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The Information Society: An International Journal
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/utis20

The Internet Defends Itself: The Network Neutrality Debate on the Web

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Published online: 31 Jan 2014.

To cite this article: Bill D. Herman & Minjeong Kim (2014) The Internet Defends Itself: The Network Neutrality Debate on the Web, The Information Society: An International Journal, 30:1, 31-44, DOI: 10.1080/01972243.2013.855687

To link to this article: http://dx.doi.org/10.1080/01972243.2013.855687

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The Information Society, 30: 31–44, 2014
Published with license by Taylor & Francis
ISSN: 0197-2243 print / 1087-6537 online
DOI: 10.1080/01972243.2013.855687

Routledge
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The Internet Defends Itself: The Network Neutrality Debate on the Web

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This study examines the network neutrality debate, as represented online. The research begins by conducting network analysis to identify key websites, followed by retrieving the relevant documents and using content analysis. Results demonstrate that the online version of the debate skews heavily toward the pro-network neutrality side. The web debate also includes much higher proportions of voices from nonprofit sectors, especially nongovernmental organizations. Telecommunications companies and trade groups, which anchor the anti-network neutrality coalition, are relatively quiet online. These findings show groups that are less powerful making heavy use of online communication and, in light of the political history of the issue, they also suggest online mobilizing may help reshape the dynamics of issue advocacy.

Keywords: Internet advocacy, lobbying, network neutrality, online research methods, policy studies, political mobilization

Since Tim Wu (2003) coined the phrase "network neutrality" (NN), the debate has moved from the academic and technical margins to the political mainstream. Broadly speaking, a neutral network moves all bits on a first-come, first-served basis—data from all websites, as well as all kinds of data, from Web browsing and e-mail to peer-to-peer traffic and voice or video chats. In contrast, a non-neutral network is one that prioritizes, deprioritizes, or blocks some data because of the data's source, destination, or content. The Internet has historically been mostly neutral; Internet service providers (ISPs) may filter illegal or harmful content, such as spam and viruses, but they have generally transmitted other bits on a relatively equal basis. Because of several deregulatory Federal Communications Commission (FCC) decisions in the early 2000s, however, there is no clear legal or market pressure forcing ISPs to continue NN going forward (Herman 2006). Thus, many who value the relative equality of treatment in Internet content have called for NN to be enshrined in law and regulations, whether by statute or by the FCC.

This study is not a recap of the NN debate (Wu and Yoo 2007) or a case study of the NN policy process (Hart 2011). Rather, we study the NN debate as it is happening online. Internet mobilization has played an important role (Hart 2011), but that mobilization has not itself been the subject of rigorous study. This is surprisingly common; "while recent literatures on global civil society and social movements contain numerous allusions to the importance of information technology (IT) in *enabling* activism," comparatively little "of this literature looks at communications and information policy as *object* of activism" (Mueller, Page, and Kuerbis 2004, 170). We thus seek to build on the theories and tools from the study of Internet activism to look at how Internet policy activists have used digital tools in their own efforts to seek change.

POLICY ADVOCACY AND THE INTERNET

Since the turn of the century, "the use of Internet activism has exploded. . . . At the same time, scholarly interest in 'Internet activism' has grown markedly" (Earl, Kimport, Prieto, Rush, and Reynoso 2010, 425). The new

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Received 8 February 2012; accepted 7 August 2013.
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information and communication technologies (ICTs) have undeniably changed the landscape on which organizations are created, behave, and survive—or fail. One must first understand these changes in capacity and organizational repertoire before looking to explain other changes that have come about with the shift toward digital advocacy—in particular, changes in which types of actors tend to win, with what frequency, in advancing their desired policy ends.

Due in large part to the decreased costs of communication, the Internet has made it easier to mobilize issue publics. This change is easy to overstate, but the evidence so far suggests that it is real. In rebutting the critique of "clicktivism" by Malcolm Gladwell and others, Shirky (2011) writes, "The fact that barely committed actors cannot click their way to a better world does not mean that committed actors cannot use social media effectively" (38). Van Laer and Van Aelst (2011) provide a two-dimentional typology that is a useful starting point for identifying different types of Internet activism. The *x*-axis ranges from the Internet supporting offline action (via coordination, publicity, and so on) to serving as a medium for online-based action. The *y*-axis ranges from low-threshold actions, requiring little commitment, to high-threshold actions. Online petitions and e-mail campaigns are the best-known forms of Internet activism, existing online and requiring little commitment from participants; however, "action groups almost never use just one single tactic, but instead draw on a myriad of tactics both offline and online" (1149).

In all the areas represented by Van Laer and Van Aelst's (2011) typology, the changes enabled by the Internet are substantial. This is most obvious for online actions such as "online petitions, boycotts, and email and letter-writing campaigns" (Earl et al. 2010, 432). Yet the Internet also successfully supports offline actions such as protests, sit-ins, and in-person meetings (Harlow and Harp 2012; Karpf 2012). In terms of the level of commitment required, the Internet has also reduced barriers to entry. For instance, Internet-mediated mobilization has lower requirements for self-identification as an activist (Brunsting and Postmes 2002). While the changes enabled by the Internet are most significant for low-threshold actions, modes of organizing made possible by the Internet have also reduced the identity commitment required for most other activities; while the Internet is being used by people to express stable political identity markers such as party, class, and race, it is also home to à-la-carte activism. Such activism is characterized by low social barriers to entry, "an ethos of diversity and inclusiveness defined by tolerance for different viewpoints and even different issues," and leveraging "dense social networks" (Bennett 2012, 22). All of these changes greatly reduce the barriers to collective action, which most directly benefits diffuse, underresourced policy actors (Herman 2012).

In addition to reshaping the balance of communication power, the Internet is also reshaping organizational structures and organizations' action repertoires. Karpf (2012) coined the phrase "MoveOn effect" to describe a number of these related changes. The Internet has fostered a new crop of groups that are "issue generalists, mobilizing citizen support around the pressing issues of the day. They are sedimentary organizations, developing their member lists by riding waves of public interest and offering an outlet for citizen action" (156). Compared with the more expensive, bureaucratic organizations that dominated in the mid to late 20th century, these new groups are much more cost effective, decentralized, and fluid—making more fluid allegiances, and with a much more open and fluid definition of membership.

