

# Computer-Based Political Action: The Battle and Internet Blackout over PIPA

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**The successful fight to stop the Protect IP Act highlights the increasingly important role of computer-based political action, especially the use of social media, in the policymaking process.**

In protest of two bills before the US Congress, the Protect Intellectual Property Act (PIPA) and the Stop Online Piracy Act (SOPA), several major Internet companies, including Wikipedia and Craigslist, shut down their service for 24 hours starting 18 January 2012.

Other companies supported the protest in their own way—for example, Google blacked out the company's logo on its homepage. In addition, Google joined numerous websites in using social media to generate support against the bills by encouraging users to contact the US Congress and to “please keep +1ing, tweeting and sharing ... with your friends” an online petition linked to its site at [www.google.com/landing/takeaction](http://www.google.com/landing/takeaction).

Due to this and previous efforts by a broad-based coalition of opposition organizations, PIPA and SOPA raised alarms worldwide. For example, a campaigner with a UK-based digital rights advocacy group stated, “We're concerned about the jurisdiction that (these bills) give over ... the Internet in the UK—and the power that it gives US copyright holders over the things we do here.”<sup>1</sup> Similarly, a law professor and copyright expert in Canada asserted that the legislation's goal was to “reach beyond the borders of the United States.”<sup>2</sup>

As criticism mounted at home and abroad, many US legislators who originally supported PIPA and SOPA

expressed a desire to amend the bills or substitute entirely new legislation. Neither bill is likely to become law in its current form.

The battle over the bills, in particular PIPA, illustrates an emerging form of computer-based political action. Opponents' innovative techniques that exploit the Internet—including a service blackout, online voting, and a coordinated boycott—have thus far prevailed over supporters' traditional approaches such as sending letters to Congress. In particular, the use of social media—specifically Twitter and Facebook—has played a significant role in rousing opposition and facilitating direct communication among legislators about PIPA.

## PIPA AND SOPA

Patrick Leahy (D-VT), with 11 bipartisan cosponsors, introduced PIPA in the US Senate on 12 May 2011. The goal of the bill, officially known as the Preventing Real Online Threats to Economic Creativity and Theft of Intellectual Property Act, is to “crack down on rogue websites dedicated to the sale of infringing or counterfeit goods.” Lamar S. Smith (R-TX) introduced SOPA—a similar bill intended to combat the online theft of intellectual property—in the US House of Representatives on 26 October, also with bipartisan support.

Among other things, PIPA authorizes the US attorney general and IP rights holders to bring actions against those operating an Internet site or domain “dedicated to infringing activities.” It also specifies requirements for plaintiff actions against the owner or registrant of a domain name used to access such sites. To help combat online piracy and the sale of counterfeit goods, the bill gives the attorney general the power to cut off infringing sites from search engines as well as payment processors, advertising networks, and Internet service providers.<sup>3</sup>

PIPA and SOPA expand on a 2008 law also introduced by Senator Leahy and nine PIPA cosponsors—the Enforcement of Intellectual Property Rights Act ([www.opencongress.org/bill/110-s3325/show](http://www.opencongress.org/bill/110-s3325/show)). Known in its House incarnation as the Prioritizing Resources and Organization for Intellectual Property (PRO-IP) Act, this proposed legislation levied harsh penalties for infringement of IP such as music, film, and software.

The first version of PIPA was called the Combating Online Infringement and Counterfeits Act (COICA), which Senator Leahy and 19 bipartisan cosponsors introduced on 20 September 2010 ([www.govtrack.us/congress/bills/111/s3804](http://www.govtrack.us/congress/bills/111/s3804)). The Senate Judiciary Committee unanimously passed the bill on 18 November, but Senator Ron Wyden (D-OR) prevented it from going to a floor vote. With minor revisions by its sponsors, COICA became PIPA.

On 1 October 2011, while PIPA and SOPA were being debated in Congress, the US became a signatory, along with seven other countries, of the Anti-Counterfeiting Trade Agreement (ACTA), a controversial treaty designed to “harmonize international copyright protection standards in a number of industries” ([www.ustr.gov/acta](http://www.ustr.gov/acta)).

