

Institutions and Information: The Challenge of the Six Vs

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Humans have always wanted information, but technological limitations have always made information difficult and costly to create, transmit, and retain. The consequences of those limitations are among the factors driving the formation of large administrative entities, primary among them states. Addressing and redressing the information shortage that physical reality mandated gave states the opportunity to control and channel information, in all manner of ways.

Scarcity also gave information enormous power. Hand-copied books were once so valuable that they were chained to the stands on which they were placed. Even later, when the Gutenberg press and subsequent inventions made production ever easier, states continued to invest great significance in information. Official information was promulgated by official or officially sanctioned means, in officially-approved forms—one reason why the US State Department still has an official font (actually, State has [two official fonts](#))—while competing information was relegated to niche or marginal distribution, or indeed was banned entirely, as in the USSR, where those who disagreed with official information were forced, almost as in the pre-Gutenberg era, to produce and distribute their information by hand.

As will be detailed below, information is no longer expensive. In fact, for all practical purposes, the cost of information creation, transmission, and (to a somewhat lesser extent) storage is effectively zero, and will continue asymptotically to draw ever closer to actual zero. Even though members of large institutions—government and non-government—are probably aware of the vast changes which have overtaken the world of information, most of these in just the past decade, the institutions themselves continue to behave as if information were still

The contours of diplomatic engagement are changing rapidly, as are the environments in which diplomacy is crafted, honed, and practiced. New media have changed the pace and content of political awareness and provided new tools for diplomacy.

Every global issue now tests the assumptions and practices of traditional diplomacy. Non-state actors—whether benign or malign, constructive or disruptive—now play increasingly important roles in the conduct of international politics and lead us to think differently about global development, conflict, and reconciliation.

These issues, conditions, and actors are helping to refine, and perhaps redefine, what diplomacy means, how it is conducted, and how we examine the new terrain of diplomacy.

HITLER TAMED BY PRISON.

Released on Parole. He Is Expected to Return to Austria.

Copyright, 1924, by The New York Times Company.
By Wireloss to THE NEW YORK TIMES.

BERLIN, Dec. 20.—Adolph Hitler, once the demi-god of the reactionary extremists, was released on parole from imprisonment at Fortress Landsberg, Bavaria, today and immediately left in an auto for Munich. He looked a much sadder and wiser man today than last Spring when he, with Ludendorff and other radical extremists, appeared before a Munich court charged with conspiracy to overthrow the Government.

His behavior during imprisonment convinced the authorities that, like his political organization, known as the Völkischer, was no longer to be feared. It is believed he will retire to private life and return to Austria, the country of his birth.

comparatively scarce.

What are likely to be the consequences of this change, what some have dubbed the “third information revolution” (the first two being the invention of writing and the Gutenberg press)? As the cutting from the 21 December 1924 *New York Times* at right makes clear, prediction is a tricky business., but it is enough to recall the distance between Gutenberg’s *intentions*—which were to get accurate copies of Catholic liturgical materials into the hands of the clergy more quickly—and the *results* of what he unleashed—which is pretty much the entire scientific, political, economic, and—yes, even religious—modern world as we know it. Certainly quite high in the ranks of spectacular unintended consequences would be the [estimated 33,000 Protestant sects](#) that have arisen to challenge Gutenberg’s Catholic church (to say nothing of the non-Christian religions that the ability to print has supported and helped to grow).

Without daring yet to draw conclusions about how traditional institutions like governments, businesses, universities, and NGOs might meet the challenges of the new information environment, or what the world might look like because of the choices these institutions have made in doing so, it is worth laying out as a starting point what are the main challenges posed by cheap, hyper-abundant information.

