ASS'N, http://www.ncta.com/statistic/statistic/Cable-Then-and-Now.aspx (last visited Jan. 20, 2013).

wireless broadband transmissions do not carry as much data as rapidly as tactile wired transmission infrastructures like fiber optic cables do.[177] But the mobile wireless industry continues to grow apace, with consumer demand for mobile wireless service, devices, and applications growing monthly.[178] Consider that, after September 2013, Nielsen will change its television viewership measurement system to include devices that deliver broadband video streaming services such as Netflix and Amazon.[179]

Each successive amendment of the Communications Act has reflected the fact that wireless communication service has matured into a specialized regulatory field, requiring standards and objectives that are far more particularized than those in the original Communications Act. The auction provisions ought to be seen in this evolutionary light; they represent a significant refinement and elaboration of agency discretion in spectrum policymaking. On the one hand, they make no pretensions about the FCC's role as the high-minded steward of "social, political, esthetic, moral, and other ideas and experiences" that the Supreme Court described in 1943. On the other hand, they have given the agency a free hand in designing competitive bidding systems and promulgating related regulations.[180]

Under its general auction authority, the FCC today requires that firms comply with generic laws and regulations regarding such things as equal employment opportunities,[181] signal interference,[182] interference with spectrum under the jurisdiction of the Federal Aviation Administration,[183] and

177. *See* Eli Noam, *Let Them Eat Cellphones: Why Mobile Wireless Is No Solution for Broadband*, 1 J. INFO. POL'Y 470 (2011).

178. Phil Goldstein, *Nielsen: Average U.S. Mobile Subscriber Uses 450 MB per Month*, FIERCEWIRELESS, (July 19, 2012), http://www.fiercewireless.com/story/nielsen-average-us-mobile-subscriber-uses-450-mb-month/2012-07-19; *see also BII Report: Why the 'Second Screen' Industry Is Set to Explode*, BUSINESS INSIDER, (Feb. 15, 2013), http://www.businessinsider.com/bii-report-why-the-second-screen-industry-is-set-to-explode-2013-2#ixzz2KF0rkSAf.

179. Alex Ben Block, *Nielsen Agrees to Expand Definition of TV Viewing*, HOLLYWOOD REP. (Feb. 20, 2013), http://www.hollywoodreporter.com/news/nielsen-agrees-expand-definition-tv-422795.

180. 47 U.S.C. § 309 (j)(3)-(4) (2012).

181. *See, e.g., Factsheet for Auction 52: Direct Broadcast Satellite Service*, FED. COMM. COMMISSION, http://wireless.fcc.gov/auctions/default.htm?job=auction_factsheet&id=52 (last updated Aug. 30, 2006) (requiring that "DBS licensees are subject to Equal Employment Opportunity rules set forth in 47 C.F.R. § 25.601" in an auction for direct broadcast satellite service).

182. *See, e.g., Factsheet for Auction 53: Multichannel Video Distribution & Data Service (MVDDS)*, FED. COMM. COMMISSION, http://wireless.fcc.gov/auctions/default.htm?jobauction_factsheet&id=53 (last updated July 27, 2006) (requiring that "MVDDS systems may not cause harmful interference to stations in Canada or Mexico" in an auction for multichannel video programming distribution and data service).

183. *See, e.g., Factsheet for Auction 46: 1670-1675 MHz Band Nationwide License*, FED. COMM. COMMISSION, http://wireless.fcc.gov/auctions/default.htm?job=auction_factsheet&id=46 (last updated Aug. 30, 2006) (requiring that "Prior to construction of a station, a licensee must register with the Commission any station antenna structure for which notification to the

other technical requirements.[184] These are routine and unproblematic requirements that apply in all agency actions bearing on spectrum. The agency also has sought to ensure that each auction is free of collusion[185] and created payment mechanisms to accommodate smaller businesses as they bid against larger, more capitalized wireless incumbents.[186] This auction-by-auction approach has allowed the agency to fashion auction processes on the basis of the properties of the subject frequencies, the identity and number of stakeholders affected, and the bidders' commercial aspirations.[187]

D. *Objectivity in Spectrum Administration*

The account I have offered here illustrates that, with every incremental legislative expansion of auction authority since 1993, the FCC has proceeded as though it has no substantial obligation to attend to anything other than auction design. For the most part, the agency now treats as statutory deadweight the requirements that affected local communities participate in the licensing decision-making process and that it attend to local concerns generally. To draw from an old analogy in this field, the FCC today is much less the judgment-making spectrum traffic cop than a mechanical traffic light, impassively assigning spectrum use rights to whomever posts the highest bid.

Today's limits on the agency's discretion recall those imposed on the Commerce Department by courts before Congress enacted the 1927 Radio Act. This is part of what is notable about today's turn to competitive bidding, spectrum-as-property, and unlicensed use. Recall that, through the Radio Act, Congress explicitly sought to empower and expand agency authority in ways that the courts had until then not permitted; Congress passed that statute to give the agency more than just a ministerial licensing role. But today, with competitive bidding, the FCC has returned to a regime in which it attends to little more than technical interference and spectrum band boundaries.

Federal Aviation Administration is required by Part 17" in an auction for the 1670-1675 MHz band nationwide license).

184. *See, e.g., Factsheet for Auction 44: Lower 700 MHz Band*, FED. COMM. COMMISSION, http://wireless.fcc.gov/auctions/default.htm?job=auction_factsheet&id=44 (Aug. 17, 2007) (requiring that "[p]artitioning and/or disaggregation is permitted" in an auction for the lower 700 MHz Band).

185. *See, e.g.*, Star Wireless, LLC v. FCC, 522 F.3d 469, 471 (D.C. Cir. 2008); High Plains Wireless, L.P. v. FCC, 276 F.3d 599, 606-07 (D.C. Cir. 2002).

186. *See, e.g.*, Council Tree Commc'ns, Inc. v. FCC, 619 F.3d 235, 238 (3d Cir. 2010); Sioux Valley Rural Television, Inc. v. FCC, 349 F.3d 667, 668 (D.C. Cir. 2003); Celtronix Telemetry, Inc. v. FCC, 272 F.3d 585, 590 (D.C. Cir. 2001); Fresno Mobile Radio, Inc. v. FCC, 165 F.3d 965, 967 (D.C. Cir. 1999); Mountain Solutions, Ltd. v. FCC, 197 F.3d 512, 514 (D.C. Cir. 1999).

187. *See* Gregory L. Rosston & Jeffrey S. Steinberg, *Using Market-Based Spectrum Policy to Promote the Public Interest*, 50 FED. COMM. L.J. 87, 104-06 (1997).

