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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Defense Advanced Research Projects Agency **Date:** March 2023

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 2: Applied Research</i>	R-1 Program Element (Number/Name) PE 0602702E / <i>TACTICAL TECHNOLOGY</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	204.665	206.883	234.549	-	234.549	181.779	185.446	197.770	196.520	-	-
TT-03: <i>NAVAL WARFARE TECHNOLOGY</i>	-	26.555	22.652	7.759	-	7.759	9.937	8.270	7.792	7.591	-	-
TT-04: <i>ADVANCED LAND SYSTEMS TECHNOLOGY</i>	-	57.163	65.157	60.481	-	60.481	14.191	15.491	13.691	12.791	-	-
TT-07: <i>AERONAUTICS AND SPACE TECHNOLOGY</i>	-	34.662	31.572	74.675	-	74.675	65.516	64.585	61.395	61.245	-	-
TT-13: <i>INFORMATION ANALYTICS TECHNOLOGY</i>	-	86.285	87.502	91.634	-	91.634	92.135	97.100	114.892	114.893	-	-

A. Mission Description and Budget Item Justification

The efforts described in this Program Element (PE) address the Applied Research associated with the Tactical Technology Program that supports the advancement of concepts and technologies to enhance the next generation of tactical systems. This PE funds a number of projects in the areas of Naval Warfare, Advanced Land Systems, Aeronautics and Space Technology and Information Analytics Technology. This PE also supports innovation and robust transition planning in the technology cycle by working with entrepreneurs to increase the likelihood that DARPA-funded technologies take root in the U.S. and provide new capabilities for national defense.

The Naval Warfare Technology project develops advanced technologies for application to a broad range of naval requirements. Enabling and novel technologies include concepts for expanding the envelope of operational naval capabilities to include the entire sea column such as improved situational awareness over large maritime environments, ship self-defense techniques, novel underwater propulsion modalities, high speed underwater vessels, improved techniques for underwater object detection and discrimination, long endurance unmanned surface vehicles, methods and techniques for servicing assets throughout the sea column, and high bandwidth communications. This project will also examine methods and architectures for distributing maritime operations to enable a more agile, survivable, and cost-effective fleet.

The Advanced Land Systems Technology project is developing technologies for enhancing U.S. military effectiveness and survivability in operations ranging from traditional threats to military operations against irregular forces that can employ disruptive or catastrophic capabilities, or disrupt stabilization operations, including competing in undergoverned spaces. Programs in this project will break the relative symmetry of land combat to give U.S. forces a decided advantage in the current and future ground battlefield. The emphasis is on developing affordable technologies that reduce reliance on consolidated forward-operating bases and required lines of communication, and provide small units and individual warfighters with hyper-mobility and hyper-lethality. This project will develop methods and technologies to expand the maneuver trade space to include the vertical dimension, including subterranean environments, as well as undergoverned spaces. It will leverage advances in artificial intelligence to enable integrated manned-unmanned operations and decrease warfighter exposure through the use of autonomous agents.

Aeronautics and Space Technology efforts will address high payoff opportunities that dramatically reduce costs associated with advanced aeronautical and space systems and/or provide revolutionary new system capabilities for satisfying current and projected military mission requirements. This includes advanced technology

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studies of revolutionary propulsion, vehicle, and launch concepts, sophisticated fabrication methods, and examination of novel materials and enabling technologies for aeronautics and space system applications. Studies that also fundamentally change the calculus of battle including consideration of a mix of assets, platforms that are potentially disposable or with limited lifespans, and autonomous integration of space and air platforms in the tactical battlespace are included.

The Information Analytics Technology project develops technology for analyzing data and information arising from: 1) intelligence networks; 2) open sources, social and broadcast media, and other external sources; 3) sensors and signal/image processors; and 4) collection platforms and weapon systems. Technical challenges include processing huge volumes of diverse, incomplete, and uncertain data in tactically-relevant timeframes, and countering the information operations of sophisticated adversaries who seek to deceive, degrade, deny, and disrupt the U.S. information enterprise. Benefits sought include a deeper understanding of the evolving operational environment tailored to the needs of commanders at every echelon; an enhanced capability to plan, monitor, and control diverse military operations ranging from stabilization and information operations to combat engagements; and increased efficiency of core military functions such as national and homeland security, warfighter health and readiness, and defense support of law enforcement and civil authorities.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	207.515	221.883	262.105	-	262.105
Current President's Budget	204.665	206.883	234.549	-	234.549
Total Adjustments	-2.850	-15.000	-27.556	-	-27.556
• Congressional General Reductions	0.000	-15.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	4.691	0.000			
• SBIR/STTR Transfer	-7.541	0.000			
• TotalOtherAdjustments	-	-	-27.556	-	-27.556

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: TT-13: *INFORMATION ANALYTICS TECHNOLOGY*

Congressional Add: *AI Cyber Data Analytics (Data) - Congressional Add*

	FY 2022	FY 2023
Congressional Add Subtotals for Project: TT-13	15.000	-
Congressional Add Totals for all Projects	15.000	-

Change Summary Explanation

FY 2022: Decrease reflects SBIR/STTR transfer offset by reprogrammings.

FY 2023: Decrease reflects a Congressional reduction.

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FY 2024: Decrease reflects completion of the Adapting Cross-domain Kill-Webs (ACK), Data-Driven Discovery of Models (D3M), Urban Reconnaissance through Supervised Autonomy (URSA), and Multi-Azimuth Defense Fast Intercept Round Engagement System (MAD-FIRES) programs in FY 2023, and a shift from development and testing to demonstration and evaluation activities in the Semantic Forensics (SemaFor), Influence Campaign Awareness and Sensemaking (INCAS) and Computational Cultural Understanding (CCU) programs.

