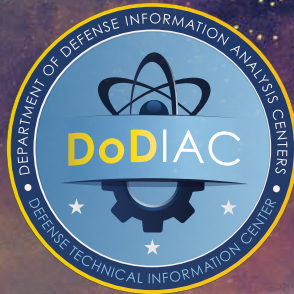


State *of the* INFORMATION ANALYSIS CENTERS



FY 2023

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Letter from the Director

Brent Ishizaki Director DoDIAC

I am proud to report that in FY 2023, the Department of Defense (DoD) Information Analysis Center (DoDIAC) delivered on its mission to reduce duplicative research, increase collaboration

across the Science and Technology (S&T) ecosystem, and enable the DoD's technological superiority. Our collaboration with mission partners continues to strengthen, with an increasing demand for DoDIAC's services.

In FY 2023, our technical knowledge products and services reached a record number of users. To serve our community better, we expanded our offerings to include a greater Subject Matter Expert network as well as in-depth analysis for Technical Inquiries at no cost to our users. As one of our most popular services, Technical Inquiries allow government researchers and scientists to save hours of research by leveraging DoDIAC to perform analysis on the topic of their interest. The demand for our State of the Art Reports (SOAR) has spiked, which serve those seeking to gain the latest knowledge and use cases on emerging technology. In addition to our knowledge products and services, DoDIAC's R&D contract vehicle, IAC MAC, was put to greater use in FY23, demonstrated by a 25% increase from the prior year, to conduct basic and applied research; and develop, prototype, and field new technologies.

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Structure

DoDIAC's continued success is built on a robust foundation of our mission focus and strong partnerships with the communities we serve. We aim to foster strategic partnerships across disparate organizations, encourage joint experimentation, and focus on achieving technical interoperability and rapid knowledge sharing. In FY 2023, we supported 767 organizations across government agencies and departments, the Armed Services, Combatant Commands, and research laboratories. Throughout the SOTI, we share examples of DoDIAC's mission impact to our customers, where our services helped enhance the warfighting capabilities by harnessing the power of artificial intelligence, advancing multi-domain communication, and increasing resilience and survivability of defense systems.

As science and technology continues to conquer today's challenges and harness emerging technologies for tomorrow's unknown, I am committed to evolve the DoDIAC's capabilities at the speed of our customer's needs even further. In FY 2024, we will increase our focus on developing, testing, and advancing novel technologies based on evolving needs of our customers while providing greater access to accurate information and authoritative expertise. Based on popular demand, we will also restart the publication of the quarterly IAC Journals with relevant articles discussing the latest in DoD science, research, and engineering.

On behalf of the entire DoDIAC organization, I look forward to continuing our collaboration with our mission partners and achieving greater heights in our capability advancements to meet the DoD's science and technology goals in FY24 and beyond.

Overview

The DoDIAC performs research and analysis and develops technical solutions that enable researchers, engineers, scientists, and program managers to utilize existing research to advance innovation across DoD and increase warfighting capabilities.



*Cybersecurity & Information
Systems Information
Analysis Center*



*Defense Systems
Information
Analysis Center*



*Homeland Defense &
Security Information
Analysis Center*



TECHNICAL INQUIRIES

The DoDIAC provides answers to technical questions using worldwide information resources and our extensive network of subject matter experts (SMEs). Answers span 22 technical focus areas that broadly cover the full array of defense science and technology. This service is available to military, government, and their contractors for up to 4 hours at no cost. Our goal is to save DoD and government researchers valuable time and resources so they can focus on their missions.



EXTENDED TECHNICAL INQUIRIES

For those technical questions requiring more than 4 hours of research, the DoDIAC provides extended research and analysis services on a cost recovery basis. These efforts can be up to 2 months in duration, a maximum of \$50,000, and classified up to TS/SCI. Extended technical inquiries are awarded as either Firm-Fixed-Price (FFP) or FFP Level-of-Effort (FFP-LOE) task orders (TO).



TECHNICAL TRAINING

The DoDIAC provides free, in-depth technical training on subjects of interest to the DoD S&T community. These training sessions are delivered online or in a classroom setting and are led by domain SMEs.



KNOWLEDGE PRODUCTS

The DoDIAC develops a wide variety of technical products to provide the scientific community a deeper understanding of emerging technologies and research. These products include State of the Art Reports (SOAR), technical assessments, critical reviews, alternative technology analyses, models, and current awareness activities.

Innovative Work

The DoDIAC is a key resource providing a wide range of services and capabilities to help the warfighter meet the challenges of a rapidly changing world and respond to emerging threats.

Through our contract vehicles, the DoDIAC conducts basic and applied research; develops, tests, and implements new technologies and approaches; and analyzes and synthesizes existing data and information.

In the next pages, we highlight a small selection of the work we have done this FY in the following areas.

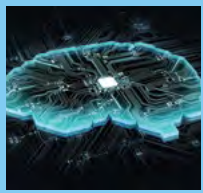


Photo by Lee

Artificial intelligence and Machine learning

Engineers are exploring the use of Artificial Intelligence (AI) / Machine Learning (ML) to identify and defend against cyber threats; make informed, real-time decisions in complex operational environments; improve situational awareness; and enhance combat capabilities.



Photo by your123

Cyber

Researchers are developing robust and reliable systems and secure architectures that can withstand a pervasive cybersecurity threat and keep networks, weapons systems, and platforms protected.



Photo by Macro photo

Microelectronics

Researchers and engineers are helping to ensure the security and integrity of microelectronics systems and devices, developing advanced materials that provide new capabilities and reduce the risk of counterfeiting, tampering, and supply chain failures.

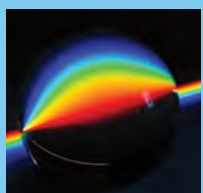


Photo by @escarlosfx

Electromagnetic spectrum

Electromagnetic Spectrum (EMS) subject matter experts help ensure the integrity and security of the electromagnetic spectrum, reduce vulnerabilities to interference and disruption, and develop policies, procedures, and technologies to protect against electronic warfare attacks.



Photo by nierfy

Survivability and Vulnerability

Analysts and engineers are working to improve the survivability and reduce the vulnerability of the warfighter, their equipment, and systems. Our efforts include Research, Development, Test, and Evaluation (RDT&E) of new technologies, hardening structures and vehicles, implementing robust systems, training, and doctrine development.



Artificial Intelligence and Machine Learning

“We will harness the potential of AI to transform all functions of the Department”

(Department of Defense Artificial Intelligence Strategy, 2018)

From deterrence to defense, from decision making to operations, artificial intelligence (AI) and machine learning (ML) have the potential to enhance our security posture, protect critical infrastructure, improve readiness, and amplify warfighter effectiveness. Recognizing the transformational possibilities inherent in AI/ML, the DoDIAC partners with the Services, Combatant Commands (CCMD), and industry to facilitate the integration of proven capabilities and develop the next generation of technologies.

“Survival on the modern battlefield will depend upon leveraging and making connections among data from diverse sources, using analytic tools for superior situational awareness, and coordinating information for disaggregated-precision effects”

(Department of Defense Data Strategy, 2020)

Supporting the DoD Data Strategy as well as the DoD AI Strategy, IAC MAC contractors are incorporating AI into decision-making and operations to enhance the warfighter's ability to predict, identify, and respond to threats. Under a task order, contractors are developing an agile and hyper-responsive prototype platform that will be able to process and analyze a diverse set of cyber data and allow leaders to make informed, real-time decisions in complex operational environments. The development of a Common Operating Picture (COP) will enable large scale, advanced collaborative analysis using geospatial and temporal tools and the integration of relevant data. The IAC MAC is also developing Virtual Reality and Augmented Reality (VR/AR) environments to enhance training, analysis, and operations.

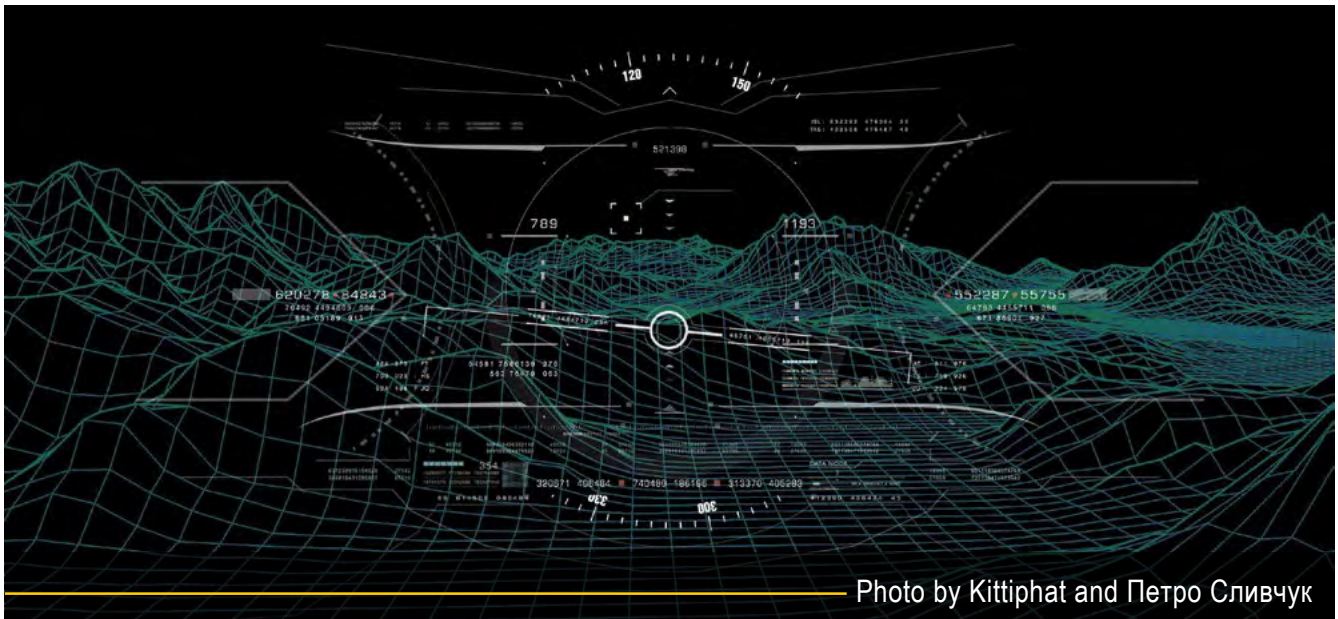


Photo by Kittiphat and Петро Сливчук

Under a RAPID task order for the Air Force, researchers continued the development and testing of the Project Horizon web application tool. Once completed, this tool will enable the science and technical (S&T) community, from scientists to leaders, to stay apprised of emerging, global S&T research and advancements, and identify innovative S&T that can be expediently transformed into new, disruptive capabilities for the air, space, and cyberspace forces.

“The ability of AI to reduce inefficiencies from manual, laborious, data-centric tasks will be harnessed across the Department”

(Department of Defense Artificial Intelligence Strategy, 2018)

Supporting the Air Force, contractors under an IAC MAC task order created an AI pilot for the identification and abatement of hazardous materials. The customized AI reviewed thousands of technical manuals, engineering documents, and technical data to identify legacy hazardous materials in aircraft and weapons systems. It replicated subject matter expert identification of relevant parts, determined hazmat status, and resolved further investigation and mitigation actions. This effort eliminated the need for time and labor-intensive reviews while maintaining the highest level of quality assurance/quality control (AD1175938).