Much of the specialized focus on technical interference is not the FCC's own doing. Amendments to the Communications Act over the past two decades have incrementally substituted the price mechanism for agency discretion: with each legislative elaboration of auction authority, Congress has further entrenched the impression that the FCC may only administer its charge under the Communications Act narrowly and under a limited set of circumstances at the moment it designs the procedures for any given auction.[188]

To the extent the FCC today has addressed nontechnical public interest considerations through auction proceedings at all, it has done so to protect competition in the wireless broadband service provider market.[189] For example, the agency imposed conditions on large incumbent service providers to which it awarded coveted spectrum bands. Under the terms of the auctioned licenses, AT&T and Verizon generally must now make their networks available to the devices and applications of unaffiliated (and generally smaller) competitors.[190] Much more recently, the U.S. Court of Appeals for the D.C. Circuit affirmed an FCC rule that imposed obligations on those same two providers to make their networks available to competitors for "data roaming" on a "commercially reasonable" basis.[191] These regulations expand carriers' previous obligation to offer roaming agreements to other carriers for simply mobile voice service.[192] The newest FCC rules impose similar obligations on mobile data providers, assuring that subscribers of smaller carri-

188. *See* 47 U.S.C. § 309(j)(3) (2012) ("For each class of licenses or permits that the Commission grants through the use of a competitive bidding system, the Commission shall, by regulation, establish a competitive bidding methodology.").

189. *See, e.g.*, Promoting Interoperability in the 700 Mhz Commercial Spectrum, 27 FCC Rcd. 3521 (2012); Service Rules for the 698–806 MHz Band, Revision of the Commission's Rules Regarding Public Safety Spectrum Requirements, and a Declaratory Ruling on Reporting Requirement under the Commission's Anti-Collusion Rule, 72 Fed. Reg. 48,814, 48,818 (Aug. 24, 2007) ("Open Platforms for Devices and Applications"); *see also* Crawford, *supra* note 92, at 995-99; Tim Wu, *Wireless Carterfone*, 1 INT'L J. COMM. 389 (2007). These competition-bearing obligations are distinct from the common carrier obligations that the FCC imposes on wireless voice service and other "commercial mobile services." *See* 47 U.S.C. §§ 332(c)(2), 332(d)(3). It is worth nothing here that the Federal Trade Commission has entered into consent decrees with smartphone and tablet manufacturers over privacy and security concerns. *See, e.g.*, HTC America Inc., 2013 WL 3477025, at *8 (F.T.C. June 25, 2013); *see also Mobile App Developers: Start with Security*, FED. TRADE COMMISSION (Feb. 2013), http://business.ftc.gov/documents/bus83-mobile-app-developers-start-security.

190. The FCC arguably imposed conditions on the winning bids because of the relative influence of a single high-profile reserve bid by Google. *See* Sandro Brusco et al. *The 'Google Effect' in the FCC's 700 MHz Auction*, 21 INFO. ECON. & POL'Y 101, 112-13 (2009).

191. Cellco P'ship v. FCC, 700 F.3d 534, 538 (D.C. Cir. 2012) (reviewing on appeal Reexamination of Roaming Obligations of Commercial Mobile Radio Serv. Providers & Other Providers of Mobile Data Servs., 26 FCC Rcd. 5411 (2011)).

192. *See* Reexamination of Roaming Obligations of Commercial Mobile Radio Serv. Providers & Other Providers of Mobile Data Servs., 25 FCC Rcd. 4181, 4190-4201 (2010).

ers remain connected to the Internet when traveling outside of their home networks.[193]

These two actions illustrate the important but narrow set of competition-related public interest obligations that the FCC has imposed on carriers in the auction era. The FCC has done little else to incorporate other public interest concerns in the competitive bidding process. It certainly has done little to assure the "best practicable service" to local communities or to incorporate local public participation in spectrum use decisions.[194] Of note, during the past decade, the agency opened inquiries into low power broadcast radio use, as well as local public interest programming and related obligations.[195] However, these efforts fizzled. In the auction era, the Commission has simply chosen to turn its attention to such considerations as it sees fit—which, as it turns out, is a rare occurrence.[196]

There are recent glimmers of hope, however. In its recent effort to clear by incentive auction the spectrum band currently used exclusively by over-the-air broadcasters, the agency is considering the possibility of prioritizing low power television stations if they would be "the only local, over-the-air television service" in the community.[197] Of course, it is not much trouble for the agency to have the small slice of spectrum that already supports over-the-air broadcasting continue doing so. However, this particular policymaking effort bespeaks the agency's recognition that federal spectrum administration ought to consider "the information needs of local communities."[198] The real challenge is in implementing that concern systematically.

Part Three below takes up this challenge. There, I consider omissions in current federal spectrum administration as an invitation to recommend ways in which local communities might bring their priorities to spectrum administration through extant processes in public law administration. Again, this

193. Reexamination of Roaming Obligations of Commercial Mobile Radio Serv. Providers & Other Providers of Mobile Data Servs., 26 FCC Rcd. 5411, 5411 (2011).

194. *Cf.* NBC v. United States, 319 U.S. 190, 216 (1943).

195. *See* Broad. Localism, 19 FCC Rcd. 12425 (2004); Creation of Low Power Radio Service, 15 FCC Rcd. 2205 (2000); Press Release, Fed. Commc'ns Comm'n, FCC Chairman Powell Launches "Localism in Broadcasting" Initiative (Aug. 20, 2003), http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-238057A1.pdf.

196. Some of this is not the agency's own doing. There is very little it can do, for example, to establish race- or gender-based "preferences" in auction design pursuant to Supreme Court precedent. *See* Adarand Constructors, Inc. v. Pena, 515 U.S. 200, 235 (1995); *see also* Omnipoint Corp. v. FCC, 78 F.3d 620, 632-33 (D.C. Cir. 1996) (finding that FCC's decision to remove advantages for women and racial minorities in competitive bidding process is neither arbitrary nor capricious).

197. Incentive Auctions NPRM, *supra* note 5, at 12476.

198. Waldman, *supra* note 154; *see* Incentive Auctions NPRM, *supra* note 5 at 12362. In the same notice, the agency does throughout recognize the pertinence of geographic contingency, but mostly as a matter of engineering. For example, it also invited comment on a "use it or share it" policy that would permit third parties to make use of unused spectrum on a localized basis until a licensee begins providing service in those areas. *See id.* at 12490-91.

contrasts the arguments made by scholars about the new orthodoxy that, I argue, distort our understanding of public lawmaking through their focus on the objective efficiency of the new technologies.

III. Spectrum Technology for Living Communities

Proposals for unlicensed use owe something to the more general claims about the liberating possibilities of networked computing and communications. In the late 1990s, prominent legal scholars argued that the technological design of the Internet determines online behavior as much if not more than social norms, the market, or government-promulgated law.[199] The choices that users make when they are online, they argued, are defined above all by the computer code on which any site or application is based. In this regard, software code and technological design are the most effective regulators of online behavior, functioning as a *Lex Informatica*.[200] Accordingly, they concluded, it is incumbent on legislators and policymakers to develop flexible and context-specific regulatory regimes that accommodate new services and technologies.[201]

This argument has a lot of merit. After all, scholars have long pondered about the unidirectional relationship between technological change and government regulation, well before the advent of networked computing and communications.[202] By the end of the 1990s, the Internet already had upended the political economy of the distribution of at least news and music and emerged as an unprecedented platform for communication and information sharing, undeterred by extant laws against unlicensed distribution of proprietary content. "Cyberspace," as one writer brashly put it, is a place where traditional "legal concepts of property, expression, identity, movement, and context do not apply."[203] For example, emergent Internet-based peer-to-peer file-sharing applications were notoriously indifferent to statutory protections for copyrighted works.[204] They naturalized behavior that was otherwise forbidden by law.

