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Information Counterrevolution

Adam Elkus

When Iranians took to the streets to protest vote-rigging by their nation's theocratic-military dictatorship, the West was more transfixed by the medium rather than the message. Many journalists fixated on the supposedly revolutionary usage of social media technology by the Iranian protestors, their diaspora supporters, and the bloggers who relayed their messages to the outside world. According to the narrative that developed, Twitter and other microblogging tools offer unprecedented real-time access to crisis situations like the Iranian uprising, giving social media users a vast information advantage over those who rely on traditional forms of media such as magazines and network television.

One writer worried that this self-selecting "information elite" could use their power to rapidly access information and form opinions to influence public views and policy. [1] His concerns, while thoughtful, are ultimately misplaced. Instead of creating a new information elite, Twitter has added another dimension to the longtime problem of the tactical information junkie. Tactical open-source information culled from social media is only useful if it is filtered for white noise, integrated within a sound long-range conceptual frame, and mediated by a mature community of users. As RAND Corporation scientist David Ronfeldt insightfully noted, the real information elite will be those who use networks—both technological and social—to effectively contextualize this tactical information and exploit it. [2]

The purpose of this article is *not* to bash Twitter, social networking, or blogs, but to critically examine problems in the open-source information ecosystem that "infoenthusiasts" largely ignore and explore possible solutions to the data glut. [3] Twitter and other microblogging tools may not lead to an information elite, but they can undoubtedly be part of a crowdsourced solution.

A Short History of the Information Junkie

By design, the structure of microblogging sites privileges short messages, rendering them incapable of communicating complex forms of information. This is not a design flaw—Twitter and other microblogging sites are successful precisely because of their rapid-fire quality. But

[1] Conor Friedersdorf, "Iran, Twitter, and the American Information Elite," *The Atlantic Monthly,* June 16, 2009. http://ideas.theatlantic.com/2009/06/iran_twitter_and_the_american_information_elite.php

[2] See David Ronfeldt and Danielle Varda, "The Prospects for Cyberocracy (Revisited)," December 1, 2008, p. 41. Available at SSRN: http://ssrn.com/abstract=1325809

[3] The author is a user and fan of all three.

communication at hyperspeed produces certain structural limitations. Moreover, Twitter's inability to convey complex information is far from unique in the American media landscape. Many cultural critics have noted that television and other forms of electronic mass media significantly fractalize information, and it's hardly an original observation that today's mass media often prizes soundbites and trivia over complexity. [4]

Twitter's real precursor is the Cable News Network (CNN). CNN largely popularized 24-hour crisis reporting, giving breathless audiences unprecedented access to natural disasters and warzones. However, a key drawback of 24-hour real-time information is the endless array of filler. Every small piece of information--no matter how trivial--becomes a part of the news cycle simply to fill up space. When new information is unavailable network news stations either find new ways to speculate on existing information or simply rehash it. 24-hour news saturation gives the viewer the illusion that they are watching a situation unfold in real time in an unmediated fashion.

Of course, as any first-year communications student knows, there is still conscious behind-the-scenes shaping of coverage, presentation, and message. But to many viewers the situation appears unmediated, save for the presence of the ubiquitous flak-jacketed Christiane Amanpour. Lately, many network news stations have gone for an overtly military aesthetic, with news anchors reporting from "situation rooms" consciously built to resemble command centers with banks of computers and huge wall-mounted screens. The "situation room" also provides a visual context for the stream of information relayed by the anchors and the news ticker at the bottom of the screen.

The tactical information that CNN transmits during crisis situations is always fragmented and tantalizingly incomplete. Each new revelation requires vastly more information to make sense of. The viewer is hooked, waiting for the final clue that allows them to get the big picture. But unlike in classic film noir mysteries like *The Maltese Falcon, The Third Man,* and *Chinatown,* the big picture is rarely the sum of its individual parts. But the lack of resolution only fuels the tactical information junkie's desire for more—especially when the network loops iconic footage of the event continuously.

