POLICY MEMO

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Three Tweets to Midnight:
Nuclear Crisis Stability and the Information Ecosystem

How might a nuclear crisis play out in today's media environment? What dynamics in this information ecosystem—with social media increasing the velocity and reach of information, disrupting journalistic models, creating potent vectors for disinformation, and changing how political leaders interact with constituencies—might challenge decision making during crises between nuclear-armed states?

This memo discusses facets of the modern information ecosystem and how they might affect decision making involving the use of nuclear weapons, based on insights from a multidisciplinary roundtable. The memo concludes with more questions than answers. Because the impact of social media on international crisis stability is recent, there are few cases from which to draw conclusions. But because the catastrophic impact of a nuclear exchange is so great, there is a need to further investigate the mechanisms by which the current information ecosystem could influence decisions about the use of these weapons. To that end, the memo poses a series of questions to inspire future research to better understand new—or newly important—dynamics in the information ecosystem and international security environment.

The Information Ecosystem and International Conflict

A technology transition, driven by social media and broader applications of advanced information and communications technology, is disrupting the global information ecosystem. These shifts are still under way, but some trends stand out. Social media make it vastly easier, faster, and cheaper for interested parties—individuals, politicians, political entities, intelligence agencies, and news media, among others—to spread information and mis/disinformation. Individuals, organizations, networks, and states are now empowered to directly move information across borders and to global audiences like never before, and especially so into nations without strong traditions of information censorship. Using advanced computational techniques, social media platforms allow precise audience segmentation for advertisers while drawing

On October 18–20, 2017, experts and policymakers gathered at the Airlie Center outside Washington, DC, to participate in the Stanley Foundation's 58th annual Strategy for Peace Conference. Autonomous roundtables focused on policy ideas, challenges, and recommendations in three key global issue areas: climate change, nuclear policy, and mass violence and atrocities.

This policy memo captures the major discussion points and policy recommendations from the roundtable on nuclear policy cochaired by Herb Lin, senior research scholar for cyberpolicy and security, and Harold Trinkunas, deputy director and senior research scholar of the Center for International Security and Cooperation at Stanford University. It was also cochaired and organized by Stanley Foundation program officer Benjamin Loehrke. Stanley Foundation program associate Danielle Jablanski served as the rapporteur. Additional information about this roundtable and others held as a part of the 58th annual Strategy for Peace Conference is available on the [foundation's website](#).

user attention toward messages that more closely conform to their existing ideological and political beliefs.

This transition has upended traditional journalism business models and displaced journalists' once hegemonic roles as intermediaries for truth in reporting. It has altered how politicians interact with constituencies—both in how they communicate messages and how they interpret public support. It has also given rise to a new era of propaganda and disinformation campaigns, allowing states and malicious actors—at low cost and with high impact—to sow confusion and discord in adversaries' domestic politics.

Several observations of this ecosystem warrant attention for discussion of international conflict:

- The volume, velocity, and reach of information is increasing faster than norms, policies, and institutions have evolved to manage the consequences of the information. That could produce an updated version of the "CNN effect." This dynamic would be near-instant and massive but not necessarily uniformly distributed."[1]
- There is a crisis of trust in institutions, particularly in print media. One recent poll, however, suggests that trust in media has risen from historically low levels.[2]
- Professional journalists have a critical role in accurately informing the public. But they are no longer primary gatekeepers for information and have diminishing influence to counter false narratives.
- Misinformation and disinformation[3] have become highly cost effective, distributed, adaptive, and deniable. Automated accounts on social media—or "bots"—can scale up the effects.[4]
- It takes more time and resources to refute or displace a falsehood than to propagate it. A lie can circulate within trusted networks long enough to be treated as credible before fact checkers can debunk it.
- Social media combined with the ubiquity of sensors has facilitated the disintermediation of intelligence. Nongovernment analysts can sometimes rely on this combination to obtain data from nuclear and missile tests in near-real time.

These rapidly evolving changes have affected domestic and international political dynamics and widened the arena for conflict, though the cases to date are few and of low intensity. Disinformation campaigns conducted on social media have played significant roles in sparking a diplomatic crisis between Qatar and its neighbors[5] and have confused the politics around responses to the use of chemical weapons in Syria.[6] Social media have played a prominent role in the Trump administration's escalating crisis with North Korea.[7]

Crises involving nuclear weapons are an extreme on the conflict-intensity spectrum. However, the new information ecosystem could potentially inflame calls for war, complicate signaling, and compress decision windows, as we have seen in recent low-intensity international crises involving social-media-propagated disinformation campaigns.[8] Given how nuclear decisions are made—in tight timeframes and unilaterally by a country's sole political leader—a nuclear decision might be particularly sensitive to such new pressures. Given the catastrophic or cascading impact that even a small-scale exchange of nuclear weapons would cause, it is worth asking what and how the information ecosystem might contribute to conflict escalation and deterrence failure between nuclear powers.[9]

Information, Decision Psychology, and the Arc of a Crisis

If the current information ecosystem—and social-media-enabled disinformation campaigns specifically—have significant influence on nuclear decisions, it would likely build during the earlier phases of a crisis and shape the psychology of the ultimate decision. The moment of decision itself would likely be in secure facilities and somewhat insulated from media reports. A leader, considering or warned of a nuclear attack, is unlikely to be checking Twitter notifications while being rushed into a bunker. There is no time for that. But a more likely path of influence is that cumulative effects from the information ecosystem shape the mindset and predisposition of the leader before the moment comes.

The use of nuclear weapons is a political decision, which may be considered during a crisis by an individual under unfathomable stress, with imperfect information, in the course of a few minutes.[10] Such an environment caters more to instinctual and emotional thinking rather than rational deliberation. A leader faced with such a decision is more likely than not to lean upon heuristics, or rules of thumb and intuitive thinking.[11] This could result in cognitive biases and wishful thinking as he or she contemplates what to do. Feeling acute domestic political or strategic vulnerabilities, he or she might fear loss and act irrationally from a place of desperation. Stress might also worsen decision-makers' abilities to frame and interpret adversaries' signals.[12]

A nuclear use decision is also a product of psychological forces. By shaping the environment in which decisions are made, today's information ecosystem influences those variables. It is an open question of whether that influence is significant and, if so, how it could contribute to conflict escalation and deterrence failure.

Researching deterrence psychology and the information ecosystem, or gaming scenarios involving social media use during a crisis between nuclear-armed states, could illuminate questions for future consideration. Such questions could include:

- To what degree does the information ecosystem make it easier for a leader to use bad information, disinformation, or questionable alternative information sources to shape or buttress his or her preferred decision?
- How do leaders factor messages on social media into perceptions of adversary signals? What messages on social media, and in which contexts, might be effective at signaling? How does the proliferation of message channels affect signal consistency?
- How might online belittling and humiliation affect the emotional state of a decision-maker in a crisis?
- How might the information ecosystem change the likelihood that a leader gets caught in a commitment trap or is able to escape one?[13]
- How and to what extent, if any, could an online public opinion firestorm calling for war from a leader's political base predispose him or her to escalate a crisis or use nuclear weapons first?[14]
- How might a leader instigate such an online firestorm? How could an adversary, or third party, spark such a firestorm through disinformation?

Stabilizing Effects

The information ecosystem also could provide new capabilities and empower a new set of actors that have stabilizing effects and improve informed decision making. Features of this environment—including the greater connectivity, increased velocity of information, low barriers to entry for reporting, and ubiquity of sensors—could combine to counteract some of the concerning influences questioned above. Online networks of experts and citizen journalist communities, like Bellingcat, have thrived and are intended to help combat falsehood and increase public resiliency to disinformation.[15] The new information ecosystem has also opened new channels for public diplomacy and message coordination between diplomats. By contributing to a more informed and reasoned public debate, it is possible that such effects could add stability in the information ecosystem and encourage more cautious political decision making, though the significance and effects warrant further study. Potential questions for future research include:

- How does crowdsourcing and open source intelligence analysis improve the pace and accuracy of public reporting?
- How might the immediacy and directness of social media allow leaders to improve signaling or reassure publics during times of crisis?
- How and to what extent, if any, does increased connectivity of sitting or former officials create richer and more frequent opportunities for diplomatic outreach?

Additional Open Questions

This memo, and the roundtable that inspired it, opens more questions than it answers. This reflects a shared observation from roundtable participants that security researchers have not fully engaged with how the information ecosystem affects foreign policy and crisis decision making. To facilitate that examination, these are some additional open questions that roundtable participants offered as possible avenues for future research:

- What features of a state—or of deterrent relationships—might make crises between nuclear-armed states more susceptible to the negative effects of today's information ecosystem? How does the strength of communication and diplomatic ties between states affect such vulnerabilities?
- Does the information ecosystem complicate the politics of extended deterrence arrangements? If it is easier for adversaries to manipulate domestic constituencies, is decoupling allies similarly becoming easier? What effect might this have on states' decisions to acquire nuclear weapons?
- What is the relationship between nuclear posture and doctrine and decision makers' timelines?
- What steps could be taken to increase leaders' decision time and encourage leaders during crises to "think slowly" and be more deliberative?
- Should governments attempt to manage the social media environment during a crisis?
- How does the information ecosystem influence public attitudes about the use of nuclear weapons?[16]
- How might the information ecosystem change over the next five to ten years? What lessons can be inferred today about the future roles of the information ecosystem in international conflict?

Notes

[1] The "CNN effect" has many definitions, but loosely speaking, it addresses the effect and impact on the formulation of policy in an environment of around-the-clock TV news coverage. For a review of various studies on the CNN effect, see Eytan Gilboa, "The CNN Effect: The Search for a Communication Theory of International Relations," *Political Communication,* Vol. 22, No. 1, 2005, pp. 27–44.

[2] Frank Newport, "Americans' Confidence in Institutions Edges Up," Gallup News, June 26, 2017, *http://news.gallup.com/poll/212840/americans-confidence-institutions-edges.aspx*.

[3] Claire Wardle, "Fake News. It's Complicated." First Draft. Feb. 16, 2017, *https://firstdraftnews.com/fake-news-complicated/*.

[4] Samuel Woolley, "Automating Power: Social Bot Interference in Global Politics," First Monday, Vol. 21, No. 4, 2016, *http://firstmonday.org/ojs/index.php/fm/article/view/6161/5300*.

[5] Akin Ünver, "Can Fake News Lead to War? What the Gulf Crisis Tells Us," War on the Rocks, June, 13, 2017, *https://warontherocks.com/2017/06/can-fake-news-lead-to-war-what-the-gulf-crisis-tells-us/*.

[6] Ben Nimmo and Donara Barojan, "How the Alt-Right Brought #SyriaHoax to America," Digital Forensic Research Lab, 7 April 7, 2017, *https://medium.com/dfrlab/how-the-alt-right-brought-syriahoax-to-america-47745118d1c9*.

[7] Jeffrey Lewis, "Donald Trump Threatened North Korea After Completely Imaginary Negotiations," *Foreign Policy*, October 3, 2017, *http://foreignpolicy.com/2017/10/03/donald-trump-threatened-north-korea-after-completely-imaginary-negotiations/*.

[8] Herb Linn and Harold Trinkunas, "The Impact of the Global information Revolution on Nuclear Stability," (forthcoming).

[9] Paul N. Edwards, "How Nuclear War Would Affect World Climate and Human Health," Freeman Spogli Institute, Stanford University, August 29, 2017, *https://medium.com/freeman-spogli-institute-for-international-studies/how-nuclear-war-would-affect-the-world-climate-and-human-health-8b40b4668074*.

[10] Alexander George, "The Impact of Crisis-Induced Stress on Decision Making," in *The Medical Implications of Nuclear War*, ed. Fred Solomon and Robert Q. Marston Washington, DC: National Academies Press, 1986), pp. 529–552.

[11] Daniel Kahneman, *Thinking, Fast and Slow* (New York: Farrar, Straus and Giroux, 2011).

[12] Richard Ned Lebow, "Deterrence: A Political and Psychological Critique," in *Perspectives on Deterrence*, ed. Robert Axelrod, Robert Jervis, Roy Radner, and Paul Sterns (New York: Oxford University Press, 1989). pp.25-51.

[13] Scott D. Sagan, "The Commitment Trap: Why the United States Should Not Use Nuclear Threats to Deter Biological and Chemical Weapons Attacks," *International Security, Vol.* 24, No. 4, 2000, pp. 85–115.

[14] Katja Rost, Lea Stahel, and Bruno S. Frey, "Digital Social Norm Enforcement: Online Firestorms in Social Media," One, Vol. 11, No. 6, June 17, 2016.

[15] Ben Sullivan, "Bellingcat Wants Your Help to Debunk Fake News," Motherboard*, March 7, 2017, *https://motherboard.vice.com/en_us/article/78qbqy/bellingcat-wants-your-help-to-debunk-fake-news*.

[16] Scott Sagan and Ben Valentino, "Revisiting Hiroshima in Iran," *International Security,* Vol. 42, No. 1, 2017, pp. 41–79.