YOUNG LEADERS PROGRAM

BEYOND THE BATTLEFIELD: NAVIGATING BIOSECURITY CHALLENGES WITH INTEROPERABILITY

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Photo: U.S, Australian, German, and Indonesian military forces conduct a "rehearsal of concept" drill at Townsville Field Training Area in Australia during exercise Talisman Sabre 23, on July 21, 2023. Credit: Army Capt. Stacey Lasay.

"…This isn't one of those boutique capabilities, is it?"

I sit across from a colleague military analyst, discussing several capabilities of varying operational value. The skepticism in his question, too familiar to be misconstrued for rudeness, dismissiveness, or boredom, is followed by a heavy sigh of shared understanding. What is innovation, if not the continuation of the "as-is"? Well, for one, the "as-is" must have temporal alignment with the modern warfighter and modern warfighting if it is to remain relevant. If not, the space for a "to-be" capability exists. Is "to-be" what we refer to as innovative? We're getting warmer. This commentary is my reflection after attending the Biosecurity Amidst Technological and Geopolitical Dynamism workshop hosted by the Center for Global Security Research in March 2024.

In the theater of modern warfare, where the shadows of uncertainty loom large, the United States military stands as a sentinel against emerging biosecurity threats. From the specter of pandemics to the threat of bioterrorism, the call for a synchronized and comprehensive response reverberates louder than ever. Yet, amidst the strategic chessboard of military operations and global security, one vital ingredient often eludes the spotlight: the indispensable value of technical and organizational interoperability.

Interoperability, the harmonious symphony of diverse systems and entities toward a shared objective, emerges as the cornerstone in the US military's biosecurity mission areas. Take, for instance, Operation United Assistance, a US military response mission to the 2014 Ebola outbreak in West Africa. The United States' military deployed troops, medical personnel, and resources to assist in containment efforts. However, interoperability challenges between military branches, government agencies, and international partners hampered the effectiveness of the response, highlighting the need for seamless coordination and collaboration.

Similarly, during the 2020 COVID-19 pandemic, the US military played a pivotal role in supporting domestic response efforts, from deploying medical personnel to providing logistical support. However, interoperability issues between military and civilian healthcare systems, as well as challenges in data sharing and communication, underscored the importance of interoperability in facilitating a unified response to biosecurity threats.

However, the journey to achieving interoperability is fraught with hurdles. Technical complexities abound as a tapestry of platforms and technologies across the military and government landscape presents

compatibility challenges. For example, during Operation Desert Storm in 1991, interoperability issues between joint forces' communication and identification systems hindered coordination and situational awareness, leading to inefficiencies and delays in communication and decision-making.

Moreover, organizational hurdles impede the flow of information and decision-making processes, hindering the ability to orchestrate a unified response. The aftermath of Hurricane Katrina in 2005 exposed the challenges of interoperability between federal, state, and local agencies in coordinating disaster response efforts, underscoring the need for streamlined communication and collaboration mechanisms.

Nonetheless, the US military pursues defensive biosecurity capability, as well as a robust and collaborative safeguarding strategy. As seen with the concern of bioterrorism and the potential weaponization of biological agents, ensuring robust biosecurity measures remains an imperative for national security.

The cultivation of standardized communication protocols and interoperable technologies assumes paramount importance. The Global Combat Support System-Army (GCSS-Army), for instance, integrates supply chain management functions across the Army, enhancing interoperability and efficiency in logistics operations.

One tangible example of the US military's efforts is its development of advanced detection and identification technologies for biological threats. For instance, the Joint Biological Tactical Detection System (JBTDS) is a field-deployable system designed to detect and identify biological agents quickly and accurately in various operational environments. By integrating such cutting-edge technologies into joint exercise environments, the military can assess their effectiveness in real-world scenarios and identify areas for improvement.

Additionally, the US military has been actively involved in joint exercises with partner nations to enhance collective biosecurity capabilities. The Pacific Partnership exercise, an annual humanitarian assistance and disaster relief mission conducted by the US military in collaboration with regional partners in the Indo-Pacific region, is one example. Exercise Cobra Goldis another example, focusing on a more bilateral scope with multilateral engagement. In addition to providing medical assistance and disaster response training, these exercises include components focused on all-domain biosecurity preparedness and response, such as complex tabletop simulations of biological incidents.

Furthermore, the recent COVID-19 pandemic has underscored the importance of biosecurity measures not only in military contexts but also in broader public health emergencies. The US military's participation in domestic and international efforts to combat the pandemic, including logistical support, medical assistance, and vaccine distribution, highlights its role in addressing biosecurity threats beyond traditional warfare scenarios.

The US military's development and demonstration of technical biosecurity capabilities in joint exercise environments represent proactive steps to mitigate the risks posed by biological threats. By leveraging advanced technologies, collaborative partnerships, and lessons learned from real-world events like the COVID-19 pandemic, the military strengthens its readiness and resilience in confronting diverse biosecurity challenges.

However, technical interoperability alone falls short without concomitant efforts to address organizational bottlenecks. Bureaucratic hurdles and jurisdictional complexities must be dismantled, fostering a “bioeconomy” that is amenable to collaboration and synergy across military branches and government agencies. Effective leadership and training emerge as linchpins in instilling a collective sense of mission and purpose among personnel engaged in biosecurity operations.

In the crucible of modern warfare, where adversaries blur the lines between friend and foe, interoperability emerges as a force multiplier. By embracing interoperability as a guiding principle, the US military can navigate the labyrinth of biosecurity challenges

with agility and resilience. In an era marked by uncertainty and volatility, interoperability serves as a lodestar, illuminating the path toward a safer and more secure future.

All this being context to my guarded optimism in replying "not this time," I quickly scan the capability brief again: operationally tested in several joint exercises, website-accessible, and all it needs is Wi-Fi. "Let's give it a try!"

Disclaimer: This article reflects on the two-day workshop "Biosecurity Amidst Technological and Geopolitical Dynamism" convened by the Center for Global Security Research (CGSR) at Lawrence Livermore National Laboratory (LLNL) on March 14-15, 2024. The views expressed in this piece are the author's own.