Since early in the debate—certainly by the 2005–2006 session of Congress—the pro-NN coalition has included some of the world's largest companies, including Google and Amazon (Hart 2011). Despite their immense size, however, they entered the debate with little experience with direct involvement in politics, and the anti-NN coalition has continued to outspend the pro-NN coalition in Washington, DC, to a substantial degree. Caruso (2006) explores this disparity, as it was in effect in 2005 and 2006. In annual lobbying for 2005, eight of the biggest players in the anti-NN coalition (e.g., AT&T, Verizon, and TimeWarner) spent a total of $71.5 million on lobbying, and in the 2006 election, they gave $8.3 million in campaign contributions. In stark contrast, the six biggest players among Internet companies, such as Microsoft, eBay, Amazon, and Google, spent $12 million on lobbying in 2005—just $3.5 million if one excludes Microsoft, which was not a committed member of the pro-NN coalition. The same technology actors made $1.8 million in campaign contributions in 2006, and this drops to just $648,000 without Microsoft. Thus, the anti-NN coalition spent roughly 4 to 20 times as much money seeking to shape policy.

In the next four years, pro-NN companies started hiring former governmental officials to lobby (Blumenthal 2010a) and increased lobbying expenditures (Gruenwald 2011).[1] However, the anti-NN coalition continued to outspend them substantially. For instance, in June 2010, "two congressional committees held closed door discussions with 31 representatives from industry and activist groups to discuss writing a new broadband Internet policy, largely focused on whether and how to implement net neutrality rules" (Blumenthal 2010b). The anti-NN groups at these hearings spent $19.7 million in lobbying in the first quarter of 2010 and gave $6.9 million to political candidates in the period 2009–2010; in contrast, the pro-NN coalition spent $4.7 million in lobbying and $2.2 million in donations (Blumenthal 2010b). Thus, even with pro-NN corporations ramping up spending, they were still outspent by roughly three to four times.

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The pro-NN coalition also benefits from allied participation by nongovernmental organizations (NGOs) and allied scholars, though these groups have nowhere near the same financial backing. Free Press (2011) reports that in 2010 it spent $1.3 million on Internet-related issues out of total annual expenditures of $4.2 million. Public Knowledge (2011), which does not break its expenses down by issue, had total expenditures of just $1.8 million in 2010. But this fixation on spending disparity overlooks the most potent source of power tapped by NGOs and allied scholars: capacity to frame the issue in their writings and mobilize public action. Unable to compete in cash-fueled lobbying, then, the pro-NN coalition and its not-for-profit actors in particular have strong incentives to go online to frame the issue and mobilize public action.

This study tests the claim that the Internet is more important for policy actors who are less advantaged in formal policy venues and offline media. We began this study expecting that nonprofit advocates—being the most cash-poor—would put more information online than corporate actors. We also hypothesized that the online NN debate would be heavily slanted toward calls for NN, both in absolute terms and relative to the balance of the debate portrayed in print news. Finally, we predicted the pro-NN coalition would advocate political actions by the audience with greater relative frequency than the anti-NN coalition.

METHODS

First, we used the Issue Crawler (Govcom.org Foundation n.d.) to identify the most authoritative websites discussing the NN debate. Second, we content-analyzed relevant documents from these websites using methods developed in earlier research (Herman 2012).

Identifying A Community of Websites

The Web today is inconceivably large, but thanks to hyperlinks, even a subset of the important websites focused on a given topic can help identify the rest of the set, as well as each site's relative authority. Within each group is a small cluster of especially authoritative sites, as shown by their disproportionate share of incoming links, or inlinks (Barabási 2003). These core websites dominate the online space around that issue (Hindman 2009).

One tool that measures online linking behavior is the Issue Crawler (Govcom.org Foundation n.d.), developed by Richard Rogers (Rogers 2004) and available at IssueCrawler.net. A user starts with a list of several known related websites and enters these as starting points, or "seeds," into the crawler engine. The software then crawls these websites—that is, searches the HTML code—for outgoing links to other websites. These newly discovered websites are then crawled in a search for still more websites. The crawler only adds sites that have links from at least two other sites, with a default maximum network size of 100. The software produces a map showing the relative authority of each site and how the sites cluster together. It also provides the raw data for all the sites, and these can be used for statistical analysis. Researchers have used it to examine the core websites in areas such as youth political engagement (Xenos and Bennett 2007), the general political blogosphere (Bruns 2007), and copyright (Herman 2012).

For identifying the central websites in the NN debate, we conducted niine monthly crawls from September 2009 to May 2010. This was a fortuitous time to study the NN debate; the issue was often in the news, various legislative proposals were under consideration, and the DC Circuit Court decided a significant related case (*Comcast v. FCC* 2010). To identify a group of seed websites for the basis of crawling, we used an earlier study—a content analysis of the NN debate in national newspapers (Kim, Chung, and Kim 2011). These newspaper stories had quoted 47 separate individuals, groups, and companies; each has a website, and these became the 47 seed URLs for our monthly searches. The resulting networks each feature about 95 websites.

Many sites were in some but not all of the crawls, so we content-analyzed only those that were in the results for at least five of the nine monthly crawls, a majority. Sites appearing in four or fewer crawls were set aside as not essential, authoritative parts of the online NN debate. There were 85 websites in a majority of the crawls, so these became the object of our content analysis.

Content Analysis

To find specific relevant documents, we used targeted Google searches of each of the 85 included websites, using the search term "network neutrality" (without quotation marks). For instance, to search for relevant documents on the FCC, we entered "network neutrality site:fcc.gov" into Google. Following the guidelines employed in previously published research (Herman 2013), we retrieved either (a) up to 40 relevant documents, or (b) all of the relevant documents from the first 100 Google results for each site, whichever came first. Using this method, we retrieved a total of 1,180 relevant documents from 70 sites; of the 85 sites included in our IssueCrawler results, 15 had no relevant documents.

All intercoder reliability statistics were computed using Krippendorff's alpha, or α. We followed the suggestion that researchers can generally rely on variables with an α of at least .80, and all sample sizes meet or exceed recommended minimum sizes (Krippendorff 2004, 240). For retrieving relevant documents across the 85 included websites, we divided the retrieval duties among three coders.