Despite widespread agreement on the need for more effective antipiracy legislation in the digital era, PIPA and SOPA became lightning rods for free speech and privacy advocates. The Electronic Frontier Foundation claimed that the bills sanctioned “blacklisting” and compared their provisions to measures enacted by authoritarian regimes.<sup>4</sup> Many leaders in the Web industry charged that PIPA and SOPA would trample Internet innovation.

As a result of the opposition’s efforts, Leahy announced a delay of the Senate vote on PIPA on 20 January 2012. Shortly afterward, Smith postponed a vote on SOPA in the House. The story of how these bills, with a focus here on PIPA, stalled in Congress highlights the increasing importance of Internet resources and social media in political activism.

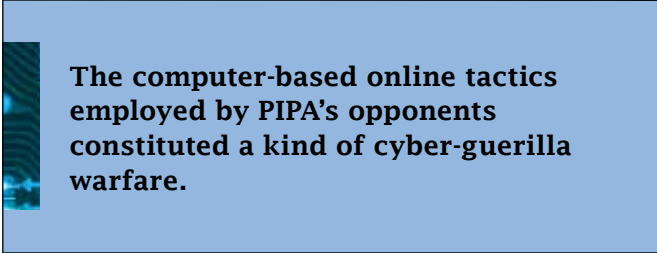
## **SUPPORTING AND OPPOSING ORGANIZATIONS**

Numerous organizations have joined the fight over PIPA; to date, 162 formally support the bill and 108 oppose it ([www.opencongress.org/bill/112-s968/show](http://www.opencongress.org/bill/112-s968/show)).

Those who have lined up behind PIPA include entertainment conglomerates such as the Walt Disney Company

and NBCUniversal; computer software companies such as Microsoft and Hyperion; sports organizations, including Major League Baseball, the National Football League, and the National Basketball Association; union groups such as the AFL-CIO and Screen Actors Guild (SAG); trade organizations such as the Motion Picture Association of America; music enterprises, including the Recording Industry Association of America and Sony Music Entertainment; retailers such as Walmart; and publishers, including Elsevier and McGraw-Hill.

Opposing PIPA are search engine and Internet businesses such as Google and Yahoo; open source software companies, including Mozilla and the Open Source Initiative; social media services, including Facebook, Twitter, and LinkedIn; and game companies such as Minecraft. Several civil and consumer rights groups such as the American Civil Liberties Union also oppose the bill.



**The computer-based online tactics employed by PIPA’s opponents constituted a kind of cyber-guerilla warfare.**

Although there are exceptions, content companies generally support PIPA, while businesses that host or deliver copyrighted intellectual property oppose it. This is not surprising given that the bill would primarily benefit the former while imposing much of the cost of implementation on the latter. Moreover, Internet and Internet hosting companies are concerned that they will be held liable for the actions of websites beyond their direct control.

PIPA’s indefinite postponement in the Senate could signal a shift in political influence from traditional companies to Internet-based ones.

## **THE BATTLE AND THE BLACKOUT**

The computer-based online tactics employed by PIPA’s opponents constituted a kind of cyber-guerilla warfare. The “Timetable of Selected PIPA Events” sidebar provides an overview of the battle over the legislation, which lasted less than nine months. While PIPA supporters almost exclusively relied on orthodox techniques such as open letters to Congress and the press, opponents also adopted several innovative computer-based approaches to alert the public to the bill’s implications, track its progress in the Senate, and motivate website visitors to take action.

### **The battle lines are drawn**

As with COICA, both Democrats and Republicans backed PIPA, which sailed unopposed through the Senate

