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When Technology Makes Headlines: The Media's Double Vision about the Digital Age

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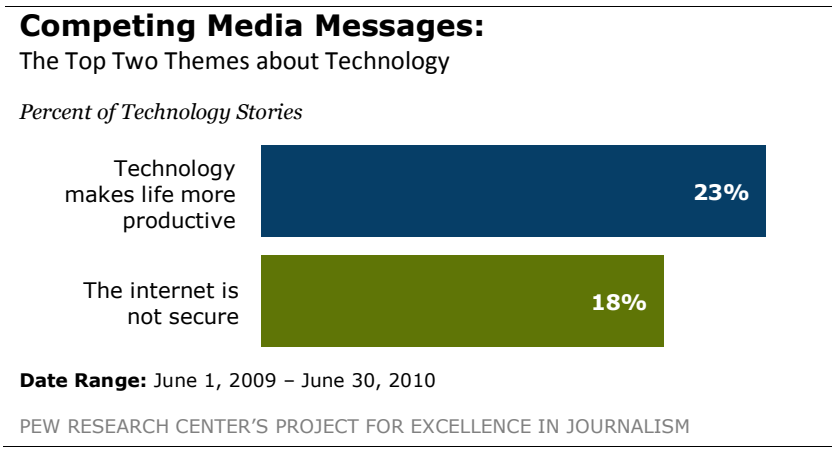
When Technology Makes Headlines: The Media's Double Vision about the Digital Age

The mainstream news media have offered the American public a divided view of how information technology influences society, according to a new study by the Pew Research Center's Project for Excellence in Journalism.

Over the past year, messages about the promise of technology making life easier and awe about new gadgets have vied in the news with worries about privacy, child predators, shrinking attention spans and danger behind the wheel.

The most prevalent underlying message about technology's influence has been upbeat—the notion that technology is making life easier and more productive. Nearly a quarter of all technology stories studied from June 1, 2009, to June 30, 2010, conveyed this idea. But that was closely followed by the sense that with that convenience comes risk—to our privacy and particularly to our children—which made up nearly two-in-ten stories, according to the study.[1]



These are some of the findings of the PEJ study of 437 technology-related stories appearing in the lead sections of 52 different news outlets: front pages of 11 newspapers, three cable and three network news channels, 12 websites and 10 radio programs.[2] The study was designed to examine the media coverage that occurs when technology news crosses beyond technology-oriented outlets or news sections to the top of the American news agenda—to front-pages, the national nightly news, cable prime-time and other general interest news outlets. It did not delve into specialty publications or sections.

The biggest single event or storyline during the year involved the perils of technology: the hazardous yet compulsive practice of texting while driving. Nearly one-in-ten technology stories were about this

[1] General technology threads are the concepts or impressions that form around technology as a whole in a given story. For a story to be coded as containing a thread, it had to be prevalent in at least 25% of the story.

[2] There were 953 technology stories in total over the course of the 13 months. PEJ staff then selected every other one in each program or newspaper, 437 in total, for further coding analysis.

subject, more than five times the coverage of either the U.S. plan for broadband access or net neutrality.[3]

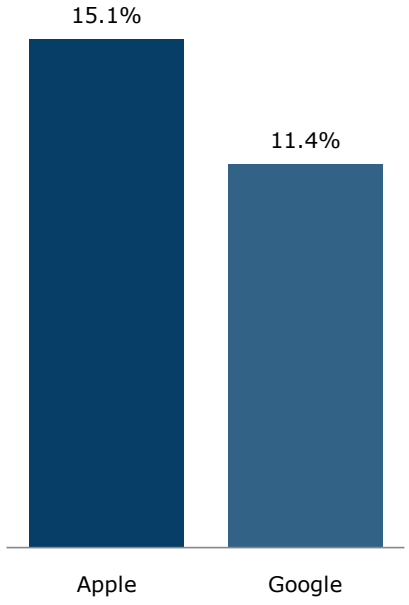
The second-biggest storyline addressed a more positive development: the launch of the latest Apple iPhones. Attention to the release of the iPad was not far behind.

While the mainstream press had a split vision of technology, social media reflected a different set of attitudes. An examination of blogs, social media sites and Twitter posts found more excitement about technological advancements and the businesses behind the developments. And the concerns, when there were some, focused on obstacles to technological freedom, such as pending court cases, which might get in the way of progress.

The study also examined which technology companies generated the most media attention in these venues. Apple, with its flashy press events and often drawn out releases of new products, narrowly outpaced Google in total coverage. Twitter and Facebook ranked third and fourth. Microsoft, on the other hand, once the feared technology behemoth, fell far behind—attracting just a fifth of the coverage of Apple and less than half that of Twitter.

Apple vs. Google in the News

Percent of Technology Stories



Date Range: June 1, 2009 – June 30, 2010

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Among the other findings:

- The mainstream media's coverage of technology was not vast. It made up less than 1.6% of the total coverage over the course of the year, ranking it 20th out of the 26 identified topics. That puts technology news in same range as the environment, sports and education. And while it trails far behind crime (4.7%), it comes in ahead of religion (.6%) and immigration (.9%).
- The topics within technology coverage varied widely, but the largest number (18%) concerned stories about social change and cultural trends—how technology is changing our lives. Those were closely followed by reviews and announcements about new consumer devices (16%). Policy issues under debate saw less coverage (12%), as did corporate goings-on (9%).
- The study also identified eight underlying themes about technology evident in the coverage, from its empowering affect on citizens to its destructive affect on our attention spans. Most stories (57%) conveyed one theme or other. When those themes are taken together, positive

[3] Net neutrality is the concept that all traffic on the internet should be treated equally. Under the principle of net neutrality, internet service providers would not be allowed to favor certain sites or services over others.

themes about technology narrowly outweighed negative (30% versus 27%). Beyond the top two themes—that technology makes life more productive and that the internet is unsafe—other themes were much less common. Technology's empowering effect on citizens, for example, emerged in just 3% of the stories and its negative effect on human interaction in just 2%.

- The portrayal of technology companies, on the other hand, was generally positive. For Apple, the most heavily covered technology company, 42% of the stories described the company as innovative and superior, and another 27% lauded its loyal fan base. But there were doubts. The most common such negative thread, that Apple products don't live up to the hype, appeared in 17% of stories about Apple. For Google, the company's advancements in making content easier to find topped its coverage at 25%. But it was only half as likely as Apple to be framed as having superior, innovative products (20%).

- On Twitter, where posts gravitated more than in the mainstream press toward insider technical news like gadget announcements and business acquisitions, Twitter itself was by far the biggest draw. Apple still garnered more attention than Google, though. And while Microsoft still came in behind Twitter, Apple, Google and Facebook, the gap was not nearly as big as in the mainstream media.

- On blogs, technology overall drove less of the conversation than on Twitter. Over the 13-month time period, just 11% of the top linked-to news stories each week related to technology, versus 51% on Twitter. It was here, though, that Google finally garnered more attention than Apple.

The findings suggest that in the mainstream media, particularly on front pages and general interest programs, the press reflects exuberance about gadgets and a wonder about the corporations behind them, but wariness about effects on our lives, our behavior and the sociology of the digital age.

Social media, on the other hand, suggests that people who are on the cutting edge of technology are not only more interested in discussing the topics, but more positive in general about specific advancements, like new versions of smartphones or new social networking sites.