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Appropriation/Budget Activity 0400 / 2					R-1 Program Element (Number/Name) PE 0602702E / TACTICAL TECHNOLOGY				Project (Number/Name) TT-03 / NAVAL WARFARE TECHNOLOGY			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
TT-03: NAVAL WARFARE TECHNOLOGY	-	26.555	22.652	7.759	-	7.759	9.937	8.270	7.792	7.591	-	-

A. Mission Description and Budget Item Justification

The Naval Warfare Technology project develops advanced technologies for application to a broad range of naval requirements. Enabling and novel technologies include concepts for expanding the envelope of operational naval capabilities to include the entire sea column such as improved situational awareness over large maritime environments, ship self-defense techniques, novel underwater propulsion modalities, high speed underwater vessels, improved techniques for underwater object detection and discrimination, long endurance unmanned surface vehicles, methods and techniques for servicing assets throughout the sea column, and high bandwidth communications. This project will also examine methods and architectures for distributing maritime operations to enable a more agile, survivable, and cost-effective fleet.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2022	FY 2023	FY 2024
<p>Title: Advanced Maritime Defense Technologies Concepts*</p> <p>Description: *Formerly Maritime Defense</p> <p>The Advanced Maritime Defense Technologies Concepts program will explore novel technologies and concepts of operations to mature capabilities that extend freedom of access, operations, and homeland defense in all parts of the maritime domain, including waterways, arctic areas, and the seabed. The program will investigate and mature technologies necessary for unmanned underwater vehicle (UUV) and unmanned surface vessel (USV) concepts for defense against large volumes of low-cost expendable platforms, including compressing the detect-to-engage sequence by exploiting localized networked sensors to rapidly detect, identify, and neutralize threats. Enabling technologies for advanced undersea systems, including a revolutionary propulsion concept, and novel approaches for maritime platform and fixed location self-defense will be investigated. Novel technologies and concepts required for arctic and seabed operations, such as distributed sensing, navigation, and communications architectures, as well as including new technologies to enable long duration maritime platforms will also be investigated. Finally, future concepts, approaches, and techniques will be identified to enable contested environment operations utilizing unmanned maritime platforms.</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - Complete studies of novel underwater sensor systems and extended range maritime platforms. - Assess autonomous maritime platform integration with advanced payload capabilities. - Evaluate novel technologies and concepts for arctic operations. - Evaluate Advanced Propulsor, Experimental (APEX) systems for underwater vehicles. <p>FY 2024 Plans:</p>	8.902	8.013	7.759

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> - Finalize conceptual evaluation of APEX for underwater vehicles. - Support advancement in cross-domain transitions for vehicles and weapon systems. - Initiate advanced capability and behavior development for UUV/USV operation in contested environment. - Evaluate architectures and technologies for sensors and defensive systems for fixed locations. <p>FY 2023 to FY 2024 Increase/Decrease Statement: The FY 2024 decrease reflects minor program repricing.</p>			
<p>Title: Multi-Azimuth Defense Fast Intercept Round Engagement System (MAD-FIRES)</p> <p>Description: The Multi-Azimuth Defense Fast Intercept Round Engagement System (MAD-FIRES) program will develop a point defense system against today's most stressing threats by developing a highly maneuverable, medium caliber, guided projectile, fire sequencing and control system capable of neutralizing large threat raids of high speed, highly maneuverable targets. Leveraging recent advancements in gun hardening, miniaturization of guided munition components, and long-range sensors, MAD-FIRES advances fire control technologies, medium caliber gun technologies, and guided projectile technologies enabling the multiple, simultaneous target, kinetic engagement mission at greatly reduced costs. MAD-FIRES will achieve lethality overmatch through accuracy rather than size, thus expanding the role of smaller combat platforms into missions where they have been traditionally outgunned. MAD-FIRES, sized as a medium caliber system, enhances flexibility for installment as a new ship self-defense system. This program is also funded in PE 0603766E, Project NET-02.</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - Commence subsystems development, integration and testing. - Mature critical technologies to enable future surrogate threat engagement demonstrations. - Update Modeling, Simulation and Analysis (MS&A) toolset and perform gun-fired testing to validate MS&A tools. <p>FY 2023 to FY 2024 Increase/Decrease Statement: The FY 2024 decrease reflects program completion.</p>	17.653	14.639	-
Accomplishments/Planned Programs Subtotals	26.555	22.652	7.759

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

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Appropriation/Budget Activity 0400 / 2					R-1 Program Element (Number/Name) PE 0602702E / TACTICAL TECHNOLOGY				Project (Number/Name) TT-04 / ADVANCED LAND SYSTEMS TECHNOLOGY			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
TT-04: ADVANCED LAND SYSTEMS TECHNOLOGY	-	57.163	65.157	60.481	-	60.481	14.191	15.491	13.691	12.791	-	-