## TIMETABLE OF SELECTED PIPA EVENTS

- 12 May 2011:** Sen. Patrick Leahy, chairman of the House Judiciary Committee, and 11 bipartisan cosponsors introduce the Preventing Real Online Threats to Economic Creativity and Theft of Intellectual Property Act, better known as the Protect IP Act (PIPA); by December, the bill has 41 cosponsors.
- 25 May 2011:** Open letter to Senate by 170 businesses in favor of PIPA.
- 26 May 2011:** Senate Judiciary Committee passes PIPA with unanimous voice vote; Sen. Ron Wyden places hold on bill.
- 26 May 2011:** Steve Crocker and coauthors post white paper, "Security and Other Technical Concerns Raised by the DNS Filtering Requirements in the PROTECT IP Bill."
- 7 June 2011:** *Los Angeles Times* editorial against PIPA.
- 8 June 2011:** *The New York Times* editorial against PIPA.
- 23 June 2011:** Open letter to Congress by more than 50 leading Internet venture capitalists against PIPA.
- 27 June 2011:** Sen. Jerry Moran becomes first of what will eventually be 10 senators to withdraw sponsorship of PIPA.
- 20 Sept. 2011:** Open letter to Senate by entertainment industry leaders in favor of PIPA.
- 22 Sept. 2011:** Open letter to Congress by 359 businesses and organizations in favor of PIPA and SOPA.
- 12 Oct. 2011:** Crocker and coauthors release "Internet Engineers' Letter Urging Amendment of the PROTECT-IP Act" to Senate.
- 25 Oct. 2011:** Fight for the Future releases anti-PIPA video, receiving more than four million hits in three months.
- 26 Oct. 2011:** Joint public statement by creative guilds and unions in favor of SOPA and PIPA.
- 15 Nov. 2011:** Open letter to chairmen and ranking members of the Senate and House Judiciary Committees by nine of the largest Internet and technology companies against PIPA and SOPA.
- 16 Nov. 2011:** American Censorship Day—during opening day of House Judiciary Committee hearing on SOPA, more than 6,000 websites black out material or agree to site takeover.
- 15 Dec. 2011:** Open letter to Congress by 83 Internet inventors and engineers against PIPA and SOPA.
- 26 Dec. 2011:** A few days after announcing it would no longer support SOPA in wake of public backlash, Go Daddy issues statement saying it does not support PIPA either.
- 12 Jan. 2012:** Sen. Leahy proposes further study of the impact of PIPA's controversial DNS blocking provision and announces intent of sponsors to amend bill.
- 13 Jan. 2012:** Six PIPA cosponsors request Senate Majority Leader Harry Reid to cancel vote on bill.
- 14 Jan. 2012:** Obama administration announces opposition to PIPA and SOPA.
- 16 Jan. 2012:** Electronic Frontier Foundation urges visitors to "take action" against PIPA and SOPA.
- 17 Jan. 2012:** "An Open Letter to Washington from Artists and Creators" opposing PIPA and SOPA.
- 18 Jan. 2012:** Online blackout protest against PIPA and SOPA, with participation of more than 115,000 websites.
- 18 Jan. 2012:** US Chamber of Commerce urges Senate vote on PIPA.
- 18 Jan. 2012:** Letter from Hollywood guilds to Senators Gillibrand and Schumer in support of PIPA.
- 20 Jan. 2012:** Sen. Harry Reid postpones floor vote on PIPA.

Judiciary Committee two weeks after its introduction. A day before the vote, 170 businesses and organizations sent an open letter to the Senate endorsing the bill.<sup>5</sup>

Opponents reacted immediately, raising technical concerns about PIPA. On 26 May, the day of the Judiciary Committee vote, a prestigious group of Internet security experts led by Steve Crocker released an online white paper summarizing various problems related to the bill's Domain Name Service (DNS) filtering requirements.<sup>6</sup> Reprising his 2010 role, Senator Wyden placed a hold on PIPA.<sup>7</sup>

In early June, opposition to the legislation gathered steam, and major newspapers such as *The New York Times*<sup>8</sup> and the *Los Angeles Times*<sup>9</sup> editorialized against PIPA. Meanwhile, the Web industry, along with civil liberties organizations, initiated a grassroots online campaign to pressure senators to join Wyden in opposing the bill.

For example, on 23 June, a group of more than 50 venture capitalists behind some of the world's most popular websites—including Facebook, Twitter, Zynga, Skype, Groupon, LinkedIn, and Tumblr—sent a letter to Congress expressing concern about PIPA. The group Demand Progress posted the letter along with Facebook and Twitter links to spread the word about the campaign against PIPA, along with an online form that visitors could fill out and e-mail to their lawmakers with a simple click ([http://act.demandprogress.org/letter/protect\\_ip\\_vc](http://act.demandprogress.org/letter/protect_ip_vc)).