Social Trends and New Devices Garner Greatest Attention from the MSM

If all the topics covered in technology in the past year are taken together, they fall into a handful of categories. A host of explicit problems—from cyber-security, to privacy concerns, crime incidents and more—made up a nearly third (a combined 32%) of the technology coverage. The combination of stories about social and cultural trends and the democratizing power of technology made up one quarter of all stories (26%). These stories embodied both promise, and sometimes concerns. Reviews about the release of new gadgets and products made up 16%. And a combination of corporate news and policy legislation stories filled another 22%.

The single biggest topic of coverage was the discussion of social and cultural trends. These stories, which made up a fifth of the coverage (18%), included technology's positive effects on human

interactions, like parents' texting with their children and the opposite effects of less face-to-face connections.

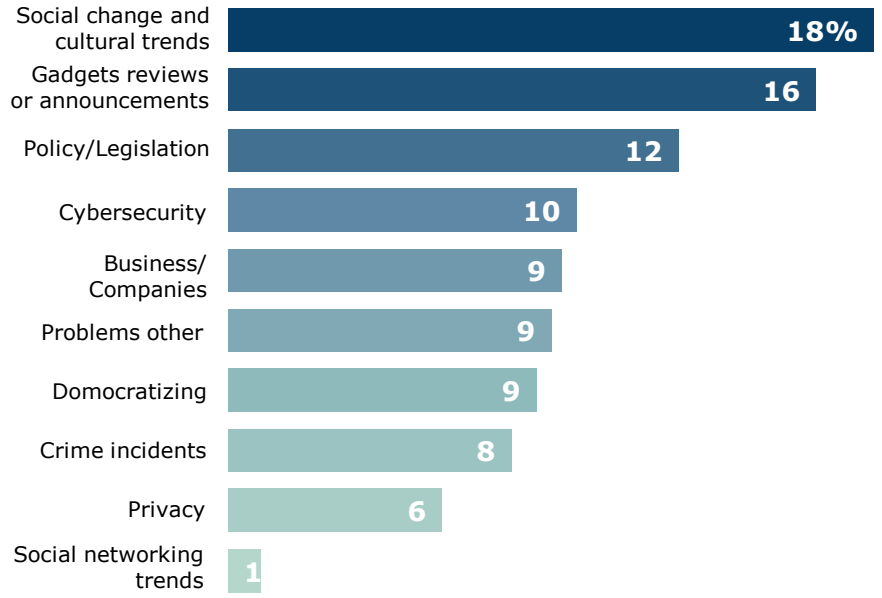
In many cases, these were enterprise or newsroom initiated pieces not tied to a national event. On August 9, 2009, for example, the New York Times ran a story about high schools that are encouraging teachers to use technology such as PowerPoint presentations and videos in their classrooms rather than traditional textbooks. And on April 29, 2010, ABC's World News Tonight featured a report about high school students posting creative videos on YouTube to ask out dates to their senior prom.

The small area of social networking trends (1%) also reflected largely affirmative influences of technology.

The second most popular subject area dealt primarily with positive advancements. Reviews and announcements of the latest technology gadgets accounted for 16% of all stories studied. The majority of this focused on the large-scale personal devices, like the Apple iPad and iPhone and to a lesser degree Google Chrome.

Mass Media Covers a Wide Mix of Technology Areas

Percent of Technology Stories



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"Just when we thought our handheld electronics could do everything, Apple rolls out a new one it says can do everything and more," CBS Evening News anchor Katie Couric announced on January 27, 2010, leading into a story about the unveiling of the company's new tablet device.

And the democratizing power of the web, particularly in the context of conflicts like the Iranian elections or American politics, filled 8% of the coverage during the 13 months studied.

Of the explicit problems with technology, cyber-security was the biggest topic (10% of stories). Much of this coverage dealt with specific events in the news, such as the July 2009 security breach of South Korean and American websites that was thought to have originated from hackers in North Korea.

Specific crime incidents made up 8% of the coverage. One such event led the Wall Street Journal on December 22, 2009. "The Federal Bureau of Investigation is probing a computer-security breach targeting Citigroup Inc. that resulted in a theft of tens of millions of dollars by computer hackers who appear linked to a Russian cyber gang."

A variety of other problems associated with technology, from identity theft, to stalking and cyber-bullying, made up another 9%.

Finally, coverage of public policy debates over technology, led by legislative efforts to limit texting while driving, made up (12%). Net neutrality and U.S. broadband policy made up relatively little of that (less than 2%). Corporate news (other than reviews of new technology) made up 9%.

Technology Aids Life but with Risk Attached

The general topic areas of coverage alone reflect some of the dual sense about technology that came through in the media, a sense of unease and excitement. To probe further, the study also looked at how the stories were explicitly written, in addition to what they were about. We examined each story for central themes about the role of technology in our lives. What we found reinforced the media's mixed portrait.

There were eight clear narratives or themes reflected in the coverage, four that were positive and four that were negative: The positive themes were that technology empowers the individual, fosters social connections, makes life more productive and that the internet overall is becoming more secure. On the negative side was technology replacing human interaction, being dangerous for children, unsecure for personal or national information and the sense that with technology today we can never get "unplugged."

A sizable minority of stories, 43%, did not strongly convey one theme or another; they were basically straight news accounts of an event that was neutral in nature.[4] But most, 57%, did reflect one of the eight narratives.

In those stories that contained a theme, the mix of positive and negative messages was pretty even.

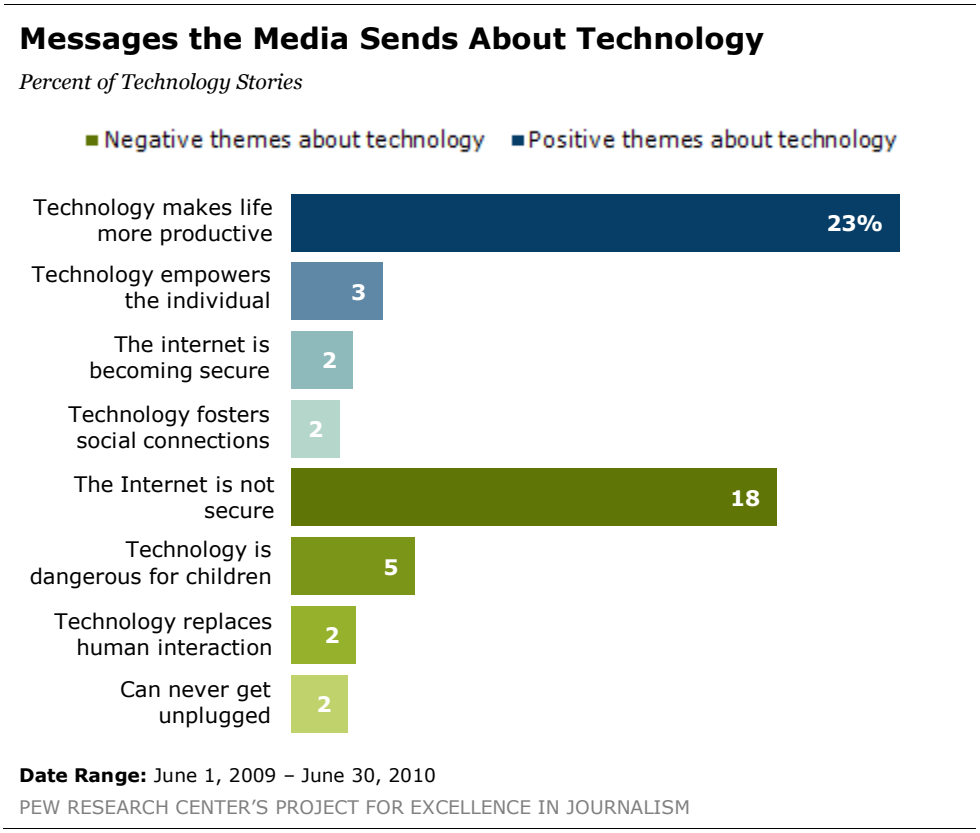
In the overall sample, about 30% of the stories were positive compared with 27% negative.