Twitter—a mass of user-supplied tactical information—is essentially a crowdsourced version of CNN. Information is produced at rapid-fire speed by popular users (a "hub" in network terminology) and reproduced by those who "follow" them. This multiplication effect produces a false multi-source confirmation as users rapidly replicate themselves across the information stream—a *literal* form of mirror-imaging. [5] What seemed like a huge "Army of Davids" was in reality a small group of users whose tweets were replicated *en masse* by their followers.

[4] Neil Postman is the most famous and prolific of these authors, although Columbia sociologist Todd Gitlin has also written volumes about information saturation. The French sociologist and philosophers Guy Debord and Jean Baudrillard also have written on simulations and spectacles. UCLA professor Douglas Kellner elaborates on their work in his writings on media spectacles and democracy.

[5] Curtis Gale Weeks, "Skirting the Multiverse," *Phatic Communion*, June 27, 2009. http://phaticcommunion.com/2009/06/skirting-the-metaverse.php

A study on Twitter's role in the Iranian protests by Harvard's Web Ecology project found that 59.3% of participating users contributed only 14.1% of the total number of Tweets, the top 10% most active users accounted for 65.5% of total Tweets, and 1 in 4 Iran-related Tweets were re-Tweets of another user's content. [6] As Shlok Vaidya noted, Twitter was a useful source of information during the Mumbai attacks because of the smaller number of users—now the data overflow has halved its effectiveness. [7]

Twitter and other microblogging sites have become nodes in a vast network chain of tactical information sources that includes 24-hour network news, wire services, and blogs. This network is a giant self-feeding and self-referencing loop that spreads similar content virally through a diverse group of both old and new media outlets. Those inside the loop have the illusion that they are better informed than everyone else. At best, they may be in a mixed system with a great deal of white noise and some valuable information. At worst, they're trapped in a closed information loop that takes them further and further away from reality.

Media hype over Twitter and other social media platforms is part and parcel of what John Seely Brown and Paul Duguid call "infoenthusiasm"—a mode of technological thinking that relentlessly proclaims the revolutionary potential of new technologies while ignoring their overall social context and transaction costs. [8] Infoenthusiasts are forever announcing "the end" of various things, including the press, brokers, firms, politics, government, cities, and the nation-state itself. [9] The rapidly increasing power of information technology alone, they claim, will empower the individual and radically redefine institutions by cutting away the middle and lower layers.

The infoenthusiast view of the information user is of a solitary and omnivorous individual hooked up to a multitude of information nodes, rationally aggregating the sum of the information streaming in from his or her inputs. Information tools are evaluated solely from the perspective of how much information they can transmit, and how architecture of the system can be improved in order to allow more information to be processed and aggregated. [10] The refining of communication paths between the nodes and the overall architecture of the system is the most important task while the content of the information itself and the social and organizational context associated with its production is largely an afterthought. [11]

The infoenthusiast credo reflects a passionate belief in the ability of technological might alone to free humanity from longstanding limitations—an admirable goal that unfortunately sometimes results in tunnel vision. The logical conclusion of the infoenthusiast view is that by increasing the amount of information nodes, pumping up the volume of total information output, and

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[6] Web Ecology Project, *The Iranian Election on Twitter*: *The First Eighteen Days*, Cambridge: Harvard University, June 26, 2009. http://webecologyproject.org/WEP-twitterFINAL.pdf

[7] Shlok Vaidya, "Twitter Revolution//Frustration," *Shlok Vaidya's Thinking*, June 15, 2009. http://shloky.com/?p=1778

[8] See John Seely Brown and Paul Duguid, *The Social Life of Information*, Cambridge: Harvard Business School Press, 2002

[9] Brown and Duguid, p. 16.

[10] Ibid, p. xii.