“AI [...] has the potential to enhance the safety of operating aircraft”

(Department of Defense Artificial Intelligence Strategy, 2018)

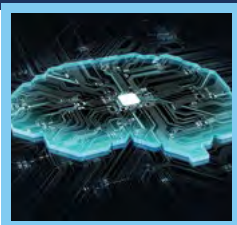
IAC MAC contractors evaluated the performance models used to predict aircraft failure rates and develop preventive maintenance plans. Several neural network models using a high number of lagged variables were considered and compared to the more traditional constant models that used fewer model parameters. The study found that sophisticated models with many parameters performed better, although more research will be needed to validate these results (AD1171763).

The DoDIAC is supporting the Navy’s Information Superiority Vision (2020) to “build a more agile, innovative naval digital warfighting platform” and to “leverage the existing Naval Tactical Grid (NTG) efforts to create a Naval mesh network extending the tactical edge.” Under an IAC MAC task order, contractors analyzed the digital warfighting platform architecture and developed system design alternatives to include applications using AI/ML technology. Under this task order, the IAC MAC also demonstrated near real time data transfer over the NTG from a Guided Missile Destroyer to higher echelons organically, without forward infrastructure (AD1161370, AD1161571, AD1161578).

Webinars:

The *“Data Science and Machine Learning-Enabled Terminal Effects Optimizations”* webinar discussed leveraging the exponential growth in data science, ML, distributed computing, and computational optimization to develop and assess modern warhead designs.

The *“Evaluating the Resiliency of Artificial Intelligence Systems: An Overview of Adversarial AI”* webinar provided an overview of countermeasures that adversaries may deploy against U.S. AI systems, and the evaluation steps and defenses needed to safeguard performance.

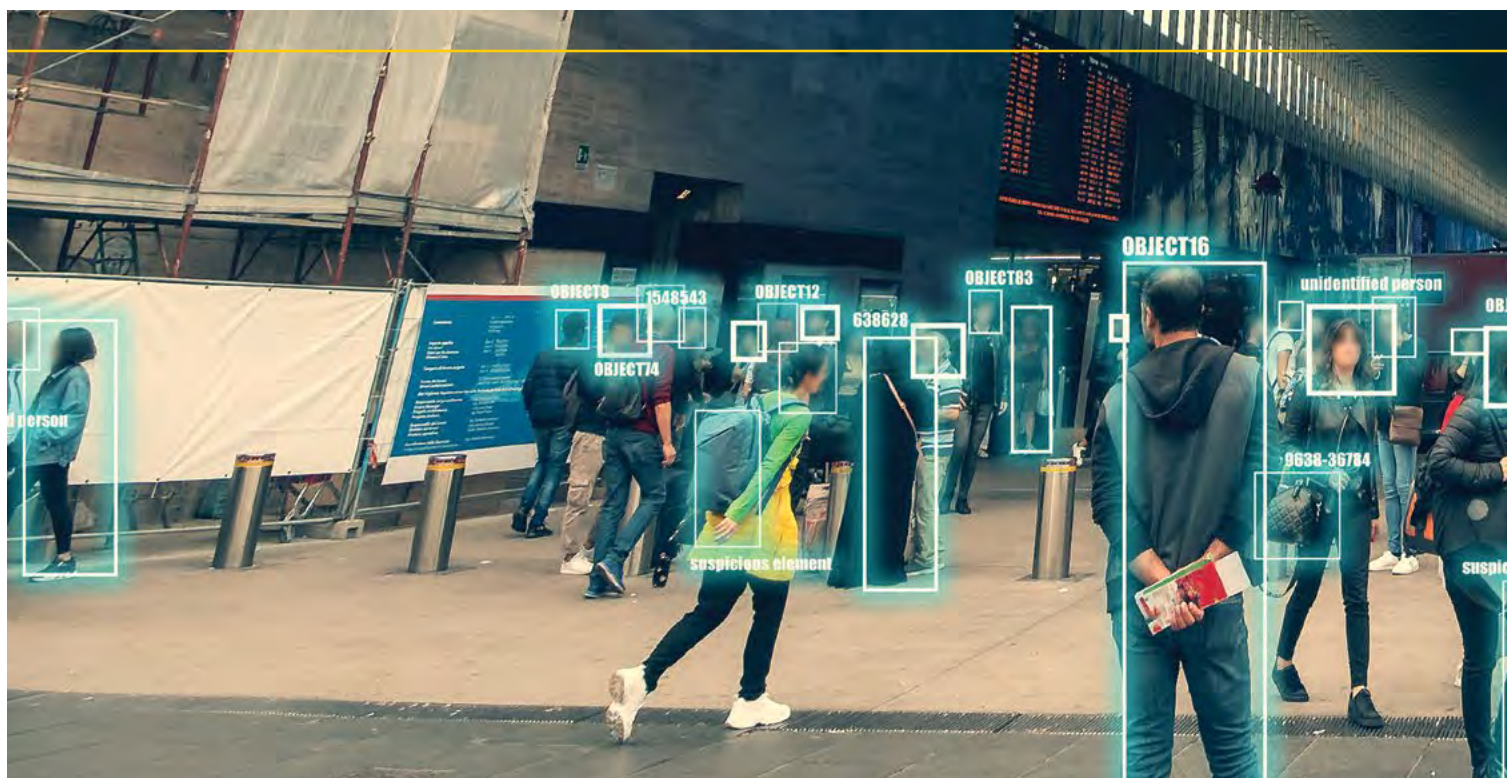


AI/ML

State of the Art Reports:

The Homeland Defense and Security Information Analysis Center (HDIAC) published the *Artificial Intelligence and Machine Learning Biometric Data Fusion State of the Art Report (SOAR)* focusing on advances in biometric recognition technologies and the application of AI/ML to recognize tasks in multimodal identification systems. Multimodal systems use “feature-level” data fusion (e.g., periocular and gait recognition), which provides faster reference set retrieval across identity templates and significantly improves recognition accuracy over a unimodal system. Biometric data fusion could deliver improved biometric data sample capture and analysis to the warfighter regardless of disguised, altered, or occluded facial characteristics. The SOAR described the use of convolutional neural networks, deep neural networks, and recurrent neural networks in biometric data fusion, and highlighted topics in leading-edge biometric recognition research (AD1157701).

The Defense Systems Information Analysis Center (DSIAC) published the *Artificial Intelligence for Weapons Systems SOAR*. AI applied to weapons systems seeks to increase weapon accuracy, performs nonactive means of targeting, aid navigation, guidance, and control (e.g., in Global Positioning System-denied situations), and reduces the overall computational resources needed for intelligent targeting. Leveraging AI could extend the battlespace of operators to unmanned aerial vehicles and enable teaming manned and unmanned platforms using swarming methods. This SOAR outlines the principles, techniques, and applications of AI for weapons systems. The author discusses research and programs in supervising autonomous systems; guidance, navigation, and control; behavior and path planning; sensor and information fusion; intelligent strategy and planning; wargame modeling; and cognitive electronic warfare (AD1182763).



Technical Inquiries:

Available Thermal, Hyperspectral, and Polarimetric Imagery Datasets

The availability of spectral and polarimetric datasets is a crucial factor for the research and development of AI/ML-related processes and algorithms, algorithm training, and applications development. This TI response report lists databases and datasets allowing data exploration, experiments, and enhanced data analytics techniques (AD1180080).

Machine Learning to Detect Battle Damage Using Satellite Images

ML and/or computer vision research can help detect battle damage using satellite images. This report lists several ongoing studies, such as a promising one from Spain where researchers combined computer vision techniques and high-resolution satellite images to produce building destruction estimates, estimates that were then used to train a convolutional neural network to spot destruction features from heavy weapon attacks (AD1187907).

Artificial Intelligence/Machine Learning Transition Timetable

China is notoriously tight lipped when it comes to revealing information. However, based on in-depth research of open-source publications and interviews with experts, DSIAC analysts found that although the rate of technology transition in China remains relatively low, the People's Liberation Army recently created new avenues to rapidly leverage private sector technologies in defense innovation (AD1182264).

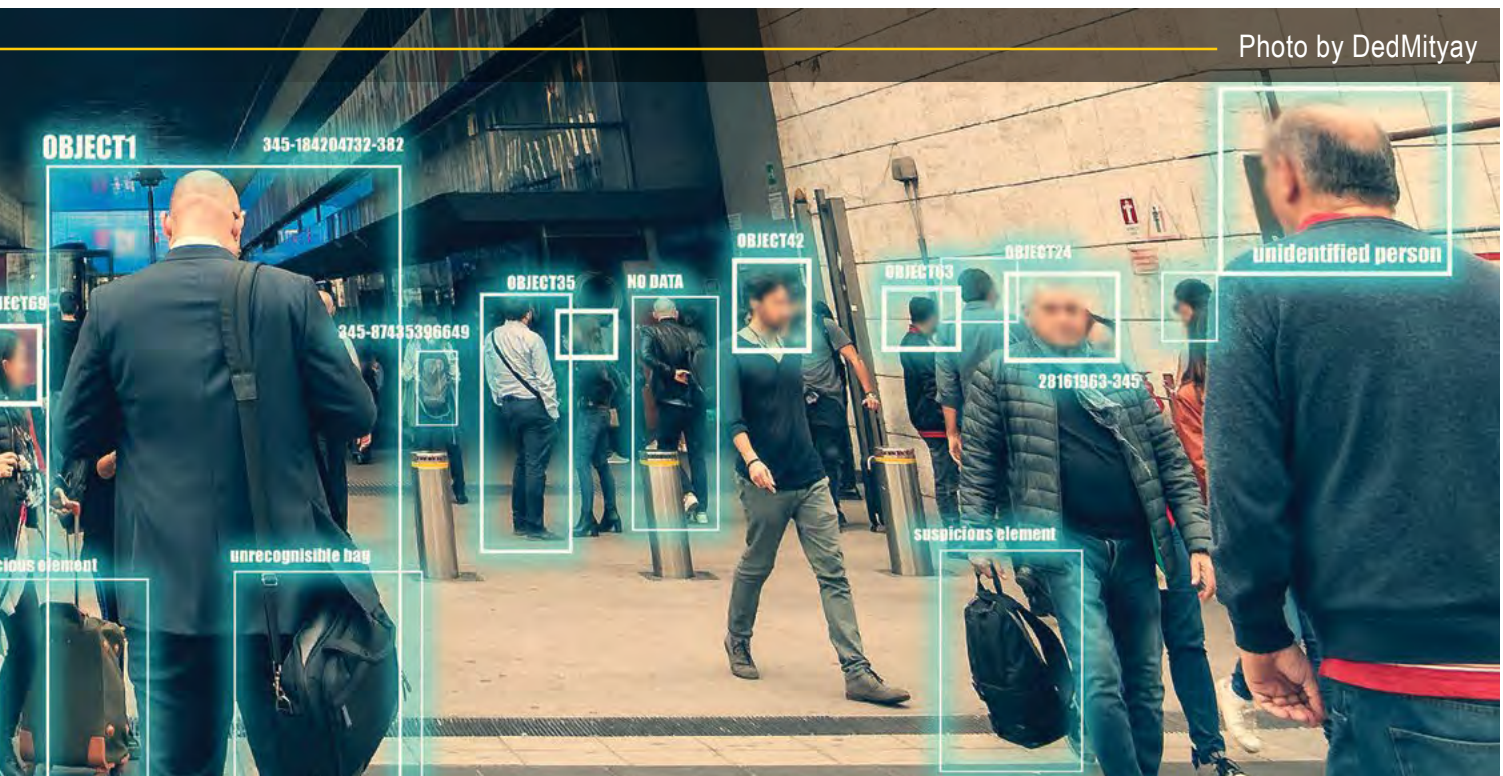


Photo by DedMityay



Cybersecurity

"As we bolster our scientific and technological base, we will make cybersecurity a top priority, strengthening our capability, readiness, and resilience in cyberspace. We will elevate cybersecurity as an imperative across the government"

(Interim National Security Strategic Guidance, 2021)

The need for robust and reliable systems that can withstand a pervasive cybersecurity threat is all around us and it is imperative that we protect our data, information, networks, weapons systems, borders, and platforms from malicious actors. Under the Cybersecurity and Information Systems (CS) domain, the DoDIAC helps ensure a safer, more secure cyber environment.

