Request for Project Proposals



Solicitation Number: MTEC-17-07-JETS Prototype of Joint Evacuation and Transport Simulation (JETS) System

Issued by:
Advanced Technology International (ATI),
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for the
Medical Technology Enterprise Consortium (MTEC)

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Amendment 01 Solutions Brief Due Date: June 26, 2017
Noon Eastern Daylight Time

White Papers Are Not Required

- 1. Amendment No. 01 changes the Solutions Brief due date to June 26, 2017 at Noon Eastern Daylight Time.
- 2. Amendment No. 01 adds Attachment C: Deliverables Table.

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1 Executive Summary

1.1 The Medical Technology Enterprise Consortium

(MTEC) is an enterprise partnership in collaboration with industry and academia to facilitate research and development activities, in cooperation with the U.S. Army Medical Research and Materiel Command (USAMRMC) and other Government agencies in the biomedical sciences (including but not limited to drugs, biologics, vaccines, medical software and medical devices) to protect, treat and optimize the health and performance of U.S. military personnel. MTEC is a nonprofit corporation with the following principal objectives:

- (a) biomedical research and prototyping;
- (b) exploration of private sector technology opportunities;
- (c) technology transfer; and
- (d) deployment of intellectual property (IP) and follow-on production.

MTEC is openly recruiting members to join a broad and diverse biomedical consortium that includes representatives from large businesses, small businesses, contract research organizations, "non-traditional" government contractors, academic research institutions and not-for-profit organizations; for more information on the MTEC mission, see the Proposal Preparation Guide (PPG) and MTEC website.

1.2 Purpose

This solicitation, issued by the MTEC Consortium Manager (CM), represents a Request for Project Proposals (RPP) for MTEC's support of the USAMRMC Medical Simulation and Information Sciences (https://mtec-sc.org/technology-areas/) technology objective.

This MTEC RPP is focused on Operational Architectures (system and technical) to Support Military Medical Training Simulations – the development of architecture models that will be used to guide the construction of integrated simulations and training modules for the Joint Evacuation and Transport Simulation (JETS) system, which is utilized throughout the Department of Defense's (DoD's) medical departments. The development of the operational architectures will be structured into five Phases of work consisting of a base effort (Phase 1) followed by four additional Phases to continue the system's maturation. Though all five Phases are defined later in this RPP, Solutions Briefs and Cost Proposals should only concentrate on the first two phases (Phases 1 and 2).

Proper medical training is critical to ensure that Service members are prepared for wartime deployment, with a particular emphasis to support the en route care of patients from initial point of injury through several echelons to continental U.S. (CONUS)-based military hospitals. Currently, medical training is conducted within each Service "independently" (i.e., Army, Navy, Air Force, etc.). In addition, there is a wide repertoire of tools, devices, and approaches used to provide deployable training to Service members, ranging from devices (e.g., manikins) to

computerized simulations to formal didactic training through internet-based, video, or classroom style instruction. Further, there are deployment specific training locations, such as the U.S. Air Force Critical Care Air Transport Team (USAF CCATT) or U.S. Army Medical Simulation Training Centers (MSTCs), where more realistic "scenario-driven" training methods are employed to prepare individuals, squads, and units for wartime deployments.

Recent changes to military doctrine now require a multi-Service/joint response, where many functions will no longer be unique to a particular Service. Therefore, there is a need to develop an operational infrastructure that provides multi-Service training for joint-Service responses. The construction of integrated simulations and training modules for the JETS systems is the first step toward a larger effort to integrate several training platforms toward a more standard, interoperable method of instruction with greater accessibility within an integrated and federated DoD Medical Simulation Enterprise. This RPP is focused on developing operational architectures that will build a construct and flow of the JETS system, where the operations, systems, and capability views are integrated using a single set of documents and diagrams. The following paragraphs provide more information on the requirements of the JETS System, which also highlight the complexity and breadth of this operational architectures effort. Additional background information on JETS has also been posted to the MTEC Members-Only website at www.mtec-sc.org:

The candidate JETS system delivers a modular, integrated, sustained, maintained, and modernized training platform to the DoD to support training for individual, team, and unit skills across the complete chain of evacuation in the continuum of care.

- JETS is a system-of-systems whose sole purpose is to provide a standardized, integrated, scalable, state-of-the-art Global Patient Movement (GPM) and Joint Patient Movement (JPM) training platform, through a validated Program of Record.
- JETS is not designed to dictate how the Components conduct training, rather it focuses on providing a platform to the Components, which enables an integrated, interoperable, and federated training capability across the roles of care, delivered through training center and global "point-of-demand" capabilities.
- JETS will provide the capability to monitor, track, and integrate career-long training across
 the Components at the individual, team and unit level in support of Combatant Command
 (COCOM) requirements.
- JETS system serves as a platform for implementing lessons learned from current military operations where the Joint Warfighter can be trained on contemporary and future GPM and JPM procedures and equipment.
- JETS system will provide performance-oriented training, skills validation and certification, new and emerging patient movement equipment end-user assessments, intergovernmental, along with Allied and Coalition Partner integration.

Capabilities required for the system include the following key components.

- Integrate patient evacuation and movement training capabilities;
- Accurately represent patient evacuation and movement platforms;
- Provide usable learning point of demand training capability;
- Expandable analytics engine;
- Secure communication of data; and
- Support end users at all levels.

2 Overview of the Intended System

The JETS system provides a global point of demand (POD) and standardized training site capability that is not currently available to the DoD, Military Services, and commanders at all levels. An initial global POD, Live, Virtual, Constructive, Gaming (LVCG) training capability will be implemented with current Component-level fielded capabilities being connected and integrated. It will deliver effective patient movement training, by utilizing and integrating both a global POD training capability and standardized training sites for classroom training and simulated operational conditions, to better prepare the Joint Warfighter for GPM and en route care from Point of Injury to Role IV military treatment facilities. The following are the JETS system breakdown and descriptions:

- Operations System: This system consists of a Component defined and operated subsystem for each DoD Component (e.g., Navy, Army, Air Force, Marine Corps, SOCOM, and others) that has a bi-directional communication capability (through the Support system) across the Component sub-systems. Each Component sub-system will support the cross cutting functions of Global/Joint Patient Movement, such as: en route care; communications; patient evacuation, hand off, movement control; global patient management, teamwork; logistics; command and control (C2); mission planning and rehearsal; and inter-Component qualifications. The Operations System is integrated with and supported by the Support System, and made up of two sub-systems.
 - The Unique capability sub-system will initially utilize currently available technologies to support current unique DoD Component mission requirements (e.g., USAF-Aeromedical Evacuation; USA-MEDEVAC; USN-shore to ship; USTRANSCOM-GPM management; NATO, Coalition & Interdepartmental missions, procedures, and equipment). It will stay relevant to a future security environment projected to remain uncertain and complicated with increasing trends of instability and conflict, requiring the future Joint Force to quickly combine capabilities; deploy long distances from multiple, widely dispersed locations; and conduct missions across the range of military operations, often in austere and contested environments. Future operational uncertainties will

require research and development to provide DoD Component required, relevant, timely and capable GPM/JPM training.