A. Mission Description and Budget Item Justification

The Advanced Land Systems Technology project is developing technologies for enhancing U.S. military effectiveness and survivability in operations ranging from traditional threats to military operations against irregular forces that can employ disruptive or catastrophic capabilities, or disrupt stabilization operations, including competing in undergoverned spaces. Programs in this project will break the relative symmetry of land combat to give U.S. forces a decided advantage in the current and future ground battlefield. The emphasis is on developing affordable technologies that reduce reliance on consolidated forward-operating bases and required lines of communication, and provide small units and individual warfighters with hyper-mobility and hyper-lethality. This project will develop methods and technologies to expand the maneuver trade space to include the vertical dimension, including subterranean environments, as well as undergoverned spaces. It will leverage advances in artificial intelligence to enable integrated manned-unmanned operations and decrease warfighter exposure through the use of autonomous agents.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2022	FY 2023	FY 2024
Title: Robotic Autonomy in Complex Environments with Resiliency (RACER)	34.703	47.807	49.706
<p>Description: Multi-domain operations (MDO) present complex and challenging environments to ground combat platforms. Ground combat platforms must operate in a more distributed manner in these environments to gain a sustained tactical advantage and enhance warfighter survivability. The Army intends to deploy autonomous robotic combat vehicles and optionally manned fighting vehicles to accomplish this objective. In order to meet the demands of an MDO environment, significant advances in perception, planning, and control algorithms are required to autonomously maneuver faster and more resiliently in complex and novel off-road situations. Maneuver environments are characterized by three-dimensional surfaces of highly compliant soils and vegetation, hundreds of positive and negative obstacle classes, no defined road networks or driving rules, and where use of terrain for survivability is critical. In order to achieve operationally relevant speeds and resilience to novel situations on the battlefield, while simultaneously reducing the soldier's cognitive and communications burden and increasing battle space awareness, Robotic Autonomy in Complex Environments with Resiliency (RACER) will develop and demonstrate game-changing autonomous ground combat vehicle mobility using a combination of simulation and advanced platforms. RACER will deliver autonomy algorithms using the latest in Artificial Intelligence (AI) and machine-learning techniques, a code repository, an off-road simulation environment tailored for military off-road autonomy development, tactical route planning methods, and field-demonstrated off-road autonomous capabilities. The culmination of the RACER program will demonstrate fully autonomous maneuver on a military Unmanned Ground Vehicle (UGV) in a variety of militarily relevant environments.</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - Continue Government-hosted field experiments in increasingly complex terrain and obstacle classes. 			

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> - Initiate development of tactically relevant routes for small-scale demonstration platforms using initial tactics versus an opposing force. - Deliver a simulation environment compared against real-world system performance and environments. - Deliver autonomy algorithm modules demonstrated in the real-world and compared against a simulation environment. - Finalize large-scale demonstration platform (combat vehicle scale) development and testing. <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue Government-hosted field experiments in increasingly complex terrain and obstacle classes with combat vehicle scale autonomous system. - Conduct alternative simulation environments resiliency testing of autonomy development. - Test tactically relevant route planner against simulated adversary force. - Curation of autonomy data sets for use by service stakeholders. - Conduct final capstone Government-hosted field experiments with large-scale platform (combat vehicle scale) in environments that contain relevant complexity and obstacle classes. <p>FY 2023 to FY 2024 Increase/Decrease Statement: The FY 2024 increase reflects shift from development and testing to multiple field experiments culminating in an integrated demonstration of autonomy algorithms on a combat-scale surrogate vehicle.</p>				
<p>Title: Advanced Ground Technologies Concepts</p> <p>Description: The Advanced Ground Technologies Concepts program aims to surmount key challenges associated with redefining access and delivery of effects to every aspect of the ground domain by using targeted investments that explore the feasibility of novel technical solutions, force capabilities and new concepts of operations. In particular, program investments encompass technologies that promise breakthroughs in enabling actionable situational awareness across diverse environments, Artificial Intelligence (AI) enabled autonomy for integration of manned-unmanned ground force operations; intelligent ground mobility systems; advanced military robotic systems; technologies expanding the effective ranges of surface-to-surface precision fires and technologies that expand the combined arms maneuver trade space to include all aspects of the urban and extra-urban environment as well as exploiting natural and man-made subterranean environments.</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - Mature conceptual design for technologies that enhance detection and tracking of large land targets in denied areas. - Mature framework for enhancing manned-unmanned teaming (MUM-T) operations and develop demonstration plans to field the framework. - Mature approaches for testing tactical autonomy in complex environments and develop demonstration framework. <p>FY 2024 Plans:</p>		-	10.500	10.775

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> - Identify concepts and technologies to enable long duration ground platforms. - Identify concepts and technologies that enable contested environments operations utilizing advanced ground autonomy, perception and decision making. - Mature framework for human-machine embodied decision making for enhanced situational awareness across environments. <p>FY 2023 to FY 2024 Increase/Decrease Statement: The FY 2024 increase reflects increased investigations into artificial intelligence enabled teaming between manned-unmanned forces.</p>				
<p>Title: Urban Reconnaissance through Supervised Autonomy (URSA)</p> <p>Description: The Urban Reconnaissance through Supervised Autonomy (URSA) program is developing and demonstrating new autonomous agents and techniques that support a Blue Force Commander in managing the complexity and ambiguity of urban spaces by rapidly identifying and discriminating among potential threats during missions ranging from minutes to hours. The program uses perception-enabled autonomous vehicles to manage complexity and interactions with populations to drive down the ambiguity between peaceful civilians and threats. The program will create a system of autonomous ground and air platforms operating in conjunction with U.S. ground forces that monitor an area overtly to detect hostile forces and establish Positive Identification (PID) before any U.S. troops come into contact. Military units follow strict rules of engagement (ROEs) that prescribe an escalation of force appropriate with the level of hostilities and confidence that an individual is engaged in nefarious behavior. This program will establish a Legal, Moral, Ethical (LME) working group comprising multiple individuals (technologists, military, university professors, ethicists, legal experts) to develop an understanding of how escalation and/or de-escalation of force can and should be appropriately applied in the context of supervised autonomous systems. URSA is exploring scenarios and probing behaviors to enable identifying innocent civilians and individuals who pose a threat to U.S. Forces, allies, or non-combat civilians. This mission requires the integration and maturation of novel sensors, and unmanned ground and air vehicles which leverage current techniques in perspective and reactive autonomy to navigate cluttered urban environments. URSA is developing new search and engagement behaviors to disambiguate human actions and serve as evidence that a potential target is a threat. It is implementing new dimensions of evidence such as the human reactions to these engagements to improve confidence in its decisions and building a novel framework for escalating and de-escalating nonlethal force.</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - Conduct the final system end-to-end performance evaluation in a live environment. <p>FY 2023 to FY 2024 Increase/Decrease Statement: The FY 2024 decrease reflects program completion.</p>		8.000	6.850	-
<p>Title: Competing in Undergoverned Spaces</p>		10.460	-	-

