Department of the Air Force
Scientific Advisory Board

DEPARTMENT OF THE AIR FORCE
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Winning Strategic Competition Study

Abstract

The Department of the Air Force (DAF) Scientific Advisory Board (SAB) study on Winning Strategic Competitions addressed the barriers and best practices to technical, acquisition, and human resources innovation. The study identified strategic processes and organizational concepts that can leverage US strengths to provide a credible deterrence capability against aggression and an ability to win if necessary. Key to the strategy is providing an advantage in performance, costs, and/or time to market.

This report provides organizational and process recommendations to enable the DAF to win the strategic competition with our adversaries and increase the effectiveness of the DAF against a fast-paced and technically advancing competitor. The five elements the team focused on included: DAF enterprise strategy, agile capability (requirements, technology, and acquisition) development, effective technology transition, commercial exploitation, and agile leadership development. The study focused on the development and fielding processes of deploying new equipment and technologies and the associated manpower issues. This study did not assess specific solutions or technologies or their operational applicability. Also, manpower issues related to readiness, training, and other issues were not addressed. Many bounding restrictions were applied to keep the scope manageable for a six-month study staffed with SAB members meeting for approximately a week per month. For example, while nuclear deterrence is an important consideration for the DAF, it is not addressed in this study. Also, while many of the findings apply both to the US Air Force (USAF) and the US Space Force (USSF), more focus was applied to the USAF. This was due to the larger size and complexity of the USAF and the more recent establishment of the USSF.

The team reviewed published reports from multiple sources, interviewed former, retired and current senior Department of Defense (DoD) military and civilian employees and received briefings from across the DoD and industry (see bibliography). The study team examined the information gathered from published reports, interviews, and briefings through the lens of World War II, the Cold War, the Global War on Terrorism, and applicability to our current threats. The study also considered organizational changes in the development approach from the Cold War era to current times. Of note within the DAF, the study did consider the impact of the amalgamation of the former Air Force Systems Command (AFSC) with the former Air Force Logistics Command (AFLC) to form the Air Force Materiel Command (AFMC). This change, initiated as a cost savings measure, removed the seam between development and sustainment, but also removed some of the focus on development excellence.

Much of the study addressed barriers to rapid acquisition in the form of process inhibitors. Of the many barriers, focus was placed on those that are actionable within the DAF. The rapid pace of technological advancement and the disruptions caused by a fast-paced adversary create additional needs for a technologically sophisticated workforce within the DAF. These issues were also addressed. Finally, the study did a cursory look at strategic vectors that could provide a competitive advantage for

the US. These included better leverage of innovations in the commercial industry and the large potential funding behind those innovations. Also included is the very capable alliance network enjoyed by the US.

The systems developed and fielded by the DAF are exquisite in performance. They reflect strong technical innovation, much of which derives from capability initiated during the Second Offset. That called for superior intelligence, surveillance & reconnaissance capability, precision guided strike, stealth, and improved space-based navigation. With the lengthy Global War on Terrorism, focus was shifted away from near peer adversaries. The Operational Imperatives (OIs) and the Cross-cutting Operational Enablers (COEs) have been effective in restoring the focus to an advanced pacing adversary. Not only did they define the DAF priorities necessary for success in the Indo-Pacific, but they also combined operators and acquirers in their composition. Strong teaming across the operational and acquisition communities at all levels within the DAF is necessary for success and, to some degree, is foundational to all our recommendations.

The challenges we face are not in the quality of DAF equipment, but in the pace at which it is developed and our ability to bring affordable mass to the fight. The exquisite weapons systems we are developing have long Research, Development, Test & Evaluation (RDT&E) and appropriation cycles. This not only delays their use in operations, but also provides predictability to our adversaries. They have an opportunity to understand our future capabilities and counter them before our equipment is fielded. We also face challenges with managing the complexity of the multi-domain kill web, necessary for highly contested environments. The kill-web spans multiple organizations and resource funding lines, which does not align naturally within the platform-centric DAF. Within all of the services, there is an institutional bias toward exquisite solutions developed as major acquisition programs and extensions to existing programs. This starts with a Planning, Programming, Budgeting & Execution (PPBE) process and pervades the DAF requirements and acquisition processes. Finally, we note that commercial solutions are increasingly relevant to military missions. They are used effectively in some areas, but not at the level of scalable impact they could have. Scalability is an important characteristic for the DAF and is also important for unleashing the private capital investment that could fuel future relevant innovation.

The bottom-line is that winning requires change, and winning starts with an enterprise strategy to work on the right things to respond with urgency when the environment changes. We must recognize that multi-domain inter-dependencies, implemented as families-of-systems or system-of-systems, are the new normal. This will require rapid flex in resourcing and functional requirements across the systems. This in turn requires rapid modeling of cost, risk, schedule, and mission effectiveness in a consistent analytical framework.

Agility will be required at all levels from requirement tradeoffs across systems-of-systems to implementation within individual platforms and families of systems. Well supported open standards, implemented as a Government Reference Architecture (GRA), are a critical enabler, as are extreme teaming across operations, intel, technology, operations analysts, acquisition, and sustainment. To have viable alternatives and focused investment, there must be a clear demand signal with contractors, commercial suppliers, and the Science and Technology (S&T) community. Tapping into the vast resources of the commercial enterprise necessitates tailoring for the various business models – but all models require clear demand signals.

The foundation for change is people – airmen, guardians, civilian support, and contractors. People respond well to a shared vision with actionable strategic guidance. In addition, they need training for agile development with cross-functional teams, reinforced by systematic experiences and career management. Enterprise risk management is another key element of agile development – taking risks for enterprise competitive advantage. This does not mean burdening a program with undo technical risk

or requirements creep. Rather, it means balancing risk with advantage in every decision and having the fluidity to adjust when the balance is not appropriate.

Finally, we note that creating a sense of urgency is a cultural change. Success depends on treating it as such and leading the entire DAF as a rapid-paced, agile organization.