- The Common capability sub-system supports capabilities across all DoD Component sub-systems such as: En route care and extended evacuation simulation (sea, air, and ground); En route motion with severe turbulence and evasive movement conditions (both air and ground); Radio and wireless (control, communication, and management); Patient exchanges and hand-offs; full crew and team integration; Component equipment and personal protection equipment (PPE) integration; Distributed training (parallel, near-parallel, and non-sequenced training events; Integrated distributed training (parallel, near-parallel, synchronous, asynchronous and non-sequenced) training events; Real-time, near real-time, and time-delayed training sequences; Collaborative and noncollaborative learning; Virtual environments (e.g., augmented, blended, 4D) and Serious Medical Gaming (e.g., individual, semi-automated, crowd and team gaming). The Common capability component will support mission capabilities common across all of the DoD Component sub-systems, and will require research and development that support future mission capabilities to include: extended evacuation simulation (sea, air & ground); radio and wireless (control, communication and management); en route motion; full crew and team integration; Component equipment and PPE integration; distributed training (parallel, near-parallel, and non-sequenced training events; real-time, near realtime, and time-delayed training sequences; collaborative and non-collaborative learning); maximized environments (i.e., mixed, blended, augmented realities; 4D) Serious Medical Gaming (crowd/team and independent gaming).
- Support System: This system is standardized across the JETS platform, providing necessary support that is required to operate the JETS system of systems (SoS). It is an integrated system that provides support to the Operations System by obtaining the data to enhance training transfer and outcomes, and cross-Component integrated training within the Operations system. This Support System utilizes the data obtained from the Operations System to inform users, trainers, and leaders with future decision and planning. The Support System consists of four modular and scalable sub-systems that are integrated and interdependent. Each sub-system contains components which work together towards a multiplicative enhancement of the other sub-systems. Below is the description of the four Support sub-systems.
 - O (1) Virtual Patient System (VPS): The VPS is a sub-system that supports the Medical Training – Command and Control (MT-C2) sub-system. This system is supported by the Instruction Support System (ISS) and MT-C2 sub-systems. It provides scalable modular medical training products, tools and devices across globally distributed, integrated and interconnected LVCG training environments.

- Patient Surrogates component: provides simulated patients (such as, mannequin, digitized human, holographic, and blended reality patients), able to accurately represent patients, depict and provide appropriate responses to simulated diseases, wounds and medical interventions with human-like capabilities that can reduce and eventually replace live tissue training.
 - Part Task Skills component: provides task specific tools for high repetition training of specific skills, with low associated sustainability and maintainability costs.
 - Set, Kits, Outfits component: provides packages of realistic simulated diseases, wounds and other equipment to vividly duplicate the trauma, and function of multiple maladies on both single and multiple patients (e.g., moulage, trauma, disease sets).
 - Associated Items of Equipment component: provides support equipment and supplies required to operate, maintain, and sustain the components within the VPS.

VPS provides consistently maturing and evolving generations of modular and interconnected components, giving the most relevant and useful patient movement training materials to the user. It uses available and future technology (products, tools, devices and associated equipment). It seeks to maximize training resources, provide realistic human-like patients responding accurately to medical interventions. Current patient simulation presents little technological challenges, utilizing commercially available products. Objective VPS technologies, provide realistic digitized (i.e., fully interactive holographic and blended reality avatars) and human-like patients, that support the reduction and eventual replacement of live tissue training, and provides patients that enable full integration of real-time and highly effective global POD training. It reduces and eliminates the need for active instructor oversight and intervention during training scenarios and skills evaluation. Objective capabilities will reduce time, supplies and training needed to provide effective training, apply and reset wounds; and will increase available training time by decreasing resources needed for set up and reset of training iterations. The objective VPS will enable individualized and predictive training needs, and longitudinal training capture; and requires significant future research and development to achieve the objective capabilities of related Key System Attributes (KSA) and Key Performance Parameters (KPP). These factors are found within the operational capabilities documents for the system.

(2) Instruction Support System (ISS): The ISS is a sub-system that supports and is supported by MT-C2, Medical Training Evaluation and Review (MeTER), and VPS sub-systems. It also directly supports the Operations System of JETS. It provides a scalable and modular training center along with POD instructions, instructor

equipment, administration, and supplies. This sub-system also supports integration of Service developed and provided training curriculum, facilities, and scenarios (e.g., mission specific, new procedure, real-world) that are needed to conduct effective training. Objective capabilities will seamlessly integrate: 1) new scenarios, curriculum, and instructional techniques, 2) automated testing, 3) on-board predictive management self-diagnostics, and 4) a global POD. It is comprised of components required to deliver effective medical training:

- Facility component:
 - Integrated, scalable, and adjustable indoor and outdoor capabilities with effective classroom, hands-on, and situational training capacity for LVCG training and training environments.
 - Capable of supporting a JETS training site, Global POD management, hosting a mobile/transportable, and/or a deployable training site.
- Virtual training library component:
 - Provides a single standardized virtual site to integrate Component provided training curricula, strategies and Point of Injury (POI), and other required training capabilities for individual, team and unit GPM skills training into the JETS program (training sites and POD).
 - Enables rapid Component school development and/or validation of training story lines, with imported sanitized real-world wound data (e.g., from sources such as Joint Trauma Analysis and Prevention of Injury in Combat).
 - Enables dynamic training to deploying Warfighters, to rapidly change training to simulate real-world scenarios and wound patterns.
- Point of Demand (POD) component:
 - Dedicated 24 hours a day, 7 days a week, and 365 days a year global training capability, providing the POD user (individual, team, unit, Command and Component school) with a distributed, integrated, interconnected, and virtual training capability through a medical Synthetic Training Environment (mSTE), a dedicated training management and control site, and a DoD training portal.
 - Connects globally distributed users and training sites to a single and fully integrated training platform.
 - Delivers globally integrated LVCG training when, where, and how the user is able to conduct training on the user's device of choice.
 - The POD capability enables user participation in global, Joint, Coalition and inter-Governmental training events, CME, multimedia distributive and interactive video tele-training, and distance/distributed learning.