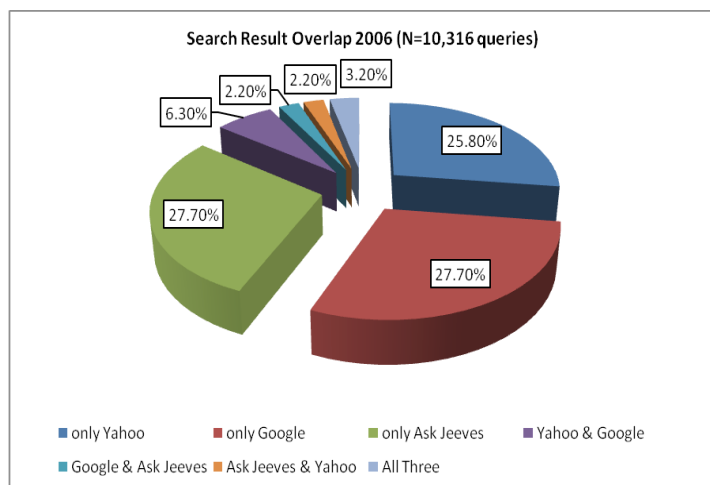
Mnemonically, the major challenges might be cast as the “Six Vs” of information:

Volume: the amount of information that humans can now produce is easy to describe but impossible to comprehend. Even metaphors such as that [we create every fifteen minutes](#) as much information as the Library of Congress has gathered in two centuries, or that the information available to Americans every year, if printed, would [form a stack of books seven feet high](#) covering every inch of the country, including Alaska, only give the sensation of greater understanding, without actually being meaningful. The challenge of volume may be clearer, however, when expressed as specific activities. Recently, for example, the US military acknowledged that its [unmanned drones are collecting](#) so much footage every year that it would take 24 years to view a single year’s capture—a problem that is similar

to, but more immediate than the volume of footage on YouTube, which every *minute* acquires videos that would take nearly *20 hours* to watch in their entirety. Similarly, the [FBI reported in 2005](#) that it collected 2.8 million hours of “counter-terrorism audio,” in the previous year, making even “high priority target” issues impossible to process and turn around in fewer than 30 hours. Indeed, even submitting information to “[the intelligence cycle](#)”—the process which was created to “transform data into intelligence”—still results in what former Deputy Director of Intelligence [Thomas Fingar noted](#) is “roughly 50,000 pieces of finished intelligence,” a total for which he said “there can’t possibly be a market.”

Even more important than the “indigestibility” of this volume of information are the tactics that people evolve to cope with it. Volume encourages selectivity, as people increasingly fight not to find information, but to fend it off. A common tactic is “information cocooning,” which allows people to amplify their [natural tendencies toward homophily](#), seeking the “information company” of those who share their interests and assumptions, and thus securing the assistance of the entire group in filtering out unwanted information. Researchers have found, for example, that [liberal and conservative bloggers](#) in the US pay almost no attention to one another, just as [Persian bloggers](#) interested in questions of Shi’a theology have virtually no apparent contact with those interested in literature and poetry.

A related but different tactic appears to be what Nobel laureate Herbert Simon dubbed “satisficing,” or seeking only enough information to meet a perceived need, thus both “satisfying” and “sufficing.” Critics have argued that the combination of information volume and the search engine systems that are evolving to cope with it are encouraging people to [engage more superficially with information](#) than they once may have done—studies suggest, for example, that people are increasingly less likely to read deeply, but rather “[power browse](#),” skimming quickly to make rapid choices about what they wish to take from material found by searching. Some have gone so far as to argue that these behaviors are [changing how our brains process information](#) while others argue that what must [change](#)