Based on a sample of 100 common documents, intercoder reliability was $\alpha = .80$. We coded all 1,180 documents for each of four variables,[2] but not before testing their reliability on a random sample of 200 documents. These variables (and α results) are:

1. Author affiliation (one of 11 sector categories, e.g., ISPs, NGOs, scholars) ($\alpha = .87$).
2. Stance on NN: clearly supports, is mixed/neutral/unclear, or clearly opposes ($\alpha = .91$).
3. Whether the webpage urges political action on the part of audience ($\alpha = .92$).

We also coded all 85 websites for affiliation within the same 11 sectors (tested $\alpha = .85$, with disagreements resolved for $\alpha = 1.0$ in reported figures); these totals are shown later, in Table 2.

RESULTS

We discuss the issue crawler results first, followed by those from the content analysis.

Issue Crawler Results

For each crawl, the Issue Crawler displays a map of all included sites. Each site is represented as a circle, with a chaotic mass of arrows showing links from one site to another. The size of each site's circle reflects the number of incoming hyperlinks—the more inlinks, the larger the circle. Each circle's color (changed here to black-and-white patterns) reflects the site's top-level domain, such as .com, .gov, or .org. Finally, each site is placed near other sites with which it shares the most common linking sites; if many sites that link to Site A also link to Site B and vice versa, then Site A and Site B will be placed very close—and if no sites that link to A or B also link to Site C, then the circle for Site C will be placed far away from A and B.

Figure 1 maps the February 2010 crawl results; this gives an overview of the online NN debate and helps visualize the more quantitative results discussed in the following. The middle has a large double cluster; many of the largest circles belong to NGOs such as Free Press and the Electronic Frontier Foundation (EFF). Also in the middle are media hubs such as Facebook, YouTube, and Twitter. For those who know the debate, even the cleavage in the cluster makes sense. Free Press and its pro-NN site, SaveTheInternet.com, anchor the group toward the top, which also includes groups like Public Knowledge and Consumers Union. These groups constitute the core of the online pro-NN coalition. The group below the cleavage is anchored by EFF and includes groups such as Harvard's Berkman Center and Creative Commons. These groups are often allied with the groups in the upper cluster on other issues but are more conflicted about NN regulation.

The rest of the important members of the NN debate are in less central positions in the online debate. The FCC anchors the cluster of government sites in the upper left. Government agencies primarily link to each other, and they do so here as well. However, other sites link to these agency websites—especially the FCC—a great deal. Perhaps more remarkably, many advocates that are major players in the offline debate (Caruso 2006; Gruenwald 2011) are dots along the margins in the online debate. Along the left to bottom left, these include AT&T (in the middle of the government sites), Verizon, Comcast, Cisco, and Google. Ranked by inlinks across all nine monthly crawls, these sites's ranks ranged from 46th (AT&T) to 77th (Google). There are several other major companies and important trade associations on both sides of the NN debate that were quoted in relevant newspaper articles—and thus included in our list of seed URLs—but that did not seem to participate in the online debate in any meaningful way. The National Cable and Telecommunications Association appeared in just two of nine crawls, and other groups that did not appear even once include the U.S. Internet Industry Association, U.S. Telecom, and the Computer and Communications Industry Association.

We ran monthly crawls for nine months in order to identify stable participants in the online debate; 176 sites appeared at least once, and 85 of those appeared at least five times. Of these 85, most were either in all 9 monthly crawls (39 sites) or 8 of 9 (17 sites). Thus, while each crawl included sites that were not in most other results, the core network was quite stable over time, and these sites reliably linked to one another.

In each crawl, most sites had few incoming links from other sites, and a few sites earned the lion's share of incoming link traffic. To illustrate this, we calculated the mean incoming links per crawl for each site. We summed each site's total inlinks across all nine crawls, treating each result in which a site was missing as a zero. Figure 2 is a histogram of average inlinks per crawl for all 176 sites that appeared at least once. This distribution is highly nonnormal; the mean may be 6.57 ($SD = 6.42$), but the median is just 4.1. The most common range is from zero to less than two incoming hyperlinks per crawl (52 websites, or 30%), followed by two to four inlinks (34 sites, or 19%). These websites appeared in one to four crawls, never earning a large number of links. At that high end of the spectrum, nine sites (5%) average at least 19.4 incoming hyperlinks per crawl, for a z-score of at least 2.0. The most linked website, FCC.gov, averaged 34.2 inlinks per crawl, (z-score = 4.3). This is a winner-take-all distribution that is typical for both the Web in general and specific topical clusters (Barabási 2003; Hindman 2009). If the online NN

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TABLE 1
Top 10 websites as ranked by incoming hyperlinks from related websites

Rank	Site	Mean incoming links from population of crawled sites	Share of links among included sites	Number of relevant documents
1	fcc.gov	34.2	3.5%	18
2	eff.org	29.6	3.0%	34
3	freepress.net	25.7	2.6%	40
4	facebook.com	24.8	2.5%	40
5	twitter.com	22.9	2.3%	7
6	creativecommons.org	22.1	2.2%	0
7	publicknowledge.org	20.4	2.1%	40
8	savetheInternet.com	20.4	2.1%	40
9	mediaaccess.org	20.1	2.0%	9
10	whitehouse.gov	19.4	2.0%	3

TABLE 2
Number of websites and documents by sector (and within four clusters)

Sector	Number of sites in sector	Percent of sites	Number of docs hosted on sites in sector	Percent of docs	Number of docs created by authors in sector	Percent of docs
NGO (A)	37	43.5	532	45.1	491	41.6
Appointed government (B)	14	16.5	104	8.8	50	4.2
Internet content provider (C)	8	9.4	72	6.1	50	4.2
General news/opinion (D)	5	5.9	122	10.3	124	10.5
Elected government (B)	5	5.9	118	10.0	109	9.2
Scholars (A)	5	5.9	73	6.2	110	9.3
Hardware/soft ware/ other tech (C)	5	5.9	20	1.7	39	3.3
ISPs/telecom (C)	3	3.5	39	3.3	40	3.4
Tech. news/opinion (D)	2	2.4	80	6.8	110	9.3
Library/school (A)	1	1.2	20	1.7	24	2.0
Other/unclear	0	0.0	0	0.0	33	2.8
Totals	85	100.0	1180	100.0	1180	100.0
Totals by cluster						
Nonprofits (A)	43	50.6	625	53.0	625	54.5
Government (B)	19	22.4	222	18.8	159	13.9
Corporate (C)	16	18.8	131	11.1	129	11.2
News/opinion (D)	7	8.2	202	17.1	234	20.4