ISS modernization, and regular changes of Component provided curriculum and training standards, along with operational (i.e., TTPs, PPE, etc.) changes, will drive ISS material development, concurrency and modernization requirements in order to

deliver a training capability that continues to be relevant to the Warfighter and operational requirements. Current technology is sufficient to link existing training sites. Future DoD changes and objective capabilities such as on-board training transfer and effectiveness assessment and tracking; individualized/mass customization of training; scalable and modular training centers; imported sanitized real-world wound data; skills proficiency data feedback loop; multi-site Joint training exercise; simultaneous multi-point and participant gaming and training events; command and key leader visibility of proficiency; reduced cost of human intervention during training; wound data repository and remote curriculum integration; integrated automated testing; on-board predictive management self-diagnostics, and global POD capability, will require technology research and development to achieve the objective capacities of related KSAs and KPPs.

- o (3) Medical Training Command & Control (MT-C2) System: The MT-C2 is a subsystem supporting the VPS, MeTER, and ISS sub-systems. This sub-system is supported by ISS and VPS. It also directly supports and obtains feedback from the Operations System of JETS. It provides scalable, modular components, and technologies that enables full remote and wireless control of training (scenario and event) and environments (situational and stressor) for training centers and global POD, the capture of training and sensory feedback, and system diagnostics. It provides training, sensory and environmental (virtual, live and blended) elements; audio and video capture; and training tools (such as mock ups, motion platforms, VPS components, etc.). This sub-system then provides the environmental and sensory training data (such as audio/video, eye tracking, and heart rate) into MeTER, maximizing learning from a 360 degree understanding and capturing environmental and situational elements during training.
 - Training control component: provides operational and medical storyline, scenario, event integration and management, and Operations System control and management. Supports insertion of storylines, scenarios and events from the ISS virtual library into training and moves toward enabling independently responsive and dynamic user engagement (for medical and non-medical aspects). It also provides training control, such as for hostile and friendly force engagement and for surrogate patients. It seeks to reduce training costs by reducing and ultimately extracting direct instructor intervention during handson training events.
 - Environment control component: provides situational and stressor integration and management with the capability to introduce and control relevant simulated operational stressors and combat conditions (i.e., hostile and friendly force engagement, low light, fog, operational noise and debris) which the user may encounter; and Operations System control, management and feedback. Provides training environment manipulation.

- Training capture component: provides full 360 degree training feedback (such as sensor data, audio and video recordings), from multiple sources (i.e., static and dynamic devices; user, patient and third party perspectives). Information will enable comprehensive understanding and assessment of individual training and skills performance and training needs
- Sensory capture component: provides training system sensory data feedback and user metabolic data feedback collected in training sessions to improve user training and system training delivery. Data includes human element tracking of areas such as voice recording and eye tracking, Biological (e.g., blood pressure, heart rate, blood, stress markers), Psychosocial (e.g., mental health, stress markers), and Predisposition (behavioral habits, preferences).

System diagnostics component: on-board automated and predictive mechanical self-diagnostics of training center and POD mechanical and technical functionality; and Operations System control, management and feedback. Information will provide reliability, availability, and maintainability (RAM) metrics of system technologies to the ISS, and enable proactive maintenance and repair of platform technologies.

MT-C2 has limited capability, using current commercial technology, and presents a moderate amount of current technological challenge. Objective capabilities reduce training cost, time and resources; while increasing success in transfer of training and retention of skills over time. Future research and development is needed to: provide training feedback to course supervisors and higher headquarters; enable optimized training, focusing training on individual user needs, how they need it delivered, and how often they need to train on specific skills in order to retain optimal performance; on-board sensory capture; on-board system self-diagnostics; responsive and predictive POD training scenarios and storylines delivered to the device of choice; integrated automated assessments (skills, systems operations, training delivery); automated scenario and storyline integration (from ISS virtual library) into training. The required development will enable the sub-system to achieve the objective capabilities of related KSAs and KPPs.

(4) Medical Training Evaluation and Review (MeTER) System: The MeTER sub-system is a modular and scalable system that supports ISS. This sub-system is supported by MT-C2, and ISS. It is modifiable and integrated with the other sub-systems, synchronizing training data (i.e., surrogate patient output, audio and video feedback, evaluations, platform performance) from VPS and MT-C2, providing longitudinal learning management, and performance (individual, team, unit and training platform) data to the ISS.

- The Learning Management System (LMS) component:
 - Captures and records, predicts and individualizes required skills (individual, team and unit) training.
 - Tracks, administers, and reports outcome data related to education and training courses.
 - Provides flexibility in updating and managing content to meet user training needs and meets skills documentation, analysis and needs for course supervisors and higher headquarters oversight agencies.
 - Interfaces across JETS POD and training sites, Users, Commands and Component schools.
- The Evaluation component: provides "value-added assessment" of JETS training (i.e., instruction, technology, courses, training sites, equipment, etc.). It provides course supervisors and higher headquarters oversight agencies with skills performance, retention and degradation information to support tailored training decisions. The output enables training events to be tailored, focused, evaluated, and reviewed. MeTER provides assessments (pre- and post- training) aligned with the after action review component, for an objective, quantifiable, and repeatable measurement of training effectiveness, through modifiable modules.
 - Pre-test module: Provides modifiable pre-training tests of technical medical knowledge, medical procedure application (hands-on), and military operational decision making. It will provide skills performance baselines in order to highlight skills retention and degradation information, and to focus GPM skills training for individual, team and units; and for proposed new technology, equipment, techniques or procedures.
 - O Post-test module: Provides modifiable post-training tests of technical medical knowledge, medical skills application (hands-on), and tactical medical engagement, and operational decision making after each phase of training. Tests will preclude the possibility of "rehearsal." Results will be integrated into the After Action Report (AAR) for objective skills improvement assessment due to either training, or the introduction of new equipment or technology, and will support ISS onboard training transfer and effectiveness assessment and tracking functions.
- The Training Diagnostics component: provides on-board predictive training effectiveness feedback. Diagnostics provide an objective assessment of training transfer and effectiveness for both existing and proposed future training equipment, scenarios, curriculum, methods and technologies.
- The AAR component: provides a comprehensive review of training, integrating pre-tests, post-tests, technical medical knowledge, VPS output of medical skills application (hands-on); MT-C2 output of sensory, environmental and

situational information; and operational decision making. Outputs provide immediate user performance feedback; provide input to the LMS component enable career-long assessment of individual, team and unit training, along with skills retention, degradation and proficiency.