In the tumultuous environment of fifteen years ago, it was not hard to imagine that, if the Internet could unsettle the legal protections to which the

199. Lawrence Lessig, *The Law of the Horse: What Cyberlaw Might Teach*, 113 HARV. L. REV. 501, 509-11, 521-22, 530-31 (1999).

200. *See* Joel Reidenberg, *Lex Informatica: The Formulation of Information Policy Rules Through Technology*, 76 TEX. L. REV. 553, 555 (1998).

201. Lessig, *supra* note 199, at 513-14, 533; Reidenberg, *supra* note 200.

202. *See, e.g.*, WILLIAM F. OGBURN, ON CULTURE AND SOCIAL CHANGE: SELECTED PAPERS 30–31 (1964).

203. JOHN PERRY BARLOW, DECLARATION OF THE INDEPENDENCE OF CYBERSPACE (Feb 8, 1996), *available at* https://projects.eff.org/~barlow/Declaration-Final.html.

204. LAWRENCE LESSIG, CODE VERSION 2.0 175 (2006). Policymakers took these recommendations for reform seriously enough to incorporate them in laws governing intellectual property enforcement. *See, e.g.*, 17 U.S.C. § 1201(a) (2012); *see also* Gideon Parchomovsky & Philip J. Weiser, *Beyond Fair Use*, 96 CORNELL L. REV. 91, 117-18 (2010).

publishing, music, and film industries were long entitled, contemporaneous innovations in smart spectrum sharing technology could do the same to FCC command-and-control licensing. Indeed, for unlicensed use advocates in particular, the growth of networked computing is of a piece with the new smart spectrum sharing technologies.[205]

As with the code-as-law argument, however, the new orthodoxy is weakest when it is premised on the idea that the mere existence of the new technology ought to direct reform. The prevailing view is that policymakers will have done essentially all they ought once they just start allowing service providers, device manufacturers, and consumers to use the new spectrum sharing technologies, unimpeded by inflexible government mandates.[206] Scholars anticipate that service providers and wireless devices in a liberated regulatory environment will actualize real consumer demand and maximize social efficiency.[207] Under the prevailing view, the FCC and the National Telecommunications and Information Administration (NTIA) would have a very limited role; they would facilitate mobile wireless broadband adoption by prohibiting harmful technological interference standards (under the unlicensed use approach), or defining and enforcing clear property rights (under the spectrum-as-property approach), or just getting out of the way.

To be sure, public law promulgated by the FCC is important because it can help redress technical resource administration problems like frequency scarcity and interference. It also can facilitate innovation through the clear articulation of property rights. But these proposals are incomplete for two main reasons. First, they ascribe too much power to the new technologies. These proposals recognize that the design of networked communication technologies is value-laden (*i.e.*, not neutral) and, for that reason, has important implications for policy and politics.[208] But they understate the extent to which the process of integrating spectrum administration technologies in public life is indeterminate and contested. They seem to overlook that new technologies, as with all technologies, are put to varying and sometimes conflicting purposes by people and institutions in real places with a particular permutation of demographic, environmental, and commercial interests.[209]

---

205. *See* BENKLER, *supra* note 53, at 87-89, 153-54. *Cf.* Kevin Werbach, *Castle in the Air: A Domain Name System for Spectrum*, 104 NW. U. L. REV. 613, 631 (2009) (arguing that spectrum administration should be styled after ICANN's administration of assigned IP numbers).

206. *See, e.g.*, Hazlett & Leo, *supra* note 3, at 1069-72 (discussing how spectrum sharing or "overlay" technology will effectively "cede the task of spectrum reallocation to markets").

207. *Id.* at 1053 (quoting Ronald H. Coase, *The Federal Communications Commission*, 2 J.L. & ECON. 1, 27 (1959)).

208. *See* BENKLER, *supra* note 53; *see also* CLAY SHIRKY, HERE COMES EVERYBODY: THE POWER OF ORGANIZING WITHOUT ORGANIZATIONS (2009).

209. *See, e.g.*, John Markoff & Nicole Perlroth, *Firm Is Accused of Sending Spam, and Fight Jams the Internet*, N.Y. TIMES, Mar. 26, 2013, at A1.

Second, the new orthodoxy neglects no less than the constructive purpose of public lawmaking in democracy—that is, it overlooks that public lawmaking processes bring disparate groups and interests together in order to authentic the ultimate substantive policy choice as publicly vetted and collectively joined.[210] My argument here does not require that we return to the midcentury dark ages of federal spectrum administration. Congress and FCC today need not replicate the local comparative hearing, particularly in light of its history of corruption and rent-seeking. That Congress and the FCC accommodated local community participation in the past is suggestive, but not dispositive of its importance. As I show in Part Two above, Congress embedded local community participation in federal spectrum administration in order to integrate the complex technologies of the day into public life. This is an ambition for public lawmaking that ought to remain constant for all time, well after the smartphones of today give way to the next best thing.

The analogy to roads and highways, a common rhetorical move for scholars in this area since the 1920s,[211] is useful to elaborate the point. Advocates of unlicensed use argue that exclusive licensing in spectrum assignment (whether by command-and-control licensing or under a spectrum-as-property system) is akin to designating certain lanes or highways for certain uses, no matter the number of people want to travel in a vehicle or the size of vehicles or the purposes for any given person's travel. Removing all such restrictions would allow the roads to be more effectively used, with different drivers taking routes on the basis of their own best guess about how to get to their destination at any given day under any circumstances.[212] Unrestricted highway access also gives automobile manufacturers the incentive to innovate with different sizes and designs to accommodate different needs and interests, insofar as they also abide by public safety concerns.

---

210. *Cf.* Peter M. Shane, *Cybersecurity Policy as if "Ordinary Citizens" Mattered: The Case for Public Participation in Cyber Policy Making*, 8 J.L. & POL'Y INFO. FOR SOC'Y 433, 439-40 (2012) ("Given the ubiquity of computer networks and our reliance as a society on their integrity and robustness, the quality of *cybersecurity* is an issue that affects everyone's interests. Excluding the general public from any meaningful voice in cyber policymaking removes citizens from democratic governance in an area where our welfare is deeply implicated.") (emphasis added); Olivier Sylvain, *Internet Governance and Democratic Legitimacy*, 62 FED. COMM. L.J. 205, 209-10 (2008) ("communications is one policy area that should always be legitimated one way or another by public processes and not subject to ad hoc liberal deference to nongovernmental self-regulatory organizations. Indeed, as a historical matter, policymakers have implemented public-regarding models particularly because of communications' unique public role.).