"Cloud is the foundation upon which DoD will build and scale more effective cybersecurity, advanced analytical capabilities, better command and control, and future enabling technologies"

(Department of Defense Digital Modernization Strategy 2019-2023)

The IAC MAC contract vehicles have been instrumental in helping DoD organizations securely and efficiently plan and implement commercial cloud capabilities in alignment with their mission requirements. IAC MAC contractors developed cybersecurity strategies, for organizations and systems; developed test plans, tested, and validated the security posture of systems; analyzed security baselines, assessed risks, and created risk management frameworks. To help non-technical leaders learn about and appreciate the challenges of moving to the cloud, IAC MAC contractors synthesized the basic tenets of cloud concepts and technologies to provide foundational knowledge in a Cloud 101 brief. This brief describes the background and terminology, risks, steps to migration, refactoring to the cloud, and cloud building blocks (AD1170716).

"DoD will reform its cybersecurity risk management policies and practices to be more effective, yet responsive to the needs of the warfighter" *(Department of Defense Digital Modernization Strategy 2019-2023)*

Under an IAC MAC task order for the Air Force, contractors identified system specific cybersecurity technologies and facilitated the implementation of best practices to improve system cybersecurity posture, increase cyber-resiliency, and analyze and document the cybersecurity impacts of software and hardware modifications. During the performance of this effort, contractors developed proof-of-concept tests to eliminate the threat of unauthorized software modification; developed cybersecurity requirements to upgrade and harden system security configurations; and performed top-down and bottom-up cyber risk assessment to help identify and reduce or eliminate risks (AD1179039).

A major factor in improving cybersecurity for computing systems is the ability to determine whether an unknown file is malicious or benign. This critical process is often long, laborious, and costly. Advanced machine-learning (ML) methods can automate much of the process, but model-building for different malware families in diverse domains requires a level of expertise beyond most users. To solve this challenge, an IAC MAC team developed the Easy Malware Model Maker (EMMM), a scalable and customizable machine learning training program for detecting malware. EMMM reduces the cost, time, and expertise required to train a machine learning algorithm and offers an effective way to rapidly automate much of the malware identification process by allowing users immediate access to advanced techniques and models for malware analysis.

To ensure that warfighter capabilities cannot be degraded or rendered inoperable by our adversaries, it is imperative that the DoD has the capability to identify software vulnerabilities and security defects. To advance our knowledge of this area, an IAC MAC research team conducted a study of software vulnerability defect models (VDM) to compare VDMs with and without covariates. The study results indicate that the software VDMs incorporating covariates achieves a much better goodness of fit on several measures and more accurately track and predict the number of vulnerabilities discovered. In contrast, parametric VDMs that do not incorporate covariates can only capture the primary trends embedded in their model forms. Thus, software VDMs incorporating covariates offer a more detailed methodology to assess the effectiveness of alternative tools and techniques to discover vulnerabilities as well as guide the allocation of test activities to enhance process efficiency. These findings are a significant step towards delivering reliable and secure software that is effective in both system and mission contexts (AD1182441).

DoD Cybersecurity Policy Chart:

One of the DoDIAC's most downloaded document is the **DoD Cybersecurity Policy Chart**. Developed and maintained by CSIAC, the chart depicts cybersecurity policies in a helpful organizational scheme.

Access the chart at: <https://dodiac.dtic.mil/dod-cybersecurity-policy-chart/>

Webinars:

The *Mission-Critical Control System Cybersecurity* webinar described the strategic and tactical aspects of cybersecurity, Zero Trust architecture, and cybersecurity standards and frameworks.

The *Improvement of U.S. Air Force Cyber Defense* webinar analyzed the challenges the USAF faces while executing such cybersecurity concepts as active defense, resiliency, and defense in depth. The webinar described the concepts and potential solutions.

In the webinar *Zero Trust - The Time Is Now*, the presenter examined Zero Trust and its underlying principles. Zero Trust is a cybersecurity strategy and framework that embeds security throughout the architecture to prevent malicious entities from gaining access. Zero Trust necessitates a paradigm shift in the organizational culture in addition to the application of security principles.

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State of the Art Reports:

CSIAC published the *Functional Cybersecurity Technology Infrastructure* SOAR describing how the rapid growth of interrelated, internet-connected objects, and global dependence on the internet significantly increased the cyber-attack surface of information technology (IT) infrastructure and cyber-attacks. This SOAR contains in-depth research papers on issues such as cyber espionage; complex and distributed supply chain; malicious code insertion, mitigating the risk of data breaches; achieving compliance and regulatory requirements; and enabling methods to reuse software across multiple projects (AD1165996).

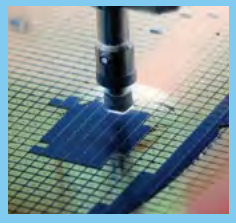
Technical Inquiries:

Security Conscious Password Behavior from the End User's Perspective

This report highlights the human factor as a source of cybersecurity weakness and offers various strategies to counter this threat (AD1126046).

Cybersecurity Maturity Model Certification: The Road to Compliance

CMMC is a verification mechanism developed to protect Controlled Unclassified Information (CUI) and other sensitive data made available to contractor organizations. It will soon be incorporated into the Defense Federal Acquisition Regulation Supplement (DFARS), making it a requirement for Defense Industrial Base (DIB) contractors (AD1134409).



Microelectronics

“The Department will continue to invest in programs to secure U.S. microelectronics interests; reverse the erosion of domestic innovation and supply; and establish a strong foundation for the next generation of microelectronics technology for DoD applications, while also sustaining current systems.”

(Lloyd J. Austin III, Secretary of Defense)



Photo ryanking999

Semiconductors, or chips, are used to store, move, and process data in almost every advanced weapon, weapon system, platform, or sensor, and are especially critical to emerging technologies, such as hypersonics, quantum science, AI, and 5G. Despite the significance of microelectronics (ME) for national security, the U.S. and DoD are facing significant challenges to establish trusted supply chains and to develop and manufacture the specialized ME required to maintain current systems and protect U.S. technological superiority.

IAC MAC researchers help accelerate the discovery and development of materials that provide new capabilities or functional enhancement. Under a task order for the Air Force, IAC MAC contractors conducted basic

research of electrical and optical semiconductor devices and semiconductor device materials for emerging electronic, photonic, and optoelectronic technologies. The same researchers developed novel thin film electrical and optical properties and characterization techniques and helped develop gallium oxide (Ga₂O₃) and zinc gallate (ZnGa₂O₄) thin films for high-power electronic devices as well as scandium nitride (ScN), aluminum scandium nitride (AlScN), and gallium nitride (GaN) thin films for high frequency transistors and ferroelectric devices (AD1175529).

Researchers were able to achieve excellent electron mobility using degenerate semiconductor films growing on high quality, inexpensive aluminum oxide (Al₂O₃). Very low mobility VLM ($\mu \leq 1 \text{ cm}^2/\text{V-s}$) occurs on samples for sputtered ScN, Ga₂O₃, and other films grown on Al₂O₃ and efforts to increase mobility stumped researchers for years. This study also included quantum magnetoconductivity (QMC) measures that provide quantitative results on "weak localization" along with a phonon-related mobility at every temperature and a new way to evaluate film/substrate interfaces. Electron mobility is an important parameter in semiconductor materials as higher mobility leads to better device performance (AD1169713).

“Leverage tools, policies, and enforcement to reduce or eliminate costly sustainment issues”

(Department of Defense Microelectronics Vision, 2022)

IAC MAC researchers are reviewing the current state of tools, policies, and capabilities to define a microelectronics baseline the DoD can build on. Under a task order for the Navy, IAC MAC contractors performed an in-depth analysis of the global microelectronics landscape, to include policies and packaging, describing the state of the art as well as challenges and recommendations for a way ahead.

The exhaustive review of the current state of microelectronics found that "dependence on both geographically dispersed and concentrated foreign suppliers at nearly all levels of ME technology sophistication presents a challenge to the DoD in sustaining national security programs with a supply of secure MEs in the short term. In the long term, it threatens to undermine the nation's future technological warfighting advantage" (AD1165427). The report details the challenges posed by the complex international supply chain, market forces, international competition, and rapid changes in the technology, and it provides policy actions and recommendations to overcome each (AD1164451 and AD1165427). Packaging is the vital process of encapsulating semiconductors and routing their electrical connections to the larger electronic systems. IAC MAC contractors created an in-depth review of advanced packaging technologies, platforms, trends, drivers, and disruptions to increase the knowledge base and understanding of DoD decision makers (AD1164452).

"Ensure timely access to measurably secure and affordable ME technology" (Department of Defense Microelectronics Vision, 2022)

Under an IAC MAC task order, contractors created an implementation guide for DoD's Application Specific Integrated Circuit (ASIC) Microelectronics Quantifiable Assurance (MQA) to ensure that all ME function only as intended and have no known vulnerabilities (AD1159364).

DoD's implementation of Zero Trust in microelectronics requires new processes and procedures to assure component traceability, provenance, and integrity. The first step in tackling this challenge was creating a detailed overview of accessing, using, and verifying third-party intellectual property (3PIP) to include challenges and potential solutions (AD1170302).

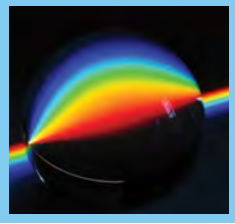
Technical Inquiries:

Microelectronics Overview and Importance to the DoD

Provides a high-level overview of microelectronics use in advanced sensing, electronic warfare, information technology, and communication systems. It briefly touches on the current state of the art and describes the challenges of increasing demand for microelectronics coupled with continued supply shortages (AD1178690).



Photo Gorodenkoff



Electromagnetic Spectrum

“Forces in 2030 and beyond will be ready to fight and win through the deliberate, institutional pursuit of EMS superiority.”

