PREDICT, PREPARE, RESPOND: A CASE FOR SUPPORT

UNITED STATES AIR FORCE ACADEMY INSTITUTE FOR FUTURE CONFLICT



THE CAMPAIGN IN SUPPORT OF THE UNITED STATES AIR FORCE ACADEMY



PREDICT, PREPARE, RESPOND

• Ur nation's defense and freedom around the globe rely not just on the kinetic weapons of the past or on the international structures or methods of previous decades. They will require futurist leaders who understand the potential of flexible, agile systems and capabilities that address our nation's emerging security challenges.

We must identify, train, cultivate and deploy leaders who understand the nature of future conflict.

The United States Air Force Academy (USAFA) is distinctly positioned to make this needed impact on our national security capabilities.

We are putting transformative resources to work in developing leaders who will impact the ability of our Air Force, Space Force and nation to predict, prepare for and respond to the challenges of this century.

To ensure these capabilities, the Air Force Academy established the Institute for Future Conflict (IFC) in 2019. Like any great higher education institution, the Academy requires a combination of ample public and private funding to excel, including in the development of the IFC and its work to shape future conflict-minded warfighters for the Air Force and Space Force. For this reason, the IFC is a priority of the Defining Our Future comprehensive campaign, which the Air Force Academy Foundation and Association of Graduates publicly launched in 2021 to raise private support for USAFA priorities across the mission elements.

Current Challenge

The U.S. is emerging from the protracted global war on terror — a period of strategic atrophy that caused our competitive military advantage to decrease. The global stage is replete with strategic competitors and rogue nations that propagate conflict across diplomatic, information, military, economic and social instruments. These adversaries have invested heavily in a two-pronged approach to competing against the U.S.:

- Asymmetric axes of attack that exploit our vulnerabilities, such as in space, cyberspace, information and artificial intelligence
- **2.** Over time, the expansion of symmetric (conventional) warfare capabilities.

As the war on terror dragged on, our focus on radical extremists who lacked effective capabilities in electronic, air and space domains allowed our strategic competitors, notably China, to whittle away the U.S.'s competitive advantages in both symmetric and asymmetric attack axes with every budget cycle.

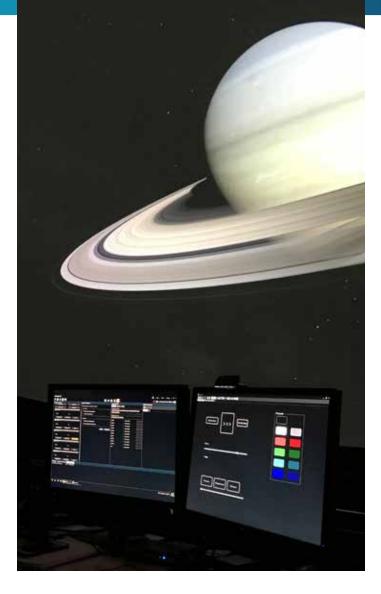
In this new paradigm, where borders and geography afford neither the clarity nor sanctuary that defined previous eras, the U.S.'s strategic advantage has eroded. Victory, preeminence or even the survival of the current international order cannot be assumed as the U.S. and its allies face a new kind of conflict. Recognizing these changes, Air Force Chief of Staff Gen. CQ Brown Jr. offered a stark warning in 2020: "If we do not change — if we fail to adapt — we risk losing the certainty with which we have defended our national interests for decades. We risk losing a high-end fight. We risk losing quality Airmen, our credibility and our ability to secure our future. We must move with a purpose — we must Accelerate Change or Lose."

"Accelerate Change or Lose" has become a rallying cry among those intent on returning our nation to dominance on the global stage.