211. *Compare* BENKLER, *supra* note 53, at 88, *with* Herbert Hoover, Sec'y of Commerce, Proceedings of the Fourth National Radio Conference and Recommendations for Regulation of Radio, (November 9-11, 1925), at 1, 9-10, *available at* earlyradiohistory.us/1925conf.htm ("We can no longer deal on the basis that there is room for everybody on the radio highways. There are more vehicles on the roads than can get by, and if they continue to jam in all will be stopped.").

212. *See, e.g.*, BENKLER, *supra* note 53, at 88.

Advocates for spectrum-as-property, on the other hand, argue that spectrum could be regulated like roads only if smart sharing technologies truly make spectrum frequencies non-excludable and non-rivalrous in a way that makes free-riding and the private provision of the service unlikely.[213] But the analogy to roads is inapt, they argue, because, under the current state of the technology, interference and free-riding continue to be a problem, even under unlicensed use.[214]

The approach I advocate here would recognize that our highways and their use are highly regulated and monitored to ensure car safety and traffic flow. Federal, state, and local agencies are deeply involved in making regulatory decisions about roads, no matter the improved quality of highway construction material or advances in public safety technologies.[215] Transportation infrastructure is rich with problems that are classically assigned to legislatures and rulemaking agencies because of their broad, polycentric character—the very attributes that make roads a public good in the classical economic sense.

But beyond this, *local* communities participate in transportation infrastructure planning because of its demographic, environmental, and commercial impact on the communities it serves and through which it passes, no matter the developments in the technologies for global positioning systems or robotics. Indeed, in most places around the world, transportation infrastructure design is as much an endeavor in civic identity formation as are public safety regulation and utilitarian traffic management. Sustainable transportation infrastructure design must adapt to idiosyncratic local considerations, including neighborhood contiguity, the physical integrity of shared spaces, population density, topology, safety, environmental justice, and economic development.[216]

Current proposals for spectrum administration reform release the FCC from the obligation to consider analogous local contingencies in the context of spectrum infrastructure design and use. Under a pure property rights regime, those decisions would be made by spectrum brokers—buyers and sellers—who owe no duty to local communities as a matter of course. Pursuant to auction, exclusive licenses can be national or just regional in scope, but the underlying assumption is that, for all awarded through auction at least, the unobstructed price mechanism provides the most reliable signal about

213. *See* Hazlett & Leo, *supra* note 3, at 1082-85.

214. *Id.*

215. *See, e.g.*, Federal Motor Vehicle Safety Standard, Rearview Mirrors; Federal Motor Vehicle Safety Standard, Low-Speed Vehicles Phase-In Reporting Requirements, 75 Fed. Reg. 76,185 (proposed Dec. 7, 2010) (to be codified at 49 C.F.R. pts. 571 & 585).

216. *See* Susan Hanson, *The Context of Urban Travel: Concepts and Recent Trends*, in THE GEOGRAPHY OF URBAN TRANSPORTATION 12-19 (Susan Hanson & Genevieve Giuliano eds., 3d ed. 2004). *See generally* JANE JACOBS, THE DEATH AND LIFE OF GREAT AMERICAN CITIES 14, 428-48 (1961) (arguing that city planning must attend to the "intricate and close-grained diversity of uses"); *id.* at 428-48 (discussing the complexities of city planning).

how or whether buyers or producers should adjust their services and devices in real time.[217] In turn, property rules are presumed to be the remedy for spectrum underuse and overuse; they are the ostensible antidote for inefficiency.[218] As such, the spectrum-as-property approach returns us to the era before Congress passed the 1927 Radio Act or the 1934 Communications Act (or, for that matter, the 1946 Administrative Procedure Act) when there was no formalized administrative mechanisms other than the operation of property law that mediated the acquisition and assignment of licenses in the secondary market, let alone accommodated local public participation.[219]

Similarly, under an unlicensed use regime, standard-setting organizations (perhaps in collaboration with the FCC) would in the first instance set the rules governing spectrum use.[220] At least theoretically, these rules would depend largely on the consensus view among nongovernmental stakeholders about how sophisticated the devices ought to be and the purposes to which devices would be put. But, again, the standard would be sealed away from the conventional public lawmaking processes. Nothing would require that they do anything more as a matter of course.

In this Part, I attempt to rectify this failure. First, I sketch the normative basis for public accountability of agency action by citation to foundational administrative law theory and doctrine, at a minimum to underscore that Congress and the courts have a rich vocabulary for articulating when a regulatory regime or discrete agency action is inadequately attentive to public participation or accountability. This section is not a thorough accounting of the lawfulness of FCC spectrum auctions under administrative law as much as a review of the places in the doctrine where some of these tensions lie.

This analysis sets up a more assertive argument for incorporating contemporary norms and trends in administrative law governance today—namely, local participation in federal policymaking. As there is not the slightest recognition of this inattention in current reform proposals, Part III.B begins the work of imagining a formal structure for federal spectrum administration that accommodates local community participation in the first instance. This Part serves as an outline of the more ambitious project about how best to orient wireless administration towards the priorities of local communities. Municipal governments, I speculate, might be best suited to filling the gap. This Part does not recommend an exhaustive or definitive regulatory arrangement or process, but only the outlines of what such an arrangement should entail. It shows that the work that municipalities already

217. *Cf.* F.A. Hayek, *The Use of Knowledge in Society*, 35 AMER. ECON. REV. 519 (1945).

218. Hazlett & Leo, *supra* note 3, at 1053 (citing Garret Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243 (1968)); *id.* at 1066 (quoting CHARLES WOLF, JR., MARKETS OR GOVERNMENTS: CHOOSING BETWEEN IMPERFECT ALTERNATIVES 57 (1988)).

219. *See supra* Part II.A.

220. *See* PCAST Report, *supra* note 15, at 15, 24.

are doing to facilitate the provision of broadband network service to their residents suggests an institutional competence that should be integrated into federal spectrum administration reform as a matter of course.

A. *Public Participation in Federal Spectrum Administration*

Current proposals for federal spectrum administration reform flout, or at least are in tension with, basic tenets and norms in administrative law doctrine, including public accountability, reason-giving, and nondelegation. This section below briefly identifies some of these tensions and sets the stage for a more elaborate discussion in Part III.B below.