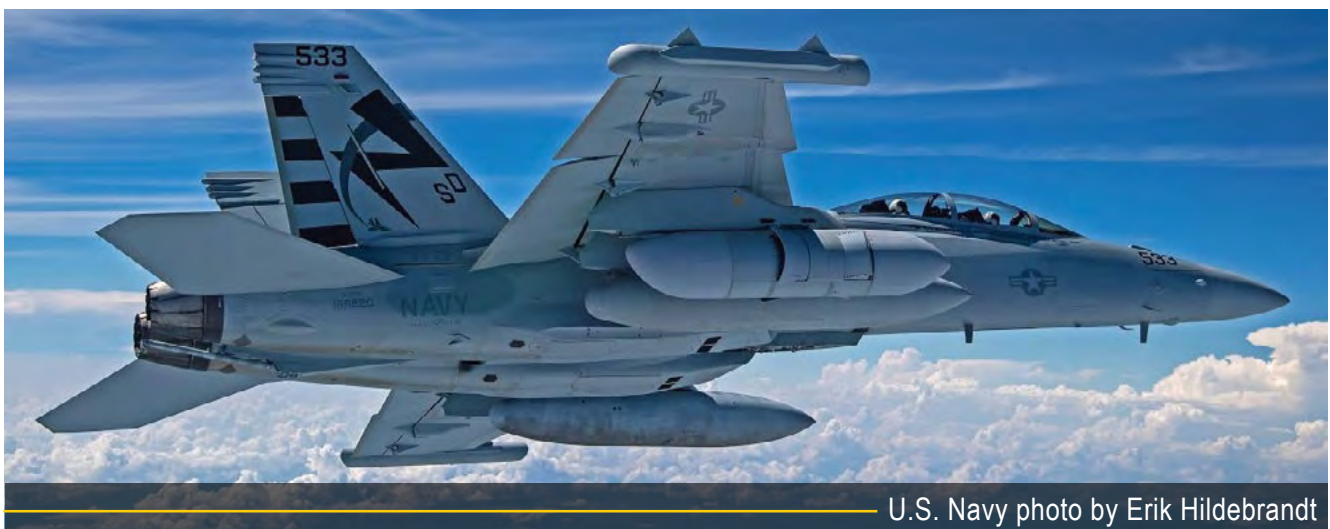
(Department of Defense Electromagnetic Spectrum Superiority Strategy, 2020)

Under customer funded task orders, DoDIAC researchers develop new and improve existing technologies to enable communications, surveillance and reconnaissance, navigation, weapons, and electronic warfare systems that operate and survive in complex electromagnetic operational environments (EMOE).

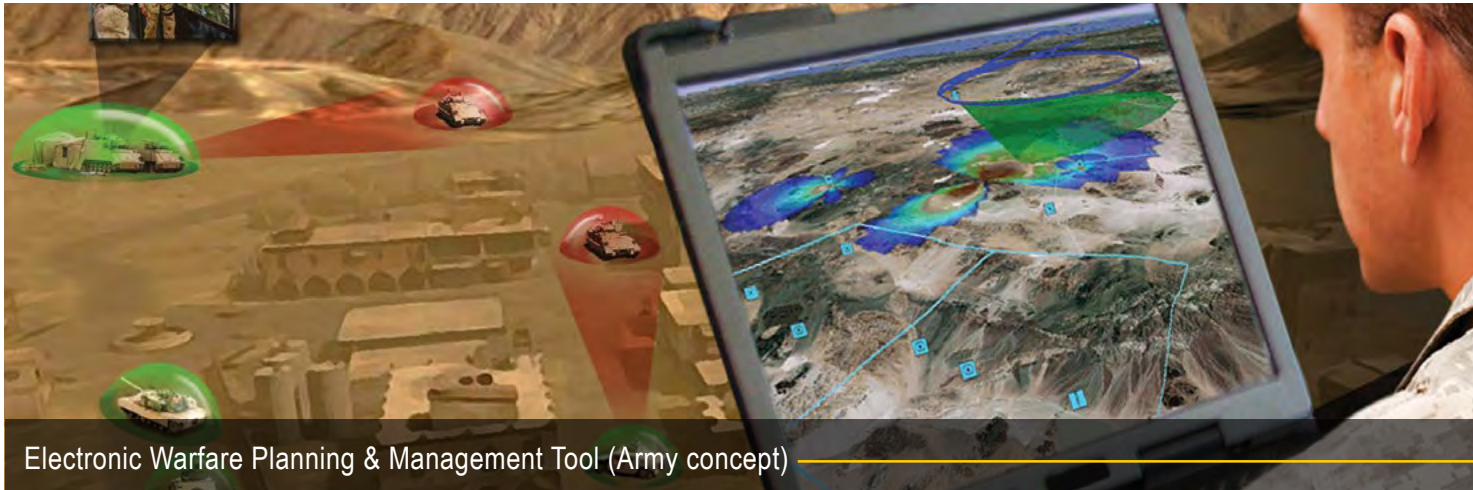
Under a task order for the Navy, IAC MAC researchers are developing superior Electromagnetic Spectrum (EMS) capabilities to enhance service-specific weapons systems, such as the Navy's F-35, H-1, H-53, H-60, P-8, MV-22, F/A-18, EA-18, KC-130, E-2, C-2, AV-8B, V22, AH-1, and MQ8 aircraft, engines, and propeller systems, and aircraft electromagnetic warfare (EW) systems to include airborne, protection, and guidance sensors and equipment. IAC MAC contractors are developing EMS dominance systems and capabilities; Electro Optic, Infrared, Radio Frequency, and Ultra-Violet countermeasures and dispensing systems; sensors; and associated equipment for the management and sustainment of all NAVAIR systems.

IAC MAC researchers accelerate EMS information integration into operations and planning by developing the capability to provide the authoritative, validated, and verified data, information, and model objects required for Joint Forces Command elements and Service organizations to achieve EMS superiority and control. Validated intelligence data and accurate and current assessments underpin the success of EMS-dependent systems and enable commanders to plan, direct, monitor, and assess EMS operations across all operational domains and functions. This effort will contribute to the DoD's operational capability to rapidly assess the EMOE and adapt to the adversary and the environment.

IAC MAC research supports the Air Force's Stand-in Attack Weapon (SiAW) development by developing test assets that emulate robust and agile high-performance communications, data networks, and electromagnetic spectrum of operations (EMSO) signal reception and detection in several environments. Once developed, SiAW will be a digital pathfinder system able to operate in anti-access/area denial environments and strike mobile targets, such as missile launchers, GPS jammers, anti-satellite systems, and integrated air defense systems. The IAC MAC effort will help mature the SiAW's capability to meet emerging 5th generation battlespace operations in the anti-access/area denial (A2/AD) environment.



U.S. Navy photo by Erik Hildebrandt



Electronic Warfare Planning & Management Tool (Army concept)

The reallocation of spectrum from Federal government use to commercial services is having and will continue to have a major impact on the research, development, operations, and support of DoD spectrum-dependent weapons systems and platforms. Under and IAC MAC task order with the Air Force, our contractors are identifying opportunities for early Advanced Wireless Services-3 (AWS) (i.e., 1755-1780 MHz) network deployment. Researchers are developing recommendations for AWS-3 transition requirements, spectrum operations policies, doctrine, and systems collaboration to achieve EMS superiority.

The IAC MAC helped shape the U.S. response to the crisis in the Ukraine by contributing threat force assessments and facilitating access to battlefield data used in DoD-wide strategy and planning efforts. Reviewing previous intelligence sources showcasing the status of threat forces and leveraging Signals Intelligence (SIGINT) expertise, the IAC MAC performed fusion and analysis of all-source intelligence, and delivered new visualization capabilities to help understand the multiple elements of the battlefield. IAC MAC contractors also identified cutting edge methods, Application Programming Interfaces (APIs) for tools, and business rule sets to use in developing automated searches that deliver change detection alerts sent to operators/analysts. This groundbreaking effort demonstrates how EMS can be leveraged allowing mission planners to accurately plan and employ threat avoidance models and to create the future Electromagnetic Battle Management System (EBMS) for conducting multinational operations.

To ensure survivability against EM threats, systems need improved electromagnetic protection (EP) features that counter threats and protect against the effects of electromagnetic (EM) energy while allowing optimal performance. Under a Research, Analysis, Prototyping, Innovation, and Development (RAPID) task order, researchers demonstrated the ability to design, develop, and validate a fuselage skin that provides threshold reductions in the micro-wave and radio-wave bands of the electromagnetic spectrum. The new fuselage skin, developed for a generic Unmanned Aerial System (UAS) airframe, has the added benefit of not increasing the weight of the state-of-the-art unshielded UAS fuselage skins (AD1171774).

State of the Art Reports:

DSIAC's *Materials and Applications for Electromagnetic Interference Shielding* SOAR describes the sources and effects of EM radiation and interference, details the standards for designing and testing EM shielding, examines both traditional and advanced materials used for shielding, and discusses the latest research in developing and manufacturing electromagnetic interference shielding materials (AD1153872).

Technical Inquiries:

Options for Using Metamaterials for Unidirectional Transmission of EM Radiation within Radar Wavelengths
Analysis of published work revealed that although research into the use of metamaterials for radar shielding is still in the initial stages, it is likely that certain metamaterials and/or frequency-selective surfaces could allow the unidirectional transmission of electromagnetic waves (AD1162567).



Survivability and Vulnerability

The National Defense Strategy prioritizes a future force that is "Survivable: Continues generating combat power to support strike capabilities and enablers for logistics and sustainment, despite adversary attacks." (National Defense Strategy, 2022)

Ensuring the survivability of military personnel, equipment, and infrastructure is essential for the successful execution of military operations, while understanding and mitigating vulnerabilities is crucial for the protection of military assets and the prevention of enemy attacks.

Under an IAC MAC task order, DoDIAC contractors conducted research, development, test, and evaluation, both to enhance the survivability and to reduce the vulnerabilities of DoD assets. These efforts include the development of advanced protective materials and technologies, improving the resilience and adaptability of our forces to include training and exercises to prepare for a wide range of scenarios, the development of advanced sensor and surveillance technologies to detect and track enemy threats, analyzing supply chains, and the establishment of redundant infrastructure. The following provides examples of the research our contractors have been working on:

Under a task order for the Air Force, IAC MAC researchers are conducting in-depth vulnerability analyses to improve nuclear weapon system and infrastructure safety and ensure system supportability. For this task, subject matter experts assessed existing and proposed architectures and developed risk mitigation plans that address current and predicted threats against our nuclear facilities. This effort also includes the analysis of supply processes and creating recommendations to address potential wide-ranging issues in logistics such as diminishing manufacturing sources or materiel shortages. The IAC MAC recommended measures will help protect against physical damage as well as ensure the continued operation of critical systems.

IAC MAC researchers are on the forefront of analyzing survivability and vulnerability (S&V) threats, improving reliability, and ensuring the interoperability and continued operation of communication networks, power

Photo by Gorodenkoff



systems, and navigation systems. For example, under an IAC MAC task order, contractors are conducting survivability and endurance analysis of Command, Control, and Communications (C3) systems to determine the national, strategic, and operational impacts of the loss or disruption of critical C3 systems, assets, and associated infrastructure. The analysis includes mitigating the impact of adverse environments, evaluating the technical efficacy of solutions, and the strategic analysis of current and future capabilities. Under this task order the IAC MAC developed, tested, and delivered rapid alerting and command and control information exchanges to improve the survivability and endurance of operations in a severely contested and degraded environment (AD1170870).

IAC MAC research improves the resilience and adaptability of the warfighter through training and exercises, as well as the development of programs designed to increase the readiness, survivability, and lethality of service members. For example, IAC MAC contractors are researching and analyzing tools, training, strategic planning, and Concept of Operations (CONOPS) to develop recommendations that will maximize the combat capability of and minimize the threats to deployed Airmen. The task order will result in new strategic, operational, and tactical requirements for the training, development, certification, and preparation of the warfighter to increase readiness and better operate in wartime scenarios.

Advanced sensor and surveillance technologies are used to detect and track enemy threats, reduce vulnerabilities, and improve situational awareness. Under a task order for the Navy, IAC MAC contractors are conducting trade studies, engineering and technical analyses, and evaluations to support both the legacy and new technology systems installed on the P-3C Orion and P-8A Poseidon reconnaissance aircrafts. This task includes conducting studies, developing prototypes, executing tests and operational demonstrations, and performing reliability analysis for new and emerging sensor technologies. The outcome of IAC MAC advanced engineering efforts will be the installation of state-of-the-art technology to enhance the functionality and capability of sensors for the P-3C Orion and P-8A Poseidon.