The campaign against PIPA quickly began to pay dividends. On 27 June, Senator Jerry Moran (R-KS) became the first of the bill's cosponsors to withdraw his support. In the months to come, nine other senators would follow suit.

On 20 September, various entertainment industry leaders fought back with an open letter to the Senate in favor of PIPA.<sup>10</sup> Two days later, 359 "businesses, trade associations, and professional and labor organizations ... representing a broad cross-section of the American economy" likewise addressed a pro-PIPA/SOPA letter to Congress.<sup>11</sup>

On 12 October, in their "Internet Engineers' Letter Urging Amendment of the PROTECT-IP Act," Crocker's group of Internet security experts argued that DNS filtering was not technically feasible, would be ineffective, and would engender negative side effects.<sup>12</sup> Consequently, they urged removal of the provision requiring that domestic ISPs filter their DNS results.

Two weeks later, performing artists publicly jumped into the fray. A group of six creative guilds and unions, including SAG and the American Federation of Musicians, issued a joint public statement supporting the newly introduced SOPA (as the companion legislation to PIPA).<sup>13</sup> Meanwhile, the group Fight for the Future posted an anti-PIPA video ([www.fightforthefuture.org/pipa](http://www.fightforthefuture.org/pipa)) that received more than four million hits during the next three months. In addition to providing Facebook and Twitter links and a petition to Congress, the site specifically solicited support from performing artists against the bill.

On 15 November, one day before the House Judiciary Committee held hearings on SOPA, nine of the largest Internet and technology companies—AOL, eBay, Facebook, Google, LinkedIn, Mozilla, Twitter, Yahoo, and Zynga—sent an open letter to the chairmen and ranking members of the Senate and House Judiciary Committees supporting the goals of PIPA and SOPA but highlighting the current bills' limitations.<sup>14</sup>

Fight for the Future designated 16 November as American Censorship Day. More than 6,000 websites, including Tumblr, Mozilla, and Reddit, either blacked out material or agreed to a site takeover to illustrate the dangers of Internet censorship (<http://sopastrike.com/timeline>). This unprecedented "direct action" precipitated more than one million e-mails or calls, and about two million signed petitions, to members of Congress against PIPA and SOPA.

On 15 December, an open letter by 83 prominent Internet inventors and engineers, headed by Vint Cerf, put more pressure on Congress to reject the legislation.<sup>15</sup>

The Web community did not limit its anti-PIPA/SOPA campaign to Congress. On 22 December, after Web host Go Daddy announced its support of SOPA, a Reddit blogger called for a boycott of the site (<http://godaddyboycott.org>) that ultimately resulted in a number of website owners withdrawing or deleting their domains. In less than a week, Go Daddy changed its position and announced it was no longer supporting SOPA or PIPA.<sup>16</sup>

## The Internet goes dark


During the end-of-year Congressional recess, it became clear that the tide had shifted against PIPA and SOPA. On 12 January, 11 days before Congress reconvened, Senator Leahy proposed further study of the impact of PIPA's controversial DNS blocking provision and announced the sponsors' intent to amend the bill.<sup>17</sup> The same day, Representative Smith indicated that the same provision would be withdrawn from SOPA.<sup>18</sup>

Their actions, however, came too late to satisfy colleagues in Washington, who were subjected to increasing pressure from their constituents. On 13 January, six Republican PIPA cosponsors requested that Senate Majority Leader Harry Reid (D-NV) refrain from holding a floor vote on the bill.<sup>19</sup> The following day, three officials in the Obama administration indicated on the White House website that they opposed PIPA and SOPA as written. "While we believe that online piracy by foreign websites is a serious problem that requires a serious legislative response," they said, "we will not support legislation that reduces freedom of expression, increases cybersecurity risk, or undermines the dynamic, innovative global Internet."<sup>20</sup>

Meanwhile, opponents of the legislation stepped up their attacks. On 16 January, the Electronic Frontier Foundation urged visitors to "take action" against PIPA and SOPA.<sup>21</sup> "An Open Letter to Washington from Artists and

Creators" refuted the commonly held belief that the artistic community uniformly backed PIPA and SOPA (<http://stopthewall.us/artists>).