1. Public Accountability

The courts are precluded from questioning "the fine utilitarian calculus" generally reserved for the political branches, particularly on the finest policy problems that Congress delegates to agencies.[221] Even the Supreme Court has explained that it is not "qualified to second-guess Congress regarding the permissible degree of policy judgment that can be left to agencies."[222] The basic idea is that, in the absence of a clear legislative command, independent agencies like the FCC ought to be able to bring to bear their unique expertise and institutional competence to accomplish objectives set out by Congress, without worrying about political ramifications or that a court will invalidate an action on substantive grounds.[223] Independent agencies like the FCC are expected to do their work relatively free from politics or even the heavy-handed influence of the President.[224]

The auction authorization under the Communications Act seems to square easily with this conception. Congress granted the FCC wide discretion to design the processes through which spectrum bands are licensed to auction bidders.[225] The same is true for the agency's authority to carve out spectrum bands for unlicensed use since there is nothing in the Communications Act that prohibits the agency from doing so. The President and the FCC have explicitly observed that the agency should explore unlicensed use regimes in their effort to make available 500 megahertz of frequency for

221. Tenn. Valley Auth. v. Hill, 437 U.S. 153, 187 (1978).

222. Whitman v. American Trucking Assocs., 531 U.S. 457, 474-75 (citing Mistretta v. United States, 488 U.S. 361, 416 (1989)); *see also* Industrial Union Dept. v. American Petroleum Inst., 448 U.S. 607, 685 (1980) (Rehnquist, J., concurring) (among the "three important functions" of the nondelegation doctrine is to "ensure to the extent consistent with orderly governmental administration that important choices of social policy are made by Congress, the branch of our Government most responsive to the popular will.").

223. *See* FCC v. Pottsville Broadcasting Co., 309 U.S. 134, 138 (1940) (the 1934 Communications Act is a "supple instrument for the exercise of discretion by the expert body which Congress has charged to carry out its legislative policy.").

224. *See* FCC v. Fox Television Stations, Inc., 556 U.S. 502, 523, 540 (2009) ("The independent agencies are sheltered not from politics but from the President.").

225. *See* 47 U.S.C. 309(j)(3) (2012).

commercial mobile and fixed wireless broadband use by 2020.[226] Courts will likely defer to the agency's decision to clear spectrum bands for unlicensed use in furtherance of this stated policy objective,[227] particularly as the FCC has for decades now allocated spectrum bands for unlicensed use without controversy.[228]

These deference norms, however, operate alongside a structure under the Administrative Procedure Act that explicitly provides for the participation of "interested persons" of the public in agency deliberations, including rulemakings.[229] Congress passed the APA in order to keep the public apprised of agency action, provide the public an opportunity to participate in the rulemaking process, and standardize administrative practice (including public participation) among the diverse agencies.[230] Even in legislative fields for which agency expertise is at a premium, Congress decided that agency action generally must be held accountable to the public, even if legislators did not impose on agencies "the full panoply of procedural devices."[231] Congress ensured instead that the public has a minimum of information about agency organization and rules.[232] Of course, when Congress passed the APA in 1946, it did not anticipate the important role that other methods of controlling administrative action (namely executive, legislative, and internal supervision) would have in the decades that followed the APA's passage.[233] But there can be little doubt that the participation of the public in rulemakings has always been considered essential.[234] The chief question among scholars has been whether this accountability is best achieved through accountability to the political branches or the rigorous judicial enforcement of administrative procedures.[235]

---

226. *See* FED. COMMC'NS COMM'N, *supra* note 24, at 83; Memorandum from President Barack Obama: Unleashing the Wireless Broadband Revolution, *supra* note 22.

227. *See* 5 U.S.C. § 706(2)(A) (2012); *see also* Motor Vehicle Mfrs. Assoc. of the U.S. v. State Farm Mut. Auto Ins. Co., 463 U.S. 29 (1983).

228. *See supra* notes Part I.B.

229. 5 U.S.C. § 553(c).

230. *See* Wong Yang Sung v. McGrath, 339 U.S. 33, 41 (1950); DEPARTMENT OF JUSTICE, ATTORNEY GENERAL'S MANUAL ON THE ADMINISTRATIVE PROCEDURE ACT (1947).

231. *See* Vermont Yankee Nuclear Power Corp. v. NRDC, 435 U.S. 519, 544-48 (1978). Nor are courts permitted to impose any more than what the APA and the respective enabling statute require. *Id.* at 524.

232. *Id.* at 524.

233. *See* Emily Hammond Meazell, *Presidential Control, Expertise, and the Deference Dilemma*, 61 DUKE L.J. 1763 (2012); Edward Rubin, *It's Time to Make the Administrative Procedure Act Administrative*, 89 CORNELL L. REV. 95, 101 (2003); *see also* Lisa Schultz Bressman & Michael P. Vandenbergh, *Inside the Administrative State: A Critical Look at the Practice of Presidential Control*, 105 MICH. L. REV. 47 (2006); Note, *OIRA Avoidance*, 124 HARV. L. REV. 994 (2011).

234. 5 U.S.C. § 553(c).

235. Lisa Schultz Bressman, *Procedures as Politics in Administrative Law*, 107 COLUM. L. REV. 1749, 1766-67 (2007).

2. Reason-Giving

Congress further underscored the importance of public participation by imposing on agencies the obligation to justify their actions with reasons. Agencies must describe "the terms or substance" or "the subjects and issues" regarding the subject matter of a proposed rule.[236] They also must provide a "concise general statement" supporting any final new rule.[237] The Court has also explained that agency actions must be guided by statutory authority and subject matter expertise in order to afford members of the public the opportunity to understand and, if necessary, challenge discrete agency actions.[238] These guidelines provide courts with the standards by which to scrutinize those actions. The standards for agency adjudications (and licensing) are even higher.[239]

These requirements suggest that regulators' decisions cannot be insulated from the scrutiny of public reason. Indeed, the failure to publish the reasons for an action to the public exposes that action to remand, reversal, or vacatur by a court.[240] Even while the standard of judicial review of rules is generally understood to be quite deferential to agencies,[241] courts also must ensure that agencies take into account the "relevant factors" of the subject legislative field and are not arbitrary.[242] The FCC subjects spectrum auctions to public scrutiny to the extent it affords opportunity for comment on auction design, publishes the names of the bidders, the bid amounts, and the eventual winners.[243]

As rationalized as this process is, however, the FCC does not render substantive decisions about which individual bidders should receive a license by engaging in the kind of agency reason-giving as suggested by the APA. Rather, the award of licenses is a function of the design of the auction and the market pressures that influence bids—it is not the subject of agency judgment, as Congress appears to have meant under the reason-giving provisions of the APA. As I explain above, reformers in the 1990s sought to incorporate auctions in the licensing process in order to ensure that licenses went to applicants who valued the subject frequencies most. At a minimum,

---

236. *See* 5 U.S.C. § 553(b)(3).

237. *See id.* § 553(c).

238. *See* SEC v. Chenery, 332 U.S. 194 (1947); *see also* SEC v. Chenery, 318 U.S. 80 (1943).

239. *See* 5 U.S.C. §§ 554, 556, 557; *see also id.* § 551(6) (defining agency orders, the final disposition of an adjudication, to include licensing).