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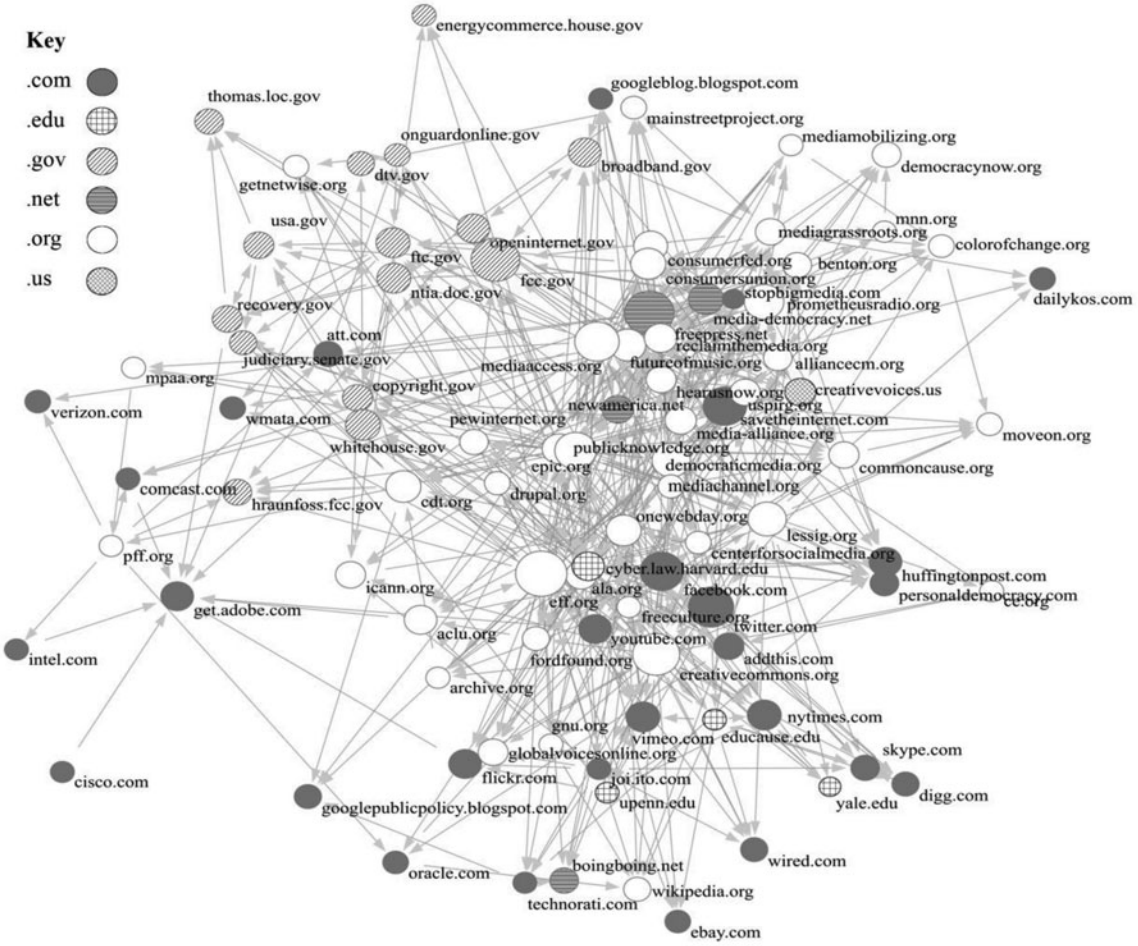

FIG. 1. Issue Crawler map of online network neutrality debate, February 2010.

debate were 176 seventh graders, and mean inlinks were the grade level of math skill for each "student," only 45 would be at or near grade level. The most typical students would be struggling with addition and subtraction, while 25 would be doing differential equations or higher—and one of these would be working on a proof of Fermat's Last Theorem.

Because of this distribution, the sites atop the rankings carry disproportionate influence in shaping the online debate. Table 1 lays out the top 10 websites by mean number of inlinks per monthly crawl. Top websites include the FCC and the White House; Facebook and Twitter; and NGOs such as the Electronic Frontier Foundation (EFF), Public Knowledge, and the Media Access Project. Free Press is on the list twice, once as itself, and once with its NN coalition site, SaveTheInternet.com. Creative Commons is the only top site with zero relevant documents; sites link to the website as part of licensing its content under Creative Commons licenses.

Content Analysis Results

Across the 85 included websites, there are clear patterns of sector participation, the distribution of NN opinions, the relationship between sector and NN stance, and calls for audience action.

Participants in the online net neutrality debate included members of many sectors, though some were much more vocal than others. Table 2 lays out the raw numbers and shares for each sector. Of the 85 websites we studied, NGOs hosted 37 sites (44%), including 6 of the top 10. Of 1,180 relevant documents produced, 532 of them (45%) were hosted on NGO-sponsored websites, and NGO-affiliated authors wrote 491 of them (42%). No other sector had anywhere near these shares of the sites or documents hosted and produced.

While none of the other sectors compared to NGOs' heavy online participation, several other sectors also featured prominently. Of the 85 top websites, 14 sites (17%) were hosted by government agencies headed by appointed