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>Description: A vast majority of U.S. technology is focused on gaining competitive advantage against near peer adversaries in kinetic engagements where there are known rules and players, concrete timelines and clear winners and losers. While these finite games are important, many critical engagements are closer to infinite contests--dynamic, diffuse high dimensionality interactions that play out over long periods with an ultimate goal of resetting the regional power and influence equilibrium. Competing in these contests is critical for successful stabilization and Humanitarian Assistance Disaster Relief (HADR) missions, as well as operations in undergoverned spaces. Some undergoverned spaces are geographic, where local governance is sufficiently weak such that internal or external parties can compete for influence over the local population. Some contested undergoverned spaces are more conceptual yet still very real, defined by virtual or physical domains that lack or regularly violate ethical, legal, social and institutional order such as supply chains, the cyber-domain, or the creation of new rulesets by unilateral unopposed action in space. The Competing in Undergoverned Spaces developed technologies that focused on successfully competing in infinite contests by developing tools for situational awareness and interpretation of signals, constant acting, assessing and adapting (i.e., iterative Hypothesis A/B testing) and new ways of viewing experimentation from a foundation of asynchronous observations and actions. Specific areas of interest included information, influence or economic tools that rapidly adapt to the environment to yield specific effects that can be sensed. This included developing new options to engage friendly/non-friendly local populations while minimizing the social impact of stabilization. Other areas of interest included sensing tools designed to update pre-existing models to support decision making, and decision tools designed to adapt to changing population or adversary actions.</p>			
<p>Title: Subterranean (SubT) Challenge</p> <p>Description: The DARPA Subterranean (SubT) Challenge developed novel integrated solutions capable of mapping, navigating, and searching complex and dynamic terrains (tunnel systems, urban underground and cave networks); sensors and computation for perception in austere conditions; distributed information sharing in degraded communications environments; and collaborative autonomy enabling extended operations with minimal human intervention. The core objective of the SubT Challenge was to discover the solution(s) which best outperforms current approaches for manually and laboriously mapping and searching subterranean environments. Newly developed capabilities spanned across four technology focus areas in autonomy, perception, networking, and mobility technologies. The program increased the diversity, versatility, and robustness of relevant system technologies, capable of addressing the multi-faceted needs of a wide range of environments. Innovations were explored in the context of a public-facing, broadly inclusive DARPA Challenge.</p>	4.000	-	-
Accomplishments/Planned Programs Subtotals	57.163	65.157	60.481

C. Other Program Funding Summary (\$ in Millions) N/A

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C. Other Program Funding Summary (\$ in Millions)

Remarks

D. Acquisition Strategy

N/A

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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
TT-07: AERONAUTICS AND SPACE TECHNOLOGY	-	34.662	31.572	74.675	-	74.675	65.516	64.585	61.395	61.245	-	-

A. Mission Description and Budget Item Justification

Aeronautics and Space Technology efforts will address high payoff opportunities that dramatically reduce costs associated with advanced aeronautical and space systems and/or provide revolutionary new system capabilities for satisfying current and projected military mission requirements. This includes advanced technology studies of revolutionary propulsion, vehicle, and launch concepts, sophisticated fabrication methods, and examination of novel materials and enabling technologies for aeronautics and space system applications. Studies that also fundamentally change the calculus of battle including consideration of a mix of assets, platforms that are potentially disposable or with limited lifespans, and autonomous integration of space and air platforms in the tactical battlespace are included.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2022	FY 2023	FY 2024
<p>Title: Advanced Aeronautics and Space Technologies</p> <p>Description: The Advanced Aeronautics and Space Technologies program examines and evaluates aeronautical and space technologies and concepts through applied research. These may include feasibility studies of novel or emergent materials, sensors and tactics for air and space platforms, launch vehicles, satellites, as well as manufacturing and implementation approaches. The areas of interest range from propulsion and power, guidance and control, concepts to enable novel air platforms, to innovative technologies and platform concepts to enable new missions and resilient operations for space systems, from low earth orbit to cislunar space. Aeronautics interest areas include hybrid electric/combustion propulsion concepts, small-scale air mobility solutions, and networking of both piloted and unpiloted air vehicles. Space interest areas include advanced or novel power and propulsion systems, novel sensors, advanced lightweight structures, advanced miniature radio frequency (RF) technology, precision navigation and timing technologies, ground and space-based space domain awareness, avionics, structures, and advanced communications. These studies may lead to the development of new programs, components or subsystems to enhance future aerospace platforms, or improvement of existing systems.</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - Refine conceptual design studies and test emerging technologies. - Extend and develop modeling and simulation that support future concepts and novel architectures. - Integrate feasible and practical technologies into systems level demonstration vehicles. <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Explore updated and new architectures for aerospace vehicle concepts. - Improve ability of piloted and unpiloted vehicles to cooperate to enhance mission effectiveness. 	3.500	7.772	9.975