Under a RAPID task order, researchers developed survivability methods, models, and data to be used by the combat survivability community for evaluating and enhancing aircraft survivability. Under this task order, subject matter experts created and published the quarterly Aircraft Survivability Journal (ASJ) and developed training materials for an aircraft survivability short course of current research, methodologies, data, and combat incident data.

DSIAC distributes several S&V models such as the Advanced Low Altitude Radar Model (ALARM), a digital computer simulation designed to evaluate the performance of a ground-based radar system attempting to detect low-altitude aircraft. The model includes the environmental effects of atmosphere, terrain masking,





Survivability and Vulnerability

clutter, multipath, and electromagnetic propagation using the Joint Aircraft Survivability Program Common Modeling Component Set (JASP CMCS). Land clutter reflectivity probability distributions published by the Massachusetts Institute of Technology (MIT) Lincoln Laboratory and sea clutter reflectivity probability distribution from the Center for Naval Analysis (CNA) are also used. Pattern propagation effects such as radar antenna pattern, spherical earth and knife edge diffraction, and multipath are included by use of the MIT Lincoln Labs Spherical Earth/Knife Edge (SEKE) Diffraction source code. Terrain masking is determined based on National Geospatial-Intelligence Agency (NGA) Digital Terrain Elevation Data (DTED), which is included in the model for a specific radar site area. Additionally, ALARM supports limited modeling of onboard noise (self-screening) jammers, onboard deception (coherent) jammers, and standoff noise jammers.

Webinars:

DSIAC subject matter experts presented the *Survivability Against High-Power, Radio Frequency/Microwave, Directed Energy Weapons* webinar. Modern military systems and their supporting infrastructure increasingly depend on sensitive semiconductors and other electronic components that provide sensing, communications, and weapon system functions. These electronic devices are potentially vulnerable to high-power electromagnetic sources and environments, such as those produced by high-power microwave (HPM), radio frequency, directed energy weapons. The webinar discussed the different types of HPM weapons and their effects, described estimating the probability of target failure using the Directed Radio Frequency Energy Assessment Model (DREAM), and discussed estimating the hardening levels for a notional helicopter to enhance its survivability against HPM weapons.

Photo by neirfy



Technical Inquiries:

Shark Resistant Materials for Combat Diver Use

Protecting U.S. combat divers is critical for many undersea military missions. A variety of strategies, electronic shark protection devices, chemical deterrents, and other approaches have been developed to reduce the risk of shark attacks with varied efficacy. The report created in response to this inquiry summarizes ongoing research into lighter, less expensive, and more effective shark suits that not only deter sharks but are resistant to their bites (AD1166367).

Agricultural Technology Security in the United States

The potential vulnerability of agricultural security is a topic of concern since disrupting farm technology could have a disastrous domino effect leading to nationwide food insecurity. HDIAC's answer to this inquiry contains a summary of insights provided by subject matter experts in this area, as well as an overview of the relevant literature (AD1180575).

The survivability and vulnerability of military assets and personnel are critical considerations for the DoD, as they are essential for the success of military operations and the protection of military personnel and equipment. Through research and analysis, the DoDIAC is continuing to enhance the survivability and reduce the vulnerabilities of DoD assets and will continue to do so in the face of evolving threats and challenges.



DoDIAC R&D Work

The DoDIAC helps solve the DoD's technology challenges by providing rapid, flexible, and focused research. DoDIAC contractors execute customer requirements and conduct analysis and RDT&E in 22 highly specialized focus areas. Our research is not limited by technology readiness level, geographic location, Service Component, or domain.

Supporting Missile Defense System

Providing communications analysis and system improvement recommendations to enhance the interoperability and interconnectivity of the PATRIOT with other missile systems

Magnetic Navigation (MagNav) Absolute Positioning for Hypersonic Aircraft

Viability research on the use of Magnetic Navigation (MagNav) to detect and map magnetic anomalies in the earth's crust for absolute positioning for hypersonic aircrafts

Nanotechnology

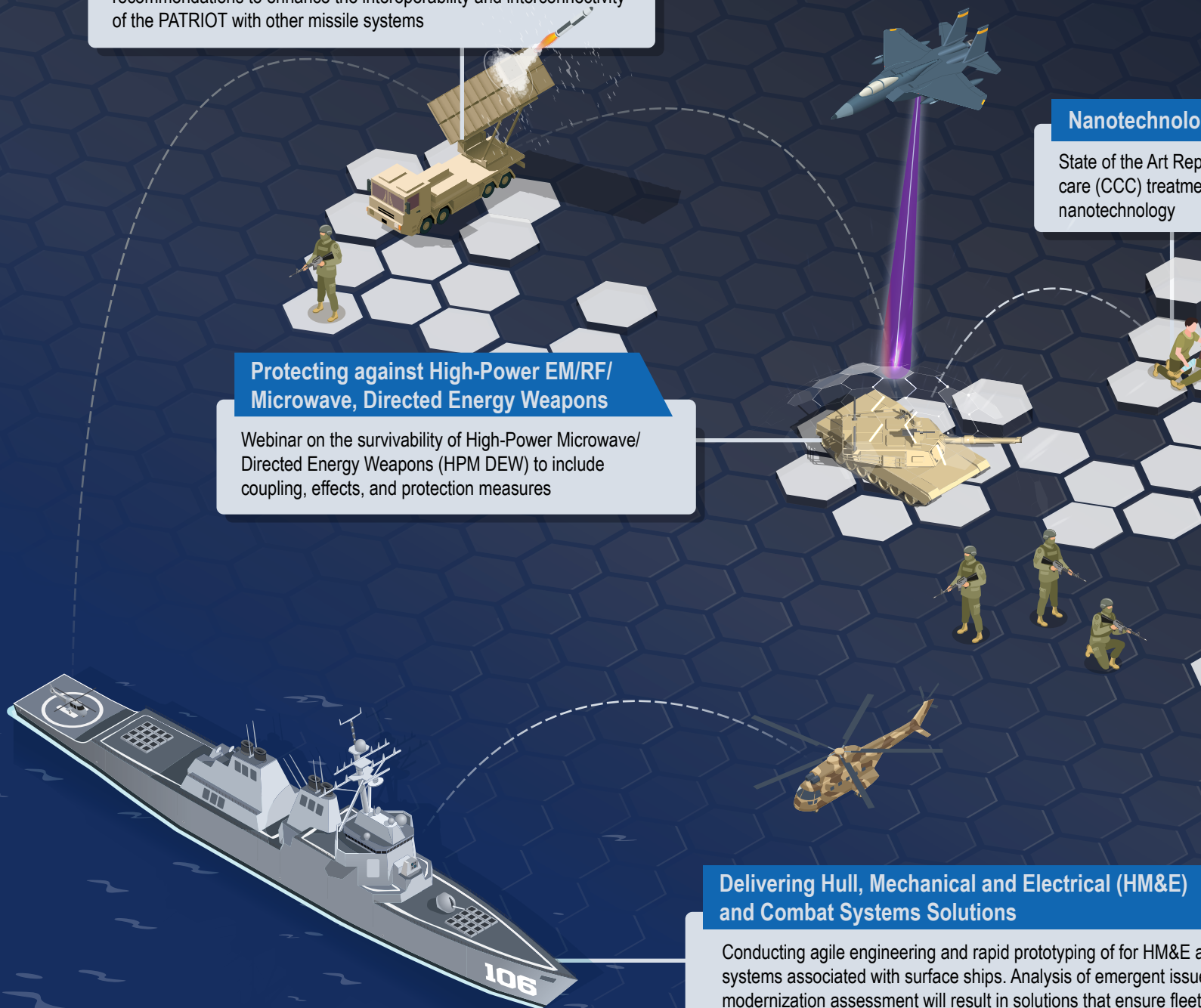
State of the Art Replication (CCC) treatment of nanotechnology

Protecting against High-Power EM/RF/ Microwave, Directed Energy Weapons

Webinar on the survivability of High-Power Microwave/ Directed Energy Weapons (HPM DEW) to include coupling, effects, and protection measures

Delivering Hull, Mechanical and Electrical (HM&E) and Combat Systems Solutions

Conducting agile engineering and rapid prototyping of for HM&E and combat systems associated with surface ships. Analysis of emergent issues and modernization assessment will result in solutions that ensure fleet



Nav) to Provide ypersonic Aircrafts

Nav that leverages
trust to provide absolute

gy Applications for Combat Casualty Care

port (SOAR) describing the advances in combat casualty
ents, tools, and techniques enabled by the application of

Digital Transformation of Satellite Communication Networks

State of the Art Report (SOAR) describing satellite
communication networks' key demands, technological
components, and future operations

Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance, and Reconnaissance (C5ISR)

Performing RDT&E for technologies, open standards, and architectures that enable the operation of disparate systems in a collaborative fashion, capable of executing complex missions managed from a single operator workstation. Includes the research and engineering of the C5ISR and EW Modular Open Suite of Standards (CMOSS), multi-domain operations, Electronic Warfare (EW) and Signals Intelligence (SIGINT) technology, component development for the Redhawk SDR and the Vehicular Integration for C5ISR and EW Interoperability (VICTORY)

and Combat
es and
readiness

IAC MAC



\$28 Billion Indefinite Delivery Indefinite Quantity (IDIQ) Multiple Award Contract (MAC) Vehicle

Why IAC MAC for my contracting needs?

Focused:

- RDT&E, analysis, and prototyping
- 22 technical focus areas across three domains

Custom solutions tailored to your needs:

- No minimum or maximum ordering value
- Up to 60 months of task order period of performance
- **Several contract types** (Cost-Plus-Fixed-Fee (CPFF); Firm-Fixed-Price (FFP); Firm-Fixed-Price, Level-of-Effort (FFP- LOE))
- Supports classified requirements up to TS/SCI
- CONUS and/or OCONUS to include Overseas Contingency Operations (OCO)

Maximize Value:

- Dedicated acquisition professionals provide full pre- and post-award support on all task orders
- Best-in-class businesses with expertise across 22 technical focus areas
- Accelerated research through the reuse of scientific and technical information

Fast:

- 4.5 months average time from solicitation to award

Flexible:

- Incremental funding of severable task orders
- Quickly add co-funders with in-scope research requirements

Low Customer Shared Direct Cost (CSDC):

- No hidden costs
- Includes acquisition and requirements development support

POOL 1

Full and Open
(TO value > \$15M)

Ordering Period:
30 SEP 2018 - 30 MAR 2028

POOL 2

Small Business
(TO value < \$15M)

Ordering Period:
1 MAR 2019 - 1 APR 2028

POOL 3

CBRN Lab
(Performed in CBRNE Facilities)

Ordering Period:
30 SEP 2018 - 30 MAR 2028



Booz | Allen | Hamilton



SONALYSTS



BAE SYSTEMS

BARBARICUM



ManTech



23



Contact Us

We look forward to supporting your RDT&E needs and enhancing your mission success. If you have any questions about the IAC MAC, contact us at:

dtic.belvoir.iac.mbx.csc@mail.mil

To learn about the DoDIAC's Research & Analysis services, please visit us at:

<https://dodiac.dtic.mil/services>

RAPID

RESEARCH, ANALYSIS, PROTOTYPING,
INNOVATION, AND DEVELOPMENT



\$60 Million Indefinite Delivery Indefinite Quantity (IDIQ) Single Award Contract Vehicle

Why RAPID for my contracting needs?