The theme identified more than any other was the idea that technology makes life more productive, fosters creativity, and can facilitate the dissemination of information. About a quarter of the stories studied (23%) reflected this notion.

These stories were wide in scope, from the announcement of a product that will give users new capabilities, to the role of Twitter in the Iranian protests, and, as in this Los Angeles Times story, that the increasingly wired world can be an aid for child development.

[4] For a story to be counted as having a theme, 25% or more of the story had to specifically portray that message.

But nearly as prevalent was a counter idea. The sense that technology and the internet are not secure for personal or government information was the second largest theme, at 18%. The subjects of these stories varied as well, from personal identity theft to the security of government information online. A CNN Live From story on February 8, 2010, for instance, discussed the FBI's request that internet service providers maintain traffic reports on their users for up to two years.



Another 5% of the stories aimed this cautious note specifically at the youth in this country—suggesting that technology, and specifically the internet, can be a dangerous place for children and teenagers. These stories, often short, appeared most in daytime cable and in radio headlines.

The radio headlines summarized recently released research on the topic, like this story from CBS Radio on June 24, 2009 on sexting.

The other themes examined were much less prevalent in the coverage. On the positive side, the sense of the internet empowering individual citizens came through clearly in just 3% of the stories studied—primarily in coverage about the Iranian protests. And technology's ability to foster social connections and the idea that some organizations are taking steps to make the internet and technology more secure were even less present.

On the negative side, concerns about technology replacing human interaction emerged in 2% of the stories. One such story was this ABC News radio headline about a psychologist saying that he is seeing more people who are dangerously addicted to Facebook.

Texting While Driving – The MSM's Biggest Tech Storyline of the Year

Within each of the larger topic areas, there were specific news events or storylines, as well.

The largest of these, the No. 1 technology story from June 1, 2009, to June 30, 2010, was the practice and danger of texting while driving. And the higher amount of coverage of the subject did not stem from one main event or big week of news. Instead the stories were spread out over the course of the year as new research emerged and 23 states considered banning the practice.

Many news organizations reported on a study published in July 2009 that showed that truck drivers who texted while driving increased their risk of a crash 23 times. Dialing a cell phone increased the risk of collision about six times in cars. On Good Morning America on July 28, 2009 Chris Cumo reports "A new study finds texting behind the wheel may be more dangerous than drunk driving."

The New York Times even won a Pulitzer for a series it ran in the summer of 2009, called "Driven to Distraction." The series examined "the dangers of drivers using cellphones and other electronic devices, and efforts to deal with the problem."

On a more local level, a Seattle Times story on March 4, 2010, discussed how the Washington state House of Representatives passed a law barring teenagers from texting while driving or using cell phones of any kind behind the wheel.

The subject even got a dose of celebrity coverage when in October 2009 the gossip website TMZ posted a video of Maria Shriver, the wife of California Governor Arnold Schwarzenegger, breaking the state's law prohibiting the use of cell phones while driving. Schwarzenegger responded by sending a Twitter message to TMZ editor Harvey Levin saying, "Thanks for bringing her violations to my attention. There's going to be swift action."

Tech Storylines Driving Coverage

Percent of Technology Stories

Texting while driving	8.5%
Apple iPhone	6.4
Iranian protests and the internet	5.3
Apple iPad	4.6
China and the internet	4.1
Digital TV switch	3.0
North Korea and internet attacks	1.8
Cyber-bullying other	1.8
Microsoft/Yahoo search agreement	1.8
U.S. broadband plan	1.6
Internet addiction	1.6
Politicians using technology	1.6
Phoebe Prince cyber-bullying	1.6
Steve Jobs news	1.6

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Newspapers and radio headline news gave particular attention to the subject. The radio headlines stand out in particular as they fall during "drive time"–perhaps aired as a cautionary note to all those listening. On a May 24 2010, on the ABC Radio headlines during the afternoon rush hour, Sherry Preston of ABC news echoed this idea "If its driving instead of riding your prefer, transportation secretary Ray LaHood says the government is committed to cracking down on distracted driving."

While the dangers of texting while driving are clear, the topic received far more attention than a number of other significant tech subjects that also impact millions of Americans. For example, texting while

driving received more than five times the amount of attention as legislative stories such as the National Broadband Plan for the United States and more than six times the number of stories as the controversy over net neutrality, a legal decision that could have a large impact on the future of the internet.

The second and fourth biggest stories from mid- 2009 through mid-2010 involved new offerings from Apple. With the releases of the iPhone 3GS in June 2009 and the release of the iPhone 4 in June 2010, the iPhone was the second-largest storyline with 6% of the stories covered. However, a number of Apple-focused stories received attention. In fact, four major storylines of the year involving Apple (the iPhone, the iPad, news about Apple's CEO Steve Jobs and the Apple App store) combined to make up 14% of the overall tech stories.

Apple Makes News on Multiple Fronts

Percent of Technology Stories

Apple iPhone (#2 in overall list)	6.4%
Apple iPad (#4)	4.6
Steve Jobs News	1.6
Apple App Store	1.4

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While newspapers stood out for their attention to the practice of texting while driving, they stood out here for largely opting out of Apple coverage. The iPad accounted for just 3% of the front page technology stories and the iPhone 1%.

Technology is a Global Topic

Technology coverage in the mainstream media also had a strong international flavor. In two of the top five storylines the media looked overseas.

First, in June 2009, technology became a central element in the coverage of the Iranian protests. After disputed elections in Iran, protests and violence erupted in many parts of the country. And while the international press were prevented from reporting on much of what was occurring, many so-called citizen journalists within the country conveyed events and pictures using Twitter and other forms of social media. Dubbed the "Twitter Revolution," many around the globe who sympathized with the protestors mounted their own online campaigns to provide support and disseminate information related to the movement.

The extensive coverage, though condensed mainly within a two-week time frame, still ranked third for the year, accounting for 5% of all technology-related news stories. The majority of the coverage appeared on evening network TV (including PBS) and evening cable news shows. Stories about the revolution also tended to be longer with the majority of network news and cable news stories between one and two minutes, and 9% were more than two minutes long. In this June 18, 2009, NBC Nightly News story, NBC reporter George Lewis reports on Los Angeles graduate students who are working to fight back against the Iranian government's trying to shutdown the internet in Iran during the protests, "These young men are not alone, on different continents others are also poking holes in the Iranian internet firewall."

The other major international tech storyline turned toward Asia. Stories of the internet's impact on communications inside China ranked fifth (4% of all stories studied here). This coverage, with a heavy dose from National Public Radio, included the censorship of Google's search engine, alleged cyber attacks on the U.S government and other U.S. companies and features on how the Chinese are using the Web.

Also from that side of the globe, North Korea's alleged cyber attacks on South Korean and U.S. websites accounted for 2% of all stories and ranked seventh on the list.

