

Core Technical Competencies (CTCs) Focused in Four Major Technical Areas of Research

Mastering complexity of multi-domain command & control.



■ Autonomy, Command & Control and Decision Support

Vision: Mastering and imposing complexity to command & control future multi-domain operations in an evolving battlespace with speed and scale.

Mission: Deliver revolutionary, trusted, affordable information technologies for agile, resilient and distributed Air Force command & control and autonomous systems.

Goals:

- Master complexity through development of adaptive command & control systems-of-systems and services
- Control, impose and synchronize complex multi-domain effects chains
- Harness machine intelligence to increase command & control speed and scale of operations
- Realize large-scale multi-agent systems for autonomous planning, tasking and execution

Putting the right information into the right hands at the right time.



■ Connectivity and Dissemination

Vision: Seamless, multi-domain, network of networks connectivity fabric across the command and control intelligence, surveillance and reconnaissance (C2ISR) enterprise, assuring delivery of timely, secure, and actionable information to warfighters and systems.

Mission: Provide agile and secure mission-responsive communications and information sharing globally.

Goals:

- Agile and secure communications and networks
- Platform agnostic connectivity
- Autonomous link discovery, creation and utilization
- Dissemination of information at need, securely

Leveraging and shaping the cyber domain to the nation's advantage.



■ Cyber Science and Technology

Vision: An Air Force equipped with technologies that enable our freedom to operate in cyberspace while denying the adversary the same.

Mission: Deliver the science and technology necessary to ensure cyberspace superiority and support the conduct of full-spectrum, multi-domain, integrated cyber operations.

Goals:

- Secure, composable, risk-based compute options
- Cyber operations integrated and on par with air & space
- Ability to conduct cyber operations agnostic to medium and geography

Exploiting computing and algorithms to transform big data into information.



■ Processing and Exploitation

Vision: Innovator of technologies that process and exploit data in near real time, analyze massive collections over time and employ continuous learning to deliver asymmetric decision speed to the Air Force and Intelligence Community.

Mission: Deliver fast sense-making for situational awareness and adversarial insight for the AF, DoD, and Intelligence Community.

Goals:

- Multi-INT correlation and fusion of massive amounts of intelligence, surveillance, and reconnaissance (ISR) and publicly available data
- Exploit targets in denied areas
- Adversarial and secure machine learning
- Dynamic, hybrid computing advancing neuromorphic, nanotech, and quantum systems to efficiently process ISR information