Focused:

- Research, analysis, and prototyping
- 22 technical focus areas across three domains

Custom solutions tailored to your needs:

- Up to \$1M task order ceiling
- Up to 12-month period of performance
- **Several contract types** (Cost-Plus-Fixed-Fee (CPFF); Firm-Fixed-Price (FFP); Firm-Fixed-Price, Level-of-Effort (FFP- LOE))
- Unclassified and classified up to TS/SCI
- CONUS and/or OCONUS to include Overseas Contingency Operations (OCO)

Maximize Value:

- Dedicated acquisition professionals provide full pre- and post-award support on all task orders
- Accelerated research through the reuse of scientific and technical information

Fast:

- 6-8 weeks to task order award

Flexible:

- Incremental funding of severable task orders
- No source selection requirements

Low Customer Shared Direct Cost (CSDC):

- No hidden costs

Operated by SURVICE Engineering Company

Technical Focus Areas

Homeland Defense and Security



CBRNE



Cultural Studies



Homeland Defense & Security



Medical



Alternative Energy



Biometrics



Critical Infrastructure Protection



WMD

Defense Systems



Weapons Systems



Survivability & Vulnerability



Advanced Materials



Military Sensing



Directed Energy



Autonomous Systems



RMQSI



Non-Lethal Weapons



Energetics



C4ISR

Cybersecurity and Information Systems



Software Data & Analysis



Modeling & Simulation



Cyber Security



Knowledge Mgmt & Info Sharing



Contact Us

We look forward to supporting your RDT&E needs and enhancing your mission success. If you have any questions about this contract vehicle, contact us at:

dtic.belvoir.iac.mbx.csc@mail.mil

To learn about the DoDIAC's Research & Analysis services, please visit us at:

<https://dodiac.dtic.mil/services>

Field Advisors

The DoDIAC Field Advisors (FA) assist in the integration of science and technology into operations by serving as advisors to the Combatant Commands (CCMD) science and technology teams.

While physically located in four locations, the DoDIAC FAs provide support to all Combatant Commands.



STRATEGIC COMMAND

Tim Fowler
timothy.n.fowler4.ctr@mail.mil



SPECIAL OPERATIONS COMMAND

Joseph Haack
joseph.haack.ctr@socom.mil



CENTRAL COMMAND

David Rios
david.h.rios.ctr@mail.mil



INDO-PACIFIC COMMAND

Margaret Johns
Margaret.a.johns2.ctr@us.navy.mil



DoDIAC S&T FAs provide a critical link between the CCMDs' requirements and work being performed by current (and past) DoDIAC customers.

DEVELOP strong partnerships with key DoD requirements developers, CCMDs, Program Executive Offices (PEOs), and the warfighter; IDENTIFY opportunities for collaboration and foster joint efforts.

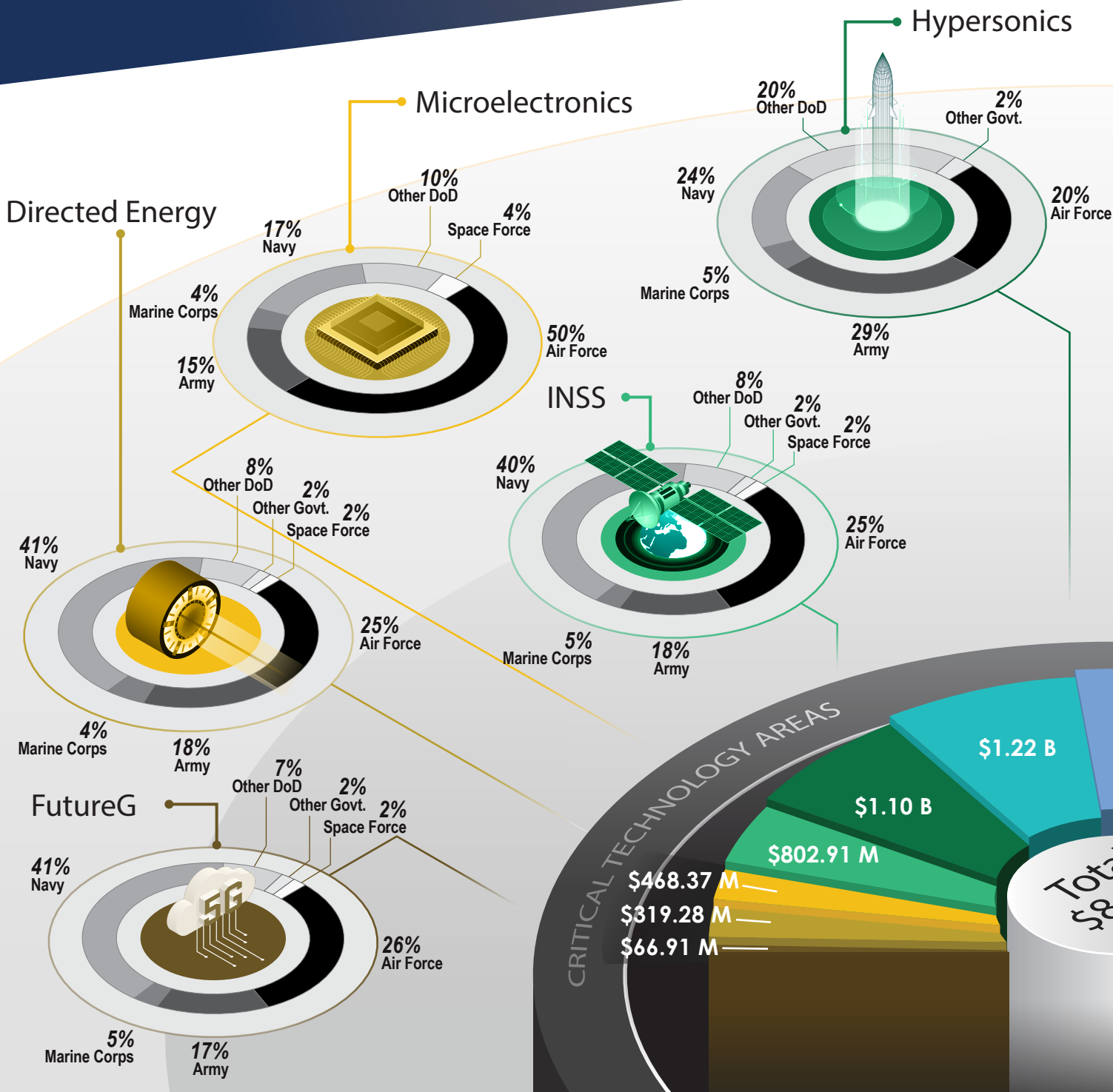
EVALUATE the technological landscape, S&T challenges, and proposed solutions; EDUCATE users on the full range of DTIC and DoDIAC tools and services.

COORDINATE with the S&T community, services, academia, and industry to help FACILITATE technology transfer from innovators to the battlefield.



Critical Technology Areas

The DoDIAC continues to stay at the forefront of research efforts. For the past seven decades, we have provided technical expertise to help solve the nation's toughest R&D challenges. The DoDIAC will continue to prioritize the critical technology areas through research for all military services, Combatant Commands, DoD Agencies, and other federal government partners.

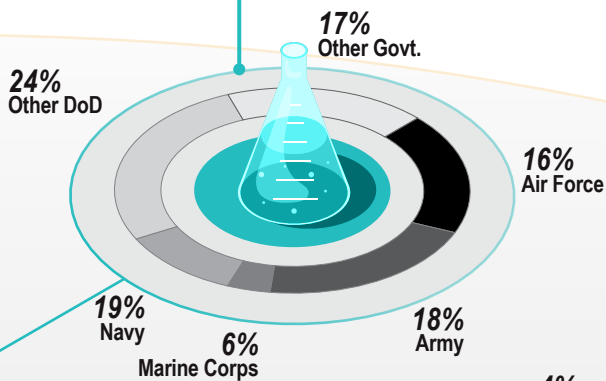


Since 2018, the DoDIAC program has awarded over \$8.86B in R&D support across the following DoD critical technology areas:

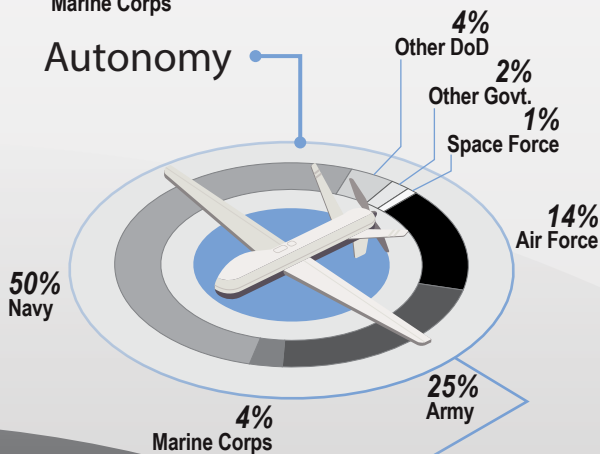
Critical Technology Areas

- AI/ML
- Cyber
- Autonomy
- Biotechnology
- Hypersonics
- Integrated Network System-of-Systems (INSS)
- Directed Energy
- Microelectronics
- 5G

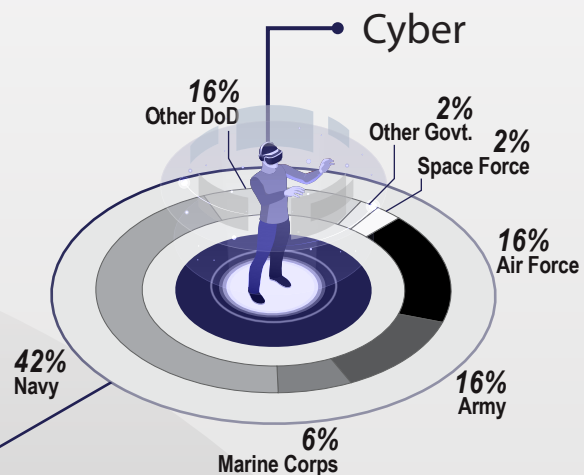
Biotechnology



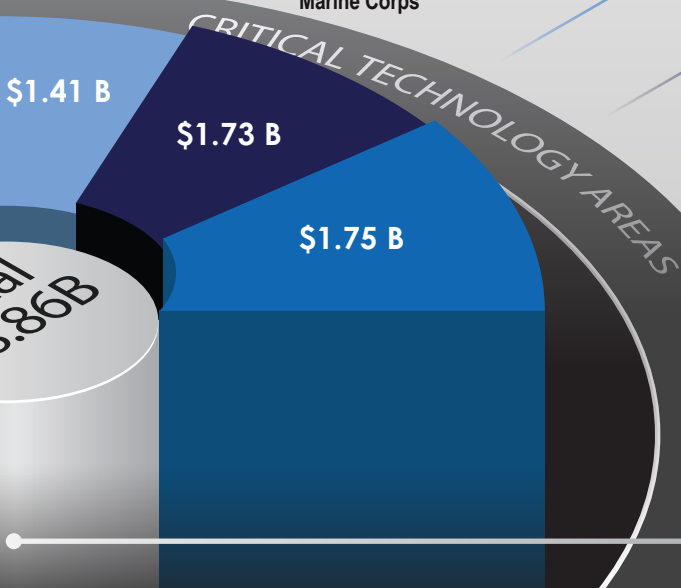
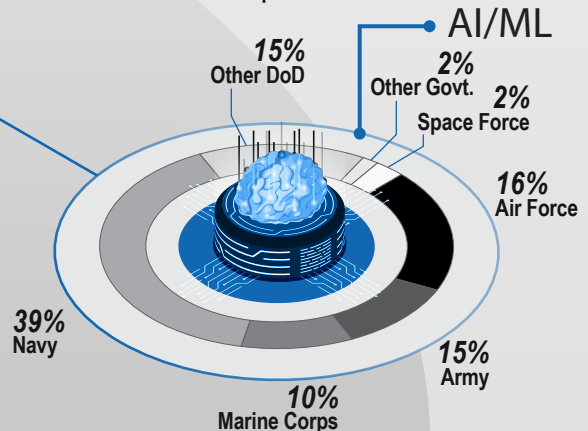
Autonomy



Cyber



AI/ML



IAC by the Numbers

93,565

Users across government, industry, and academia

Why this matters:

A broad user base increases the exchange of technical ideas across these three enclaves.