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> - Identify concepts and technologies to provide improved resilience, survivability, and lethality in contested environments. <p>FY 2023 to FY 2024 Increase/Decrease Statement: The FY 2024 increase reflects increased investment in mission capable aerospace manned/unmanned vehicle effectiveness.</p> <p>Title: Oversight</p> <p>Description: Oversight will develop and demonstrate a suite of autonomy technologies to provide constant custody of targets as a service for tactical operations in contested environments. Existing and emerging space systems will be evaluated. Proliferated Low Earth Orbit (p-LEO) satellite constellations and payloads will be leveraged due to their high-bandwidth, processing-on-the-edge capabilities in support of tactical, efficient, integrated missions at scale. Oversight will develop autonomous technology to enable advanced collaboration among constellations of satellites for target custody in contested environments where the numbers of targets is far greater than the number of satellites and sensors over the operating area. The Oversight program will culminate with a demonstration using existing on-orbit p-LEO assets combined with live, virtual and constructive terrestrial assets.</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - Perform systems engineering for a conceptual operational design. - Conduct analysis necessary to derive system requirements for track custody, resource management and infrastructure support. - Conduct assessment of government-owned applications and services that could be leveraged for system development. - Establish a government-owned modeling and simulation framework for evaluating performer algorithms. - Develop a software development kit and interface documents for incorporating software into the modeling and simulation framework. - Begin development of necessary for constant custody algorithms for software applications and services. <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue development of necessary for constant custody algorithms for software applications and services. - Incorporate target scenarios, satellite constellation resources and ground resources into the framework. - Demonstrate capability of applications and services in a performer-provided laboratory environment. - Evolve the applications from the framework to incorporate target scenarios, satellite constellations resources and ground resources. - Conduct demonstration of performer-developed suite of software applications and services running in the loop on representative space hardware in the government modeling and simulation environment to assess performance of constant custody of 100 targets. <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p>		-	23.800	24.990

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
The FY 2024 decrease reflects minor program repricing.				
<p>Title: Gambit</p> <p>Description: The Gambit program will develop and demonstrate a Rotating Detonation Engine (RDE) propulsion system that enables standoff strike of time-critical targets from 4th generation fighters at campaign scale. Gambit will initially conduct a conceptual design of an Operational System (OS) that meets the mission objectives and a Demonstration System (DS) RDE propulsion system that meets requirements derived from the performer's OS. To substantiate the preliminary DS design, Gambit will execute RDE combustor testing and inlet testing. Next, Gambit will complete detailed design, fabrication, and ground testing of a full-scale, weapon-traceable DS at flight conditions. Successful completion of Gambit will pave a path to a flight test of a prototype weapon in a future program.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Complete conceptual design of operational and demonstration systems. - Conduct preliminary design of demonstration system. - Fabricate RDE combustor and initiate testing. - Fabricate sub-scale inlet and initiate testing. <p>FY 2023 to FY 2024 Increase/Decrease Statement: The FY 2024 increase reflects program initiation.</p>		-	-	23.330
<p>Title: Persistent Optical Wireless Energy Relay (POWER)</p> <p>Description: The Persistent Optical Wireless Energy Relay (POWER) program will develop and demonstrate low-loss redirection relays to enable architectures where the beam propagates predominantly at high altitudes, minimizing atmospheric absorption and scattering. By developing wavefront correction, this program will demonstrate long-range power beaming using small, militarily relevant apertures. Investing in scalable and selectable energy harvesting will ensure the persistent operation of the network. The POWER program will enable a distributed network of high-altitude persistent unmanned aerial vehicles (UAVs) that direct laser energy through a network of ground, sea, and air-based assets to meet energy needs of a dynamic future battlespace. The key enabling technology is a scalable airborne optical energy relay node that can redirect, correct, and selectively harvest energy from a directed energy source. These technologies will enable a flexible, resilient, reconfigurable, persistent, and distributed energy network.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Complete airborne relay Conceptual Design Review (CoDR). - Initiate development of low power relays able to demonstrate beam redirect, wavefront correction, and energy harvesting to support risk reduction of high-power relay. 		-	-	16.380

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
- Validate propagation modeling based on low power relay testing.			
FY 2023 to FY 2024 Increase/Decrease Statement: The FY 2024 increase reflects program initiation.			
Title: Control of Revolutionary Aircraft with Novel Effectors (CRANE) Description: The Control of Revolutionary Aircraft with Novel Effectors (CRANE) program is demonstrating revolutionary improvements in aircraft controls technology. The program will design, build, and flight test an aircraft able to fly and maneuver at altitude relying on state-of-the-art Active Flow Control (AFC) technology. AFC is a broad term that encompasses a range of technology approaches; it includes a number of control mechanisms which alter the aerodynamic flow field thru ejection or suction of fluid via an orifice on a lifting body. An emphasis of the program is assessing AFC component technologies, risk reduction and experimentation, integrated testing, fabrication and demonstration of a relevant scale novel and innovative aircraft. Technologies, design tools and models developed and demonstrated under this program will be made available to all Services as well as the civilian aerospace sector for application to future air systems development. Beginning in FY 2023, this program is funded in PE 0603286E, Project AIR-01.	25.507	-	-
Title: Gremlins Description: The Gremlins program developed platform technologies that enable a new class of distributed warfare. The Gremlins concept envisioned small air-launched unmanned systems that could be responsively dispatched in volley quantity from existing air platforms, fly into contested airspace, conduct a moderate duration mission, and be ultimately air recovered. Key enabling technologies for the concept included smaller developmental payloads that benefited from multiple collaborating host platforms. The Gremlins program conducted risk reduction and development of the host platform launch and recovery capability and developed and demonstrated a recoverable Unmanned Air Vehicle (UAV) platform concept. Enabling platform technologies included precision relative navigation, advanced computational modeling, small form factor payloads, compact propulsion systems, and highspeed digital flight control. The program leveraged these technologies, performed analytic trade studies, conducted incremental development, and demonstrated the potential for an integrated air-launched Gremlins unmanned platform capable of conducting distributed air operations.	5.655	-	-
Accomplishments/Planned Programs Subtotals	34.662	31.572	74.675