240. *See* 5 U.S.C. § 706(2)(A); *see also* United States v. Nova Scotia Food Prods. Corp., 568 F.2d 240 (2d Cir. 1977) (vacating agency rule for failure to adequately "ventilate" the underlying major issues of policy).

241. *See, e.g.*, Chevron v. NRDC, 467 U.S. 837 (1984).

242. 5 U.S.C. § 553(c); *see also* Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29, 42-43 (1983); Ethyl Corp. v. EPA, 541 F.2d 1 (D.C. Cir. 1976); Citizens to Pres. Overton Park, Inc. v. Volpe, 401 U.S. 402, 416 (1971).

243. *See supra* Part II.C.

however, the auction regime does not jive perfectly with a statutory scheme that requires agencies to employ their reasoned judgment, rather than the price mechanism that guides the outcome of auctions.

3. Nondelegation

Another foundational principle in administrative law counsels against insulating agency decision-making in ways that the new orthodoxy suggests. Consider some of the recent scholarship on nondelegation. As marginalized as that constitutional rule has been in the courts over the past several decades, it has retained an important place in legal scholarship.[244] Scholars have argued that the nondelegation doctrine allows legislatures to distribute rights without imposing proportionate duties. For example, Congress can take political credit for enacting a law that will clean the air, but, through delegation to agencies, it can avoid the political costs of actually implementing restrictions on polluters or increasing prices for consumers.[245] In this way, Congress routinely defers the harder task of defining and imposing affirmative duties to agencies. This is arguably a constitutionally dubious practice "when the lawmakers we elect have others make the law."[246] In this vein, Congress's decision to authorize the FCC to administer spectrum auctions or make unlicensed use regimes available releases it from the political costs of doing so directly.

But the argument that legislatures should internalize costs to assure political accountability is only persuasive to the extent the costs of public participation at the agency level are higher than the costs of lobbying legislators. Under the APA or under formal agency-specific rulemaking regulations, public participation at the agency level is not as costly. Administrative agencies generally are quite accessible to public participation through notice and comment proceedings, for example.[247] Today, members of the public may also now submit comments online in response to an agency notice of proposed rulemaking or initiate a petition through the "We the People" website to have the White House respond to question or request for action.[248] In the context of auctions, for example, members of the public

244. *See, e.g.*, Cass R. Sunstein, *Nondelegation Canons*, 67 U. CHI. L. REV. 315, 315 (2000) (arguing that, while the Court has not relied on the nondelegation doctrine to strike down an act of Congress since 1935, the doctrine "is alive and well" through "a series of more specific and smaller, though quite important, nondelegation doctrines."); *see also* Jody Freeman, *Extending Public Law Norms Through Privatization*, 116 HARV. L. REV. 1285 (2003); Gillian E. Metzger, *Privatization as Delegation*, 103 COLUM. L. REV. 1367 (2003).

245. DAVID SCHOENBROD, POWER WITHOUT RESPONSIBILITY 183-84 (1993).

246. *Id.*

247. *See* 5 U.S.C. § 553(b)-(c).

248. *See Send Us Your Comments*, FED. COMM. COMMISSION, http://www.fcc.gov/comments (last visited Aug. 18, 2013); *We the People: Your Voice in Our Government*, THE WHITE HOUSE, https://petitions.whitehouse.gov/ (last visited Aug. 18, 2013); *see also* Memorandum on Transparency and Open Government from Barack Obama, President of the United

may petition to modify the auction process for any given spectrum band and seek conditions on licensees.[249] For a variety of reasons, the costs of gaining lawful access to members of Congress or their staffs are in fact far higher than those for gaining access to agency officials.[250] In short, the structure of the administrative state today makes it difficult for legislatures to pass the buck to agencies, even in the context of the FCC's administration of spectrum.

4. Balancing Accountability, Independence, and Flexibility

Historically, scholars of the administrative state have conceived of agencies as specialized forums in which impassive expertise ought to prevail over public opinion or political fiat.[251] "Bureaucracy," Woodrow Wilson wrote, "can exist only where the whole service of the state is removed from the common political life of the people, its chief as well as its rank and file. Its motives, its objects, its policy, its standards, must be bureaucratic."[252]

The Court has ratified the view that agencies should be sealed off from undue intrusion in agency work. For example, they have warned against undue legislative meddling with agency authority to execute or implement law.[253] The idea here is that, through presentment under Article One of the Constitution, the President stands as a legitimate spokesperson for a "national perspective" that would otherwise be neglected by the more parochial interests of members of Congress.[254]

The courts also have argued for limited judicial intrusion on agency work, even when they are asked to review substantive agency action.[255] In those cases, the Supreme Court has observed that, to the extent the pertinent statutory authorities are ambiguous, courts should defer to executive agencies' interpretations because the latter actually have some structural relationship to electoral politics.[256] In this conception, judges have no constituency.[257] When an agency radically alters an essential characteristic

---

States of America, for the Heads of Executive Departments and Agencies, 74 Fed. Reg. 4685 (Jan. 21, 2009).

249. *See* Brusco et al., *supra* note 190, at 2.

250. Brian Galle & Mark Seidenfeld, *Administrative Law's Federalism: Preemption, Delegation, and Agencies at the Edge of Federal Power*, 57 DUKE L.J. 1933, 1958-59 (2008).

251. Reuel E. Schiller, *The Era of Deference: Courts, Expertise, and the Emergence of New Deal Administrative Law*, 106 MICH. L. REV. 399 (2007); Wilson, *supra* note 128.

252. Wilson, *supra* note 128, at 217.

253. *See, e.g.*, INS. v. Chadha, 462 U.S. 919, 947-48 (1983).

254. *Id.* at 948 (citing Myers v. United States, 272 U.S. 52, 123 (1926)).

255. *See, e.g.*, Chevron v. NRDC, 467 U.S. 837, 865 (1984).

256. *Id.* at 865-866 ("While agencies are not directly accountable to the people, the Chief Executive is, and it is entirely appropriate for this political branch of the Government to make such policy choices—resolving the competing interests which Congress itself either inadvertently did not resolve, or intentionally left to be resolved by the agency charged with the administration of the statute in light of everyday realities.").

257. *Id.* at 866.

of a regulatory regime or promulgates a policy of enormous economic and political significance because the governing statute is ambiguous, however, courts will be more skeptical.[258]

Administrative law doctrine offers more than just these platitudes, however. In a line of scholarship that has clear implications for spectrum-as-property and unlicensed use regimes generally, scholars have identified privatization of agency action as coming dangerously close to undermining the important role of democratic accountability in public lawmaking.[259] Scholars writing in this field recognize that, on the one hand, privatization might actually be an effective way of furthering public objectives and improving government functioning.[260] Yet countervailing norms and interests counsel for preserving "constitutional accountability without sacrificing governmental regulatory flexibility and its associated benefits."[261]

B. *Localism in Federal Spectrum Administration*

Even with these few examples, the section above illustrates that administrative law doctrine provides ample guidance to policymakers and scholars and highlights the neglect of the new orthodoxy. But these traditional doctrinal considerations are abstractions. Contemporary trends in administrative law that policymakers are employing on the ground, day-to-day provide even more support for a nuanced, public-centered approach to federal spectrum administration. Recent cooperative efforts between federal and local governments, particularly in broadband law and policymaking, illustrate how the prevailing spectrum-as-property and unlicensed use approaches fall short.[262]

---

258. FDA v. Brown & Williamson Tobacco Corp., 529 U.S. 120, 160-61 (2000); MCI v AT&T, 512 U.S. 218, 231 (1994); *see also* Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29, 59 (1983) (Rehnquist dissenting) ("A change in administration brought about by the people casting their votes is a perfectly reasonable basis for an executive agency's reappraisal of the costs and benefits of its programs and regulations.").