The battle over the legislation climaxed with the Internet blackout of 18 January. A message on Wikipedia noted that "For over a decade, we have spent millions of hours building the largest encyclopedia in human history. Right now, the US Congress is considering legislation that could fatally damage the free and open Internet. For 24 hours, to raise awareness, we are blacking out Wikipedia." In addition to making themselves unavailable to users, many blackout participants followed the example of Google and civil rights and privacy groups like Demand Progress and Fight for the Future in urging visitors to electronically sign a petition or contact their elected representatives.



**The blackout, which involved more than 115,000 websites, proved to be extremely successful at rousing public opposition to the bills.**

On the same day as the blackout, PIPA/SOPA supporters made a last-ditch effort to convince lawmakers. The US Chamber of Commerce issued a letter that "strongly urged" the Senate to support PIPA and noted that it would track senator voting in its annual scorecard.<sup>22</sup> The major Hollywood guilds also sent a letter to Senators Kirsten Gillibrand and Charles Schumer, both New York Democrats, urging their continued support of the bills.<sup>23</sup>

The blackout, which involved more than 115,000 websites,<sup>24</sup> proved to be extremely successful at rousing public opposition to the bills. For example, 8 million US visitors to Wikipedia's blackout page contacted their Congressional representatives, and 4.5 million users signed Google's petition to Congress against PIPA and SOPA.<sup>25</sup> Opponents also used the opportunity to urge people to take to the streets, most notably in a PIPA protest outside the offices of Senators Gillibrand and Schumer in New York City that attracted 2,000 members of NY Tech Meetup.<sup>26</sup>

One of the best indications of the successful campaign against PIPA is the nonpartisan OpenCongress site, in which visitors can comment and "vote" on legislation. As of this writing, PIPA has 26 supporters and 2,192 opponents in that forum. Apparently as a result of all of these factors, Senator Reid determined to postpone a floor vote on the bill.

## SOCIAL MEDIA AS A COMMUNICATION MEDIUM

Website visitors were not alone in using social media such as Twitter and Facebook to spread the word about

**Table 1. Senator categorization.**

PIPA sponsorship group	Twitter account and tweeted about PIPA	Twitter account but did not tweet about PIPA	No Twitter account	Total
Nonsponsors	30	22	6	58
Former cosponsors	7	1	2	10
Cosponsors	7	19	6	32
<b>Total</b>	44	42	14	100

PIPA’s perceived dangers. Senators also used these tools to discuss the bill and send out feelers about changes in their position. For example, 44 of the 100 US senators mentioned PIPA in at least one tweet during January 2012.

Twitter and Facebook, the most frequently used forms of social media, are increasingly regarded as original news sources. Legislators can bypass media intermediaries and communicate directly, and in real time, with both constituents and the public at large. Having direct control of a message also limits ambiguity about its content.

**Twitter**

Twitter is a microblogging service that lets registered users send messages of up to 140 characters to their followers. Users can respond to a tweet by sending a message to the original source; they can also mark the message as a “favorite” to let the sender know they liked the content. Tweets by default are publicly viewable, and links to interesting tweets typically mention the Twitter name of the person who initiated the message.

Users can retweet others’ messages to their own followers. The number of times a message is retweeted provides a poll-like measure of the general interest in the content. Being frequently retweeted conveys a certain status, and messages from entertainment and sports celebrities as well as prominent politicians such as US senators are more likely to be retweeted.

Since its 2006 launch, Twitter has grown dramatically in popularity worldwide, and it currently has 140 million active users sending 340 million tweets a day (<http://blog.twitter.com/2012/03/twitter-turns-six.html>). Two years ago, the US Library of Congress began archiving tweets in recognition of their increasingly important status in documenting historical events.<sup>27</sup>

**Facebook**

Unlike Twitter, message length in Facebook is not limited. Consequently, Twitter users will sometimes include in their message a link to a Facebook account that provides more information than exists in the original tweet.