Legislative Issues and Political Debate Miss the Mark

What storylines did not make it as much in the news? Compared with other topics, there was relatively little attention to policy and legislative issues, with the exception of texting while driving. The switch from analog to digital TV signals that occurred June 2009 was the sixth largest story at 3%, while the U.S. Broadband plan was tied for 10th at 2%. And even in the coverage that did appear, the focus tended to be on how average Americans would be affected. Many digital TV stories, for example, explained who needed to upgrade their televisions to accommodate the switch and how they could go about doing that.

And the issue of net neutrality, which in the end affects the fundamental structure of the internet itself, received even less attention. It may be that this complex issue was still too far removed from people's personal lives to garner much media attention.

Apple Outpaces Google in Media Attention – Both Get Positive Play

In the battle among the tech titans, Apple Inc. won the title in the last year for press appeal. The 34-year-old company attracted more coverage from the mainstream press than any other technology company – and the bulk of it was positive. Its popular devices and orchestrated PR strategy helped it even outpace Google Inc.

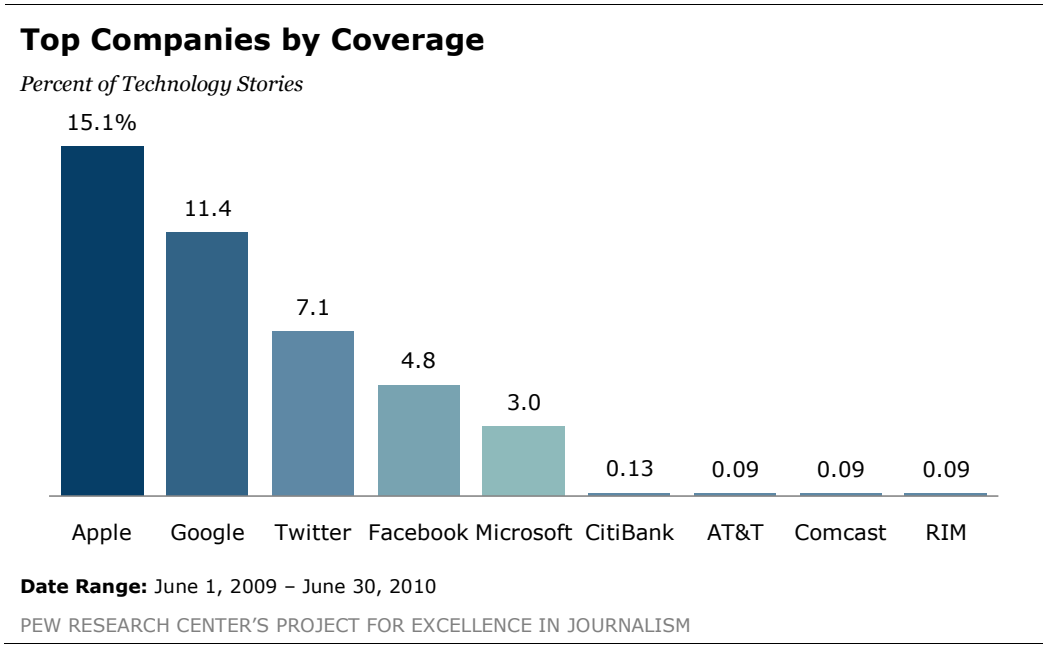
From June 2009 through June 2010, 15% percent of the technology stories focused primarily on Apple, versus 11% about Google.

The two social media platforms, Twitter and Facebook, came next (7% and 5%). Twitter's coverage during this time period largely centered around its communication role during the Iranian protests in the summer of 2009. Attention to Facebook was largely focused on the service itself and its interaction with its users.

Microsoft, on the other hand, received little press at all. After being arguably the most important technology company, even as recently as five years ago, run by the richest man in the world and the world's most powerful monopoly, Microsoft has, at least for now, fallen off the mainstream media's radar. It received just one-fifth the coverage of Apple, less than a third the coverage of Google and less than half the attention of Twitter. The one area of attention came in the search agreement with Yahoo in which Yahoo searches are now run on the Bing search engine. As this July 29, 2009, Wall Street

Journal article explains, "Under the deal, Yahoo will make Microsoft's Bing search engine the search provider on its Web sites, licensing its own search technology to Microsoft to integrate if it chooses."

But the media paid little attention to any other technology players. No other company, including technology giants such as Amazon, Best Buy or Yahoo, registered more than 1%. And in covering these companies, the mainstream press focused heavily on the positive.



The media's take on Apple from June 2009 through June 2010 would make Steve Jobs proud. More than 40% of the stories about Apple suggested that its products are innovative and superior in quality. [Note: stories may carry more than one thread so the totals may not add up to 100.]

In this June 23, 2010, USAToday.com review of the iPhone 4, the author asserts, "The new iPhone….demonstrates once again why Apple's handset is the one to beat, even as it faces fierce competition from phones based on Google's Android platform, among others."

Another quarter of stories, 27%, highlighted the company's loyal fan base. Often this had to do with announcements of new products, such as this June 7, 2010, USAToday.com article about the imminent announcement of the iPhone 4: "It doesn't matter that the iPhone is now in its third year and that what is likely to emerge is merely an update. Legions of tech geeks, Apple competitors and ordinary consumers will be hanging on Jobs' every word."

And what about problems like ineffective touch screen, poor connections or limited user freedoms? Hard to find in this media coverage—just 17% suggested the products are overhyped, and less than half that, 7%, portrayed the company as too controlling with its products.

In Google's case, positive themes governed the coverage as well, though not quite to the same extent as Apple. Half as much of Google's coverage as Apple's, (20% versus 42%), portrayed its products as innovative and superior. In this May 11, 2010, MSNBC Live clip CNET analyst Maggie Reardon says that "One key difference that techy geeks talk about is multitasking, something that you are able to do on an Android phone that you can't do on an iPhone."

But even more stories, 25%, emphasized Google's help in navigating the Web by making content more searchable and easier to find. However, the third most prominent thread about Google was a negative one.

The theme that gave Google the most trouble is one that often accompanies a fast-growing, dominant company within any industry. The idea that the company has too much information and too much power appeared in 19% of the stories about Google (the third most-mentioned thread overall). This idea appeared in a story on Fox News Live about a scandal where Google streetview cars were accidentally collecting personal information.

Google was largely off the hook in the media's eyes, however, when it came to accusations that the company steals others' content, including the news media's. This theme emerged in just 2% of the stories.

For the two most written about social media networks, Twitter and Facebook, fewer distinct themes have emerged at this point. The two competing ideas surrounding Twitter are that the network helps disseminate information and connect people and that communication there is often pointless and self-centered. In this coverage, especially centered on Twitter's role in Iran, the positive influence heavily dominated. More than two-thirds of stories (68%) highlighted its role as a disseminator of information, while just 4% focused on the pointless nature of posts.

Facebook received largely positive press as well, though it suffered some from controversies surrounding its privacy settings. Most stories, 36%, articulated the value of Facebook in fostering communication; another 17% extolled its related role in bringing people together. But more than a quarter, like this AOL story from May 26, 2010, discussed users' dissatisfaction with Facebook's privacy changes and Facebook's attempt to alleviate those concerns.

For more information Google, see PEJ's "Who Owns the News Media" database of the top media companies in the U.S.

New Media's Take on Technology – A Separate Look

A quite different narrative emerges from a separate study of technology and social media.

An analysis of the most linked-to technology stories in blog and Twitter posts finds that users of social media portray a stronger sense of excitement than the mainstream press about the latest technological advancements.

The concerns in social media are also different from those in the so-called MSM as well. Rather than anxiety over the potential dangers associated with new developments, users of social media worry about obstacles that stand in the way of technological progress.