"The Big Idea": Genesis of the IFC at USAFA

In 2018, the nationally recognized leader and technologist Paul Kaminski, Ph.D., a stealth, sensor and space pioneer and a 1964 Air Force Academy graduate, authored a white paper about the U.S.'s deteriorating competitive advantages. He then approached USAFA leadership with a "Big Idea" and a challenging question: How do we better prepare cadets for warfare of the future? "The Big Idea" consisted of three major points:

- Anticipate, rather than react to, changes. Through the IFC, USAFA cadets today are imagining, training for, analyzing and working within teams to confront complex multi-domain scenarios. They are developing the future-conflict mindset necessary to fight and win our nation's wars 15, 20 and 25 years from now.
- Contribute to the next military offset. The U.S. and its allies' Cold War-era advantage was enabled by significant, technology-based capabilities that imposed unaffordable costs on our adversaries' ability to gain a military edge. The next military offset will be driven by Fourth Industrial



Revolution technologies requiring superiority in advanced computing, big data analytics, artificial intelligence, autonomy, robotics, directed energy, hypersonics and biotechnology.

Expose Air Force Academy cadets and permanent party to the technologies, organizations and ideas shaping future conflict. The Academy's uniquely immersive experience across its mission elements creates opportunity for holistic development of future Air Force and Space Force officers not possible from other commissioning sources, tapping into the power of the Long Blue Line.

These three ideas ultimately helped inform the creation of the USAFA Institute for Future Conflict.

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INSTITUTE FOR FUTURE CONFLICT

n March of 2021, Lt. Gen. (Ret.) Bradford J. "BJ" Shwedo became the USAFA Institute for Future Conflict's first director. With the end of the Afghanistan War in 2021, the U.S. strategy has again returned to the growing threats from near-peer competitors and fortifying its future conflict advantage. A refocused National Defense Strategy and a corresponding shift in budget priorities will help the U.S. regain and maintain its military dominance. The USAFA IFC is uniquely positioned to prepare future officers for that national security imperative.

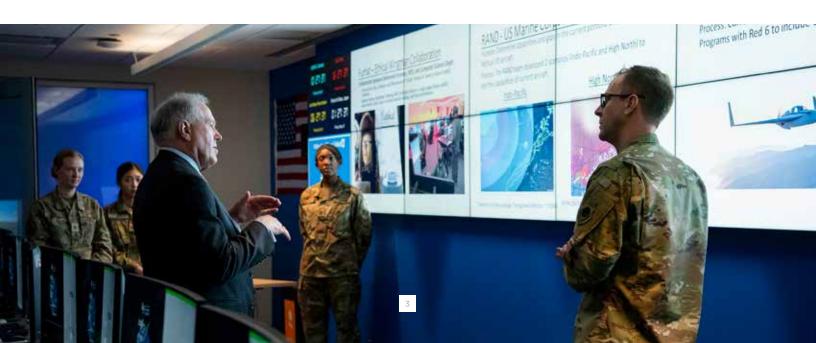
The IFC incorporates interdisciplinary research, education and hands-on experiences — across the Academy — that examine the changing character and technologies of armed conflict while providing cadets with the skills to be agile and adaptive throughout their careers. Reflecting a broad culture-change character, the Institute brings about a convergence of many efforts already happening at the Academy within its Martinson Honors Program and more than 20 other institutes, centers, laboratories and programs. The goal is for all of these areas of excellence to tightly align with the idea of producing leaders exceptionally well-prepared for 21st-century warfighting.

In essence, the IFC has created the foundation for USAFA cadets to think about how the U.S. can best plan for and approach future conflicts, research topics and themes from the National Defense Strategy. It is directly involving cadets in actively preparing for future conflict in all the emerging warfighting domains — cyber, space, artificial intelligence, electronic, hypersonics and more. It is infusing the Cadet Wing with the knowledge that the key to the nation's future military success lies in joint and synergistic efforts.

IFC Pillars of Excellence

Cadet Education and Hands-On Experiences

The IFC works across USAFA mission elements to provide timely updates to the educational information presented throughout a cadet's career. All cadets are exposed to a core curriculum of





academic classes, the Cadet Wing's 47-month training plan and human performance development operated by the Athletic Department. Cadets can also participate in research programs, enroll in warfighting minors and become involved with the Martinson Honors Program.