For legislators, Facebook can be the most effective medium for communicating with colleagues and con-

stituents because it is the most popular social media site, with more than 900 million active users (<http://newsroom.fb.com/content/default.aspx?NewsAreaId=22>).

However, a Facebook posting can generate a lot of comments, and many negative responses could sway viewers’ opinion against the poster. Legislators thus might prefer to disclose potentially controversial statements on their official websites.

**SENATORS’ TWEETS AND PIPA**

To get a snapshot of the role of social media—in particular Twitter—in senators’ communications about PIPA, I analyzed the accessible Twitter accounts of each senator who had such an account from 14 January forward based on Google searches.

**Study methodology**

I divided the senators into three groups with respect to PIPA sponsorship: nonsponsors, cosponsors, and former cosponsors—those who withdrew their cosponsorship. For simplicity, I aggregated the bill’s sole sponsor, Senator Leahy, with the cosponsors. I also categorized the senators according to whether they had no Twitter account, had an account but did not tweet regarding PIPA, or had an account and tweeted at least once about PIPA.

I evaluated the data in these categories using four different sets of analyses.

First, I compared the rates at which cosponsors versus nonsponsors and former cosponsors used Twitter to communicate about PIPA to determine if there was a statistically significant difference.

Second, I examined senators’ Twitter use over time to determine whether there was any correlation between two key PIPA events—the Internet blackout and the bill’s postponement—and the number of tweets and retweets. I also wanted to determine whether there was a relationship between PIPA sponsorship status and Twitter activity around those events.

Third, I evaluated multiple sets of PIPA tweets and retweets by the same senators to see if there were any revealing patterns—for example, a gradual decrease in interest in subsequent tweets on the same subject.

Fourth, I explored the question of whether there was a relationship between the number of retweets and key characteristics of Facebook messages—for example, the number of shares and likes—for those senators with Facebook accounts.

**Rate of Twitter use**

As Table 1 shows, 86 senators have Twitter accounts, a substantial increase in use of the service since 2009, when 44 senators had accounts.<sup>28</sup> At the peak of Senate support, PIPA had 32 cosponsors, but by 26 January, 10 had withdrawn their cosponsorship; a total of 58 senators

**Table 2. PIPA event analysis.**

Time period	No. of tweets (nonsponsors)	No. of retweets (nonsponsors)	No. of tweets (cosponsors)	No. of retweets (cosponsors)	No. of tweets (former cosponsors)	No. of retweets (former cosponsors)	Total tweets	Total retweets
<b>Preblackout</b>								
14 Jan. 2012	10	187	1	5	0	0	11	192
15 Jan. 2012	0	0	0	0	0	0	0	0
16 Jan. 2012	2	25	0	0	0	0	2	25
17 Jan. 2012	2	135	1	76	0	0	3	211
<b>Blackout</b>								
18 Jan. 2012	35	4,316	2	69	12	3,357	49	7,742
<b>Postblackout</b>								
19 Jan. 2012	9	224	2	79	3	118	14	421
<b>Postponement</b>								
20 Jan. 2012	16	1,083	9	790	7	51	32	1,924
<b>Later</b>								
21 Jan. 2012+	5	32	0	0	0	0	5	32
<b>Total</b>	79	6,002	15	1,019	22	3,526	116	10,547

are nonsponsors. Of the 68 senators who either are not cosponsors or who have withdrawn their cosponsorship, 37 tweeted about PIPA; of the 32 remaining cosponsors, 7 tweeted about PIPA. The difference between the first proportion ( $37/68 = 0.54$ ) and the second ( $7/32 = 0.22$ ) is better than .01, indicating a statistically significant difference between the rates at which cosponsors versus nonsponsors and former cosponsors used Twitter to communicate about PIPA.

### Event analysis

Analysis of senators' tweets and retweets from an "event" perspective suggests there were five main time periods: prior to the Internet blackout (14-17 January), the blackout (18 January), after the blackout but before PIPA's postponement (19 January), the bill's postponement (20 January), and after the bill's postponement (21 January and later).