China's reluctance to allow a free and open internet, for example, produced more discussion in the social media studied than cyber-related crimes or the pitfalls of texting while driving. In fact, texting

while driving was not among the top stories on blogs or Twitter throughout the entire time period studied.

These separate findings, covering the same 13-month time period, are based on PEJ's weekly analysis of news stories linked to in blogs and on Twitter—the New Media Index. NMI data is aggregated slightly differently and is based on linked-to stories inside individual posts. PEJ monitors and compiles the data from the tracking sites Tweetmeme and Icerocket. Each week's report discusses the five most- linked-to stories within each platform. (The full methodology is available here.)

Twitter

To users of the social networking site Twitter, technology is an enormously popular topic of conversation. More than half (51%) of the top five stories in a given week on Twitter were about a technology-related topic. That was much larger than the less than 2% of the newshole that the mainstream press devoted to similar subjects.

And the technology areas that Twitterers focused on demonstrated that feeling of enthusiasm over advancements, coupled with disdain for things that prohibit their use.

Technology Areas Linked-to on Twitter

Percent of Technology Stories on Twitter

Business/Companies	29.5%
Gadgets/App reviews or announcements	28.0
Social networking trends	15.2
Social change and cultural trends	5.3
Cyber security	5.3
Democratizing	5.3
Other tech developments	4.5
Privacy	3.8
Policy/Legislation	2.3
Crime incidents	0.8

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More than any other subject, Twitterers posted news from the business side of technology. Almost a third (30%) of the top stories focused on companies or the business aspects of the industries, versus just 9% in the mainstream press.

Some of these business stories shared news of positive new developments, such as the February 2010 reports that Yahoo purchased the Twitter firehose (and industry term for the full feed of all Tweets posted to Twitter, in real time), which would allow the company to add real-time tweets to search results.

Others demonstrated concerns about companies or decisions that might slow down technological progress. For instance, in November 2009, news that Microsoft was banning as many as a million users of their XBOX Live gaming service for modifying game consoles or using illegally downloaded games was a significant topic of discussion.

The next two most popular areas for users of Twitter – gadget reviews and trends in social networking—highlighted the positive. New product announcements frequently triggered a flurry of activity within this

tech-hungry crowd. The week of October 5-9, 2009, for example, news of a Flash programming application for the mobile iPhone device quickly became the most linked-to story on Twitter.

On the social networking side, a report that the majority of social network users are women ranked among the lead stories the week of October 5-9, 2009. But so did a trend Twitterers found more disruptive to technology: research indicating that more than half of U.S. workplaces block networking sites. And in May 2010, news of a bug within Twitter that could force users to follow other Twitterers without permission led the discussion with 22% of the week's links.

The problem areas of technology, which generated significant concern among those in the mainstream press, were not nearly as important to those on social media. Crime incidents, for example, made up only 1% of the stories on Twitter, while cyber-security (5%) and privacy (4%) also received scarce attention.

These same areas of interest were also evident when considering the specific storylines covered on Twitter. The top storyline, with 15% of the stories, was Twitter itself. Whether it was an outage of the site, the posting of the five billionth tweet, or an article about the connection between the site and real-time journalism, whenever a Twitter-related subject made news, it rose near the top of the social media agenda.

Developments with Apple's iPhone, one of the most popular portable devices in 2010, were second at 8%.

Technology Storylines on Twitter

Percent of Technology Stories

Twitter	15.2%
iPhone	7.6%
Iran revolution	5.3%
iPad	3.8%
Google Android	2.3%
Windows 7	2.3%
Google Chrome	1.5%
China and the internet	1.5%
Apple App store	0.8%
Facebook privacy	0.8%
net-neutrality	0.8%
North Korea	0.8%

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The third-largest story on Twitter, at 5%, was of particular note. Twitter's role in the 2009 Iranian protests was the No.1 subject on Twitter for seven straight weeks. Disputed election results led to massive protests against the Iranian government, and part of the government response included a crackdown against the press. Twitter then quickly emerged as a critical tool for disseminating information and for those outside the country to express their support for the protestors. In many ways, the Iranian protests were a signature event in the development of Twitter, so much so that it garnered attention in the mainstream press and was dubbed "The Twitter Revolution."

Users of Twitter, and of social media in general, expressed concern about the crackdown on information and saw the Web as the best way to bring awareness to the conflict. To many online, disseminating information about the protests or showing one's solidarity by using the color green were acts of political engagement.

Blogs

In the blogosphere, technology-related topics were not as pervasive as they were on Twitter. During the 13 months studied, 11% of the top stories on blogs were technology-related. While still much larger than the less than 2% of newshole about similar topics in the mainstream press, it was much less than the 51% of stories on Twitter.

Still, the sense of strong optimism in the potential of technology rang strong.

Technology Areas Discussed on Blogs

Percent of Technology Stories on Blogs

Social change and cultural trends	17.2%
Other tech developments	17.2
Gadgets/App reviews or announcements	13.8
Cyber security	10.3
Business/Companies	10.3
Social networking trends	10.3
Policy/Legislation	3.4
Democratizing	3.4
Crime incidents	3.4

Date Range: June 1, 2009 – June 30, 2010

PEW RESEARCH CENTER'S PROJECT FOR EXCELLENCE IN JOURNALISM

Popular stories about social change and cultural trends (17%) mostly highlighted the positive. The week of March 8-12, 2010, for example, the most linked-to story in the blogosphere was a BBC survey of more than 27,000 adults worldwide in which four-out-of-five people said they considered internet access a "fundamental right."

Bloggers also paid attention to unique developments in technology (17%). These subjects included stories such as a Fox News report in July 2009 that described robots being designed by the Pentagon that would be powered by eating biomass and a March 2010 story about the Large Hadron Collider-the large particle accelerator that scientists hope would help discover the origins of matter but had to close at the end of 2011.

Of less interest to bloggers than Twitter uses were technical developments such as gadgets (14%) and company news (10%).

Methodology

About this Study

September 27th, 2010

A number of members of the PEJ staff assisted in the production of this report, "When Technology Makes Headlines: The Media's Double-Vision About the Digital Age."

The team leaders on the project were research analyst Kenny Olmstead and TITLE Paul Hitlin. Sovini Tan, Mahvish Khan and Josh Appelbaum aided in the research, including coding and content analysis of 437 stories about technology.

Other staff members who made substantial contributions to the report were: weekly News Index manager Tricia Sartor, analyst/coder Laura Houston Santhanam, deputy director Amy Mitchell and director Tom Rosenstiel.

When Technology Makes Headlines: The Media's Double-vision About the Digital Age was conducted in three parts. The first was made up of coding from PEJ's weekly News Coverage Index (NCI). That sample analyzed data from June 1, 2009 through June 30, 2010 and is referred to here as the **broad sample**. It consists of all news stories including those that were about subjects unrelated to technology.

The second part of the study includes a closer examination of a sub-section of technology-related stories as they were originally coded in the NCI. This sample covers the time period of June 1, 2009 through June 30, 2010 and is referred to here as the **technology-focused sample**. Details of that process are below.

The third part of the study involves data collected about social media as part of PEJ's New Media Index. Details of the **social media sample** are also below.

Details of each of the three analyses follow:

Broad Sample

The broad sample included all the outlets that are part of PEJ's regular News Coverage Index. The complete methodology of the News Coverage Index is available here.

At the beginning of each year, PEJ reexamines the outlets including in the NCI sample and makes changes in order to keep up with circulation and viewership trends in the media.