Across USAFA, the IFC has catalyzed efforts to holistically assess the academic curriculum and practices from the future conflict perspective. This focus drove the 2022 Future Conflict Curriculum Review Report. While the report from the review highlighted numerous strengths across the course of instruction, it also identified gaps in the curriculum and is driving change that will better prepare cadets for the future fight.

The IFC and Center for Character and Leadership Development are partnering to ensure the future conflict mindset is grounded in being a leader of character for the Air Force and Space Force.

Amplifying these efforts, the Leader of Character Framework provides a roadmap for how the Academy is training cadets to live the core values in all they do. The IFC has been highly effective in securing funds for USAFA's Multi-Domain Laboratory, which rapidly transitions cadets from a classroom-only learning arena into a state-of-the-art, future-fight, immersive learning experience. The \$9.5 million lab, part of the Air Force's investment in the IFC, contains two flight bays filled with flight simulators, equipment and learning aids to simulate drone missions, as well as complex air and ground battle scenarios.

Research

With combatant commands and several other research organizations, the IFC investigates emerging national security concerns identified in the National Defense Strategy. Research partners include Air Force Warfighting Integration Capability (AFWIC), AFWERX (the innovation arm of the Air Force), Checkmate, Air Force Research Laboratory (AFRL), the Brute Krulak Center for Innovation & Future Warfare at Marine Corps University, and the Modern War Institute at the United States Military Academy. The IFC, in coordination with the University of Colorado, USNORTHCOM, and the Homeland Defense Institute, with funding from the Anschutz Foundation, has helped create the National Security Strategic Studies Partnership (N3SP) to investigate emerging national security issues, particularly those affecting the space environment, and their impact on future conflict.

Already, USAFA faculty and cadets have benefited from the breadth and depth of augmenting researchers and distinguished instructors, especially the post-doctoral and Intermediate Development Education Scholars programs. The IFC is initiating interdisciplinary hypersonics research as a beta test for future conflict research integration — a blend of STEM and non-STEM cadets and faculty members designing hypersonic defense capabilities and then exploring operational applications and strategies for their use.

OPPORTUNITIES FOR SUPPORT AND IMPACT

The Air Force Academy established the Institute for Future Conflict as an innovative entity that will serve as an exemplar of 21st-century public-private partnerships. The culture-changing execution of its work will not happen solely with government dollars. To build on the success underway, the Air Force Academy Foundation and Association of Graduates invite you to join the effort.

Across the \$19 million private support goal for the IFC, we have curated the impactful funding and engagement opportunities necessary to elevate the Institute to the next level while keeping it strong at its core.

Institute for Future Conflict Fund

The Institute for Future Conflict Fund provides the IFC director with the flexibility to develop and support initiatives and sustain existing USAFA programs as they relate to the dynamic and changing nature of future conflict. Specific core areas supported annually by the fund may include general operations, staffing, administrative requirements and professional development, such as IFC cadre immersion events.

Cadet Enhancement and Educational Excellence

The IFC is working to connect existing centers, labs and simulators across all USAFA academic departments to provide both hands-on demonstration and visualization opportunities that fit into and enhance course instruction. To do this work at the level of excellence for which USAFA is known, the Foundation seeks philanthropy to fund the following priorities:

Endowed Chairs

Endowed chairs are highly prestigious and promise to be some of the most significant and lasting elements of the IFC. Endowed chairs will support USAFA's recruitment and retention of top subject-matter experts and professors in fields of study related to the themes and goals of the IFC.

Fellowships in Space, Hypersonics and Information Warfare

Fellowships target several coursework, experiential and hands-on research opportunities related to future conflict topics, understanding and technology. The IFC already has the Fox Fellowship in Future Pacing Threats and the Rossetti Fellowship in Future Conflict and seeks additional fellowships to enhance cadet education and curriculum development in space policy, hypersonics and information warfare.

