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Department of Defense Strategic Evaluation
Interoperability (2016-2021)
Public Summary

The Department of Defense (DoD) sponsors strategic evaluations of security cooperation (SC) programs and activities pursuant to 10 U.S.C. 383 and DoD Instruction (DoDI) 5132.14, “Assessment, Monitoring, and Evaluation Policy for the Security Cooperation Enterprise.” The Office of the Deputy Assistant Secretary of Defense for Global Partnerships (ODASD(GP)) and the Defense Security Cooperation Agency (DSCA) initiated a strategic evaluation of the relationship between security cooperation (SC) initiatives by the DoD SC Enterprise and interoperability outcomes.

DoD commissioned the RAND Corporation, a Federally Funded Research and Development Center, to conduct this strategic evaluation of DoD efforts to enhance interoperability with allies and partners. The evaluation documented the findings of the project “Refining and Executing Rigorous Analytic Processes for Security Cooperation,” which was a retrospective evaluation of DoD SC activities conducted from 2016 to 2021. This summary, developed by ODASD(GP), provides unclassified primary findings and recommendations derived from RAND’s evaluation report.

The evaluation was designed to answer three questions:

1. To what extent has U.S. SC improved interoperability between U.S. forces and those of allies and partners?
2. When improvements have been achieved, have they been sustained?
3. Where substantial improvements have been achieved, what explains those successes, or where improved interoperability was an objective but no such improvements have been realized, what explains lack of success?

Methodology: DoD scoped the evaluation of interoperability to focus 1) geographically, on levels of interoperability between the United States and key allies and partners in the U.S Indo-Pacific Command (USINDOPACOM) area of operations (AOR), namely Australia, Japan, Indonesia, and the Philippines; 2) operationally, on interoperability for the purpose of protecting against Chinese hostile measures in the competition space, such as illegal fishing, illegal prospecting for hydrocarbon resources, harassment of other countries’ militaries or law enforcement organizations in international waters, and so on, in the South China Sea; and 3) functionally, on the ability of the United States and its allies and partners to sense such hostile measures and to process and communicate this information to other states able to respond to such activities, with an emphasis on intelligence, surveillance, and reconnaissance (ISR), communications systems and information management procedures, and, to a lesser extent, the ability of allies and partners to conduct combined operations to send signals of resolve or to impose costs on China for conduct that violates international law or norms.

RAND performed the evaluation using a mixed-methods comparative case study approach consisting of stakeholder interviews, analysis of various DoD documents, reports, and datasets, and process tracing. Prior to reforms set forth by the National Defense Authorization Act for Fiscal Year 2017, DoD did not have a comprehensive program of assessment, monitoring, and evaluation for SC programs and activities to measure progress toward strategic objectives.

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RAND therefore developed an original logic framework, use cases, and an evaluation mechanism to link SC efforts in the four countries to interoperability outcomes at the strategic, operational, and tactical levels for the operations and functions under review.

The first task RAND undertook was to frame interoperability in a way that could be meaningfully measured. U.S. strategic guidance prioritizes the ability of the United States military to conduct effective combined operations with the militaries of its allies and partners. This ability, known as *multinational interoperability*—is related to the DoD’s doctrinal definition of interoperability – i.e., “the ability to act together coherently, effectively, and efficiently to achieve tactical, operational, and strategic objectives”¹— which has been consistently highlighted as an explicit or implicit objective in official documents for many years. Despite this focus on improving interoperability, the term itself is often poorly understood, the reasons for pursuing interoperability are often vague, and the contributions of U.S. initiatives to achieving its interoperability objectives are often unclear.