Because this particular study includes data from both 2009 and 2010, the makeup of the sample differs slightly during those two years.

In 2009, these outlets, along with the methods of rotation, were as follows:

Newspapers (Sun-Fri)
Coded every day
NY Times

Coded two out of these four every weekday and Sunday
Washington Post
USA Today
Los Angeles Times
Wall Street Journal

Coded two out of these four every weekday and Sunday
Kansas City Star
Pittsburgh Post-Gazette
San Antonio Express-News
San Jose Mercury News

Coded 2 out of these 4 every weekday and Sunday
Herald News (MA)
Anniston Star (AL)
Spokesman-Review (WA)
Meadville Tribune (PA)

Web sites (Coded 6 of 12 each day, Mon-Fri)
CNN.com
Yahoo News
MSNBC.com
Google News
AOL News
Foxnews.com
USAToday.com
Washingtonpost.com
ABCNews.com
BBC News (international version)
Reuters.com
NYTimes.com

Morning Network TV (Mon-Fri)
ABC – Good Morning America
CBS – Early Show
NBC – Today

Evening Network TV (Mon-Fri)
ABC – World News Tonight
CBS – CBS Evening News
NBC – NBC Nightly News
PBS – NewsHour with Jim Lehrer (rotated daily between the first 30 minutes and the second 30 minutes of the hour-long broadcast)

Cable TV (Fifteen in all, Mon-Fri)
Daytime (2:00 to 2:30 pm) coded 2 out of 3 every day
CNN
Fox News
MSNBC

Nighttime CNN – coded 2 out of the 4 every day
Situation Room (6 pm)
Lou Dobbs Tonight
CNN Prime Time/Campbell Brown: No Bias, No Bull
Anderson Cooper 360

Nighttime Fox News – coded 2 out of the 4 every day
Special Report w/ Bret Baier
Fox Report w/ Shepard Smith
O'Reilly Factor
Hannity

Nighttime MSNBC – coded 2 out of the 4 every day
The Ed Show/1600 Pennsylvania Ave
Hardball (7 pm)
Countdown w/ Keith Olbermann
Rachel Maddow

News Radio (Mon-Fri)
NPR Morning Edition every day (rotated daily between the first 30 minutes of the first hour and first 30 minutes of the second hour)
ABC Radio headlines at 9am and 5pm
CBS Radio headlines at 9am and 5pm

Talk Radio (Mon-Fri)
Rush Limbaugh every other day

1 out of 2 additional conservatives each day
Sean Hannity
Michael Savage

1 out of 2 liberals each day
Ed Schultz
Randi Rhodes

In 2010, the outlets, along with the methods of rotation, changed to the following:

Newspapers (Sun-Fri)
Coded two out of these four every weekday and Sunday
The New York Times
Los Angeles Times

USA Today
Wall Street Journal

Coded two out of these four every weekday and Sunday
The Washington Post
The Columbus Dispatch
Tampa Tribune
Seattle Times

Coded 1 or 2 out of these 3 every weekday and Sunday
The Day (CT)
Rome News Tribune (GA)
Ventura News (CA)

Web sites (Coded 6 of 12 each day, Mon-Fri)
Yahoo News
MSNBC.com
CNN.com
NYTimes.com
Google News
AOL News
FoxNews.com
USAToday.com
WashingtonPost.com
ABCNews.com
HuffingtonPost.com
Wall Street Journal Online

Morning Network TV (Mon-Fri)
ABC – Good Morning America
CBS – Early Show
NBC – Today

Evening Network TV (Mon-Fri)
Code 2 out of 3 each weekday
ABC – World News Tonight
CBS – CBS Evening News
NBC – NBC Nightly News

PBS
Code two consecutive days, then skip one
Newshour with Jim Lehrer

Cable TV (Fifteen in all, Mon-Fri)
Daytime (2:00 to 2:30 pm) coded 2 out of 3 every day
CNN
Fox News
MSNBC

Nighttime CNN – coded 2 out of the 4 every day
Situation Room (6 pm)
John King, USA
CNN Prime Time
Anderson Cooper 360

Nighttime Fox News – coded 2 out of the 4 every day
Special Report w/ Bret Baier
Fox Report w/ Shepard Smith
O'Reilly Factor
Hannity

Nighttime MSNBC – coded 2 out of the 4 every day
The Ed Show
Hardball (7 pm)
Countdown w/ Keith Olbermann
The Rachael Maddow Show

News Radio (Mon-Fri)
NPR
Code 1 out of 2 every weekday
Morning Edition
All Things Considered

Radio Headlines
ABC Radio headlines at 9am or 5pm
CBS Radio headlines at 9am or 5pm

Talk Radio (Mon-Fri)
1 out of 2 conservatives each day
Rush Limbaugh
Sean Hannity

1 liberal every other day
Ed Schultz

Story Inclusion
For the broad sample, PEJ analyzed all stories with a national or international focus that appeared as follows:

- On the front page of newspapers
- During the first 30 minutes of network morning news, cable programs, and talk radio shows
- During a thirty minute segment of NPR's Morning Edition and PBS' NewsHour with Jim Lehrer
- As one of the top 5 stories on each Web site at the time of capture
- During the entirety of the commercial network evening newscasts and syndicated news headlines segments on ABC radio and CBS radio

Technology-focused Sample

The technology-focused sample constitutes the main analysis for this report. It was made up of stories coded as technology stories in the broad sample from June 1, 2009 through June 30, 2010. First, we gathered the stories that were coded with a broad topic of Technology or Technology and Culture. In addition to these two broad topic areas we also included content identified as technology-related through the more specific variable of "storyline." The storyline variable tracks specific events in the news. At times, technology-related events fell under different broad topic areas such as business or crime. This two-layer approach ensures that we cast as wide a net as possible in identify the content to analyze.

The list of technology-related storylines was as follows:

Cyberspace Issues
Apple
Video game consoles
Microsoft/Yahoo Search Agreement
MySpace Suicide Case
Google Launches Chrome
Digital TV Switch
LA Train Crash
Craigslist Killer
Texting while driving
Phoebe Prince Suicide/Cyber Bullying Case
General Google News

In all, 953 stories were identified as technology-related.

From this group of 953 stories, we next selected every other story to examine in greater detail through additional content analysis. Before coding, though, a trained coder examined each of the selected stories to make sure that it applied to the subject matter in this study.

In all, the technology-focused sample included 437 stories.

Capture and Retrieval

All outlets are captured and included in PEJ's media archive.

For newspapers that are available in print in the Washington, D.C. area, hard copies are used. For newspapers that are not available for delivery, digital editions of the paper are retrieved either through the newspaper's own Web site, or through the use of digital delivery services such as pressdisplay.com and newsstand.com. When necessary, the text of articles are supplemented by the archives available in the LexisNexis computer database.

Radio programs are captured through online streams of the shows. Using automated software, we record several local affiliates that air the program in various markets throughout the country. The purpose of this method is to ensure that we have a version of the program in case one of the streams is

unavailable on a particular day, and so that we record the show in a manner that represents the way a typical listener would hear the program with commercials and newsbreaks.

Online websites are captured manually by a member of PEJ's staff. The capture time is rotated daily between 9-10 am ET and 4-5 pm ET. The home pages and pages with the top articles for all sites are saved so that when we reference the material, the format is the same as it appeared online at the time of capture.

Finally, all television shows are recorded digitally and archived for coding purposes. PEJ is a subscriber to DirectTV satellite service and all programs are recorded onto multiple TiVo recording units before being burned onto DVDs for archival purposes.