MeTER's current capability to maximize training and skills tailoring and improvement by improving the training platform, unit, team and individual training assessment and feedback functions is limited, requiring additional technology research and development. Obtaining objective capabilities that include on-board predictive training self-diagnostics; POD and integrated skills assessment; life-long longitudinal learning management (i.e., skills degradation and knowledge retention tracking); individualized training (mass-customization and targeted training strategy based on individual traits such as problem solving strategies, cognitive and behavioral data) abilities (such as integrated automated testing of skills) also requires future research and development in order to obtain related KSAs and KPPs.

The JETS Program will incorporate emerging technology to obtain interoperability with other medical training systems, maintain concurrency, conduct modernization, reduce future training costs, and to enhance future training effectiveness.

The above description provides an overall view of the intended system that needs to be supported however that system does not currently exist in its entirety as described. Rather, portions of the system exist and serve as the starting point toward the development of an integrated system. It is required that the Offeror consider the overall view of the intended system when the operational architectures are proposed and developed. Therefore, MTEC is seeking to support operational architectures that not only incorporate present day capabilities into operational, system, and capabilities views, but also provide placeholders for future capabilities and interfaces (backward and forward compatibility) that will meet the full description provided above.

3 Administrative Overview

3.1 Request for Solution Brief

The Government reserves the right to award Solution Briefs received from this RPP on a followon prototype Other Transaction Agreement (pOTA) or other stand-alone OTAs as necessary to meet mission requirements.

3.2 Funding Availability and Type of Funding Instrument Issued

The U.S. Government (USG) currently has available approximately \$3 million (M) for Fiscal Year (FY) 2017 (FY17) and has planned additional funds as necessary for the continuation of this project through all six Phases.

As of the release date of this RPP, future year Defense Appropriations Bills have not been passed and there is no guarantee that any additional funds will be made available to support this program. The funding estimated for this RPP is approximate and subject to realignment. Funding of Solutions Briefs received in response to this RPP is contingent upon the availability of federal funds for this program.

Award funding will be structured incrementally and based upon completion of milestones.

MTEC anticipates that a single award will be made to a qualified team composed of multiple investigators/institutions responsible for partnering with the USG to accomplish all tasks. However, if an optimal team is not identified, then MTEC may make multiple, individual awards to Offeror(s) to accomplish subset(s) of the key tasks.

The Government-selected Research Project Awards will be funded under the Other Transaction Agreement (pOTA) Number W81XWH-15-9-0001 (or subsequent OTAs in support of MTEC) with MTEC administered by the CM, ATI. Strategic oversight for the award(s) supported by this RPP will be provided by the Joint Program Committee – 1 (JPC-1) of the Defense Health Agency. The CM will negotiate and execute a Base Agreement with MTEC members. This Base Agreement will be governed by the same provisions as the pOTA between the USG and MTEC. Subsequently, any Solution Brief that is selected for award will be funded through a Research Project Award issued under the Base Agreement. A sample of the MTEC Base Agreement can be found on the MTEC Members-Only website at www.mtec-sc.org.

At the time of the submission, if Offerors have not yet executed a Base Agreement, then Offerors must certify on the cover page of their Solution Brief and Cost Proposal that, if selected for award, they will abide by the terms and conditions of the latest version of the MTEC Base Agreement. If the Offeror already has executed an MTEC Base Agreement with the MTEC CM, then the Offeror must state on the cover page of its Solutions Brief and Cost Proposal that, if selected for award, it anticipates the proposed effort will be funded under its executed MTEC Base Agreement.

Offerors are advised to check the MTEC website periodically during the Solutions Brief and Cost Proposal preparation period for any changes to the MTEC Base Agreement terms and conditions as well as clarifications found in Frequently Asked Questions (FAQ) responses.

3.3 Proprietary Information

The MTEC CM will oversee submission of Solution Briefs and Cost Proposals and analyze Cost Proposals submitted in response to this RPP. The MTEC CM shall take the necessary steps to protect all proprietary information and shall not use such proprietary information for purposes other than the evaluation of an Offeror's Solution Brief and Cost Proposal and the subsequent agreement administration if the Solution Brief and Cost Proposal are selected for award. An Offeror's submission of a Solution Brief and Cost Proposal under this RPP indicates concurrence with the aforementioned CM responsibilities. Also, as part of MTEC's mission to incorporate

philanthropic donations, MTEC frequently makes contact with private entities (e.g., foundations, organizations, individuals) that award grants or otherwise co-fund research, and/or operates in research areas that are aligned with those of MTEC. These private entities (e.g., Bill and Melinda Gate Foundation) may be interested in reviewing certain Solutions Briefs within their program areas, allowing opportunities to attract supplemental funding sources. On your Solution Brief and Cost Proposal Cover Page, please indicate your willingness to allow MTEC Officers access to your Solutions Brief for the purposes of engaging in outreach activities with these private foundations. MTEC Officers granted Solution Brief access have signed Nondisclosure Agreements (NDAs) and Organizational Conflict of Interest (OCI) statements. Additionally, these MTEC Officers represent organizations that currently are not MTEC members, and therefore their parent organizations are not eligible to submit Solution Briefs or receive any research project funding through MTEC. Additionally, all Technical Evaluation Panel participants will agree to, and sign a nonproprietary information and conflict of interest document.

3.4 Offeror Eligibility

Offerors must be MTEC Members in good standing.

3.5 Inclusion of Non-traditional Defense Contractors

Solutions Brief and Cost Proposals that do not include Non-traditional Defense Contractor participation to a significant extent, or do not propose at least one third acceptable cost sharing, will not be eligible for award.

This requirement is a statutory element of the Other Transaction Authority and will be regarded as a pass/fail criterion during the Compliance Screening. Please see the MTEC PPG (Section 3.3.2) and RPP (Section 4), for additional details.

3.6 Nontraditional Defense Contractor Definition

A nontraditional defense contractor is a business unit that has not, for a period of <u>at least one</u> <u>year prior to the issue date of the Request for Project Proposals</u>, entered into or performed on any contract or subcontract that is subject to full coverage under the cost accounting standards (CAS) prescribed pursuant to section 26 of the Office of Federal Procurement Policy Act (41 U.S.C. 422) and the regulations implementing such section.

3.7 Nontraditional Defense Contractor Requirements

If the offeror asserts either (1) it is a nontraditional defense contractor or (2) proposes a nontraditional defense contractor as a team member/subcontractor, the Offeror shall submit Warranties and Representations (Attachment 2) specifying the critical technologies being offered and/or the significant extent of participation of the nontraditional defense contractor. The nontraditional defense contractor can be an individual so long as he/she has a DUNS Number and meets the requirements in the Warranties and Representations. The significance of the nontraditional defense contractor's participation must be explained in detail in the signed Warranties and Representations. Inadequate detail can cause delay in award.