Cadet Competitions

The IFC will have the opportunity to support various competitive cadet teams demonstrating the Institute's commitment to pursuing an interdisciplinary understanding of future conflict challenges. Funding of competitions will allow the IFC director to supplement cadet teams in both strategic and technical competitions.

Research and Outreach

The IFC will coordinate privately supported research projects, both internal and external, that explore prototype and/or experimental applications or decision-support tools. These may require technical support and integration for the purpose of advancing research and analysis informing course content. To do this work at the level of excellence for which USAFA is known, the Foundation seeks philanthropy to fund the following priorities:

Data Science and Artificial Intelligence Endowed Chairs

To recruit and retain top scholars, the IFC seeks endowed chairs in data science and artificial intelligence. Data science and AI both have significant implications on future conflict and the imperative for a dual-pronged strategy and particularly asymmetrical attack axes. Focusing heavily on research, these chairs will research and publish through the IFC, influencing and contributing to future conflict ideas and solutions not only at USAFA, but also across the nation.

Post-Doctoral Fellowships in Quantum Information Science & Technology

Supporting a promising young scholar from one of the nation's premier universities helps kick-start important research while establishing a long-term connection between USAFA, the IFC and the leading scientific minds of tomorrow. The IFC Post-Doctoral Fellows research and publish on future conflict issues within several domains of interest, emphasizing the interdisciplinary focus of both the Institute as well as future conflict problems.

Cadet and Faculty Research

Philanthropy can offer support to future-conflict-related research available to both cadets and faculty, allowing for opportunities to explore and solve relevant problems, learn through real-world application of classroom principles and build lasting collaborative relationships for the Academy, Air Force and Space Force.



Presenting and Publishing Research

The IFC has developed a website (https:// www.usafa.edu/research/institute-for-future-conflict) and, with the help of newly commissioned officers awaiting their first specialty training assignment, has energized an outreach approach to inform interested internal and external audiences regarding ongoing IFC activities and achievements. The next phase will be to find and hire an overall outreach manager to offer online publication of relevant articles and scholarly papers from which podcasts, webinars and other interactive engagements can occur. Connectivity and Technical Support – Unmanned Aircraft Systems, Multi-Domain Lab, Cyber City, Space and Aero Labs In keeping with the Future Conflict Review Report, the IFC is preparing to hire a second Rossetti Fellow for Network and Interdisciplinary Integration. This expert will connect the data and visualization outputs from the more that 20 USAFA labs, centers and functional simulators in a way that can be useful in supporting their individual functional educational needs all the way up to presenting the cadets and faculty with a visualization of the Joint All-Domain Operational environment.

Prototyping and Experiments within Madera Cyber Innovation Center

Currently under construction, the Madera Cyber Innovation Center will become the hub needed to spearhead the efforts of the Rossetti Fellow for Network and Interdisciplinary Integration. It will allow the Rossetti Fellow to successfully create the connectivity and integration architecture to enable the multi-domain "network of nodes" to present a coherent visualization of the future battlespace. Every USAFA cadet will take at least one class in the Madera Cyber Innovation Center as part of the core curriculum. Additionally, the Madera Center will allow cadets, faculty and active-duty organizations to engage in demonstrations and experiments to explore future offensive and defensive cyberspace tools and techniques.

YOU HAVE A ROLE IN DEFINING OUR FUTURE

ur future security and stability as a nation depend on our ability to train and equip the next generation of leaders — to serve with integrity and agility, to anticipate and confront future conflict.

To be clear, the federal government and the U.S. Air Force will continue to provide adequate funding for the Air Force Academy's core programs. But government funding for baseline programming is not enough to ensure the best possible experience for cadets nor to achieve Excellence in All We Do. Private support allows the Academy to seize opportunities and develop new programs more nimbly than the normal appropriations process allows.



We invite you to join in partnering with and generously supporting the Institute for Future Conflict at the United States Air Force Academy, as it trains cadets to accelerate change and win.