All television and radio programs are then coded by a member of PEJ's staff who watches or listens to the archived version of the program.

Coding Team & Process for Weekly Index Coding
The data derived from PEJ's regular Index coding was conducted by PEJ's team of 15 trained coders. We have tested all of the variables contained in the regular weekly Index coding and all the variables reached a level of agreement of 80% or higher. For specific information about those tests, see the methodology section for the NCI.

Additional Coding of Technology-focused stories
For the stories from the technology-focused sample additional coding was conducted for six specific variables.

- **Tech storyline** refers to particular storylines that occurred often in news media during the time period under study
- **Tech area** involves the issue or larger subject being covered
- **Lead company** designates the company that is the main focus of the story
- **Presence of companies** identifies whether any of the major tech companies tracked (Apple, Google, Twitter, Facebook, and Microsoft) where present in at least 25% of the story
- **General technology thread** refers to the concepts or impressions that form around technology as a whole in a given story
- **Company threads** refers to concepts or impressions that form around a particular company in a given story

Coding Team & Process for the Additional Coding
A team of four of PEJ's experienced coders worked with a senior researcher in order to complete the additional coding for this particular study.

In addition to the main intercoder testing conducted on all NCI variables, supplemental testing was conducted on the additional variables used in this portion of the study. For the following codes, 30 randomly selected stories were coded by all members of the coding team.

The percent agreement for each variable was as follows:

Tech storyline: 91%
Tech area: 88%
General topic thread: 80%
Lead company: 91%
Apple presence: 99%
Google presence: 98%
Twitter presence: 96%
Facebook presence: 96%
Microsoft presence: 100%

Specific company threads

Google is innovative and its products are superior/better designed: 97%
Google makes content more searchable/findable: 98%
Google is a pretty virtuous company, really does try to follow the slogan "don't be evil":100
Google has too much information/power: 100%
Google steals others' content and ideas: 100%
Google creates business competition for other companies: 98%
Microsoft is innovative and its products are superior/breakthrough/better designed: 100%
Microsoft is a dangerous manipulative monopoly: 100%
Microsoft products have too many bugs/viruses: 100%
Microsoft is behind the innovation curve: 100%
Apple is innovative and Apple's products are superior/better designed: 96%
Apple's products are user friendly and that's why they are popular: 95%
Apple is anti-competitive and too controlling with its products and services: 99%
Apple creates products people don't really need/planned obsolescence: 97%
Apple has a loyal/rabid fan base unlike other companies: 99%
Apple's products are overhyped and overpriced: 96%
Twitter makes dissemination of information easier and connects people: 98%
Twitter is pointless, harms creativity, is self centered etc.: 100%
Facebook brings people together: 96%
Facebook fosters communication: 97%
Facebook doesn't protect its user's privacy/is an unsure network: 100%

Social Media Sample

The sections in this report about social media are based off the data collected from PEJ's New Media Index. The NMI is a weekly report that captures the leading commentary of blogs and social media sites focused on news and compares those subjects to coverage in the mainstream press.

This study aggregates the weekly data collected for the News Media Index from June 1, 2009, through June 25, 2010.

Universe

To study new and social media, PEJ wanted to be able to include as wide a range of outlets as possible. For unlike the traditional press, blogs and social media pages reach into the millions and change daily as new ones emerge and other dissolve. In exploring various options, we saw value combining the work of some sites that specialize in tracking these outlets continuously with our own coding scheme and analytics.

Two prominent Web tracking sites, Technorati and Icerocket, monitor millions of blogs and pieces of social media, using the links to articles embedded on these sites as a proxy for determining what these subjects are. The website Tweetmeme uses a similar method to monitor the popular links on the social networking site Twitter.

Each of these sites offers lists of the most linked-to news stories based on the number of blogs, tweets, or other pages that link to them. PEJ does not determine what constitutes a "news" story (as opposed to some other topic), but rather relies on the classifications used by each of the tracking sites.

A PEJ staff member manually captured the lists from each site every weekday between 9 and 10 am ET. From those lists, the top five linked to articles were captured for further analysis by PEJ staff (SEE BELOW).

Through July 3, 2009, PEJ captured information about blogs from both Technorati and Icerocket. However, the relevant component of Technorati's site stopped working in early July and has been down ever since. Therefore, the NMI reports beginning the week of July 6-10, 2009, only included blog data from Icerocket.

Coding Procedures

Once the lists of articles were compiled, PEJ staff conducted a content analysis of the subject matter of these linked-to news articles in a similar manner to the News Coverage Index.

Almost all of the codes and rules are the same as with the NCI. The variables coded in both projects include story date, source, story word count, story format, story describer, big story and broad story topic.

In order to meet high standards of reliability, these variables are all included as part of PEJ's continuing intercoder testing involving 15 coders and reached levels of agreement above 80%.

For more details about PEJ's intercoder testing procedures for these codes, refer to the detailed methodology about the News Coverage Index.

The only additional variables used in the NMI were identifying the original outlet of the news story and tracking the number of links aimed at each story included in the sample. Technorati, Icerocket, and Tweetmeme each provided the number of links within their lists.

Calculations

The priorities of the bloggers are measured in terms of percentage of links. Each time a blog or social media page adds a link to its site directing its readers to a news story it suggests that the author places at least some importance on the content of that article. The user may or may not agree with the contents of the article, but they feel it is important enough to draw the reader's attention to it.

The calculations for the NCI have a different base. That Index measures the time (in seconds) or space (in words) of each story. That is then used to calculate the percent of newshole devoted to each topic.

The reason that the New Media Index uses a different measure, links rather than newshole, is because the nature of online media is different from other traditional forms of media. First, there is no limit to the amount of space that can be devoted to a specific story. In a newspaper, there is a limited amount of space on a front page, for example, and a television newscast is limited by its allotted amount of time. Web sites have no such limits.

Second, PEJ determined that in this procedure, the number of blogs that link to a news article are a far greater measure of the significance of that article online than the length of the story. A particular article might be quite long in terms of number of words, but if only a few blogs link to it, that article would have only a small influence in the new media environment. A short story that gets linked to many times has a far greater influence.

The percent of links for each big story is determined by taking the total number of links in the sample and then dividing that number by the number of links devoted to each specific big story. The percentages are then ranked in order to discover the five storylines that were most present in online commentary.

Differences from the NCI

In addition to the base calculation, there are three differences between the NMI and the NCI to note:

1. The capture times for the Web sites included in the News Coverage Index rotate each day. In the New Media Index the times are the same each day. Since these lists compile the number of links to stories over a 48-hour window, rotating the time of capture would result in different increments of times between each capture. Through testing, PEJ has discovered that the stories on the lists change significantly more over a 24-hour period than they do over a 12 or 16-hour period. Thus it is more methodologically sound to capture at the same time each day.

2. The News Coverage Index is comprised of primarily U.S.-based media outlets, but the aggregators of blogs and social media include both U.S. and non-U.S. blogs. In addition, stories that are linked-to can be from non-U.S. sources.