C. Other Program Funding Summary (\$ in Millions) N/A
Remarks

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D. Acquisition Strategy
N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Defense Advanced Research Projects Agency **Date:** March 2023

Appropriation/Budget Activity 0400 / 2					R-1 Program Element (Number/Name) PE 0602702E / TACTICAL TECHNOLOGY				Project (Number/Name) TT-13 / INFORMATION ANALYTICS TECHNOLOGY			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
TT-13: INFORMATION ANALYTICS TECHNOLOGY	-	86.285	87.502	91.634	-	91.634	92.135	97.100	114.892	114.893	-	-

A. Mission Description and Budget Item Justification

The Information Analytics Technology project develops technology for analyzing data and information arising from: 1) intelligence networks; 2) open sources, social and broadcast media, and other external sources; 3) sensors and signal/image processors; and 4) collection platforms and weapon systems. Technical challenges include processing huge volumes of diverse, incomplete, and uncertain data in tactically-relevant timeframes, and countering the information operations of sophisticated adversaries who seek to deceive, degrade, deny, and disrupt the U.S. information enterprise. Benefits sought include a deeper understanding of the evolving operational environment tailored to the needs of commanders at every echelon; an enhanced capability to plan, monitor, and control diverse military operations ranging from stabilization and information operations to combat engagements; and increased efficiency of core military functions such as national and homeland security, warfighter health and readiness, and defense support of law enforcement and civil authorities.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2022	FY 2023	FY 2024
<p>Title: Influence Campaign Awareness and Sensemaking (INCAS)</p> <p>Description: The Influence Campaign Awareness and Sensemaking (INCAS) program is developing analyst-guided techniques, tools, and platforms for the DoD to detect and understand geopolitical influence campaigns in a rigorous, quantitative manner. Increasingly, competitors and adversaries are using influence operations to project soft power. Competitor and adversary influence campaigns can be overt in the form of anti-U.S. messaging, or they can be disguised in the form of complex narratives that seek to advance agendas harmful to U.S. interests. The U.S. Government and DoD need the capability to rapidly detect and understand competitor and adversary messaging campaigns and narratives within the context of the populations and groups for whom they are intended. To accomplish this, the program will develop and operationalize natural language processing, social network analysis, psychographics, and behavioral science-based technologies, and integrate these into a unified influence campaign modeling framework and sensemaking platform. INCAS aims to produce a suite of automated digital tools to enable analysts to better understand how information is being used by competitors and adversaries, and to quantitatively assess in real time and at scale the effects of influence campaigns across time and over multiple platforms.</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - Extend tools for extraction of additional influence indicators and of demographic and psychographic population attributes from social media and other messaging at scale, including multimedia messaging. - Develop tools that correlate influence indicators in messaging with population attributes to explain and anticipate responses and analytics for assessing the threat, similarity, and confidence of campaign models. - Demonstrate integration with falsified media tools that can provide additional indicators for adversary influence messaging and campaign elements. 	13.500	21.499	19.000

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<p>- Implement analytics in the testbed infrastructure and deploy technologies that support experimentation by operational stakeholders.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Extend multimedia analytics to discover influence indicators in video and other media and associate these indicators with targeted population attributes. - Develop analytics for assessing the threat and similarity of adversary influence campaigns based on multiple social media platforms. - Extend datasets, human-machine interfaces, and workflows to quantify the effectiveness of influence campaign response strategies. - Provide technology to potential transition sponsors to enable military users to assess utility against adversary influence campaigns. <p>FY 2023 to FY 2024 Increase/Decrease Statement: The FY 2024 decrease reflects ramping down of development of techniques to detect and characterize influence campaigns and focus shifting to assessment of the techniques and transition.</p>				
<p>Title: Semantic Forensics (SemaFor)</p> <p>Description: The Semantic Forensics (SemaFor) program is developing technologies to defend against multimedia falsification and disinformation campaigns. Statistical detection techniques have been successful, but media generation and manipulation technologies applicable to imagery, voice, video, text, and other modalities are advancing rapidly. Purely statistical detection methods are now insufficient to detect these manipulations, especially when multiple modalities are involved. Existing media generation and manipulation algorithms are data driven and are prone to making semantic errors that provide defenders an opportunity for asymmetric advantage. SemaFor is developing semantic and statistical analysis algorithms that determine if media is generated or manipulated, attribution algorithms that infer if media originates from a particular organization or individual, and characterization algorithms that reason about whether media was falsified (generated or manipulated) for malicious purposes. SemaFor aims to create technologies to identify, deter, and understand adversary media falsification.</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - Develop software prototype to address adversarial threat scenarios and to facilitate a deeper understanding of falsified media. - Implement more advanced forms of machine learning and artificial intelligence in media falsification detection, attribution, and characterization techniques for emerging complex adversarial falsified media. - Extend datasets and evaluation efforts to include disinformation in technical documents, media collections, and diverse social media feeds, and conduct demonstration of algorithmic capabilities for use cases of interest to transition partners. 		21.921	22.015	18.000