4,976

Technical inquiries answered

Why this matters:

These inquiries, answered at no cost to the user, allow the rapid injection of subject matter expertise to solve DoD's technical challenges.

5,811

Attendees at 42 IAC training and educational events

Why this matters:

These events, provided at no cost to attendees, address developments in cutting-edge technologies and stimulate cross-enclave (government, industry, academia) technical exchanges.

4.84 months

Average time from solicitation to award

Why this matters:

Quick awards allow us to get work started on our customers' research needs faster, accelerating innovative development.

\$ 3.12B

New R&D contract ceiling awarded

Why this matters:

This new record in R&D contract ceiling will facilitate innovative work for years to come.

\$ 3.21B

Research performed

Why this matters:

The volume of work performed, an historic high for the IAC program, funds over 10,000 industry SMEs in performing vital R&D for the DoD.

FY23 RESEARCH FUNDING



31

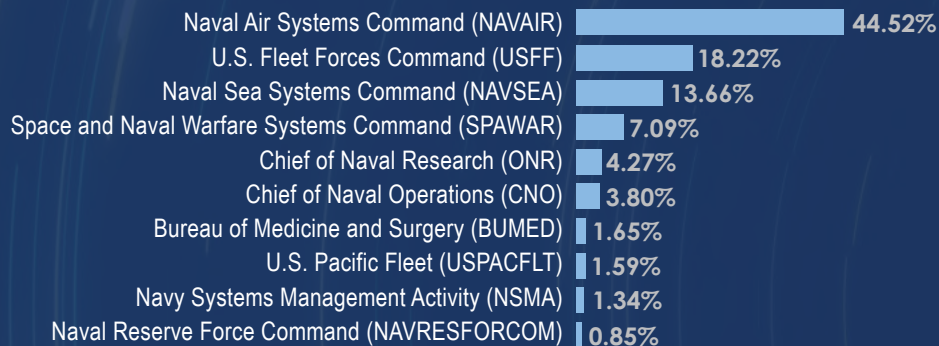
The DoDIAC is excited to add
79 new
DoD Customers
to the program
with **767** currently
active organizations
supported by the program.

The DoDIAC is supporting
research efforts in
500 locations
39 states and
10 countries
around the world.

Who Uses the DoDIAC

The DoDIAC provides critical research and analysis services to acquisition program managers, DoD laboratories, Program Executive Officers (PEOs), Services, Combatant Commands, and other government organizations. Our fast and flexible contract vehicles provide cutting edge, cost efficient, and widely used research and analysis capabilities across three domains. The below infographic provides a high-level glimpse of our customers since FY 2015.

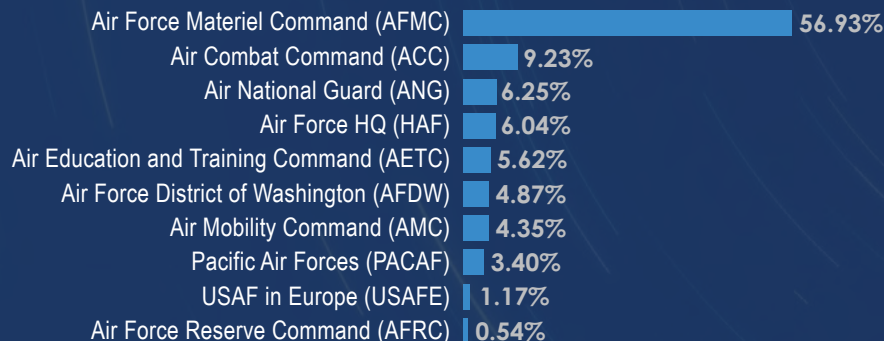
NAVY



\$5.61B

\$4.33B

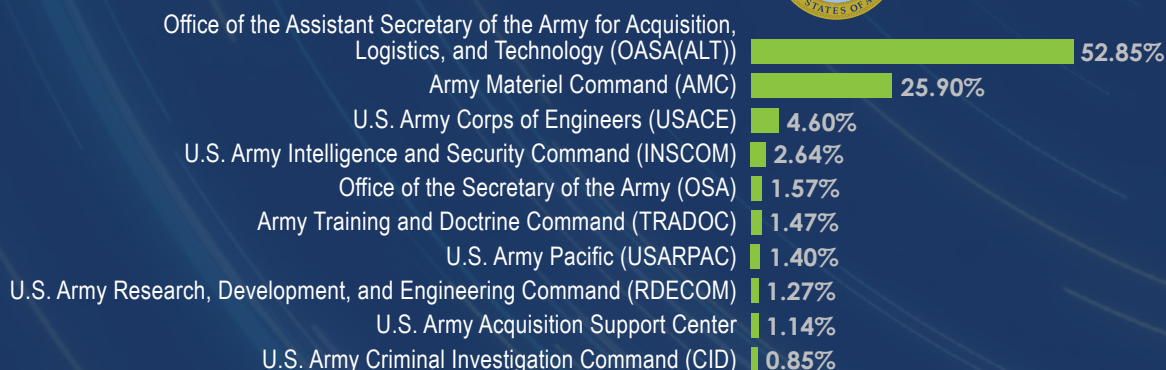
AIR FORCE



\$4.14B

\$17.95B

ARMY





US SPACE FORCE

100.00%

Space Systems Command (SSC)



MARINE CORPS

50.26%

Marine Corps Systems Command (MARCORSYSCOM)

30.91%

Marine Corps HQ (HQMC)

4.16%

Marine Corps Installation Pacific (MCIPAC)

3.59%

III Marine Expeditionary Force (III MEF)

3.15%

I Marine Expeditionary Force (I MEF)

2.51%

II Marine Expeditionary Force (II MEF)

1.49%

Training and Education Command (TECOM)

1.38%

Marine Corps Forces Command (MARFORCOM)

1.28%

Marine Corps Logistics Command (MCLC)

0.62%

Marine Corps Forces Pacific (MARFORPAC)



OTHER DoD

20.95%

OUSS Research and Engineering (OUSS(R&E))

15.12%

Office of the Secretary of Defense (OSD)

10.78%

Defense Health Agency (DHA)

10.11%

Joint Chiefs of Staff (JCS)

7.77%

National Geospatial Intelligence Agency (NGA)

7.37%

National Security Agency (NSA)

5.29%

Joint Special Operations Command (JSOC)

5.25%

Missile Defense Agency (MDA)

4.50%

Defense Logistics Agency (DLA)

3.10%

Washington Headquarters Service



OTHER GOVERNMENT

85.09%

Department of Homeland Security (DHS)

4.65%

National Oceanographic and Atmospheric Administration (NOAA)

4.52%

Other Government

1.80%

U.S. Department of Health and Human Services (HHS)

1.56%

Department of the Interior

0.98%

National Telecommunication and Information Administration (NTA)

0.57%

Office of the Director of National Intelligence (ODNI)

0.36%

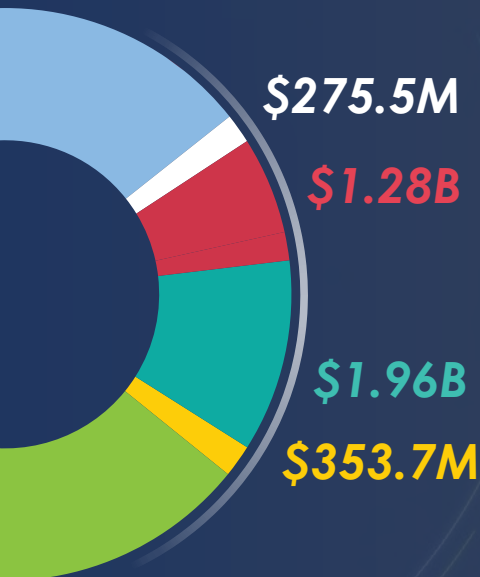
U.S. Department of Energy

0.25%

Department of Justice

0.14%

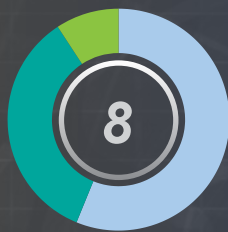
National Aeronautics and Space Administration



DoDIAC Prime Activity

FY23 Summary

The DoDIAC prime contractors are industry leaders across our technical focus areas. Their wide range of experience and expertise in scientific research and engineering deliver accelerated innovation, cutting edge approaches, and powerful solutions to the warfighter.



\$577.8M



\$557.2M



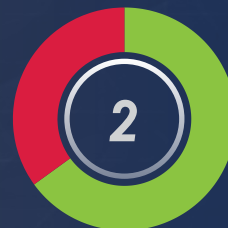
\$49.3M



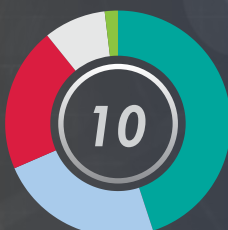
\$315.5M



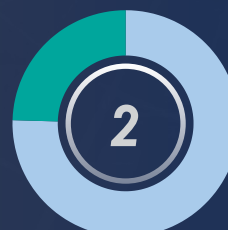
\$57.1M



\$144.5M



\$1.13B



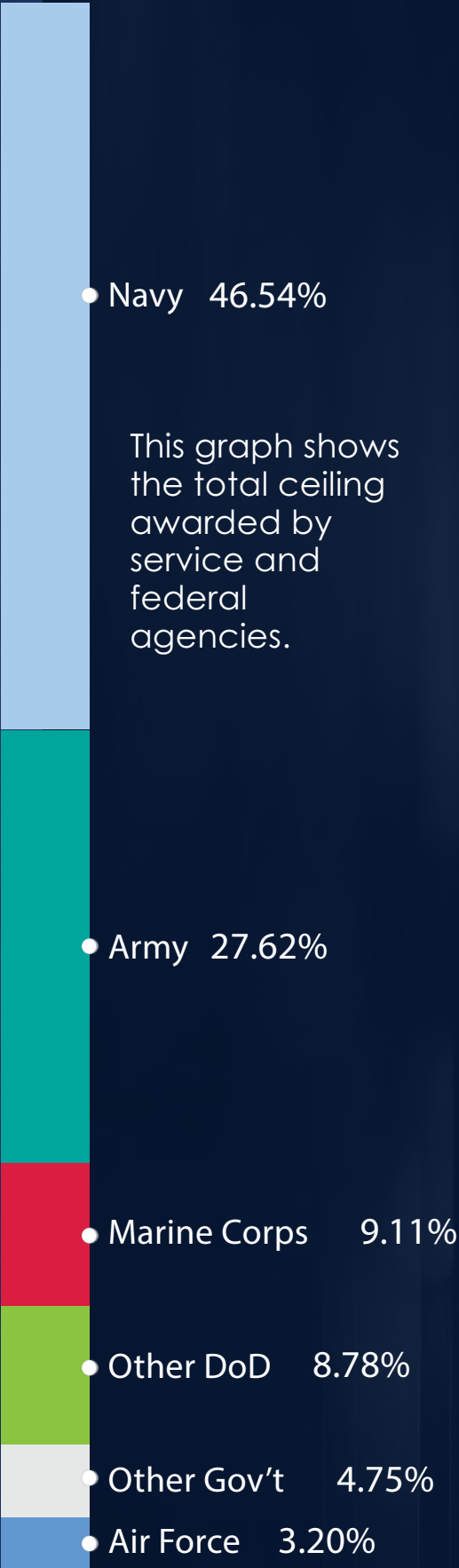
\$142.2M

The following graphics show the number of task orders we awarded to each prime contractor in FY 2023, the award ceiling value, and the customer.