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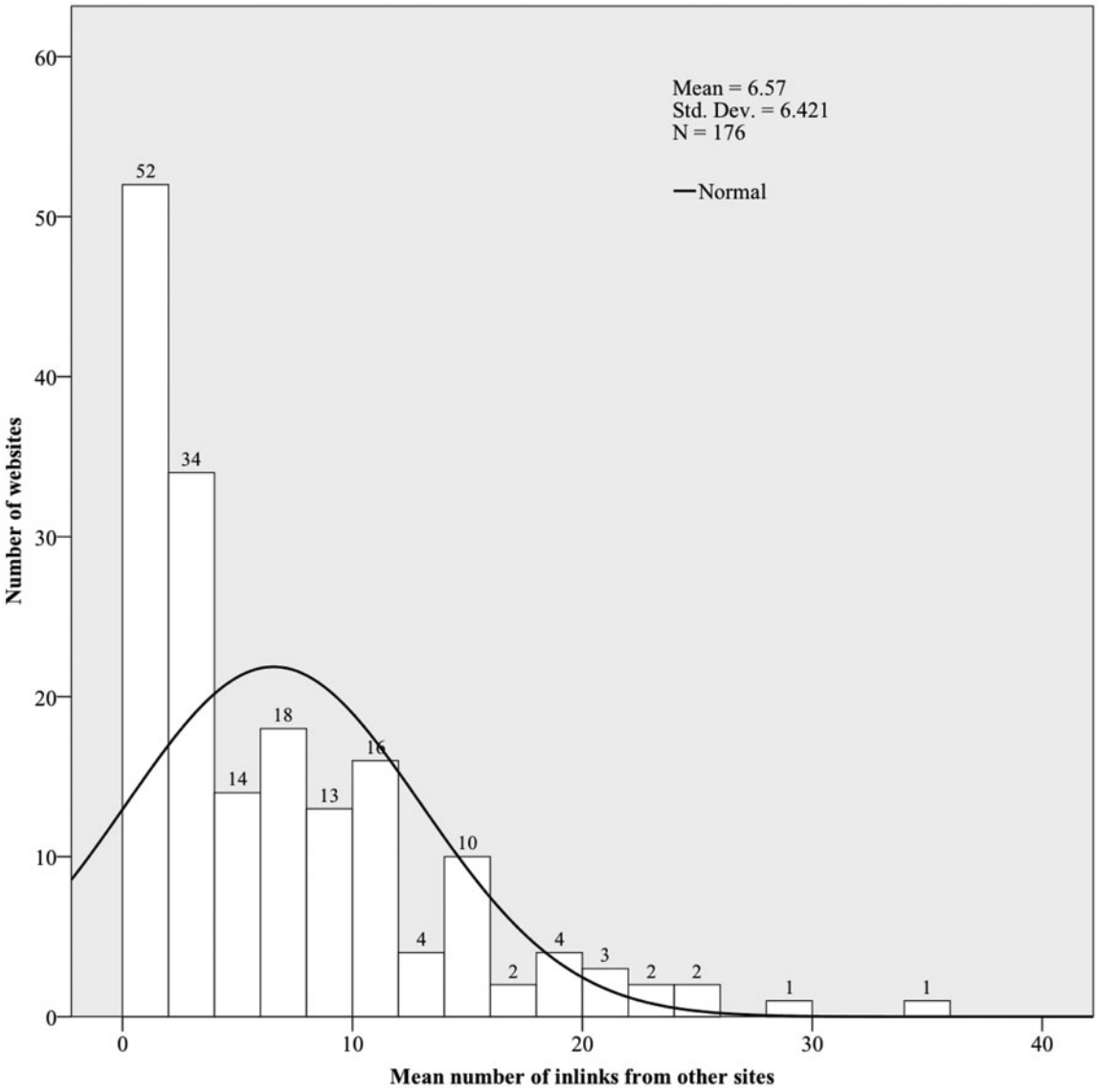

FIG. 2. Distribution of incoming hyperlinks across sites.

officials, including the top-ranked FCC website. These sites hosted 104 documents (9%), though appointed government officials only authored 50 of the documents and authors from other sectors produced the rest. Internet content hosts such as Twitter, Facebook, and Flickr added 8 websites, though they hosted a modest 72 relevant documents (6%) and authored just 50 (4%).

Crawler results also included five sites (6%) each from the following: general news and opinion sites, such as the *New York Times* and *Huffington Post*; elected officials, including the White House and congressional websites; scholars and scholarly institutes, such as Lawrence Lessig and Harvard's Berkman Center; and technology firms and groups other than ISPs, including Intel, Cisco, and the Internet Corporation for Assigned Names and Numbers (ICANN). Three of these sectors—general news, elected government officials, and scholars—were fairly vocal, with sites from each hosting around 100 documents, and authors from each producing more than 100 documents. In comparison, technology groups said little, hosting just 20 relevant documents, and authoring 39. Likewise, ISPs were fairly quiet, hosting just 3 websites and 39 relevant documents, and authoring 40 documents. With just 2 included websites—Wired.com and BoingBoing.net—technology news and opinion sites made a relatively vocal contribution to the discussion with 80 documents. Technology news-affiliated authors produced 110 documents.

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These findings are highly consistent with our hypothesis that nonprofit advocates would put more information online than corporate actors. To highlight this in Table 2, we combine NGOs, scholars, and librarians and schools into one nonprofit cluster, and we combine Internet content providers, ISPs, and other technology companies into one corporate cluster. We also added totals for a government cluster and a news cluster. Nonprofit actors were responsible for a majority of all online content in this debate, whether measured by number of websites (51%), hosted documents (53%), or authored documents (55%). As we predicted, this is much greater participation than that from corporate actors—more than twice the included websites (51% vs. 19%) and nearly five times the documents hosted (53% vs. 11%) and authored (55% vs. 11%). Especially as compared to their ample representation as newspaper sources and hearing witnesses (Kim, Chung, and Kim 2011), corporate voices are nearly absent online.[3] This is very consistent with our hypothesis that nonprofits would put more NN-relevant information online than corporations.

Documents' and websites' stances on net neutrality were decidedly pro-NN. Out of 1,180 documents, 856 documents (72.5%) advocated NN policy. Only 178 documents (15.1%) opposed NN, while another 146 documents (12.4%) expressed a mixed, neutral, or unclear position. These findings are consistent with our starting hypothesis that the online NN debate is strongly slanted toward NN regulations. This is also true on a site-by-site basis. Of the 85 included sites, 68 had at least one relevant document. Of these, 59 sites (87%) had more documents supporting than opposing NN. Just seven sites (10%) had more documents opposing NN, and two sites (3%) had a neutral position (each having just one neutral document).

While we predicted much more pro-NN rhetoric online, the size of the difference compared with newspaper coverage is still remarkable. Among articles from February 2004 to January 2009 in the *New York Times*, *Washington Post*, and *Wall Street Journal*, just 20 articles (11.4%) were pro-NN, 134 (76.1%) were neutral, and 22 (12.5%) were anti-NN (Kim et al. 2009). This distribution is very significantly different from the distribution online.[4] This is consistent with our hypothesis that the web debate is decidedly more pro-NN than is newspaper coverage.