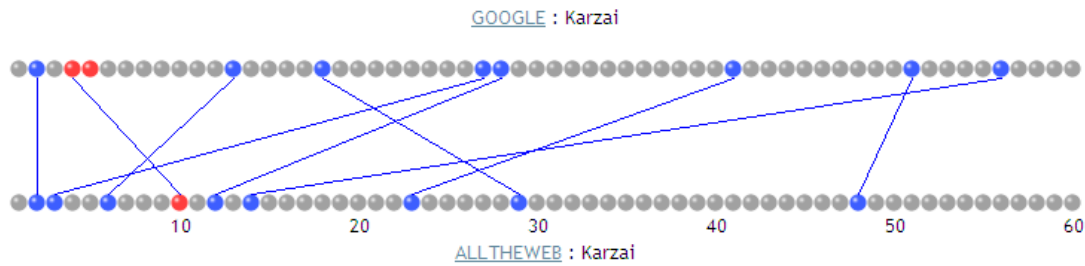


is the way that we position and “vet” the information that we agree to access. Still others argue that the pressure of this battle among would-be purveyors of information is such that even the way that information is created and transmitted is changing to put more emphasis upon its ability to capture attention than upon the information itself.

Also important is the growing reliance on search engines and other sorting and sifting devices to aid in coping with the flow of information, each of which brings its own set of attendant problems. Search engine ranking, for example, has given rise to so-called “google-

bombing” or “link-bombing,” which favors or disadvantages websites relative to other websites. This is important because most research suggests that search engine users rarely go more than two pages deep into a list of sources offered in response to a search. The emerging dominance of the Google search engine (in most but not all languages and countries) also obscures the fact that all search engines are able to crawl only a part of the web, meaning that no search is going to find more than a small part of what may be available on a given topic. This is illustrated by the graph 1, which is based on a study performed in 2006. That reliance upon any one search engine automatically omits huge swaths of potential information is made visually clear by the services of the website thumbshots.com, which provides graphic comparison of the same search query on two different search engines. In graph 2, unique sites offered for the search term “Karzai” are in grey (meaning that they appear only on one engine), shared sites are in blue (with comparative ranking shown by the linking lines), and the single test-site (in this case the presidential website, president.gov.af) is red.

Such disparities are even more evident with searches conducted in foreign languages, particularly those which do not use Latin alphabets. Thus the results of a search in Yandex (the main Russian search engine), Baidu (Chinese), or Naver (Korean) will be significantly different than those of a Google or



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Yahoo search.

Less remarked, but perhaps even more significant, are the limitations of all search engines, which are powered entirely by the ability of a “spider” (or “web-crawler”) to follow a link. Spiders are unable to type, thus rendering opaque the huge quantity of information that is now available through the internet—if only it could be found. This so-called “dark web” or “deep web” is generally guessed to be anywhere from [100 to 1000 times larger](#) than the familiar “surface web” reachable by search engines (which itself was indexed at over a [trillion pages in mid-2008](#)). In fact, no one really knows how big this “invisible web” is.

Velocity: Until the invention of the telegraph, in the mid-19th century, information could move only as fast as the fastest animal—a horse, or perhaps a pigeon—or vehicle—a ship or early locomotive—might carry it. Thus it was possible for the biggest battle of the War of 1812, the Battle of New Orleans, to take place *after* peace had been concluded between the warring parties.

Contrast with the present day, when people expect to be able to access information as soon as they hear of something about which they wish to learn more. Search engines like Google now seem too slow, forcing even Google to explore [“real time web searches.”](#) It is now routine that, for example, Wikipedia will begin to “grow” articles on emerging issues within 30 minutes of the start of an event. As noted, even that can sometimes seem too slow—events like the [Haitian earthquake of 2010](#), the [Mumbai jihadist attacks of 2008](#) or the last moments of singer Michael Jackson unfolded essentially in real

American Idol - Larry Platt - Pants On The Ground



★★★★★ 4.696 ratings

1,897,148 views

Links

	Date	Link	Views
A	Jan 17, 2010	First referral from related video - Pants On The Ground !!! American Idol Season 9 -Larry Platt (HQ) [Remix]	150,552
B	Jan 14, 2010	First embedded on - twatch.people.com	36,882
C	Jan 13, 2010	First referral from YouTube search - pants on the ground	291,200
D	Jan 13, 2010	First view from a mobile device	283,179
E	Jan 13, 2010	First referral from YouTube - Homepage	218,111
F	Jan 13, 2010	Other / Viral	75,937
G	Jan 13, 2010	First embedded on - new.ca.music.yahoo.com	36,189
H	Jan 13, 2010	First referral from - www.facebook.com	34,245
I	Jan 13, 2010	First embedded on - www.facebook.com	33,857
J	Jan 13, 2010	First referral from Google search - american idol pants on the ground	21,155

time. Information delivery systems which are periodicized in months (*Atlantic Monthly*), weeks (*Newsweek*, *Business Week*), or even days (most printed newspapers) now seem hopelessly outdated, and indeed may be on their way toward extinction.