Legend

- \$ Total Awarded Ceiling FY23
- # Number of awards
- Percentage of awarded TO ceiling by service



This graph shows the total ceiling awarded by service and federal agencies.

Preferred Use Memorandum



OFFICE OF THE SECRETARY OF DEFENSE
1000 DEFENSE PENTAGON
WASHINGTON, DC 20301-1000

JUL 27 2018

MEMORANDUM FOR COMMANDER, UNITED STATES SPECIAL OPERATIONS
COMMAND (ATTN: ACQUISITION EXECUTIVE)
COMMANDER, UNITED STATES TRANSPORTATION
COMMAND (ATTN: ACQUISITION EXECUTIVE)
ASSISTANT SECRETARY OF THE ARMY (ACQUISITION,
LOGISTICS, AND TECHNOLOGY)
ASSISTANT SECRETARY OF THE NAVY (RESEARCH,
DEVELOPMENT, AND ACQUISITION)
ASSISTANT SECRETARY OF THE AIR FORCE (ACQUISITION)
DIRECTORS OF THE DEFENSE AGENCIES
DIRECTORS OF THE DOD FIELD ACTIVITIES

SUBJECT: Preferred Use of Department of Defense Information Analysis Center Contracts

First established in 1946, the Department of Defense (DoD) Information Analysis Centers (IAC) continue to serve as an essential resource for research and analysis in innovative technologies to support current and future operations. The DoD IACs continue to prove their value in maximizing the utility of DoD research and development dollars by emphasizing knowledge re-use and building upon previous research, development, and other technical information.

The DoD IACs operate across a broad range of task orders for technical research and analysis, managing over 230 task orders and conducting \$1.5 billion in research efforts in Fiscal Year (FY) 2017. Through the DoD IACs, research data is collected, analyzed, and re-used to answer recurring technical challenges, stimulate innovation, and provide solutions to meet Government requirements.

The IAC program incorporates a number of best practices that make it a model for rapid and user-friendly acquisition of advanced Research and Development services:

- Open to all DoD components
- Full service assisted acquisition, that includes:
 - Customer Support Cell to assist users in developing a Performance Work Statement (PWS) that ensures work meets mission requirements
 - Dedicated contracting capability - expert in Research, Development, Test, and Evaluation contracting (research, analysis, studies, modeling and simulation, test, fabrication, prototyping)
 - Post-award surveillance of work to ensure quality, timeliness, scope, and onerous billing
- Task orders that are flexible and scalable to the user's needs, supporting ceiling levels ranging from \$1 million to \$500 million



A Preferred Use of DoDIAC Contracts memorandum was signed 27 July 2018

OUSD(R&E) recognizes the DoDIAC as a model for rapid and customer-focused acquisition of advanced R&D services tailored to meeting the diversity of technical challenges faced by DoD customers.

Check out the full memo at:

<https://dodiad.dtic.mil/resource>

Maximum Value

Accelerated research through the reuse of scientific and technical information

Easy to Use

IAC MAC Customer Support Cell provides dedicated assisted acquisition and requirements development support to each user.

Ease of Collaboration

Quickly add co-funders with in-scope research requirements to your TO.

Low Customer Shared Direct Cost (CSDC)

CSDC includes end-to-end pre/post-award support (requirements, contracts, financial, surveillance). No additional cost or contract access fee.

Pre-Vetted Contractors

Best-in-class businesses with expertise across 22 Technical Focus Areas.

- Pre-vetted contract performers, industry leaders in their fields
- Rapid turnaround of incremental funding on task orders, and the ability for sharing of task orders across customers, speeding execution of work
- Knowledge re-use that relies heavily on knowledge-mining in the over four million technical documents of the Defense Technical Information Center
- All at a low cost to the user, 1.2 percent in FY 2018.

These best practices result in a rapid acquisition process that can be readily tailored to many different problems and scenarios, meeting the diversity of technical challenges faced by DoD users.

The DoD IACs offer several multiple award, indefinite delivery/indefinite quantity contracts (MAC IDIQ) to meet this broad need (to become a single MAC IDIQ by FY 2019), covering these scope areas:

| | |
|---|---|
| Advanced materials | Homeland Security & Defense |
| Alternative Energy | Information Sharing & Knowledge Management |
| Autonomous Systems | Medical |
| Biometrics | Military Sensing |
| Chemical, Biological, Radiological, and Nuclear (CBRN) Defense | Modeling & Simulation |
| Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) | Non-lethal Weapons and Information Operations |
| Critical Infrastructure Protection | Reliability, Maintainability, Quality, Supportability, and Interoperability (RMQSI) |
| Cultural Studies | Software & Data Analysis |
| Cyber Security | Survivability & Vulnerability |
| Directed Energy | Weapons Systems |
| Energetics | |

In continuing the policy of our predecessors established in January 2015, we encourage Requiring Officers and Contracting Officers to use the IACs as best value vehicles to acquire services that fall within the applicable scope areas. In developing acquisition strategies, all new and ongoing efforts should consider the DoD IAC contracts as vehicles of first choice.

Additional information on the DoD IACs can be found at <http://iac.dtic.mil/>. Questions regarding this action memorandum can be directed to the DoD IAC's Director, Mr. Thomas Gillespie, at 703-767-9235 or thomas.c.gillespie.civ@n.mil.

Shafiq Assad
Director, Defense Pricing
and Contracting

Mary J. Miller
Performing the Duties of the
Assistant Secretary of Defense
for Research and Engineering

Contact Us

Have a question about ongoing IAC MAC task order work?



Jennifer Heddings

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Patricia Coulter

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Melinda Rozga-Moore

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Harvey Bullock

harvey.r.bullock.civ@mail.mil

Have a technical question?



Visit us at:

<https://csiac.org/technical-inquiries/>
or email Patty Crawford at: patricia.a.crawford6.civ@mail.mil



Visit us at:

<https://www.dsiac.org/services/technical-inquiries>
or email Emese Horvath at: emese.i.horvath.civ@mail.mil



Visit us at:

<https://hdiac.org/technical-inquiries/>
or email Mollie Steele at: mollie.s.steele.civ@mail.mil

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Have a Research and Development project you need to get started on?

To get started contact the Customer Support Cell at: dtic.belvoir.iac.mbx.csc@mail.mil

To talk to a government representative contact below:



Jennifer Heddings

jennifer.j.heddings.civ@mail.mil



Patricia Coulter

patricia.s.coulter4.civ@mail.mil



Melinda Rozga-Moore

melinda.l.rozga-moore.civ@mail.mil



Harvey Bullock

harvey.r.bullock.civ@mail.mil



DTIC IS THE ONLY REPOSITORY FOR ALL OF DoD'S SCIENTIFIC AND TECHNICAL INFORMATION

The Defense Technical Information Center (DTIC) preserves, curates, and shares knowledge from the U.S. Department of Defense's annual multibillion dollar investment in science and technology, multiplying the value and accelerating capability to the warfighter. DTIC amplifies DoD's investment by collecting information and enhancing the digital search, analysis, and collaboration tools that make information widely available to decision makers, researchers, engineers, and scientists across the Department.

DTIC provides technical information, knowledge management, analytics, research, and development services to authorized users via:

- Access to the vast collection of DoD technical information and research, including technical reports, grant awards, and scientific and engineering data sets
- Analytics capabilities, applications, and services to help understand the information
- Platforms, tools, and resources that facilitate information sharing and collaboration
- Access to the DoD Information Analysis Centers

Through DTIC's R&E Gateway, authorized users can:

- Access up to 4.9 million defense research documents and data
- Analyze and visualize past, present, and future research activities and investments
- Collaborate in real time on secure platforms
- Discover scientific and technical innovation across DoD small business partners
- Access the Journal of DoD Research and Engineering

DTIC publishes the Journal of DoD Research and Engineering (JDR&E), the only peer reviewed journal for CUI or classified information

The JDR&E publishes scientific innovations, commentary, and cutting-edge research from the R&E Communities of Interest. It is the only publication that provides a venue for researchers, scientists, and engineers working on limited and classified projects the opportunity to gain peer-reviewed status for their work while advancing scientific understanding.

Reporting Structure



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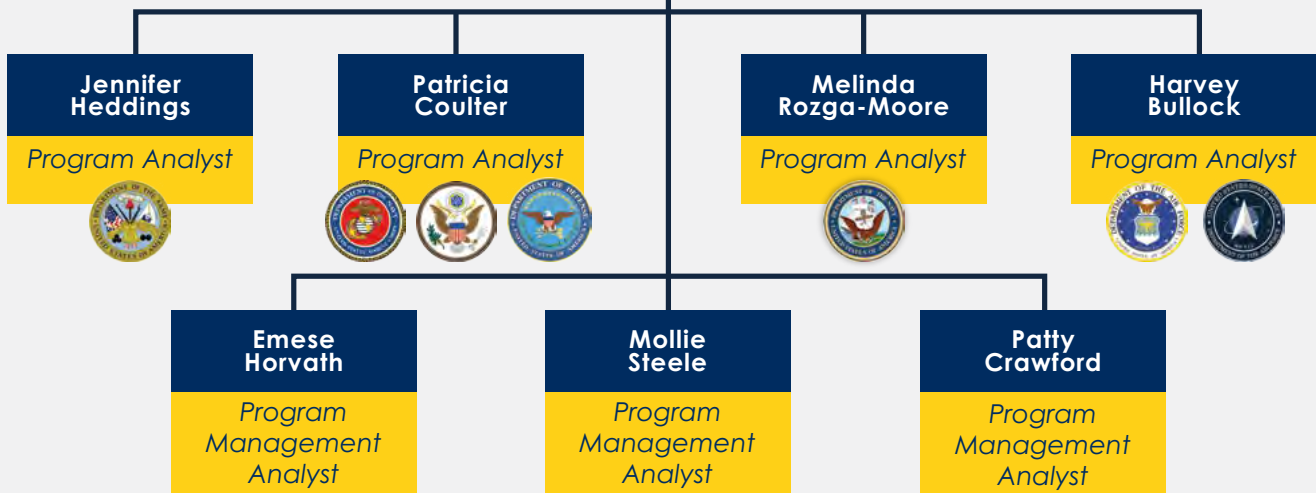
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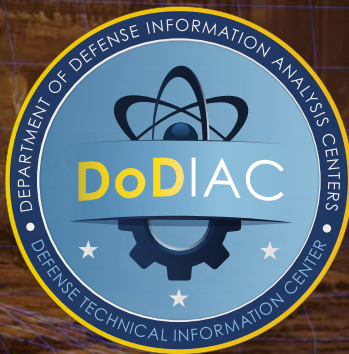


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