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<p>- Refine application programming interfaces to include multiple sources, and provide multimodal (image, video, audio, or text) system enhancements based on input from transition partners and other stakeholders.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Refine approaches for reasoning about falsification across multiple instances of technical information. - Finalize application programming interfaces including multimodal (image, video, audio, or text) system enhancements based on input from transition partners and other stakeholders. - Deliver initial prototype capability to transition partners that addresses adversarial threat scenarios. <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p> <p>The FY 2024 decrease is due to ramping down of development of semantic techniques for reasoning about and detecting inconsistencies in potentially falsified multimedia and a shift in emphasis to demonstration and transition.</p>				
<p>Title: Computational Cultural Understanding (CCU)</p> <p>Description: The Computational Cultural Understanding (CCU) program is creating cross-cultural language understanding technologies to improve a DoD operator's situational awareness and interactional effectiveness. CCU natural language processing technologies will recognize, adapt to, and recommend how to operate within emotional, social, and cultural norms that differ across societies, languages, and group affinities. To support diverse and emergent use cases, CCU technologies will be engineered to require minimal-to-no training data in a local culture, while maximizing operator success during negotiations and other interactions in the field. CCU will create new component technologies for sociocultural norm discovery, cross-cultural emotion recognition, and communicative change detection. The program will incorporate these component technologies into a prototype platform to assist military users with cross-cultural dialogue.</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - Develop a means to analyze interactions between sociocultural norms and emotional feedback, and extend development to a second language-culture pair. - Evaluate technologies for sociocultural analysis and cross-cultural dialogue assistance within negotiation scenarios of interest, such as discovery of local perspectives on an issue, gathering of logistical information, or requesting access to resources. - Develop a means to understand cultural concepts and integrate a concept acquisition framework in automated systems. - Develop an integration testbed for evaluation of cross-cultural language understanding and situational awareness technologies. <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Generalize sociocultural analysis and dialogue assistance techniques to encompass multiple language-culture pairs. - Utilize the integration testbed to evaluate and optimize cross-cultural language understanding and situational awareness technologies. 		12.000	19.200	16.600

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> - Implement sociocultural analysis and dialogue assistance capabilities in wearable hardware to facilitate assessment in real-world scenarios. - Demonstrate effectiveness of sociocultural analysis and cross-cultural dialogue assistance within additional negotiation scenarios of potential operational relevance in collaboration with military stakeholders. <p>FY 2023 to FY 2024 Increase/Decrease Statement: The FY 2024 decrease reflects ramping down of development and implementation of technologies for cross-cultural language understanding and situational awareness and a shift in emphasis to demonstration and evaluation with military stakeholders.</p>				
<p>Title: Resilient Supply-and-Demand Networks (RSDN)</p> <p>Description: The Resilient Supply-and-Demand Networks (RSDN) program is developing supply-chain risk management analytics to detect systemic vulnerabilities and improve resilience in supply and demand networks. At present, the separation of supply-chain information into confidential silos obscures a system-wide view, inhibiting comprehensive risk-focused analysis of supply and demand networks. RSDN is developing techniques for modeling both the broad level of the supply-chain network and the detailed level of individual procurement agreements. Network analytics and visualizations will reveal emerging fragilities and enable deep situational awareness of systemic vulnerabilities and potential disruptions. Blind spots due to hidden interdependencies can lead to fragility in supply chains. An RSDN stress-testing framework will enable repeatable scenario analysis of strategic vulnerabilities in supply and demand networks, automated analysis and discovery of patterns of risk, and evaluation of alternative risk mitigation strategies.</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - Develop semantically rich representations (such as graphs) of contractual relationships as the basis for visualizing supply and demand networks. - Develop an initial library of vulnerability analytics and visualizations to reveal and understand strategic risks in supply and demand networks. - Instantiate initial datasets for representative use cases and begin development of a stress-testing framework to illuminate the propagation of realistic shock scenarios through a supply and demand network. <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Augment the initial datasets with supplemental information about the participants and their relationships to provide a granular view of each supply and demand network. - Expand the initial library of vulnerability analytics and visualizations with new methods and algorithms to illuminate supply and demand network blind spots and identify data gaps. - Demonstrate a stress-testing capability to assess the propagation of shock scenarios through a supply and demand network and to motivate suitable mitigation strategies. 		-	9.786	15.000

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<p>- Demonstrate an initial end-to-end system for mapping supply and demand networks, analyzing systemic fragilities, and conducting stress-testing evaluations.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: The FY 2024 increase reflects scaling up of development of techniques for a stress-testing capability for supply and demand networks and initiation of efforts to demonstrate and assess the stress-testing capability.</p>				
<p>Title: Beyond Linear Signal Processing (BLiP)</p> <p>Description: The Beyond Linear Signal Processing (BLiP) program will perform a fundamental redevelopment of the radar signal processing chain with the intent that smaller radar apertures will operate with the performance of much larger, more expensive radar systems. Building upon earlier technology efforts, including the Arrays at Commercial Timescales (ACT) program (previously budgeted in PE 0602716E/Project ELT-01), which focused on hardware-based limitations such as bandwidth and dynamic range, BLiP will focus on the software and signal processing to fundamentally enhance all radars. Multiple recent developments show that non-linear and iterative estimation algorithms can out-perform our current linear radar signal processing algorithms. BLiP will develop and mature the algorithms for specific radar mission areas through rapid development, integration, real-time processing, and field testing.</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - Determine radar modes for baseline operation and processing chain. - Produce initial collection from the National Oceanic and Atmospheric Administration (NOAA) radar for distribution to performers. <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Conduct a series of field data collections with well-characterized radar targets. - Develop signal processing baseline and BLiP system performance models for a specific mission area. - Commence development of the end-to-end processing algorithms and techniques. - Acquire and install high performance graphical processing unit (GPU) into real time processing chain at NOAA radar facility. <p>FY 2023 to FY 2024 Increase/Decrease Statement: The FY 2024 increase reflects a shift from initial data collection to development.</p>		-	4.000	15.000
<p>Title: Competition in the Information Environment (CIE)</p> <p>Description: The Competition in the Information Environment (CIE) program aims to develop technologies to enable the U.S. to conduct information operations (IO) that achieve positive outcomes against the full range of IO-enabled competitors and adversaries. The expanding importance of information has allowed state and non-state actors to influence global audiences and advance their objectives through the use of manipulated information and IO. In addition, peer adversary nation-states are making concerted efforts to corrupt U.S. scientific and technical data in order to degrade the U.S. innovation ecosystem and to</p>		-	-	8.034