Although created quickly, not all information *moves* quickly. A group of researchers [calculated in 2005](#) that, whereas in 1960 the amount of information that would flow into the average US home in one minute would take 98 minutes to process, by 2005 that same ratio had become 20,943, or what it might require nearly one month's worth of 12 hour days to absorb. An obvious consequence is that some information is noticed and accessed more quickly than are others. Compare, for example, the pace of uptake for a [popular music video](#) on YouTube and a video of a [statement by a State Department official](#). The first, as shown above, was viewed nearly one million times the first day it was available, and almost as much again in the three week following, while the second required a month to gain as many as



Links

	Date	Link	Views
A	Jan 15, 2009	First embedded on - englishfordiplomats.wordpress.com	29
B	Jan 11, 2009	First referral from Google search - public diplomacy	48
C	Dec 22, 2008	First referral from YouTube search - diplomacy	111
D	Dec 22, 2008	First referral from YouTube search - public diplomacy	109
E	Dec 04, 2008	First embedded on - www.policyinnovations.org	134
F	Dec 02, 2008	First embedded on - www.thewashingtonnote.com	129
G	Dec 02, 2008	First referral from - www.newamerica.net	47
H	Dec 02, 2008	First referral from YouTube search - public diplomacy 2.0	34
I	Dec 01, 2008	Other / Viral	191
J	Dec 01, 2008	First embedded on - www.newamerica.net	165

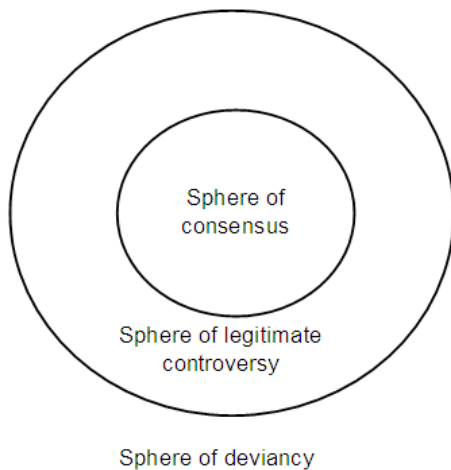
one thousand viewers, and has only managed to find about half that number again in more than a year.

Vector: The disparate degree of attention shown to a piece of entertainment and a more official statement also reflects another reality of the new information environment, that information no longer has the tendency it once had to flow downward, from authorities and elites to masses. Until the recent past, information was comparatively expensive, which made it a hallmark of power, control, and high station. Several consequences stem from that fact:

- it was relatively easy to understand the interests, preoccupations, and purposes of those issuing the information;
- elites were able to shape public discourse, if not telling the masses how to think, then at least telling them what to think about (as Agenda Setting theory suggests);

- because of cost and also, in the case of media using the electromagnetic spectrum, to avoid signal-blocking, information sources tended not to proliferate abundantly, thus making it easier for information to appear dispassionate or objective, obscuring the fact the information served the interests of the sender;
- information could be bundled, thus creating the illusion that, for example, the people who bought newspapers for the crossword puzzles they contained would also read the editorials, and thus would be affected by them;
- and the relative paucity of information made it easier for those issuing information to assume that they were shaping and driving behavior.

As the price of information approaches zero, most of these consequences have changed dramatically, and some have disappeared. The broad social consensus that existed (or seemed to exist) when information was scarce begin to look more arbitrary, and perhaps self-serving, as other information sources begin to compete in the same space.