The relationship between coalition membership and NN stance was rather strong. Tables 3 and Tables 4 provide more detail on document stance by sector of the host website (Table 3) and document author(s) (Table 4). Even relative to the strong pro-NN bias across all sectors (73% pro-NN), NGO sites (84%) and NGO-affiliated authors (90%) were staunchly pro-NN. Scholarly groups' websites were also strongly pro-NN (88%). Several scholar-authored documents on other sites opposed NN (17 documents, or 16% of all documents authored by scholars), so the in-sector splits for scholar-authored documents (73% pro-NN, 12% mixed, 16% anti-NN) are close to those for all documents. Librarians and schools were less vocal but even more consistently pro-NN; they hosted 20 documents and authored 24, each one pro-NN.

The websites and authors in the news and opinion categories—technology and general news—had relatively more neutral documents, ranging from 27 to 40 percent of documents per sector, versus just 12 percent for all documents. Most of the rest of these sectors' documents were pro-NN; just three to six percent were anti-NN, much lower than the 15 percent share of all documents. Even the *New York Times* site, on which 28 of 40 documents (70 percent) were neutral, had three times as many pro-NN documents as anti-NN (9 to 3). The technology news site *Wired* (15 pro-NN, 23 neutral, 2 anti-NN) was even more pro-NN. Sites with more advocacy than journalistic objectivity, such as *DailyKos* (27 documents pro-NN, 2 neutral, 0 anti-NN), *Huffington Post* (36 documents pro-NN, 3 neutral, 1 anti-NN), and the technology blog *BoingBoing* (38 documents pro-NN, 0 neutral, 2 anti-NN), all skewed heavily toward NN.

On the other end of the debate, ISPs were the most vocal anti-NN advocates, with 38 anti-NN documents, 1 neutral, and zero pro-NN. Hardware, software, and technology service companies' websites hosted just 20 documents; networking hardware vendor Cisco hosted 18, and 17 were anti-NN. These sector splits represent highly significant deviations from the splits across all documents, including splits by website affiliation ($df = 20$, $\chi^2 = 431.4$, $p < .001$) and author affiliation ($df = 20$, $\chi^2 = 532.7$, $p < .001$). The effect size is also closer to large than to medium or typical (Cohen 1988); Cramer's V, an r-like measure, is .43 for the association between stance and website affiliation and .48 for author affiliation. Author and site affiliation are respectably accurate predictors of NN stance.

Messages encouraging audience action were fairly common though not equally distributed. Of the 1,180 documents, 177 (15 percent) urged some sort of audience action, such as to call their representatives, sign a petition, or donate to an NN-specific cause. Leading the calls to action were documents on Internet content providers' sites (e.g., Facebook, Twitter); of 72 documents, 26 (36%) urged audience action. This finding reinforces the common belief that social networking and microblogging sites have become a popular tool of audience mobilization (Shirky 2011; Zandt 2010). General news and opinion sites also frequently urged action—28 of 122 documents, or 23 percent; there were zero on *The New York Times* site (0 of 40), but many on *DailyKos* (12 of 29) and *Huffington Post* (11 of 40). The sites of NGOs (17%) and scholars (16 percent) also had an above-average likelihood to urge action. Sectors that oppose NN—such as ISPs (8%) and computer

TABLE 3
Stance on NN by website affiliation

Website affiliation	Pro NN	Percent of sector	Mixed/neutral	Percent of sector	Anti NN	Percent of sector	Total
NGOs	447	84.0	44	8.3	41	7.7	532
General news/opinion sites	85	69.7	33	27.0	4	3.3	122
Elected government officials	78	66.1	9	7.6	31	26.3	118
Appointed government officials	59	56.7	13	12.5	32	30.8	104
Tech. news/opinion sites	53	66.3	23	28.8	4	5.0	80
Scholars	64	87.7	9	12.3	0	0.0	73
Internet content providers	49	68.1	12	16.7	11	15.3	72
ISPs and telecomm. companies	0	0.0	1	2.6	38	97.4	39
Hardware, software, and tech. services companies	1	5.0	2	10.0	17	85.0	20
Librarians and schools	20	100.0	0	0.0	0	0.0	20
Totals	856	72.5	146	12.4	178	15.1	1180

Note. $df = 20$, $\chi^2 = 431.4$, $p < .001$; 5 cells (16.7%) have expected count less than 5, minimum expected count is 2.47. Cramer's V, an r-like measure of effect size, is .43, a medium to large effect size (Cohen 1988).

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hardware, software, and services (10%)—encouraged action at below-average rates. Overall, 19 percent of pro-NN documents urged audience action (163 of 856), while just 3 percent of anti-NN documents did so (5 of 178).

DISCUSSION

The online debate over network neutrality is highly one-sided in favor of NN regulation. These results fit our expectations based on each side's rational interest in online mobilization. At the heart of the anti-NN coalition are ISPs, their trade groups, and Cisco. Telecommunications is a highly regulated sector, so these companies have long since built up the infrastructure to participate in Congress and regulatory agencies (Caruso 2006; Center for Public Integrity 2006; Gruenwald 2011). Thus, they do not feel compelled to mobilize the public, as their representatives can already communicate their message directly to policymakers.

In contrast, nonprofit actors such as NGOs and scholars make up much of the pro-NN coalition, and they provide the lion's share of support online. These groups have much less funding and less access to policymakers. This is consistent with previous work quantifying online advocacy in communication law (Herman 2012), yet this study is one of what are still far too few to quantify the online presence of groups that otherwise have little lobbying prowess.

Findings also show that corporate actors are very quiet online relative to noncorporate voices—even including those that are allied with not-for-profit actors. Corporate NN supporters such as Google (77th-ranked site, 22 relevant documents) and Amazon (not included in any crawl results) play marginal or nonexistent roles in the online NN debate. Some corporate lobbyists on each side (e.g., Google, Cisco, and NTIA) are actively engaged online, but

TABLE 4
Stance on NN by author affiliation

Author affiliation	Pro NN	Percent of sector	Mixed/neutral	Percent of sector	Anti NN	Percent of sector	Total
NGOs	440	89.6	11	2.2	40	8.1	491
General news/opinion sites	73	58.9	49	39.5	2	1.6	124
Tech. news/opinion sites	64	58.2	39	35.5	7	6.4	110
Scholars	80	72.7	13	11.8	17	15.5	110
Elected government officials	83	76.1	6	5.5	20	18.3	109
Internet content providers	37	74.0	8	16.0	5	10.0	50
Appointed government officials	24	48.0	13	26.0	13	26.0	50
ISPs and telecomm. companies	0	0.0	1	2.5	39	97.5	40
Hardware, software, and tech. services companies	15	38.5	3	7.7	21	53.8	39
Other	16	48.5	3	9.1	14	42.4	33
Librarians and schools	24	100.0	0	0.0	0	0.0	24
Totals	856	72.5	146	12.4	178	15.1	1180

Note. $df = 20$, $\chi^2 = 532.7$, $p < .001$; 6 cells (18.2%) have expected count less than 5, minimum expected count is 2.97. Cramer's V, a r-like measure of effect size, is .48, very near the benchmark for a large effect size of .5 (Cohen 1988).