As Table 2 shows, there were very few tweets and retweets prior to the blackout. The overwhelming number of tweets (69.83 percent) and retweets (91.65 percent) occurred during the blackout and PIPA's postponement, after which there was a steep drop-off. Thus, high Twitter use did coincide with key PIPA event days. The data also reflect an apparent "day of the week" effect: on 15 January, a Sunday, there were no tweets or retweets.

Twitter use by PIPA nonsponsors and former cosponsors each peaked during the blackout. In particular, for these two groups, approximately 44.30 percent and 54.55 percent of tweets, and 71.91 percent and 95.21 percent of retweets, respectively, occurred on 18 January. The difference in the proportions of retweets, but not tweets, for these two groups is statistically significant at better than .01, perhaps reflecting the impact of followers' responses. In contrast to those two groups, only

13.33 percent of cosponsors' tweets and 6.77 percent of their retweets were on that date. For this group, most tweets (60 percent) and retweets (77.53 percent) occurred on the bill's postponement day, and those proportions are statistically significantly different than those for the other two groups at better than .01. Accordingly, the timing of Twitter use by PIPA nonsponsors and former cosponsors is fundamentally different than that of the cosponsors.

What might account for these results? Unlike cosponsors, nonsponsors and former cosponsors have no vested interest in the bill's passing. These two latter groups of senators appeared to use the blackout, when there was a groundswell against PIPA, to clarify their position. For cosponsors, however, postponement was the central event.

### Characteristics of PIPA retweets

Analysis of senators' PIPA tweets revealed different strategies—for example, to tweet about the bill until there were no or very few retweets. If a senator had multiple PIPA tweets, it seemed likely that the earlier tweets would have generated the greatest interest as these generally contain more information than subsequent tweets.

To test this notion, I listed every PIPA tweet and compiled the corresponding number of retweets and favorites, along with the date and order in which the senator sent it. I focused on the period 18-20 January 2012 because the Internet blackout brought widespread attention to the bill, and the postponement effectively killed it.

I found that the number of retweets as well as favorites were statistically significantly (negatively) correlated with both order and date. These findings confirm that, in general, there were more likely to be retweets of a first PIPA tweet than of a subsequent tweet; similarly, earlier tweets were more likely to be favorites. The number of favorites

**Table 3. PIPA retweets with Facebook reference.**

Senator	PIPA sponsorship status	No. of retweets	No. of shares	No. of likes	No. of comments	No. of words	No. of characters (with spaces)	Date
David Vitter (R-LA)	Former cosponsor	58	131	790	199	66	326 (391)	18 Jan. 2012
Marco Rubio (R-FL)	Former cosponsor	1,536	1,803	4,904	1,377	317	1,565 (1,892)	18 Jan. 2012
John Boozman (R-AR)	Former cosponsor	623	260	682	324	259	1,356 (1,618)	18 Jan. 2012
John Cornyn (R-TX)	Nonsponsor	81	144	709	578	56	302 (358)	18 Jan. 2012
John Cornyn (R-TX)	Nonsponsor	50	164	763	670	43	215 (257)	18 Jan. 2012
Jeff Sessions (R-AL)	Nonsponsor	7	16	139	35	61	285 (345)	19 Jan. 2012
Kirsten Gillibrand (D-NY)	Cosponsor	17	84	571	218	195	916 (1,110)	20 Jan. 2012
Jeanne Shaheen (D-NH)	Cosponsor	7	0	23	28	90	390 (479)	20 Jan. 2012
Tom Udall (D-NM)	Cosponsor	8	36	243	72	71	329 (399)	20 Jan. 2012

and retweets were also highly and statistically significantly correlated.

Although senators periodically recognized colleagues in their tweets, I discovered that few senators retweeted others' PIPA-related messages. The most retweeted message on 18 January was by Senator Marco Rubio (R-FL), a former cosponsor regarded as a potential running mate for Mitt Romney in the upcoming presidential election, while the most retweeted message on 20 January was by Senate Majority Leader Reid, who is responsible for bringing legislation to the floor for a vote. Not retweeting colleagues' messages might imply that most senators see Twitter primarily as a tool to communicate their own but not others' views. Further, retweeted messages often cited the specific senator in the original tweet.