In his 1986 book *The Uncensored War: The Media and The Vietnam War* Daniel Hallin argued that political elites and the media of the day had successfully defined a narrow band of topics that might be talked about publicly (the “sphere of legitimate controversy”) and two much larger groups of things that could not, either because “everyone” was presumed to agree about them (“sphere of consensus”) or because only the marginal, the weird, and the deviant would worry about topics which lay beyond. It is difficult to say how wide support for, or agreement about the contents of the three spheres really was in the 1960s and 1970s, precisely because the only space where information about them, or the topics they deemed worthy or unworthy, came from the media themselves.

Contrast with today, when digitization and the internet make it possible for like-minded people to create and maintain their own systems of spheres, with no regard or concern for the

spheres that others may hold dear. The internet and digitization make it possible for people to find others who share their beliefs that, for example that [President Obama was not born in the US](#), that the [11 September 2001 attacks were the work of US intelligence](#) agents, that the [moon landings never happened](#), and even—to return to a controversy that was just beginning to surface as Gutenberg was printing his first Bible—that the [sun revolves around the earth](#). Perhaps even more important, as chart 1 suggests, the same processes have increasingly made it so that even the center sphere, of what “everyone” believes, has become specific to the particular audiences, meaning that there is no longer a strong “everyone.”

Veracity & Verifiability: The new hyper-abundance of information and the ease with which it can be disseminated makes it ever more difficult to prove the provenance of a given piece of information. Information can be [falsified](#), [parodied](#), [misdirected](#), [easily blocked](#) without the source of the block being obvious—or can be [just plain wrong](#). These are not new conditions of course, but the vast increase in volume makes the issue of the truthfulness of information qualitatively more difficult than they were just recently.

Part of the difficulty derives from informational context. Westerners in general, and Americans in particular, are generally regarded as “low context” information users, responding more to the content of information than to the manner in which it is conveyed (the speaker, the setting, and so forth). It is a widespread belief in the west that “facts will speak for themselves.” What has become increasingly clear as information has become cheaper and more ubiquitous is that information was more context-dependent than we had assumed. Thus greater credence was given to information offered by, for example, the *New York Times*, *Figaro*, *Pravda*, or *Asahi Shimbun* than to information coming from the *National Enquirer*, *Canard En-*

Sources of Political News for Democrats and Republicans

How have you been getting most of your news about the November elections?

	Republicans	Democrats
Television	72%	82%^
CNN cable news	16	38^
Fox News cable channel	43^	13
Local news programming	19	20
ABC network news	14	18
NBC network news	14	15
CBS network news	10	12
MSNBC cable news	8	12
CNBC cable news	5	2
Newspapers	27	30
Radio	21^	11
Magazines	1	3
Internet	30^	23

Source: Pew Internet & American Life Project Post-Election Survey, November-December 2008. ^Indicates statistically significant difference between Democrats and Republicans.



chaine, Krokodil, or the *USO Hosoo* column in *Yomiuri Shimbun*. Although they may not have been conscious of doing so, readers could assume that the relative paucity of information outlets, and the cost of setting and distributing the information, of necessity served as a kind of vetting process, thus insuring that the information which made it through an established gauntlet would be more intelligent, more important, and “truer.”

The declining cost of production and transmission is making information increasingly context-dependent. Not only can big stories break in tiny sources—Obama adviser Samantha Powers’ attack on candidate Clinton, for example, first broke in *The Scotsman*, a regional newspaper with a circulation of about 45,000 – but big sources can get stories wrong. The increase in information velocity has placed ever greater pressure on providers to put information out as quickly as possible, while at the same time reducing both the time and the resources available to verify (or attempt to verify) what is being disseminated. Not only does this pressure greatly increase the possibility of incorrect or partially correct information being disseminated (for example, the many warnings about an [earthquake that was to strike Ghana](#) immediately after the 2010 Haiti earthquake), but it also introduces a new phenomenon, that of an “information flow.” Rather than existing as a set, shaped story which will remain the same no matter how many times it is accessed, information now increasingly has a mutable form. “The news” changes not only as users find, reshape, and send further along stories that are of interest to them, but also as the original disseminators shape and reshape what they offer, whether to reflect changes in a particular story as events unfold, or to [try to appeal to different markets](#).