259. *See, e.g.*, Freeman, *supra* note 244, at 1290-91; Asmara Tekle Johnson, *Privatizing Eminent Domain: The Delegation of a Very Public Power to Private, Non-Profit and Charitable Corporations*, 56 AMER. U. L. REV. 455 (2007); Metzger, *supra* note 244, at 1408.

260. *See, e.g.*, Freeman, *supra* note 244, at 1285; Metzger, *supra* note 244, at 1470.

261. Metzger, *supra* note 244, at 1408. Jody Freeman in particular has proposed three considerations that generally recommend more disclosure and public participation when agencies have delegated substantive decision-making responsibilities to private entities: "(1) the relative precision with which a service can be specified and the extent of the provider's discretion, (2) the potential impact on the consumer, and (3) the government's motivation for privatization." Freeman, *supra* note 244, at 1291. Freeman's formulation is flexible enough to accommodate all manner of regulatory structure, depending on the unique tradeoffs of the particular subject matter. And, indeed, it provides a very useful frame through which policymakers at the FCC and scholars generally can bring to their thinking about the pertinence of public participation in the spectrum-as-property and unlicensed use approaches to federal spectrum administration. *See also* Shane, *supra* note 210, at 441-42 (arguing for more citizen engagement in cyber security policymaking).

262. *See* Sylvain, *supra* note 6, at 805-09.

To be fair, as I assert above, some scholars have acknowledged that the administration of unlicensed spectrum use must attend as a substantive matter to the local conditions that affect use in any given area. For example, Weiser and Hatfield recommend that the FCC enlist volunteers from local communities to act as *de facto* enforcement deputies who patrol for willful or malicious interference.[263] Buck recommends the establishment of "localized spectrum management groups" comprised of service providers and consumer groups that, among other things, would modify agency rules according to local contingencies.[264] He recognizes, for example, that a geographically neutral approach to spectrum allocation (for example, between spectrum bands reserved for forestry communications and those for taxicab communications) or power restrictions applied to all localities irrespective of population density is an ineffective way of administering spectrum.[265]

Neither of these proposals explains how local conditions would be incorporated formally in federal spectrum administration, however. These proposals are silent on the substantive scope of the local groups' discretion and authority, the potential impact their decisions have on spectrum users, and the very reason to delegate that responsibility to any particular nongovernmental group or body. More generally, they do not explain how local volunteers or group members would be chosen, how often they would convene, or how their decisions would be incorporated formally in FCC decision-making and actions. The proposals are silent on such considerations because they conceive of the collection of information about local conditions as incidental to servicing the technical administration of spectrum. They assume that information about local conditions is a substantive instrumental input for the development of device interference standards.

To contrast, I argue that local public participation is important because it provides the best-articulated evidence of local conditions. Local governments are best suited to appreciating the unique characteristics that distinguish their region and constituents from others.[266] Models for such an approach already exist in communications law in the context of local cable franchise authorities and state utility commissions.[267] Other regimes under the Communications Act call on local and state agencies to certify that a provider complies with certain background state or federal requirements.[268] These institutional arrangements abound in other legislative areas as well.

263. Weiser & Hatfield, *supra* note 52, at 693 (citing 47 C.F.R. § 101 (2004) rules on dispute resolution between licensed users of spectrum).

264. Buck, *supra* note 4, ¶¶ 53, 57-62.

265. *Id.* ¶ 53 (citing Lawrence J. White, *"Propertyzing" the Electromagnetic Spectrum: Why It's Important, and How to Begin*, 9 MEDIA L. & POL'Y 19, 25-26 (2000)).

266. *See* Sylvain, *supra* note 6, at 805 (citing, *inter alia*, JAMES E. WILSON, TERROIR: THE ROLE OF GEOLOGY, CLIMATE, AND CULTURE IN THE MAKING OF FRENCH WINES (1999)).

267. *See id.* at 823-31 (discussing provisions in the amended Communications Act).

268. *See, e.g.*, 47 C.F.R. § 51.318(b)(1) (2013) (requiring state certification that local telecommunications carrier provides local voice service in the area); *id.* § 54.404 (stating that

They are manifest in the Environmental Protection Agency's regulation of air and water pollution control and pesticides,[269] as well as in federal grant programs.[270] Moreover, the Department of Transportation authorizes state agencies to establish occupancy requirements of vehicles operating in high occupancy vehicle lanes.[271]

These existing regulatory schemes suggest an alternative to the new orthodoxy in federal spectrum administration to the extent they accommodate local and state government participation. While we might have valid concerns about whether municipalities are the best "spokesentities" for their constituent residents,[272] at a minimum, they demonstrate an acknowledgement among legislators that local communities can play an important, if not determinative, role in public law administration through certifications or the like. There is no such recognition in current debates about reforms to current federal spectrum administration.

But we can say even more about the role of municipal governments, particularly as local broadband infrastructure continues to grow into a key asset in the Internet's maturation.[273] Internet experiences today are determined largely by the physical transmission equipment, towers, and technologies situated in local communities. Accordingly, as consumers demand more Internet content and services, incumbent broadband providers, major Internet stakeholders, and municipal governments are investing heavily in local ultra high-speed, high-capacity infrastructure.[274]

Local governments are initiating efforts to build-out broadband infrastructure for their residents.[275] These efforts should come as no surprise.[276] Municipalities are generally best situated to discover and resolve residents' problems, are familiar with local conditions and priorities, and serve as an

---

state certification allows local telecommunications carriers to waive federal requirements regarding the National Lifeline Accountability Database).

269. *See, e.g.*, 40 C.F.R. §§ 20.3, 20.6, 20.8 (2013); *id.* §§ 171.7-171.8; *id.* § 761.61; *see also* NRDC v. EPA, 279 F.3d 1180 (9th Cir. 2002).

270. *See* Indian Environmental General Assistance Program Act of 1992, 42 U.S.C. § 4368 (b) (2012); 40 C.F.R. § 35.1620-2 (detailing application contents for Clean Lakes Assistance Program grants).

271. *See* 23 U.S.C. § 166 (2012).