Per the DoD OT Guide, rationale to justify a significant contribution include:

- 1. Supplying a key technology or products
- 2. Accomplishing a significant amount of the effort

- 3. Use of unique skilled personnel, facilities and/or equipment
- 4. Causing a material reduction in cost or schedule, and/or Improvement in performance

3.8 Cost Sharing

Cost sharing is defined as the resources expended by the award recipients on the proposed statement of work (SOW). The extent of cost sharing is a Factor in the evaluation of Solution Briefs. If cost sharing is proposed, then the Offeror shall state the amount that is being proposed and whether the cost sharing is a cash contribution or in-kind contribution; provide a description of each cost share item proposed; the proposed dollar amount for each cost share item proposed; and the valuation technique used (e.g., vendor quote, historical cost, labor hours and labor rates, number of trips, etc.).

See the MTEC PPG for additional details. If the offer contains multiple team members, this information shall be provided for each team member providing cost share.

For additional information regarding Non-traditional Defense Contractors and Cost Sharing, please see the Cost Share Guidance document available on the Members-Only portion of the MTEC website www.mtec-sc.org.

3.9 Intellectual Property

Intellectual Property (IP) rights for MTEC Research Project Awards will be defined in the terms of an awardee's Base Agreement and resultant Task Orders. MTEC reserves the right to assist in the negotiation of IP, royalties, licensing, future development, etc., between the government and the individual performers during the entire award period.

Each Offeror will select either the MTEC Additional Assessment Fee or the Royalty Agreement (available on the MTEC members only website), not both and submit a signed copy with the Solution Brief. Summary explanations of each are provided below.

Consortium Member Agreement (CMA)

• MTEC members receiving MTEC funding agreements for research projects will be required to execute either a MTEC Royalty Agreement, or pay an additional 2% assessment fee on the award. (Per Section 3.5 Additional Research Project Award Assessment).

Royalty Payment

• The awardee will be subject to a 10% royalty on all Net Revenues received from licensing/commercialization of the technology developed under the Research Project Award, capped at 200% of funding provided (Per Section 3.5.1 of the CMA).

Additional Research Project Award Assessment

 Member agrees to pay an additional research project award assessment of 2% to satisfy its obligations under Section 3.5.2 of the CMA. This is in addition to the 1% assessment

fee for all Research Project Awards. Per Section 3.4 of the CMA, each recipient of a research project award under the MTEC pOTA shall pay MTEC an amount equal to 1% of the total funded value of each research project award. Such deposits shall be due no later than 90 days after the research project award is executed. Awardees are not allowed to use MTEC funding to pay for their assessment fees.

3.10 Data Rights

The Offeror shall comply with the terms and conditions defined in the Base Agreement regarding Data Rights. It is anticipated that anything delivered under this proposed effort would be delivered to the Government with Government purpose data rights or unlimited data rights. If this is not the intent, **then the Solution Brief should discuss data rights associated with each item**, and possible approaches for the Government to gain Government purpose data rights or unlimited data rights as referenced in the Base Agreement. Rights in technical data in each Research Project Award shall be determined in accordance with the provisions of MTEC Base Agreement.

If applicable, complete the below table for any items to be furnished to the Government with restrictions. An example is provided.

Technical Data or Computer Software to be Furnished with Restrictions	Basis for Assertion	Asserted Rights Category	Name of Organization Asserting Restrictions	Milestone # Affected
Software XYZ	Previously developed software funded exclusively at private expense	Restricted	Organization XYZ	Milestones 1, 3, and 6
Technical Data Description	Previously developed exclusively at private expense	Limited	Organization XYZ	Milestone 2
Technical Data Description	Previously developed with mixed funding	Government Purpose Rights	Organization XYZ	Milestone 2

3.11 Expected Award Date

Offeror should plan on the period of performance beginning 30 September, 2017 (subject to change). The Government reserves the right to change the proposed period of performance start date through negotiations via the CM and prior to issuing a Research Project Award.

3.12 Anticipated Solutions Brief Selection Notification

As the basis of selections is completed, the Government will forward their selections to MTEC CM to notify Offerors.

4 Solution Brief

4.1 Solution Brief

The MTEC will use a streamlined, interactive approach for this RPP. Because of the nature of the requirements set forth in this RPP, this streamlined, interactive approach is anticipated to be a better means to highlight company methodologies and skills that should allow the Government to gain a fuller appreciation of the work required to be completed. It provides more freedom and initiative to the Offeror to describe how the Offeror would approach and solve such an action. The following sections describe the formats and requirements of the Solutions Brief.

Offerors who submit Solution Briefs and associated Cost Proposal in response to this RPP must submit by the date on the cover page of this RPP. Solution Briefs received after the time and date specified will not be evaluated.

4.2 Solution Brief Submission

Offerors must submit Solution Brief and Cost Proposal via email to mtec-sc@ati.org.

4.2.1 Submission Format

Offerors should submit files in Microsoft Office formats or Adobe Acrobat (PDF – portable document format) as indicated below. ZIP files and other application formats are not acceptable. All files must be print-capable and without a password required. Filenames must contain the appropriate filename extension (.docx, .doc, .pptx, .ppt .xlsx, .xls or .pdf). Filenames should not contain special characters. Apple users must ensure the entire filename and path are free of spaces and special characters.

MTEC will email receipt confirmations to Offerors upon submission. Offerors may submit in advance of the deadline.

5 Solution Brief Preparation Instructions

5.1 General Instructions

The Solution Brief and Cost Proposal format provided in this MTEC RPP is mandatory and shall reference this RPP number (MTEC-17-07-JETS). Offerors are encouraged to contact the POC identified herein up until the Solution Brief submission date/time to clarify requirements.

All eligible Offerors may submit Solution Briefs for evaluation according to the criteria set forth herein. Offerors are advised that only ATI as the MTEC's CM, with the approval of the Government Agreements Officer, is legally authorized to contractually bind or otherwise commit funding for selected Research Project Awards as result of this RPP.

5.2 Technical Requirements

5.2.1 Technology Objectives

The Solution Brief will provide a written description of the means and methods that will be used to develop the operational architectures. The work is structured into six, independent phases of work which will be eventually completed for this effort to be successful. The intent of this solicitation is to evaluate and award Phases 1 and 2, therefore all offers submitted under this RPP must propose Phases 1 and 2. The follow-on Phases are provided for context so the Offeror will understand the intent of the information generated from Phases 1 & 2. The Offeror does not need to price or provide details on how they would complete Phases 3-6, but they should describe how their work in Phases 1 & 2 will support the follow on efforts. The MTEC will consider the method of soliciting and awarding Phases 3-6 at the completion of Phases 1 & 2.