**Integrating Twitter and Facebook data**

As Table 3 shows, nine senator tweets about PIPA on 18-20 January 2012 included a link to a message on their Facebook page. The data suggests that they used these messages, which ranged in length from 215 to 1,565 characters, to provide more detailed information than they could include within the tweet's 140-character limit. The results in Table 3 are also consistent with the findings in Table 2 in that the three former cosponsors and two nonsponsors tweeted on 18 January, while the three cosponsors did so on 20 January.

If a tweet was retweeted many times, the Facebook message it pointed to was more likely to be shared and liked and to result in more comments, as Figure 1 shows. These popularity measures also were highly correlated

with Facebook message size, suggesting that the longer a message, the more attention it was likely to receive.

**FUTURE RESEARCH DIRECTIONS**

My research on computer-based political action in the battle over PIPA could be extended in several directions.

In a general sense, researchers could explore the many innovative ways in which citizens as well as governments, businesses, and organizations are using the Internet and social media to further their political goals or promote an agenda—for example, to support the passage of rather than kill legislation, or to coordinate protest marches and rallies. What role have such strategies played in the Tea Party movement, recent revolutions in the Middle East and North Africa, the upheaval surrounding the European debt crisis, and the debate over the Keystone XL Canada-US oil pipeline?

It would be useful to gather more Twitter data to gain insight into tweeting strategies. Although I focused on PIPA tweets, it is possible to similarly analyze tweets about SOPA in the House of Representatives as well as tweets by politicians on other controversial measures, such as ACTA. It would also be beneficial to look beyond Facebook and examine the extent to which tweets reference forums, blogs, news sites, and other webpages that include comments. Several visualization and analytics tools, such as Twitterfountain ([www.twitterfountain.com](http://www.twitterfountain.com)) and Tableau ([www.tableausoftware.com](http://www.tableausoftware.com)), make it easier to view related concepts.

I limited my investigation to quantifiable characteristics of tweets and Facebook messages, but it would be benefi-


	Shares	Likes	Comments	Date	Words	Characters	Characters with spaces
Retweets	0.954 (.0001)	0.928 (.0002)	0.907 (.0004)	-0.312 (.207)	0.723 (0.14)	0.766 (.008)	0.759 (.009)
Shares	—	0.995 (.0001)	0.892 (.0006)	-0.290 (.224)	0.736 (.012)	0.731 (.013)	0.734 (.018)
Likes	—	—	0.907 (.0003)	-0.331 (.192)	0.704 (.017)	0.698 (.018)	0.702 (0.18)
Comments	—	—	—	-0.510 (.080)	0.555 (.060)	0.564 (.057)	0.564 (.057)
Date	—	—	—	—	-0.161 (.340)	-0.216 (.288)	-0.209 (.295)
Words	—	—	—	—	—	0.997 (.0001)	0.998 (.0001)
Characters	—	—	—	—	—	—	0.999 (.0001)

**Figure 1. Correlation and statistical significance of characteristics of Facebook messages referred to in PIPA retweets.**

cial to also analyze semantic content in terms of “mood states,”<sup>29</sup> sentiment,<sup>30</sup> or other qualitative approaches. Such data could help researchers predict the outcomes of political activity, such as the likelihood of a bill passing.<sup>31</sup>

**W**hether it was because PIPA was about intellectual property on the Internet, or because the bill was anathema to the Web industry, open source software companies, and online privacy groups, opponents of PIPA (and of SOPA, its companion legislation) turned to computer-based political action, while supporters relied on traditional approaches.

Thus far, the anti-PIPA/SOPA forces have prevailed. However, the fight is not over. When Senate Majority Leader Reid indicated, via his Twitter account, on 20 January 2012 that he had decided to postpone a floor vote on PIPA, he also noted that he was “optimistic that we can reach compromise on PROTECT IP in coming weeks.”

The nature of such a compromise, if it does occur, is not clear. What is clear, however, is that computer-based political action, especially the use of social media, will play an increasingly important role in the policymaking process. 

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