[11] Carl H. Builder, Steven C. Bankes, and Richard Nordin, *Command Concepts: A Theory Derived from the Practice of Command and Control*, Santa Monica: RAND Corporation, 1999, p. 8.

networking nodes together through intricate channels, "shared awareness" can be created out of the raw mass of information. In turn, more and more powerful computing creates better comprehension of information. This, in essence, was the idea behind many now-discredited 1990s-era military concepts.[12] Thomas P.M. Barnett aptly describes the problems with this view:

> "What is new is the potential for inundating all participants with an ever-increasing flow of data masquerading as information because it has been slickly packaged within the common operating picture. The danger lies in the picture's collapsing all participants' perceptions of what is tactical versus operational versus strategic, and, by doing so, creating strong incentives for all to engage in information overload in an attempt to maintain their bearings in this overly ambitious big picture. In sum, I am concerned that the push for speed of command and self-synchronization will drive all participants to an over-reliance on the common operating picture as a shared reality that is neither shared nor real. "[13]

Barnett's misgivings about information-age strategic concepts aptly describe the problem with the idea that a mass of Twitter posts and social media produces vastly superior shared awareness. Most tactical information is essentially irrelevant to the larger systemic factors, but as Barnett noted users seeking "shared awareness" quickly lose the ability to distinguish between tactical, operational, and strategic information. Their confusion only reinforces their hunger for more information, becoming hooked to every information update, no matter how inconsequential. The search for information becomes a fruitless arms race between ever more advanced information aggregation tools to clear through the white noise and the ever-increasing information glut. Aggregation tools alone haven't necessarily broken through the fog, and some have actively increased the level of white noise in the information system.

To Tame the Beast

RAND scientist Carl H. Builder's idea of the "command concept" holds that effective command and control is rooted not in information tools but in the cognitive processes of the leader. A well formed "command concept" of future operations intuitively guides choices about the minimum of information that should flow through command and control systems. [14] Although it is mediated through machines, this concept *necessarily originates* in human cognitive processes.

We can extend the idea out somewhat into open-source information gathering by noting that the most well-informed users will be ones who have a prior concept of what information to prioritize. These users tend to be subject-matter experts with detailed knowledge of the situation's background or underlying dynamics and skilled generalists with developed research skills. Subject-matter expertise and general research skills help the user contextualize the tactical

[12] James N. Mattis, "USJFCOM Commander's Guidance for Effects-based Operations," *Parameters*, Autumn 2008, pp. 18-25.
[13] Thomas P.M. Barnett, "The Seven Deadly Sins of Network-Centric Warfare," *Proceedings*, January 1999, pp. 36-39. Reproduced at Barnett's website: http://www.thomaspmbarnett.com/published/7d.htm
[14] Builder *et all*, p. xiv.

information within a greater frame of reference, prioritize information search, and better employ information-gathering tools.

As numerous writers have documented, crowdsourcing can also be a useful means of filtering and contextualizing information. The Ushahidi blog has a useful proposal for a filter system that would aggregate useful sources and cluster similar incidents. [15] Indeed, "crowdsourcing the filter" has great potential for dampening the level of white noise. However, many casual observers of web 2.0 ignore crowdsourcing's nuances. Crowdsourcing is not a matter of pure decentralized mob rule but a process of building a mature and diverse community of users with differing roles and status. David Ronfeldt has suggested that the real "information elite" will be those who can marry the flexibility of decentralized forms with the "topsight" provided by centralization. [16] "Topsight" allows for better management of complexity—the holy grail of all information-age organizations.

Paradoxically, networks that incorporate topsight truly "socialize" microblogging, which at its most basic level is a mass of atomized individuals producing individual data. Wikipedia, a frequent example cited by infoenthusiasts, is not simply crowdsourced by a mass of users who all have equal privileges—there is a hierarchy of users who have greater rights and responsibilities to review and edit articles. Likewise, a central core is responsible for the bulk of the production. This core paired with a wider array of casual users who contribute edits and articles.