- 1. Phase 1: Develop prototype knowledge products that will interoperate and integrate with future programs making up the Medical Simulation Enterprise (MSE). Provide the Program/System Architecture views for the Joint Evacuation and Transport Simulation (JETS) Capability Development Document (CDD). Deliverables include integrated and synchronized System Architecture artifacts, that must be aligned with the most current Joint Capabilities Integration and Development System (JCIDS) manual, Department of Defense Architecture Framework (DoDAF) and DoDAF Products Matrix, and defined as required for a CDD, which include (but may not be limited to): AV-1; AV-2; OV-1; OV-2; OV-4; OV-5A; CV-2; CV-3; CV-6; SV-1; SV-2; SV-3; SV-7; SV-8.
 (http://dodcio.defense.gov/Portals/0/Documents/DODAF/DoDAF_v2-02_web.pdf.)
- 2. Phase 2: Develop prototype knowledge products that are based on the JETS SoS description, which provides the Program/System Architecture views for a Point of Injury Training System (POINTS) CDD. The prototype assumes the same Support System, and an Operations System adjusted to address Point of Injury (First Responder and Role 1) training. The prototype must be fully integrated, federated and interoperable with the JETS program (backward compatible), and fully capable of integration, federation and interoperation (forward compatible) across future programs making up the MSE. Deliverables include integrated and synchronized System Architecture artifacts, that must be aligned with the most current JCIDS manual, DoDAF and DoDAF Products Matrix, and defined as required for a CDD, which include (but may not be limited to): AV-1; AV-2; OV-1; OV-2; OV-4; OV-5A; CV-2; CV-3; CV-6; SV-1; SV-2; SV-3; SV-7; SV-8.

- 3. <u>Phase 3:</u> Deliverables include prototype knowledge products for a complete Capability Production Document (CPD) for JETS Increment I with aligned required and supporting documents according to the current JCIDS Manual, DoDAF and DoDAF Products Matrix.
- 4. Phase 4: Deliverables include prototype knowledge products for a complete integrated and synchronized Operational and Technical Architectures for JETS Increment I, which enables JETS Increments II-IV capabilities and enables a positive Milestone B decision. Milestone B is a decision point as outlined in DoD 5000 series acquisition documents which facilitates the movement of a product into engineering and development stage. Specific criteria for the decision are in the referenced document that can be attained on line. The DoD 5000 series acquisition documents are located: http://bbp.dau.mil/docs/500002p.pdf.
- 5. Identification of current systems and development of integrated operational, system, and capability views into a functional operational architectural context.
- 6. <u>Phase 5:</u> Deliverables include a prototype knowledge product for a complete CPD for JETS Increment II, with required aligned and supporting documents according to the current JCIDS manual and DoDAF. Increase through plug-ins the advent of new applications or technologies that enhance the overall breadth and depth of training.
- 7. <u>Phase 6</u>: Deliverables include a prototype knowledge product for a complete integrated and synchronized Operational and Technical Architectures for JETS Increment II which enables JETS Increments III-IV capabilities, and enables a positive Milestone B decision. Provide improvement to current capabilities to incorporate more interchange, interaction, and access modalities.

The six Phases of work are expected to progress over several years. The period of performance of Phase 1 is 6 months. Phase 2 is expected to range between 6-12 months.

In the Solution Brief, it is important to emphasize the processes that will be used to meet the above requirements, the technologies that will be involved, the team and its capabilities to perform the work, the team's military operational knowledge, and team's relevant experience with work similar in scope. Additionally, technology enablers for later stage Phases should be identified if they would play an instrumental role for the approach. Together, the Solution Brief should demonstrate that the team has a suitable plan and the capabilities to reach the targeted outcomes of each Phase.

5.2.2 Preparation of the Solution Brief

Offerors submitting Solution Briefs in response to this RPP will be required to submit using the following steps outlined below:

Step 1: Solution Brief

The Offeror will submit a Solution Brief, which is describes the overall technical concept and approach along with the viability toward the Offeror's specific effort. The following sections must be included in the Solution Brief:

- **Title Page** which references the RPP, and includes the Offeror's contact information (such as name of the organization, point of contact's name, email address, phone number, mailing address, etc.), date of submission, and title of proposed project. The title page is excluded from the page limit.
- **Executive Summary** that provides a brief description of the methodology and technology the Offeror will employ, why it is relevant to the proposed objectives, and how the Offeror has completed similar work in the past. The Executive Summary is limited to one page.
- Methodology/Technology Approach that outlines the proposed methodology in sufficient detail to show a clear course of action as it relates to the topic area of interest. This section should identify any pilot or existing commercial methodology/technology or the development of such during the course of the work. If novel technology or methods are to be employed, then identify the path to maturation. This section should highlight the approach, support technology, personnel, and operational knowledge. Please indicate any aspects that might be proprietary.
- Relevant Experience that identifies any work of a similar nature that could be used to gauge the effectiveness and worthiness of the technical or methodological approach. This section should not highlight the contractual details of your relevant experience, but should emphasize your past work that is relevant and similar in nature (complexity, size, requirements) to this request and how that work's outcome relates to the expectations set forth in this RPP. You may choose your own format and method of conveying this. If a novel approach is proposed, describe how this approach differs and why it may be more feasible than current commercial standards.
- Company Viability which provides a quick overview of the company or entity. This should
 include a summary of current financial viability, any fundraising or form of revenue, and
 any go-to-market strategy or current commercial sales of the methodology/technology
 to be suggested. The purpose is to assess whether the entity can support the effort
 throughout the lifetime of the work.

• Estimated Price/Cost and Schedule: The Offeror will provide a rough order of magnitude (ROM) for its cost, provide a basis for that cost, and a schedule of how this work will be completed. Interim milestone actions and associated costs should be presented. This is for Phase 1 & 2 only. Phases 3-6 that are expected to follow these first two Phase will need to be discussed, but no cost estimates for these follow on phase are required at this time. The ROM must be submitted in accordance with the table described in Attachment B.

The Solution Brief is limited to ten (10) pages (including cover page), 12 point font (or larger), Single-spaced, single-sided, 8.5 inches x 11 inches). Smaller type may be used in figures and tables, but must be clearly legible. Margins on all sides (top, bottom, left, and right) should be at least 0.5 inch. Solution Briefs exceeding the 10 page limit will not be accepted.