3. PEJ's weekly News Coverage Index includes Sunday newspapers while the New Media Index is Monday through Friday.

Topline

When Technology Makes Headlines:
The Media's Double-vision About the Digital Age

Technology Stories by Sector (June 1, 2009-June 30, 2010)

Sector	# of stories	% of stories
Newspapers	102	23.3%
Online	73	16.7
Network TV	96	22.0
Cable TV	81	18.5
Radio	85	19.5
Total	437	100

Technology Storyline (June 1, 2009-June 30, 2010)

Storyline	# of stories	% of stories
Texting while driving	37	8.5%
Apple iPhone	28	6.4
Iranian protests and the internet	23	5.3
Apple iPad	20	4.6
China and the internet	18	4.1
Digital TV switch	13	3.0
North Korea and internet attacks	8	1.8
Cyberbullying other	8	1.8
Microsoft/Yahoo search agreement	8	1.8
US broadband plan	7	1.6
Internet addiction	7	1.6
Politicians using technology	7	1.6
Phoebe Prince cyberbullying	7	1.6
Steve Jobs news	7	1.6
Online shopping	6	1.4
Net-neutrality	6	1.4
Apple app store	6	1.4
Facebook privacy concerns	5	1.1
Google Android/Nexus One	5	1.1
Facebook privacy rules changes	4	0.9
Technology's impact on the environment	3	0.7
Department store credit card theft	3	0.7
Russia and the internet	3	0.7
Craigslist killer	3	0.7
Windows 7	2	0.5
Sexting	2	0.5
MySpace suicide case	2	0.5
Google Chrome	1	0.2

Tech Area (June 1, 2009-June 30, 2010)

Tech Area	# of stories	% of stories
Social change and cultural trends	78	17.8%
Gadgets/app reviews or announcements	71	16.2
Policy/legislation	54	12.4
Cybersecurity	42	9.6
Business/companies	40	9.2
Problems other	39	8.9
Democratizing	37	8.5
Crime incidents	34	7.8
Privacy	26	5.9
Other	13	3.0
Social networking trends	3	0.7
Total	437	100

Lead company (June 1, 2009-June 30, 2010)

Company	# of stories	% of stories
Apple	66	15.1%
Google	50	11.4
Twitter	31	7.1
Facebook	21	4.8
Microsoft	13	3
CitiBank	3	0.7
AT&T	2	0.5
Comcast	2	0.5
RIM	2	0.5
Amazon	1	0.2
Association for the Advancement of Artificial Intelligence	1	0.2
Barnes & Noble	1	0.2
Best Buy	1	0.2
Boxee	1	0.2
Chatroulette	1	0.2
Chemical Abstracts	1	0.2
Conejo Mountain Funeral Home	1	0.2
FWM Laboratories	1	0.2
Honda	1	0.2
IBM	1	0.2
NetWitness	1	0.2
New York Times Co	1	0.2
Samsung	1	0.2
Skype	1	0.2
Stabucks	1	0.2
Symbolics.com	1	0.2
T-Mobile	1	0.2
Yahoo	1	0.2
No lead company	228	52.2
Total	437	100

General Technology Thread

(June 1, 2009-June 30, 2010)

Technology Thread	# of stories	% of stories
Technology makes life more productive/creative/easier to disseminate information	99	22.7%
Technology fosters social connections	8	1.8
Steps are being taken to make the Internet/technology more secure	10	2.3
Technology is empowering the individual/average citizen as never before	15	3.4
Technology is dangerous for children/teens	20	4.6
The internet/technology is not a secure/safe platform for personal info or national security info	79	18.1
We can never get away/unplugged from technology; and it is destroying contemplation and attention spans	8	1.8
Technology replaces direct human interaction	10	2.3
No thread is present 25%	188	43.0

Google Threads in Stories where Google is 25% or more (n=59)

(June 1, 2009-June 30, 2010)

Company Thread		# of stories	% of stories
Google is innovative - products are superior	yes, is present	12	20.3%
	no	47	79.7
Google makes content more searchable/findable	yes, is present	15	25.4
	no	44	74.6
Google is a virtuous company (don't be evil)	yes, is present	10	16.9
	no	49	83.1
Google has too much information/power	yes, is present	11	18.6
	no	48	81.4
Google steals others' content and ideas	yes, is present	1	1.7
	no	58	98.3
Google creates business competition for others	yes, is present	8	13.6
	no	51	86.4

Microsoft Threads in Stories where Microsoft is 25% or more (n=19)

(June 1, 2009-June 30, 2010)

Company Thread		# of stories	% of stories
Microsoft is innovative - products are superior	yes, is present	8	42.1%
	no	11	57.9
Microsoft is a dangerous manipulative monopoly	yes, is present	1	5.3
	no	18	94.7
Microsoft products have too many bugs/viruses	yes, is present	1	5.3
	no	18	94.7
Microsoft is behind the innovation curve	yes, is present	1	5.3
	no	18	94.7

Apple Threads in Stories where Apple is 25% or more (n=71)

(June 1, 2009-June 30, 2010)

Company Thread		# of stories	% of stories
Apple is innovative - products are superior	yes, is present	30	42.3%
	no	41	57.7
Apple products are user friendly/why popular	yes, is present	10	14.1
	no	61	85.9
Apple is anti-competitive, controls products	yes, is present	5	7.0
	no	66	93.0
Apple creates products people don't really need	yes, is present	4	5.6
	no	67	94.4
Apple has loyal fanbase unlike other companies	yes, is present	19	26.8
	no	52	73.2
Apple's products are overhyped/overpriced	yes, is present	12	16.9
	no	59	83.1

Twitter Threads in Stories where Twitter is 25% or more (n=47)

(June 1, 2009-June 30, 2010)

Company Thread		# of stories	% of stories
Twitter disseminates info/connects people	yes, is present	32	68.1%
	no	15	31.9
Twitter-pointless, harms creativity, self centered	yes, is present	2	4.3
	no	45	95.7

Facebook Threads in Stories where Facebook is 25% or more (n=36)

(June 1, 2009-June 30, 2010)

Company Thread		# of stories	% of stories
Facebook brings people together	yes, is present	6	16.7%
	no	30	83.3
Facebook fosters communication	yes, is present	13	36.1
	no	23	63.9
Facebook doesn't protect privacy/is unsure network	yes, is present	10	27.8
	no	26	72.2

Topline for Social Media Based from the New Media Index

Twitter Sample **(June 1, 2009-June 30, 2010)**

Tech Area

Tech Area	**# of stories**	**% of stories**
Social change and cultural trends	7	5.3%
Gadgets/app reviews or announcements	37	28.0
Policy/legislation	3	2.3
Cybersecurity	7	5.3
Business/companies	39	29.5
Democratizing	7	5.3
Crime incidents	1	0.8
Privacy	5	3.8
Other (Tech developments)	6	4.5
Social networking trends	20	15.2
Total	132	100

Top Technology Storylines on Twitter

Storyline	**# of stories**	**% of stories**
Other	76	57.6%
Twitter	20	15.2
iPhone	10	7.6
Iran revolution	7	5.3
iPad	5	3.8
Google android	3	2.3
Windows 7	3	2.3
Google chrome	2	1.5
China and the internet	2	1.5
Apple app store	1	0.8
Facebook privacy	1	0.8
Net-neutrality	1	0.8
North Korea	1	0.8
total	132	100

Blogs Sample **(June 1, 2009-June 30, 2010)**

Technology Area

Technology Area	**# of stories**	**% of stories**
Social change and Cultural Trends	5	17.2%
Gadgets/App reviews or announcements	4	13.8
Policy/Legislation	1	3.5
Cybersecurity	3	10.3
Business/companies	3	10.3
Democratizing	1	3.5
Crime incidents	1	3.5
Privacy	3	10.3
Other (Tech developments)	5	17.3
Social networking trends	3	10.3
Total	29	100