272. I am grateful to Peter M. Shane for this term and idea. *See generally* Shane, *supra* note 210, at 453-58 (discussing models for collaboration and consensus-building among experts and laypeople vis-à-vis cyber policy).

273. Sylvain, *supra* note 6, at 798.

274. High profile projects like Google's project to build a model ultra-high-speed broadband network in Kansas City, Missouri, the free wireless network that covers about half of Decatur, Georgia, and the highly regarded mixed wireless-and-wired network in the Chattanooga, Tennessee are illustrative of the these recent efforts, most of which involve private-public partnerships to build local infrastructure.

275. As of February 2013, 342 local governments have invested in wired telecommunications networks. *See Community Network Map*, COMMUNITY BROADBAND NETWORKS, http://muninetworks.org/communitymap.

276. Sylvain, *supra* note 6, at 805-09.

indispensible hub where major anchor institutions, civic groups, and individuals convene.[277]

The trend today is to remove barriers to local participation in infrastructure development. In the past few years, Congress and the FCC have developed strategies to encourage private and public investment in local broadband networks.[278] For example, Congress created an agency-administered grant-making program through the 2009 American Recovery and Reinvestment Act to support the build-out of "middle-mile" and "last-mile" broadband networks. It is now also considering grant-making programs that would support broadband wiring along roads and mandates for equipping federal public buildings with wireless service.[279]

For its part, the FCC has launched a series of initiatives aimed at partnering with local governments to accelerate broadband adoption and service for underserved communities,[280] improving subsidy programs for public libraries, schools, and high-cost service areas, and updating the rules governing utility poles, rights-of-way, collocation, and the siting of wireless antennas and towers.[281] The Commission also will lead an effort among federal agencies to increase broadband speeds and alleviate Wi-Fi congestion at large quasi-public spaces like airports and convention centers.[282] All of these efforts benefit from active local municipal participation. Such projects would not succeed without the unique institutional competence that municipal governments bring to any infrastructure project.

There is another direct and structurally sustainable way in federal spectrum administration to engage local governments and groups in the effort to accelerate broadband adoption and service. As with their federal counterparts, local government agencies have at their disposal their own federally

277. William W. Buzbee, *Urban Sprawl, Federalism, and the Problem of Institutional Complexity*, 68 FORDHAM L. REV. 57, 92–94 (1999)); Ashira Pelman Ostrow, *Process Preemption in Federal Sitting Regimes*, 48 HARV. J. ON LEGIS. 289, 296 (2011); *Sylvain*, supra note 6, at 823 (citing Jonathan H. Adler, *Judicial Federalism and the Future of Federal Environmental Regulation*, 90 IOWA L. REV. 377, 384–87, 384 n.35 (2005)).

278. *See* Press Release, Fed. Commc'ns Comm'n, Statement from FCC Chairman Julius Genachowski on Proposed Municipal Broadband Legislation (Feb. 15, 2013), *available at* http://transition.fcc.gov/Daily_Releases/Daily_Business/2013/db0215/DOC-318975A1.pdf.

279. *See* Federal Wi-Net Act, S. 3439, 112th Cong. (2012); Broadband Conduit Deployment Act of 2011, H.R. 1695, 112th Cong. § 330(a) (2011).

280. *See About Us*, CONNECT2COMPETE, http://www.connect2compete.org/about/index.php (last visited Aug. 16, 2012).

281. Inquiry Concerning the Deployment of Advanced Telecomm. Capability to All Am. in a Reasonable & Timely Fashion, & Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecomm. Act of 1996, As Amended by the Broadband Data Improvement Act, 26 FCC Rcd. 8008, 8012-13 (2011); *see* 47 U.S.C. § 332(c)(7) (2012).

282. *See* 2013 U-NII NPRM, *supra* note 5, at 1771; *see also* Press Release, Fed. Commc'ns Comm'n, FCC Chairman Julius Genachowski Announces Major Effort To Increase Wi-Fi Speeds and Alleviate Wi-Fi Congestion at Airports, Convention Centers, and in Homes with Multiple Devices and Users (Jan. 9, 2013), *available at* http://www.fcc.gov/document/chairman-announces-effort-increase-wi-fi-speeds.

licensed spectrum that they use to perform their constitutionally reserved police powers, including public safety, fire protection, medical and ambulance services, traffic control, and sanitation.[283] Thanks to smart spectrum sharing technologies, municipalities can now make available for secondary uses any unused portions of the spectrum bands reserved for local governments.

For example, municipalities could directly encourage unlicensed mobile wireless broadband access in public schools and for public employees, and reclaim such spectrum when necessary. They could also make parts of their licensed spectrum available to wireless broadband service providers who, in turn, could use those municipal frequencies to off-load some of the data traffic, reduce network congestion, and improve quality of service.[284] Wired broadband network service providers, too, could benefit from this municipally-administered provisioning.[285] The FCC also could adopt a more aggressive outlook on municipal administration of infrastructure by initiating a rulemaking to determine how municipalities can encourage secondary uses at the local levels, including the development of private networks to support unlicensed use and the provision of service in and along public and quasi-public spaces like parks, major thoroughfares, schools, convention centers, and hospitals.

With all of these potential possibilities, local governments would have an invaluable role to play in expanding broadband adoption and use. Assuming that different localities employ just one or some of these options, the diversity of experiences across the country would provide an important opportunity for "intergovernmental learning" between municipalities about how best to develop and make broadband access more available to local residents across the country, and which uses are best suited to the different bands of the spectrum.[286]

The developments in broadband infrastructure development and possibilities for opening spectrum currently licensed to local governments strongly suggest that municipal governments should participate in federal spectrum administration. Yet there is no provision or clear institutional mechanism in the new orthodoxy that integrates municipal governments (or any similar local entity) in decision-making. Local participation has been the modus operandi for Congress and the FCC in the context of broadband network infrastructure development in recent years generally. For that rea-

283. *See* 47 C.F.R. § 90.20 (2013).

284. 2013 U-NII NPRM, *supra* note 5, at 1794.

285. *See, e.g.*, Ellis Smith, *City Builds WiFi Network*, CHATTANOOGA TIMES FREE PRESS, (July 17, 2011), http://www.timesfreepress.com/news/2011/jul/17/city-builds-wifi-network/?business (describing effort in Chattanooga to use $30 million in federal and state grants to install 220 wireless routers, or access points, throughout the city).

286. Sylvain, *supra* note 6, at 821 (citing, *inter alia*, Michael C. Dorf & Charles F. Sabel, *A Constitution of Democratic Experimentalism*, 98 COLUM. L. REV. 267, 321 (1998)).

son, legislators and regulators should require the same in federal spectrum administration.

CONCLUSION

We should be past the time of enthrallment with new smart spectrum sharing technologies. As transformational as they may be for how we interact with each other, policymakers must now put them to work for communities. In order to do that, scholars and policymakers must incorporate extant conventions in public lawmaking, including creating opportunities for systematic local public participation, without compromising the ability of engineers and entrepreneurs to continue to innovate.