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>steal U.S. intellectual property in order to achieve commercial and economic advantage. CIE will advance U.S. IO capabilities by a combined information technology and social science approach that spans data analysis, natural language understanding, multimedia analysis, information integrity assurance, and social modeling and simulation. CIE will seek to advance capabilities for estimating the integrity and veracity of disseminated scientific and technical information, anticipating the spread of information across geo-social boundaries, and reducing the harmful influence of misinformation and disinformation on global populations. The technologies to be developed in CIE are essential for the U.S. to compete successfully against adversaries who are making increasing use of IO.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Explore statistical, information-theoretic, semantic, and other approaches for quantifying and estimating the integrity and veracity of disseminated scientific and technical information. - Devise modeling and simulation-based approaches for anticipating the spread of information across geo-social boundaries. - Formulate social science-based approaches for reducing the harmful influence of misinformation and disinformation on global populations and for measuring the effectiveness of alternative approaches. <p>FY 2023 to FY 2024 Increase/Decrease Statement: The FY 2024 increase reflects program initiation.</p>			
<p>Title: Adapting Cross-domain Kill-Webs (ACK)</p> <p>Description: The Adapting Cross-domain Kill-Webs (ACK) program is assisting military decision makers with rapidly identifying and selecting options for tasking and re-tasking assets within and across organizational boundaries. Based on technologies developed in the Resilient Synchronized Planning and Assessment for the Contest Environment (RSPACE) program (previously budgeted in PE 0603766E, Project NET-01), ACK will assist users with selecting sensors, effectors, and support elements across military domains (space, air, land, surface, subsurface, and cyber) to form and adapt kill chains to deliver desired effects on targets. Today's Command and Control (C2) organizations and processes cannot support multi-domain warfighting concepts, especially during joint operations. ACK will address this challenge by utilizing a decentralized approach to allocating resources to tasks and assigning mission orders to assets, motivated by ideas developed in online commerce, sourcing, and supply chain management, such as bid requests and offers. The impact of ACK will be to accelerate asset re-allocation and assignment decision timelines to be on the order of minutes, and the output of ACK will be automated tools and decision aids to support the selection of the elements of a kill-chain and assignment of roles and responsibilities to each of the elements. Technology developed under this program will transition to the Services.</p> <p>FY 2023 Plans:</p>	10.500	7.000	-

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
- Conduct evaluation capstone event.				
FY 2023 to FY 2024 Increase/Decrease Statement: The FY 2024 decrease reflects program completion.				
Title: Data-Driven Discovery of Models (D3M) Description: The Data-Driven Discovery of Models (D3M) program is developing automated model discovery techniques and tools that enable non-expert users to create empirical models of real, complex processes and phenomena. The ability to understand the battlespace is driven increasingly by expert analysis of sensor and open-source data. The DoD and IC communities are fundamentally limited by a shortage of domain-focused subject matter expert data scientists to construct empirical models that predict behaviors and anticipate contingencies during tactical and strategic planning. D3M is addressing this need by creating technologies that automate the construction of complex empirical models. D3M technologies include a library of data modeling primitives that are automatically selectable, automated approaches for composition of complex models from modeling primitives, and intuitive mechanisms for human-model interaction that enable curation of models by non-experts. D3M is focused on the types of empirical modeling problems commonly encountered by the DoD and IC. FY 2023 Plans: - Harden and transition software tools to DoD partners. FY 2023 to FY 2024 Increase/Decrease Statement: The FY 2024 decrease reflects program completion.		5.000	4.002	-
Title: Causal Exploration of Complex Operational Environments Description: The Causal Exploration of Complex Operational Environments program developed advanced modeling, analysis, simulation, and visualization tools to enable command staffs to rapidly and effectively design, plan, and manage missions in complex operational environments. The U.S. military increasingly operates in remote and unstable parts of the world where mission success depends heavily on cooperation with a wide variety of stakeholder groups on civil, economic, and military matters. These groups typically include host nation government organizations, local civilian groups, and non-governmental organizations, each of which has priorities, sensitivities, and concerns that may differ significantly. Current mission design and planning technologies do not adequately model the range of options or the inherent uncertainties. This program developed tools to create causal, computational models that represent the most significant relationships, dynamics, interactions, and uncertainties of the operational environment including political, military, economic, and social factors. These tools will enable command staffs to design and quantitatively assess potential courses of action in complex operational environments.		4.364	-	-
Title: Warfighter Analytics using Smartphones for Health (WASH)		4.000	-	-

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Description: The Warfighter Analytics using Smartphones for Health (WASH) program developed analytic techniques for continuous and real-time assessment of warfighters based on the multiple sensor data streams generated by modern smartphones. Smartphone sensors provide a rich source of information that can be used to identify a user's health activities and environment and also provide a proximity detection capability.			
Accomplishments/Planned Programs Subtotals	71.285	87.502	91.634

	FY 2022	FY 2023
Congressional Add: AI Cyber Data Analytics (Data) - Congressional Add	15.000	-
FY 2022 Accomplishments: - Developed indicators that can be extracted from textual media, message metadata, and message context to identify influence messaging that may be part of adversary influence campaigns. - Formulated heuristics for examining and stress testing an operational environment model that is suitable for use by military planners. - Developed and expanded algorithms for falsified media detection and attribution, along with targeted tools for analysts without deep forensic backgrounds and for adversarial threat scenarios.		
Congressional Adds Subtotals	15.000	-

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A