The issue of archiving is a particular concern in the changing information environment, worthy of much greater discussion than it will receive here. Although there has always been a battle between information storage and the forces of oblivion, the cheap information environment has exacerbated the problem exponentially. The problem has two, contradictory, dimensions. On the one hand, digital information is famously persistent (examples include [Sarah Palin in the Miss Alaska](#)

[competition of 1984](#); [Philippine president Gloria Arroyo's "Hello Garci" taped conversation](#); once [top-secret handbooks on sabotage](#) prepared for use behind enemy lines in World War II; and Russian prime minister [Putin's article](#) on mineral and raw material resources in Russia's strategic development, first published in an obscure mining journal in 1999, when the president-to-be was a simple candidate for a Masters in Science). On the other hand, information is equally famously ephemeral. Search engine links break, websites are taken down or content deleted from them, effectively erasing the information which may once have been there. There are some efforts to preserve at least the internet portion of the new information environment (the best known of which is [archive.org](#)), but that effort is massively out-matched by the quantity of information with which the archive is trying to cope. Archiving and search technologies also overwhelmingly favor text, making the ocean of videos and images which are now available potentially even more vulnerable to oblivion.

Vulgarity: The new information environment has been democratized, in the most literal sense of the word. Implicit in a world where the infrastructure costs of information are high is that ordinary people—the *demos* in Greek—were generally able only to *receive* information, which more often than not was either what the elites thought the masses ought to know, or was for the purposes of their instruction, uplift, and betterment. Manifestations of that conflation of information and instruction include such things as the [Academie Francaise](#), which sets the rules of “proper French,” the ire of Iranian clerics, who railed that the use of [everyday Persian in weblogs](#) was “vulgar,” and [widespread predictions](#) that the financially-prompted shrinking of the traditional news business will endanger democracy.

The “vulgarity” of the new information environment takes at least two forms. Derived from “vulgus”—the Latin equivalent of “demos”—“vulgarity” has as its primary associations things like rudeness, crudeness, gross physicality, and other “non-elevated” activities and interests. The abundance of cheap information platforms has greatly encouraged the proliferation of information to which the adjective “vulgar” might be ap-

plied. By any available standard, entertainment information has a significantly larger audience than does more serious fare—and free versions appear to be threatening even long-time “for-pay” purveyors of “vulgar information” such as the [music](#) or [pornography](#) industries.

The new information environment is also “vulgar” in the literal sense, that it belongs to ordinary people. This environment is massively disrespectful of authority, hierarchy, and expertise, making it possible for people in:

- Tunisia to [document the shopping trips](#) made by the president’s wife;
- China to [ridicule official efforts](#) at censorship;
- Myanmar to [publicize the lavish lifestyle](#) of the elites;
- Kyrgyzstan to demonstrate that an [opposition politician had been framed](#);
- and France to [ridicule their sanctimonious corporations](#)

At the dawn of the internet era excited activists argued that this second form of “vulgarization” would lead to more transparent government, greater global freedom, and all manner of good things. The pendulum has recently swung back, as pundits increasingly argue that the same things that make the new information platforms useful for political democratization also make them [ideal tools for political control](#).

Perhaps. However, just as Gutenberg’s invention has been used to print books both by Galileo and Hitler, the digital revolution appear to be heading in a variety of directions simultaneously. Just as one of the most powerful of the uses of Gutenberg’s invention was to allow Europeans access to the Bible in their daily languages—the Vulgate—so too does the vulgarity of the digital revolution appear to be mounting fundamental challenges to the established notions of state organization and control. Where that process will end is as unpredictable as was the outcome of that first Gutenberg Bible.

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