MTEC will email receipt confirmations to Offerors upon submission of Solution Briefss. Offerors may submit Solutions Briefs in advance of the deadline.

Solution Brief Evaluation:

The CM will distribute all Solution Briefs to the Government for evaluation. Solution Briefs will be evaluated based on the following criteria:

- feasibility of the proposed solution and its alignment with the RPP's topic area;
- relevancy of the proposed methodology/technology/solution to the topic area with special interest toward any innovation or previously underutilized capabilities;
- strength of the organization/team proposed to complete the work and its financial stability to potentially continue the maturation of the system beyond the scope of this RPP;
- estimated ROM costs represent reasonable value for proposed solution offered.
- inclusion of non-traditional or small business participation or a 1/3 cost share.

Upon review of the Solution Briefs, Offerors may be invited into Step 2 of the Solution Brief process. Offerors who are not invited to proceed into Step 2 will be provided feedback.

Step 2: Solution Brief Pitch:

In Step 2, the Offeror(s) will provide a "pitch" of the proposed project along with a SOW/Milestone Payment Schedule and ROM Pricing (see Attachment A) during an in-person meeting. The pitch should provide more details about the technical and business viability of the proposed work outlined in Phase 1. Specifically, the pitch should include the following:

• **Description:** The Offeror will provide a more robust description of their approach and emphasize why this approach is expected to result in a successful outcome. This approach should follow the SOW/MS provided with the pitch.

- Progress: The Offeror will describe the milestones provided with objective, quantifiable, and measurable metrics that will be used to measure progress during the period of performance and describe the oversight managerial methods that will be employed to maintain a quality and timely performance.
- **Relevant Experience:** The Offeror will convey details related to past performance(s) that demonstrate relevance to the scope of the proposed work and build confidence in the team's capabilities.
- Effectiveness (Opportunity and Risk): The Offeror will identify, assess, evaluate and clearly convey items (for known-knowns; known-unknowns and potential unknown-unknowns) for opportunities (e.g., reduction in cost or schedule, and/or improvement in performance) and risks within each appropriate project Cost, Schedule, Performance measure of effectiveness. The Offeror will identify objective measures and metrics used to assess each item, the triggering event(s), the expected result of Opportunities and Risk (if risk is unmitigated) item, and the mitigation plan for each identified risk item.
- **Defense Utility:** The end utility or outcome of the project should be identified and clearly explained how this will support the further maturation and deployment of the overarching JETS system.
- Prototype: This effort will eventually lead to the development of the prototype technical
 architecture that will integrate and facilitate training as described in the JETS background.
 A description of how this work effort will facilitate such a prototype must be described.
 Further, in keeping with the pOTA framework, the entity must describe how a nontraditional entity will have a significant contribution in the work or a one-third cost share
 enactment will be identified.
- Data Rights Assertions: The Solution Brief will identify any and all proprietary and/or
 intellectual property involved in the efforts and any associated restrictions that may
 possibly affect the Government's use of the property in any way whatsoever. Describe
 your pathway to developing this into a product that can be used by the DoD and other
 potential customers (if applicable). Include relevant information about existing royalty
 agreements.
- Statement of Work and Milestone Payment Schedule submission: one Word (.docx or .doc) or PDF file. Separately, a Word (.docx or .doc) version of the SOW and Milestone Payment Schedule (Appendix A of the proposal) and a Word (.docx or .doc) are required. See Attachment A for additional information.

If desired, the Government can request additional information related to specific areas of interest to be included in the pitch. The request for such information will be provided at the end of Step 1 and at the time of invitation to advance into Step 2.

The information discussed during the pitch provides a means for the Government to engage in a discussion with the Offeror to gain a greater understanding of the proposal and the Offeror's capabilities. The pitch should be restricted to **a maximum of 1 hour** with a total time of 2 hours to include questions from the Government and discussion. Any materials that will be presented during the pitch or included as supplementary material must be provided at least 72 hours prior to the meeting date. If an in-person meeting cannot be accommodated by the Offeror, then a minimum of a telephonic discussion accompanied by written support material will be required. Briefing slides or documents or a combination thereof can be used to support this effort.

Evaluation of Step 2: The Government will evaluate the information provided in each Offeror's Solution Brief (Step 1) and the Solution Brief Pitch (Step 2) to determine which proposal(s) provide(s) the greatest value to the Government. Such a determination will be based on the following criteria:

- Most Important (of equal importance)
 - Performance: Overall technical approach and how well Offeror's solution enhances the DoD mission described in the RPP.
 - Schedule: Suitability of the notional schedule, including processes described to identify and manage risk/opportunities.
 - Cost: The parity of the relationship between the Offeror's solution and ROM costs, and whether a superior technical approach is warranted at a higher estimated cost
 - Risk-Opportunity: Identification of risks (with supportable mitigations) and opportunities with the Offeror's approach with objective measurable metrics.
 - Inclusion of non-traditional or small business participation or a 1/3 cost share.
- Less Important (of equal importance)
 - Relevant Experience.
 - Assessment of the potential impact of data rights assertions.

At the conclusion of the Step 2 evaluation, offerors who are favorably evaluated will be invited to submit a cost proposal.

Step 3: Cost Proposal

The Offerors invited to submit a Cost Proposal are encouraged to contact the MTEC and/or Government with any questions so that all aspects are clearly understood by both parties. The full proposal should include the following and be completed in accordance with Section 3 of this RPP and the PPG.

- Cost proposal submission: one Word (.docx or .doc) or PDF file for Section I: Cost Proposal Narrative (Appendix B) required. Separately, Section II: Cost Proposal Formats either in Excel (.xlsx or .xls) or PDF format is required.
- Warranties and Representations: If Nontraditional Defense Contractor participation is proposed, Warranties and Representations are required. One Word (.docx or .doc) or PDF file that contains all Warranties and Representations is required.
- Royalty or Additional Research Project Award Assessment: Each Offeror will select either
 the MTEC Additional Assessment Fee or the Royalty Agreement (available on the MTEC
 members only website), not both and submit a signed copy with the proposal.

5.2.3 Restrictions on Human Subjects, Cadavers, and Laboratory Animal Use

Solution Briefs must comply with important restrictions and reporting requirements for the use of human subjects, to include research involving the secondary use of human biospecimens and/or human data, human cadavers, or laboratory animals. For a complete description of these mandatory requirements and restrictions and others, Offerors must refer to the accompanying MTEC PPG, Section 6.11 Additional Requirements.

These restrictions include mandatory government review and reporting processes that will impact the Offeror's schedule.