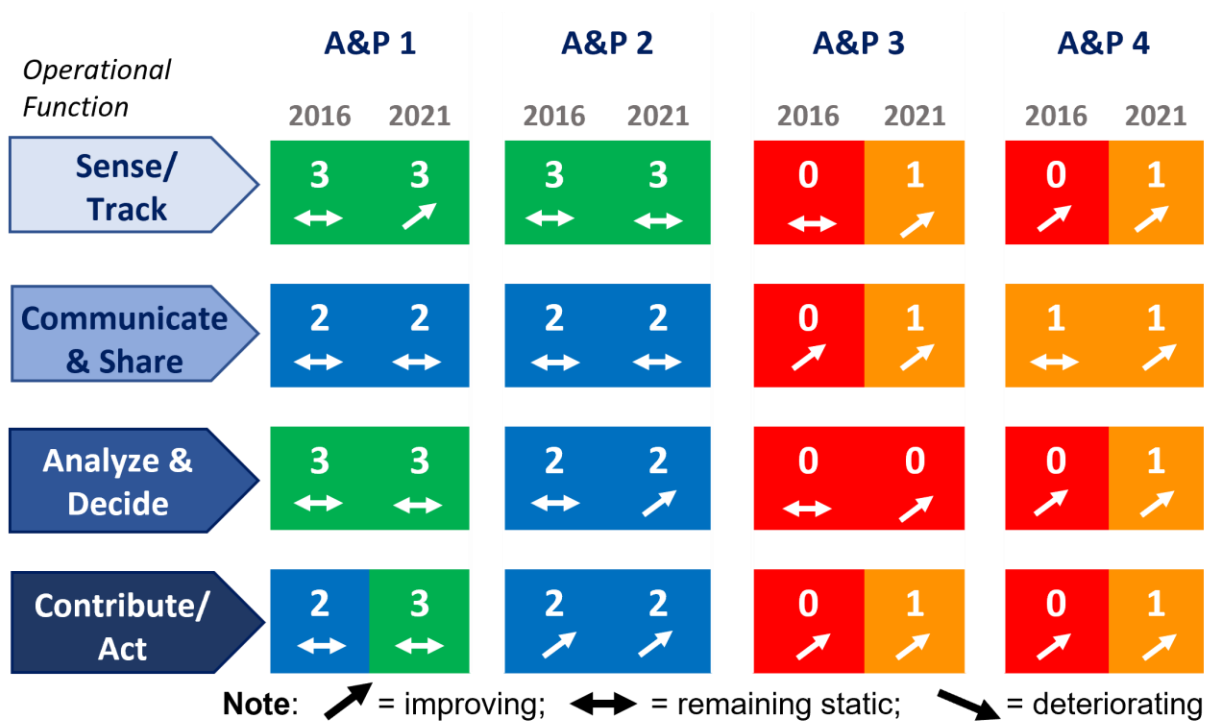
Because interoperability objectives have been relatively vague, it was not possible to determine retrospectively whether five years of SC activities achieved those objectives except in general terms. In order to conduct its evaluation, RAND therefore identified use cases for which interoperability might be necessary, which in turn answered the question, “interoperability *for what purpose?*” and tied functional requirements for interoperability to achievement of operational and theater objectives. This framework allowed RAND to analyze interoperability’s contribution to the ability to “sense,” “share/communicate,” “analyze/decide,” and “act.”

Key Findings – Levels of Interoperability Achieved: Based on a desk review of existing analyses and extensive interviews with practitioners and experts, RAND assigned interoperability ratings across the four case-study countries for the operations detailed in the use cases. Each of these countries was rated on its levels of interoperability with the United States in the four functional areas of operations: sense/track, communicate/share, analyze/decide, and act/contribute. In each of these four areas, interoperability levels were assigned a score between zero and three. A score of zero (0) represents a status of *not interoperable*; one (1) represents a status of *cooperative/deconflicted*; two (2) a status of *compatible*; and three (3) a status of *integrated* (what some observers refer to as *interchangeable*). The table below summarizes these scores.

¹ (U) Joint Chiefs of Staff, *Joint Operations*, Joint Publication (JP) 3-0, January 17, 2017, Incorporating Change 1 October 22, 2018, p. GL-10. See also CJCSI 2700.01G, February 2019, p. A-2. Note that JP 3-0 and the Department of Defense Dictionary of Military and Associated Terms also offer a second, narrower definition that refers exclusively to the technical aspects of interoperability: “The condition achieved among communications-electronics systems or items of communications-electronics equipment when information or services can be exchanged directly and satisfactorily between them and/or their users.” This narrower definition originates from Joint Publication (JP) 6-0, *Joint Communication System*. RAND consistently uses the broader definition.

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Summary of Change in Interoperability With Select Allies & Partners (A&P) and the United States Related to the South China Sea, 2016-2021



SOURCE: RAND analysis.

The research identified several areas of improvement in U.S. technical, procedural, and human interoperability with its allies and partners in the context of countering malign Chinese activity in the South China Sea. As building sustainable improvements in interoperability within the course of a few years is challenging, any gains represented significant accomplishments. The study did not identify any substantial areas of deterioration in interoperability between the United States and its allies and partners – also an important accomplishment. The research did, however, find a number of areas in which U.S. SC initiatives failed to achieve the desired gains in interoperability. These areas of minimal progress suggested an opportunity for future improvements in U.S. SC processes to make SC a more efficient tool for building interoperability.

Key Findings – SC Processes: The study compared actual SC practices with those identified as “good practices” for SC as distilled from U.S. guidance, regulations, doctrine, and other sources. Several lessons emerged.