While crowdsourced visualization, processing, and aggregation is beginning to mature, crowdsourced analysis is largely still underutilized and unrealized. Here, John P. Sullivan's concept of the counterterrorism Transaction Analysis Cycle (TAC) could be a start for building open-source analysis networks for crisis situations:

> "The Transaction Analysis Cycle is a pattern generator (like the [Terrorism Early Warning] organization and [Intelligence Preparation for Operations] framework) centered on Analysis/Synthesis. Utilizing this framework, analysts can observe activities or transactions conducted by a range of actors looking for indicators or precursors of terrorist or criminal activity of many types. Individual transactions (such as acquiring finances, expertise, acquiring materiel, munitions or capability, recruiting members, conducting reconnaissance, mission rehearsal, conducting an attack, etc.) have signatures that identify them as terrorist or criminal acts, or consistent with the operations of a specific cell or group. These transactions and signatures (T/S) can then be observed and matched with patterns of activity that can be expressed as trends and potentials (T/P), which can ultimately be assessed in terms of a specific actor's capabilities and intentions (C/I). At any point, the analytical team can posit a hypothesis on the pattern of activity and then develop a collection plan to seek specific transaction and signatures that confirm or disprove its hypothesis. " [17]

[15] See http://blog.ushahidi.com/index.php/2009/02/04/crisis-info-crowdsourcing-the-filter/
[16] Ronfeldt and Varda, p. 22.
[17] John P. Sullivan, "Terrorism Early Warning and the Co-Production of Intelligence," Paper presented at Canadian Association for Security and Intelligence Studies 20th Anniversary International Conference, Montreal, Quebec, Canada, October 21, 2005.

The essential element of TAC is the structured process by which the network develops information collection priorities. Truly crowdsourced TAC would mean more than just aggregation—TAC would help build greater qualitative understanding through analysis and synthesis. The network would actively synthesize information from the cloud, setting priorities about the kinds of "signatures" that must be observed, matched with patterns of activity into trends and potentials, and built into a collection plan that could prove or disprove the hypothesis created. Like Wikipedia, the model would marry the expertise and dedication of an administrative core with a mass of casual users. Collection, visualizations, and aggregation systems would be the processing tools for these networks. To be very clear, the purpose of visualization and aggregation systems would be as *means* rather than *ends*—tools to implement command concepts rather than conceive them.

Research and experimentation should also be continued to be performed on conflict early warning systems and crowdsourced emergency services tools. The previously mentioned Ushahidi blog originated as a tool for reporting election violence in Kenya and particularly distinguished itself during the swine flu crisis.

The Future Ain't What it Used to Be

Perhaps the most revolutionary idea of the information age was advanced by one of its principal skeptics, Neil Postman. In his classic book *Amusing Us To Death*, Postman expounded on the importance of "typographic" information transmitters such as books and newspapers. Typographic media, unlike the fragmentary combination of words, sounds, and images transmitted by television, can transmit complex and nuanced ideas. [18] Postman is correct in that there is still no substitute for the kind of detailed information available in newspapers and books. But you can read both "typographic" sources on your new Amazon Kindle or Kindle-equipped iPhone. [19]

Twitter isn't going to save or destroy the world. People prefer quick fixes and technology has traditionally been the main provider. What social media has the opportunity to do is transcend the instant-information problem that the network news culture has largely created. As the example of the Kindle shows, new technology and complex information do not necessarily have to be at odds with each other. But it is likely that focusing on organizational, social, and political contexts rather than purely technological modes of discourse and change will best serve those seeking to build innovative technological systems and networks. It is, after all, imperfect human beings in imperfect social and political institutions who end up using technology—a reality that tech-boosters often forget.

Adam Elkus is an analyst specializing in foreign policy and security. He is currently Associate Editor at Red Team Journal. His articles have been published in the West Point Countering Terrorism Center Journal, Small Wars Journal, Foreign Policy in Focus, and other publications.

[18] See Neil Postman, *Amusing Ourselves to Death: Public Discourse in the Age of Show Business*, New York: Penguin Group, 2005.
[19] My first purchase was *The Accidental Guerrilla.*

Elkus blogs at Rethinking Security, Dreaming 5GW, and the Huffington Post. He is currently a contributor to the Center for Threat Awareness' ThreatsWatch project.