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their content updates are infrequent, nonspecific, and disengaged compared to those of NGOs and scholars. Among other factors, one reason is particularly likely: the difference between corporate lobbying communication methods and goals, and those of not-for-profit advocates. Online success stories almost always involve individuals speaking in their own voices and doing so often (Zandt 2010). When facing organized opposition in a policy debate, companies often have more to lose from potential embarrassment than they have to gain from marginal increases in online success. The lobbyists at Google and Cisco post fairly often and write casually, but they could really embarrass their employers if they used this permission too liberally. The unexpected dustups over Ed Whitacre's 2005 *BusinessWeek* interview (Whitacre 2005) and then-Senator Ted Stevens's 2006 anti-NN speech (Schneider 2006) are cautionary tales that led to unexpected surges of bad publicity (Hart 2011). Thus, corporate spokespersons generally do not speak too freely. Since others participate more often, more specifically, and with less caution, those other speakers run online circles around corporate spokespersons. We suspect there is a similar corporate/nonprofit divide online across most policy debates, but this warrants further study.

In terms of offline lobbying, in 2006, the pro-NN coalition had comparatively little corporate power; pro-NN companies did not mobilize soon enough, with enough force, to have much impact. Google, in particular, had a late start and early stumbles. It hired its first full-time policy staffer in Washington, DC, in October 2005 (McLaughlin 2005). In June 2006, Google co-founder Sergey Brin made his first trip to DC to support NN. The trip was poorly organized and came after two major telecommunications bills were nearly finalized; Brin even committed the faux

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pas of wearing jeans and sneakers. *The Washington Post* concluded, "Google is a tourist in D.C." (Mohammed and Goo 2006). Other allied companies like eBay were also poorly mobilized, and they hoped for significant help from NGOs and activists (Searcy and Schatz 2006). The only industry ally with much lobbying power, Microsoft, invested little effort in the debate.

It comparison, many NGOs put their full weight into the pro-NN side in 2006. They arranged for a large number of face-to-face meetings with policymakers, supplemented by their ample online activism; the latter was a key part of their strategy, because without mobilizing a substantial number of the broader public, their voices would have been easier to ignore. They were even successful at recruiting groups that are not predominantly media policy organizations, from Consumers Union and MoveOn to the Christian Coalition. This shows MoveOn in particular acting exactly as Karpf (2012) describes, seizing an issue that is ripe for broader politicization. As members of the Save the Internet coalition, these NGOs had raised more than one million signatures for a pro-NN petition by mid-June (Karr 2006), highlighting the value for issue specialists when they are successfully able to recruit higher visibility issue generalists. While it is hard to assign specific causality, several policymakers soon declared their allegiance to this coalition. In June 2006, Representative Ed Markey (D-MA) proposed an amendment to an omnibus telecommunications bill that would have added an NN mandate; it fell short but garnered 152 votes. On the Senate side, a similar amendment proposed by Senator Olympia Snowe (R-ME) just barely lost in committee on an 11–11 tie (Hart 2011). Then-candidate Barack Obama even adopted the issue as a campaign promise. To date, Congress has not yet passed a pro-NN statute, and the FCC's efforts to carve such regulations out of existing statutes are both half-hearted and under fire in court, but it is remarkable that the issue went from virtual nonexistence in late 2005 to an issue that won substantial public and policymaker support in 2006. Without Internet advocacy by nonprofit actors, calls for NN might have gone nowhere; while causality is hard to prove, this at least suggests the potential power of Internet advocacy.

CONCLUSION

The network neutrality debate is just one example of a much broader phenomenon: vocal Internet advocacy by groups that would otherwise have a much smaller role in determining policy outcomes. Without vocal pro-NN advocacy, the issue might have escaped the broader public's attention, leaving slim hope of a presidential frontrunner campaigning as an NN champion. While the pro-NN side has not won, it has put up a good fight and kept the issue in play—a remarkable story in its own right. Little wonder that similarly positioned advocates on countless other issues are also furiously mobilizing online.

This study has several limitations, each calling for additional research. First, relative online influence is not at all the same thing as relative influence on policymakers. As Mueller (2010) notes, the tool of network analysis is not the same thing as having a theoretically grounded understanding of the network being analyzed. This study is not even conclusive about which *websites* have the most impact—for instance, our results may unintentionally understate the political significance of the documents on the FCC site—let alone which *groups* have the most impact. That is why we have sought to ground this study in a theory of how the Internet works within the broader dynamics of policy advocacy. In this case as in many others, online communication is just one of many tools used to push for policy outcomes.

Most of the documents in this study are examples of the Internet in its most obvious political use: citizen mobilization. Getting enough people to act to make a real difference is difficult, though the pro-NN coalition seems to have gotten at least some traction this way—and even in this case, this is just part of a campaign that included substantial face-to-face advocacy in Washington, DC, by corporations and NGOs (Hart 2011). This study's methods measure the volume of online communication and the relative *online* impact of sites, but qualitative methods (such as ethnography) or other quantitative methods (such as an offline network analysis of the actors involved) would place this in a broader context. It would show both coalitions producing an enormous volume of communication on the issue. Even a qualitative study zooming in on pro-NN actors' online strategies would show them engaged throughout the Van Laer and Van Aelst's (2011) typology, from low- to high-commitment activities, and from online-supported to online-based communication.