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Planning

- U.S. interoperability objectives often were vague, leading to problems in planning and evaluation.
- U.S. SC was aligned with allies' and partners' interests at a strategic level, but at times not at a programmatic level.
- Baseline assessments were essential to successful interoperability efforts but often were not conducted.
- The United States often prioritized technical aspects of interoperability over human and procedural aspects.
- The lack of U.S. emphasis on “combined partnering”—the study’s term for planning and coordinating SC efforts in third countries with the closest U.S. allies—was a missed opportunity.

Execution

- Improved interoperability requires expanded leadership and coordination among U.S. stakeholders.
- Interoperability is facilitated by intensive, habitual interaction with allies and partners supported by highly knowledgeable U.S. staff

Evaluation/Adaptation

- Few rigorous evaluations of interoperability initiatives are conducted.
- Learning and improvements have been hampered by this lack of evaluation, as well as personnel turnover and poor knowledge management practices.

Key Findings – Overarching Insights: Two broader findings emerged from the RAND evaluation. First, it is both feasible and useful to rate the relative interoperability of multiple countries on a common scale. Doing so would allow senior decision-makers and non-specialists to compare interoperability with very different countries and outcomes of disparate interoperability initiatives.

Second, measurable advances in interoperability are achievable within a few years, but major advances require much longer. DoD’s past work on SC suggested that it typically takes years to translate a given SC initiative into an enduring capability for an ally or partner. The fact that several instances were identified in which U.S. allies or partners had substantially improved their interoperability with the United States in a five-year window is thus a notable achievement. High levels of interoperability and large increases in interoperability, however, require many years of intensive cooperation. This is especially true with high-level partners who already possess a significant amount of interoperability with the United States; just maintaining high existing levels of interoperability requires attention and resourcing. Major gains are not possible and may not be desirable (given the opportunity costs) with most U.S. partners.

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Recommendations: Based on the findings above, which were with respect to activities conducted from 2016-2021, RAND developed recommendations to inform future DoD decision-making on SC to enhance interoperability between the United States and its allies and partners.

- Adopt and inculcate a common terminology and framework for the concept of interoperability.
 - DoD should adopt a more directed Joint definition of interoperability—one that requires identification of purpose—and ideally a Joint rating framework (such as the one in this report or adapted from existing Service-level doctrine) to promote a common understanding of the concept. The definition and rating framework should highlight that interoperability is best understood as a spectrum. Even allies and partners with very different capability levels may be interoperable in important ways for specific functions, and lower-capability partners may build on initial steps toward interoperability to become more interoperable in the future. Interoperability built for one purpose can often have carry-over utility for unanticipated contingencies. Without a common definition and rating framework, these interconnections are harder to incorporate in planning.
- Adopt better-specified interoperability objectives.
 - Interoperability can facilitate a wide range of combined military operations, and often the contingencies that require interoperability are not those that U.S. planners initially anticipated. But without specific, concrete goals for interoperability initiatives, defined in SMART terms with explicit operational purposes providing a foundation, it is easy to have U.S. efforts become disjointed and inefficient at best and sometimes even counterproductive. It is essential that U.S. planning guidance provide SMARTer interoperability objectives in support of specific operational requirements.
- Simplify procedures and exercise leadership in support of interoperability.
 - Two barriers in particular prevented improved interoperability outcomes. First, many of the processes involved in building interoperability were extremely cumbersome or restrictive. Second, interoperability was only one of many competing priorities. RAND observed that if the United States were committed to building interoperability, it needed to undertake initiatives (particularly related to information sharing) with senior-level support to simplify some of the processes involved, and it needed leaders to clarify the priority assigned to improving interoperability. If the United States wanted to develop a network of allies and partners as guidance statements suggested, it should also facilitate its allies' and partners' SC through improved and more habitual information-sharing and planning.
- Improve assessment, monitoring, and evaluation and knowledge management practices.
 - There was widespread understanding that improved assessments and improved evaluations could help the United States much more efficiently convert SC resources into its desired strategic outcomes, including those related to interoperability. RAND observed that without mechanisms to ensure

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improvement in these practices and related knowledge management initiatives to make this information more visible to key stakeholders, any reforms undertaken at the time were unlikely to take root.

- Implement human resources reforms to develop requisite expertise and experience.
 - Interoperability is inherently an extremely complex enterprise. It requires in-depth understanding of U.S. military operations and multiple allies and partners. U.S. efforts to improve interoperability would benefit from increased investments in human resources for the U.S. SC enterprise, including military specialists like Foreign Area Officers as well as DoD civilians and contractors to improve the depth of experience required to achieve desired improvements in interoperability.