For example, the clinical studies under this RPP shall not begin until the USAMRMC Office of Research Protections (ORP) provides authorization that the research may proceed. The USAMRMC ORP will issue written approval to begin research under separate notification. Written approval to proceed from the USAMRMC ORP is also required for any Research Project Awardee (or lower tier subawards) that will use funds from this award to conduct research involving human subjects. Offerors must allow at least 30 days in their schedule for the ORP review and authorization process.

5.3 Cost Proposal

MTEC will make cost proposal formats available on the Members-Only MTEC website. **The Cost Proposal formats provided in the MTEC PPG are mandatory.** Refer to the MTEC PPG for additional details.

Each cost should include direct costs and other necessary components as applicable, for example, fringe, General & Administrative Expense (G&A), Facilities & Administrative (F&A), Other Direct Costs (ODC), etc. Offerors shall provide a breakdown of material and ODC costs as applicable.

3.3.1 Solution Brief and Cost Proposal Preparation Costs

The cost of preparing Solution Briefs and Cost Proposals in response to this RPP is not considered a direct charge to any resulting award or any other contract.

6 Selection

Based on the results of the evaluation the Solution Brief, the Solution Brief Pitch and Cost Proposal, Offerors may get selected for funding, selected to the basket or not selected. Not recommended for funding decisions can happen any time in the three step process after submission of a Solution Brief.

The RPP review and award process may involve the use of contractors as subject-matter-experts or reviewers; where appropriate, the USG will employ non-disclosure-agreements to protect information contained in the RPP as outlined in Section 1.4.

7 Points-of-Contact

For inquiries, please direct your correspondence to the following contacts:

- Questions concerning contractual, cost or pricing related to this RPP should be directed to the MTEC Contracts Manager, Ms. Lisa Fisher, lisa.fisher@ati.org
- Technical related questions should be directed to the MTEC Director of Research, Dr. Lauren Palestrini, Ph.D., lauren.palestrini@officer.mtec-sc.org
- Questions concerning membership should be directed to Ms. Stacey Lindbergh, MTEC Executive Director., <a href="mailto:executive-execut
- All other questions should be directed to Ms. Polly Graham, MTEC Program Manager, polly.graham@ati.org

Once an Offeror has submitted a Solution Brief and/or Cost Proposal the Government and the MTEC CM will not discuss evaluation/status until the source selection process is complete.

8 Acronyms/Abbreviations

AAR After Action Report

ATI Advanced Technology International

AV Architecture View

CDD Capability Development Document

CM Consortium Manager

CMA Consortium Member Agreement

COCOM Combatant Commands

CPD Capability Production Document

CV Capabilities View

DoDAF Department of Defense Architecture Framework

FAQ Frequently Asked Questions

F&A Facilities and Administrative Costs

FY Fiscal Year

G&A General and Administrative Expenses

GPM Global Patient Movement

IP Intellectual Property (e.g., patents, copyrights, licensing, etc.)

JCIDS Joint Capabilities Integration and Development System
JETS Joint Training and Evacuation Transport Simulation

JPM Joint Patient Movement
KSA Key Systems Attribute
KPP Key Performance Parameter
LMS Learning Management System

LMS Learning Management System ISS Instruction Support System

LVCG Live, Virtual, Constructive, Gaming

M Millions

MeTER Medical Training Evaluation and Review
MSTC Medical Simulation Training Centers
mSTE medical Simulation Training Environment
MT-C2 Medical Training – Command and Control

NDA Nondisclosure Agreement

OCI Organizational Conflict of Interest

ODC Other Direct Charges

ORP Office of Research Protections, USAMRMC

OV Operational View

pOTA Prototype Other Transaction Agreement

POC Point-of-Contact
POD Point of Demand

PPE Personal Protection Equipment
PPG Proposal Preparation Guide
RPP Request for Project Proposals

SOW Statement of Work

SV Systems View

TRL Technology Readiness Level

USAF CCATT US Air Force Critical Care Air Transport Team

USAMRMC U.S. Army Medical Research and Materiel Command

USG U.S. Government VPS Virtual Patient System

Attachment A: Statement of Work (SOW)

The SOW developed by the Lead MTEC member organization is intended to be incorporated into a binding agreement if the Solutions Brief is selected for award. If no SOW is submitted, there will be no award. The proposed SOW shall contain a summary description of the technical methodology as well as the task description, but not in so much detail as to make the contract inflexible. DO NOT INCLUDE ANY PROPRIETARY INFORMATION OR COMPANY-SENSITIVE INFORMATION IN THE SOW TEXT. The following is the required format for the SOW.

Statement of Work

Submitted under Request for Project Proposal (Insert current Request No.)

(Proposed Project Title)

Introduction/Background (To be provided initially by the Offeror at the time of submission. Submitted information is subject to change through negotiation if the Government selects for funding.)

Scope/Project Objective (To be provided initially by the Offeror at the time of submission. Submitted information is subject to change through negotiation if the Government selects for funding.)

This section includes a statement of what the project covers. This should include the technology area to be investigated, the objectives/goals, and major milestones for the effort.

Applicable Documents (To be determined by the Government based on negotiation of Scope/Project Objective)

In the event only specific requirements of these documents must be included in the SOW then only these excerpts should be used and should be made into either a clear task statement (if required) or a clear reference statement (if for guidance only and not for contract compliance).

Requirements (To be provided initially by the Offeror at the time of submission to be finalized by the Government based on negotiation of Scope/Project Objective).

State the technology objective in the first paragraph and follow with delineated tasks required to meet the overall project goals. The work effort should be segregated into major phases, then tasks and identified in separately numbered paragraphs (similar to the numbered breakdown of these paragraphs). Early phases in which the performance definition is known shall be detailed by subtask with defined work to be performed. Planned incrementally funded phases will require broader, more flexible tasks that are

priced up front, and adjusted as required during execution and/or requested by the Government to obtain a technical solution. Tasks will need to track with established adjustable cost or fixed price milestones for payment schedule. Each major task included in the SOW should be priced separately in the Cost Proposal. Subtasks need not be priced separately in the Cost pproposal.

Deliverables (To be provided initially by the Offeror at the time of submission. Submitted information is subject to change through negotiation if the Government selects for funding.)

Results of the technical effort are contractually binding and shall be identified herein. Offerors are advised to read the Base Agreement carefully. Any and all hardware/software to be provided to the Government as a result of this project shall be identified. Deliverables should be submitted in PDF or MS Office format. It must be clear what information will be included in a deliverable either through a descriptive title or elaborating text. See Attachment C for additional information.

The following information is required:

- