

Nuclear Crisis Communications: Mapping Risk Reduction Implementation Pathways

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Over the past few years, an international consensus has been converging on nuclear risk reduction, and tangible implementation proposals have focused on nuclear crisis communications systems. The Non-Proliferation Treaty (NPT) Review Conference draft final document calls for the “establishment of crisis-proof communication lines and risk reduction centers.”¹ The P5 paper on risk reduction emphasizes the “establishment and maintenance of bilateral crisis communication channels.”^{2,3} Elsewhere, the P3 states (the United States, United Kingdom, and France) have outlined their willingness to work on the “enhancement of secure communication channels” to improve communication and transparency in a crisis.⁴ Meanwhile, the ongoing crisis in Ukraine illustrates existing instability in the strategic environment and highlights the benefits of open channels of communication. The latter have prevented unintended incidents in the Baltic Sea amidst several NATO and Russian military exercises.⁵

Despite proactive public statements on the growing legitimacy attached to the idea of crisis communications, P5 states have yet to take concrete steps to strengthen crisis communication. As the P5 modernize their nuclear capabilities, each capital has the opportunity to ensure effective and secure communications to and from their respective national command authorities.⁶

Recognizing the growing need for modern crisis communications, the Institute for Security and Technology (IST) has gathered scholars, practitioners, and technologists to devise a global nuclear crisis communication network design – an internationally-driven, secure, resilient, multilateral communications solution. This design effort, known as CATALINK, provides the communications benefits of traditional nuclear hotlines while solving the reliability and authenticity issues that can undermine traditional systems.⁷

- 1 “Draft Final Document,” *2020 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons*, NPT/CONF.2020/CRP.1, August 22, 2022, <https://reachingcriticalwill.org/images/documents/Disarmament-fora/npt/revcon2022/documents/CRP1.pdf>; “Strategic Risk Reduction: Working Paper submitted by China, France, the Russian Federation, the United Kingdom of Great Britain and Northern Ireland and the United States of America,” *2020 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons*, NPT/CONF.2020/WP.33, December 7, 2021, <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N21/376/57/PDF/N2137657.pdf?OpenElement>.
- 2 A term for the 5 permanent members of the United Nations Security Council.
- 3 “Strategic Risk Reduction,” December 7, 2021.
- 4 “Principles and Responsible Practices for Nuclear Weapon States: Working Paper submitted by France, the United Kingdom of Great Britain and Northern Ireland and the United States of America,” *2020 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons*, NPT/Conf.2020/WP.70, July 29, 2022, https://www.un.org/sites/un2.un.org/files/npt_conf.2020_e_wp.70.pdf.
- 5 Sylvia Mishra and Alexa Wehsener, “Nuclear Risk Reduction: In Search of a Common Denominator,” *Institute for Security and Technology*, December 1, 2022, <https://securityandtechnology.org/blog/nuclear-risk-reduction-in-search-of-a-common-denominator/>.
- 6 George Perkovich and Pranay Vaddi, “Nuclear Force Posture and Nuclear Command, Control, and Communications,” *Carnegie Endowment*, January 21, 2021, <https://carnegieendowment.org/2021/01/21/nuclear-force-posture-and-nuclear-command-control-and-communications-pub-83581>.
- 7 “CATALINK FAQ: Responses to Common Questions About the CATALINK Initiative,” Institute for Security and

There are at least two scalable pathways to a crisis communications system like CATALINK:

1. The P5 focus on effective crisis communications in their ongoing P5 Process and Strategic Risk Reduction Working Group.⁸
2. The P5 states and Stockholm Initiative members lead a working group on crisis communication.

The two proposed pathways can tackle existing challenges. The first pathway could help stimulate the P5 Process and encourage continuation of dialogue among the P5 about practical implementations for crisis communication systems. The second pathway would act as a bridge between NWS and non-NWS (NNWS, members of the Stockholm Initiative) and strengthen the process of global accountability in the context of risk reduction and crisis communication.

Diplomatic Hurdles

All roads to risk reduction must first address NNWS concerns about where the international community invests its diplomatic energies. Countries like Sri Lanka, South Africa, and others have emphasized that the risk reduction approach cannot substitute

progress on disarmament.⁹ The P5's push for risk reduction initiatives has often been criticized for its lack of sincerity; NNWS have cautioned that risk reduction shouldn't be an "end in itself."¹⁰ Rather, they argue that modernizing communications should be an interim measure to defuse nuclear dangers prior to complete and verifiable disarmament. Despite these criticisms, risk reduction measures can add momentum to the ongoing P5 Process. During the 2022 Review Conference, international politics stymied P5 cooperation. However, P3 engagement and diplomacy acted as a vector of the ongoing commitment of NWS to deliver on their NPT obligations. In a way, the P5 has leveraged the P3 to push forward the risk reduction agenda.

To push the nuclear risk reduction agenda forward and sustain momentum, IST encourages smaller groupings like the P3 to lay the groundwork for P5-Stockholm Initiative members' engagement in crisis communications. The contemporary crisis in international politics should not impede the progress that the P5 has registered. Instead, the P5's ability to keep open channels of communications during a crisis needs to be viewed as a significant point of convergence despite existing political differences. Against the backdrop of a rapidly changing security and technological environment, the P5 will

Technology, <https://securityandtechnology.org/catalink-frequently-asked-questions/>.

- 8 The P5 Process is an effort by the five NWS to strengthen their commitments to the NPT. See: Heather Williams and Shata Shetty, "The P5 Process: Opportunities for Success in the NPT Review Conference," *King's College London and the European Leadership Network*, June 2020, <https://www.kcl.ac.uk/cs/ss/assets/the-p5-process-opportunities-for-success-in-the-npt-review-conference.pdf>.
- 9 "Draft Statement by Sri Lanka," Tenth Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, July 29, 2022, https://estatemements.unmeetings.org/estatemements/14.0447/20220802/d9cjQBjtSPPR/IE9NRickRoK_en.pdf; "South African Statement for Main Committee I — Nuclear Disarmament," *Tenth Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons*, August 4, 2022, https://estatemements.unmeetings.org/estatemements/14.0447/20220804/TEbL4TnUYGys/34MQnT0pAj8A_en.pdf.
- 10 "Draft Statement by Sri Lanka," July 29, 2022.

need to exhibit flexibility and agility to deliver on its commitments to risk reduction and the NPT. Collaboration on CATALINK is one way to deliver on crisis communications promises.

A P5 Process Focused on Effective Crisis Communication

Up until now, the P5 has not focused on strengthening and expanding crisis communication. Placating statements have not paved the way for concrete measures. Within the existing P5 Process, there could be a separate workstream that meets annually to focus on effective crisis communication dialogue. This would increase cooperation and enable collective discussion of P5 obligations towards the goals of the NPT. While states have engaged with one another to exchange views and flesh out agreements and disagreements within the framework of the P5 Process, practical and actionable discussion of their respective decision-making processes involving communication has yet to take place.

There are three existing inadequacies in the crisis communication discourse that CATALINK has the potential to address. First, recent research by IST shows how existing crisis communication failure points underscore the need for novel technical solutions like

CATALINK. In “To the Point of Failure,” the authors examine the many points of failures of crisis communications, identifying the different ways systems can and have failed, therefore potentially increasing nuclear risk.¹¹ The report identifies four types of failure – operational, accidental, adversarial, and institutional – that might undermine effective communication. Even if states are able to secure and protect their bilateral hotlines, the lack of multilateral ties remains an issue in today’s multipolar nuclear landscape. As IST’s “Atlas of Crisis Communications: Nuclear States” illustrates, there is no multipolar channel for crisis communication between all nuclear states. Instead, states have established theater-specific, bilateral hotlines based on historical and diplomatic ties.¹² CATALINK has the power to address this problem.

Second, P5 states have not invested political capital in establishing joint risk reduction centers. Crisis communication has not received the political capital and investment it deserves. The P5 must hold discussions on the steps it can collectively adopt to expand crisis communication. CATALINK can serve as a technical solution. The P5 states can embed CATALINK in national nuclear doctrines and indicate efforts to establish a multilateral hotline. States have frequently voiced their concerns over the danger posed by hacking command-and-control systems and nuclear hotlines of another state.¹³ State adoption of CATALINK could mitigate these concerns; it is designed in a way that would be easy to use,

11 Leah Walker and Alexa Wehsener, “To the Point of Failure: Identifying Failure Points for Crisis Communications System,” *Institute for Security and Technology*, November 2022, https://securityandtechnology.org/wp-content/uploads/2022/11/To-the-Point-of-Failure_IST_November-2022.pdf.

12 Leah Walker and Andrew Facini, “Atlas for Crisis Communications: Nuclear States,” *Institute for Security and Technology*, <https://securityandtechnology.org/wp-content/uploads/2022/07/Atlas-of-Crisis-Communications-Nuclear-States.pdf>.

13 Andrew Futter, “The Dangers of Using Cyberattacks to Counter Nuclear Threats,” *Arms Control Today* 46, 6 (July/August 2016):

difficult to hack, and reliable in the face of conflict.¹⁴

Lastly, complexity can often be the enemy of security. Necessitating tangible communications options for nuclear risk reduction can be radically simple in technical design. CATALINK users will know what every line of code does, how every piece of hardware interacts, and where any bugs or vulnerabilities may lie. States will not only be in a position to build their own CATALINK systems (based on design provided by the CATALINK team), but also can source all components and hardware for their systems from suppliers that they trust.

P5 and the Stockholm Initiative State Parties Working Group on Crisis Communication

The importance of crisis communications is not only understood by nuclear weapons armed states but also by non-nuclear weapon states. Any use of nuclear weapons, whether deliberate or accidental, could have catastrophic and far-reaching consequences.

Therefore, easing nuclear tensions is critical to deterring aggression and preventing war. Several NNWS like Switzerland, Austria, Sweden, and Norway, among other states of the Stockholm Initiative, are playing a pivotal role in advancing risk reduction and crisis communication.¹⁵

The Stockholm Initiative for Nuclear Disarmament is composed of 16 states and aims to strengthen diplomacy and reinvigorate the NPT to move towards complete nuclear disarmament. The Stockholm Initiative is a fitting venue for these efforts, as Stockholm member states recognize and have underscored that urgent action on crisis communication hotlines should be adopted to reduce nuclear risks.

For its part, the P3 has already indicated an interest in building support for a crisis communications reboot. During the 2022 Review Conference, the P3 issued a statement underscoring the need for reliable connectivity during a crisis:

“...we are ready to work with all relevant stakeholders towards the creation and enhancement of secure communication channels among the capitals of the nuclear-weapon states. This modest step, among others,

8-14, <https://www.armscontrol.org/act/2016-07/features/dangers-using-cyberattacks-counter-nuclear-threats>.

14 The CATALINK Brief,” *Institute for Security and Technology*, <https://securityandtechnology.org/wp-content/uploads/2022/08/CATALINK-Brochure-for-website.pdf>.

15 “The Swiss President Urges Action for a World Free of Nuclear Weapons,” *Swiss Info*, August 3, 2022, <https://www.swissinfo.ch/eng/politics/swiss-president-urges-action-to-achieve-a-world-free-of-nuclear-weapons/47799598>; “Statement by Austria,” November 2018, <https://www.un.org/disarmament/wp-content/uploads/2018/11/statement-by-austria-nw.pdf>; “Statement by Sweden,” delivered by H.E Ann Linde, Minister for Foreign Affairs of Sweden, at the 10th NPT Review Conference, August 1, 2022, <https://www.swedenabroad.se/en/embassies/un-new-york/current/news/statement-by-sweden-at-the-10th-npt-review-conference/>; “Statement by Norway,” delivered by Mr Jørn Osmundsen, Special Envoy for Disarmament Affairs, Ministry of Foreign Affairs of Norway at the 1st Meeting of State Parties to the Treaty on the Prohibition of Nuclear Weapons (TPNW), June 21, 2022, <https://documents.unoda.org/wp-content/uploads/2022/06/Norway.pdf>.

| can improve communication and transparency, including in a crisis.”¹⁶

CATALINK provides the kind of channels the P3 endorsed and could help focus discussion on tangible systems that states could develop collectively. Therefore, the addition of a multilateral system via CATALINK provides P3 states a nexus around which to coordinate actions and discuss differences multilaterally in a fast, reliable, and secure manner.

By working together, the Stockholm initiative and the P5 can achieve tangible progress. In June 2023, the Stockholm Initiative and the P3 can establish a Working Group at the margins of the NPT Preparatory Commission in Vienna to discuss crisis communication and socialize the idea of a multilateral nuclear hotline. The proposal is in consonance with the Stockholm Initiative Working Group’s declared goal of “establishment and enhancement” of hotlines.¹⁷ Given the close alignment of objectives of the P5 and the Stockholm Initiative, efforts to mainstream crisis communication and CATALINK might offer one tangible pathway for the overarching goal of risk reduction for both parties.

Integrating CATALINK into the P5 and Stockholm Initiative Working Group dialogues could advance risk reduction in two ways.

1. Centering discussion on the idea of effective crisis communications and a multilateral hotline could provide a focal point for risk reduction dialogue and also act as a bridge-builder between nuclear weapons and non-nuclear weapons states.
2. Discussing CATALINK could prompt exchanges of scientific and technical knowledge and even ease the way to mitigating political issues through novel technical solutions.

What Can the Proposed Pathways for Risk Mitigation Achieve?

Several U.S. official documents indicate the importance of crisis communication and clarity of messaging and intent.¹⁸ At the start of 2022, the P5 joint statement affirming that a “nuclear war cannot be won and must never be fought” seemed like a staunch commitment for the P5 leaders to rein in an arms race and foster trust.¹⁹ To demonstrate their intent to collaborate on crisis communication, the P5 should build on the 2022 statement and state willingness to advance the multilateral crisis

¹⁶ “Principles and responsible practices for Nuclear Weapon States,” July 29, 2022.

¹⁷ “A Nuclear Risk Reduction Package: Working Paper by the Stockholm Initiative,” *2020 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons*, NPT/Conf.2020/WP.9, July 21, 2021, https://www.government.se/4a2425/contentassets/690891c6d51244e188aa6e8f2677f57c/workingpapernuclearriskreduction_stockholminitiative_endorsed-by-21-states-july-2021.pdf.

¹⁸ “Managing Risks of Nuclear Escalation,” *Federation of American Scientists*, March 2020, <https://man.fas.org/eprint/escalation.pdf>.

¹⁹ “Joint Statement of the Leaders of the Five Nuclear-Weapons States on Preventing Nuclear War and Avoiding Arms Races,” *The White House*, January 3, 2022, <https://www.whitehouse.gov/briefing-room/statements-releases/2022/01/03/p5-statement-on-preventing-nuclear-war-and-avoiding-arms-races/>.

communication system. In the meantime, venues like the Stockholm Initiative provide further opportunities for risk reduction dialogue.

The two risk reduction pathways proposed here would emphasize the importance of crisis communications, acquaint states with CATALINK, foster scientific and technical cooperation among nuclear weapons states, and revitalize the NPT's goals to promote nuclear risk reduction.²⁰ CATALINK, if implemented, would act as a common denominator or a starting point for tangible nuclear risk reduction efforts. While states may still disagree on sources of nuclear risks, through effective crisis communication states will be able to keep differences from snowballing into a grave crisis.

20 "2010 NPT Review Conference 64-Point Action Plan," *Government of Canada*, https://www.international.gc.ca/world-monde/issues_development-enjeux_developpement/peace_security-paix_securite/action_plan-2010-plan_d_action.aspx?lang=eng.



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