Second, the story does not end with pro-NN advocates winning. They have managed not to lose, but at best the Internet helped them to fight anti-NN advocates to a draw. This is similar to other outcomes in US policymaking. On issues from banking law (Bimber 2003) to broadcast ownership policy (McChesney 2004) and copyright (Herman 2012), not-for-profit groups have used Internet advocacy to help stall proposals that they opposed. We are not, however, aware of examples of a U.S. coalition riding Internet communication to overcome the inertia of the policy system and successfully advance a major policy change. Thus, while early evidence suggests that Internet advocacy can help not-for-profit advocates increase their ability to slow their opponents, it may not do as much to put them in a position to advance their own agenda.

Third, these results may be relatively unique—or, at least, show up earlier than on most other issues—because

the pro-NN issue public is especially technology savvy. Thus, activists on nontechnology issues, from environmental regulation to poverty assistance to immigration law, may reach smaller shares of their potential bases with online communication. This is related to our suggestion that the pro- and anti-NN camps apparently had different goals and target audiences to begin with. While the pro-NN coalition focused on its outreach effort to bring public awareness and mobilization, the anti-NN coalition generally aimed at reaching policymakers more directly through established routes such as lobbying and campaign donations. Further work in other policy areas could help identify whether and how the goals of communicators can intersect with the technological skills of their audiences.

Finally, one limitation of this study's methodologies is that it does not capture another important dynamic: behind-the-scenes coalition building. While it is rarely easy to identify a clear chain of events that leads to a given policy outcome, private intracoalition communication is especially difficult to measure. As with the more public-facing communication that one can see, the Internet is changing this private communication as well (Marres 2006), but this study's methods cannot capture these dynamics. Further research into the interpersonal and interorganizational communication of policy advocates is thus another area ripe for investigation.

Despite these limitations, this study is consistent with the broader claim that the Internet is a potential tool for marginal improvements in the representativeness of policy discussions. Thanks to major Internet mobilization, the pro-NN force managed to get millions of citizens involved—signing petitions, calling and writing to Congress and the FCC, and spreading the word to others. Whatever one thinks of proposals for NN regulation, it is a win for democratic process that so many more people have learned about and participated in this debate about such a technically complex subject. Cyber-utopia it definitely is not, but these results suggest that the Internet is, in at least some cases and to at least some degree, enabling broader participation.

While online advocacy represents real progress in policy discussion, understanding the general effectiveness of such advocacy on policy outcomes will require many more studies. Mueller and Lentz (2004) called for a new research direction in communication and information policy research: studies looking at "the social determinants of public policy—that is, how social practices, long-term socioeconomic changes, cultural norms, and the interest groups engaged in communication and information influence the development of laws, regulations, and policies" (155). This study is but a small step in that direction, and we hope other researchers will conduct a longitudinal study that investigates the interplay among various social determinants of net neutrality policy.

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ACKNOWLEDGEMENTS

Research funding for this project included a grant from the Association for Education in Journalism and Mass Communication (AEJMC), as part of the AEJMC Emerging Scholars program.

NOTES

1. Gruenwald (2011) reports that Google spent $2.06 million in the second quarter (Q2), up from $1.48 million in the first quarter (Q1) 2011. In contrast, the Q2 expenditures for AT&T were $4.85 million, down from $6.84 million in Q1, and Verizon spent $4.38 million. The only other tech company reported to have spent similarly to Google was Microsoft ($1.85 million), and they have not been major players in the NN debate. Newer tech companies, which have been more visible NN supporters, such as Facebook ($320,000) and Netflix ($110,000), made negligible investments in lobbying.

2. We also coded for publication date, primarily as a check against the Web's short memory (Hellsten, Leydesdorff, and Wouters 2006). Nonetheless, the findings illustrate the rise and fall of attention to NN. Of 1,180 documents, 1,050 had clear dates, ranging from 2000 (excluding a speech by Columbia's Eli Noam—from 1991) to 2010. Of these, 38 (3.6%) were from 2005 or earlier. Most were dated 2006 (247, or 23%), 2009 (219, or 21%), or 2010 (291, or 28%); in contrast, 2007 (122, or 11.5%) and 2008 (141, or 13.3%) were quieter years. That 2006 totals far exceeded 2007 and 2008 shows that the Web's memory of the NN debate is surprisingly long. Online and off, attention to NN peaked in 2006 and again in 2009–2010. In November 2005, Ed Whitacre, then chair of SBC (now AT&T), proclaimed that SBC could and would start charging Internet companies like Google and Vonage for access to SBC customers (Whitacre 2005). This sparked an explosion of public and policymaker attention to NN (Hart, 2011). The new Democratic majority in 2007 showed little interest in major telecommunications proposals or stand-alone NN regulations. Yet Barack Obama campaigned in explicit support of NN, so his victory injected new life into the issue in 2009 and 2010, with interest waning since.

3. Kim et al. (2011) found the following splits between corporate voices and "other" voices (including NGOs, scholars, and ordinary citizens): As newspaper sources, 40% industry and 36% other; in FCC hearings, 35% industry and 58% other; and in Congressional hearings, 55% industry and 32% other. The Web featured 4.84 documents with nonprofit authors for every industry-authored document, a sharp contrast with the other three media. The nonprofit/industry ratio on the Web was 5.26 times that in newspapers, 2.95 times that in FCC hearings, and 8.24 times that in congressional hearings, for *d*-like effect sizes of .92, .60, and 1.16, respectively.

4. $df = 2$, $\chi^2 = 391.0$, $p < .001$. Cramer's V, an r-like measure of effect size, is .54, which Cohen (1998) identifies as a large effect size. Among those documents taking a stance, 48 percent of articles were for NN and 52 percent against. This contrasts sharply with the Web, where 83 percent of documents taking a position supported NN and just 17 percent opposed, a 5-to-1 ratio. Thus, among documents that take a position, a given Web document is thus 5.3 times as likely to

support NN as is a given newspaper article. This converts to a *d*--like measure of effect size (Chinn 2000) of .92, which is also a large effect size (Cohen 1988). This reflects only documents that take a position, which leads to more modest measures. Just 12% of Web documents were neutral, versus 69% of newspaper articles (92 of 134 total) (Kim, Kim, and Chung 2009). Including these, 73% of Web documents (856 of 1180) supported NN, but just 15% of newspaper articles (20 of 134) did. Thus, a given Web document was 27 times more likely to support NN than a given newspaper article, for a *d*-like effect size of 1.83. Newspapers are better described as evenly split, though, so the more modest in-text figures are more accurate.

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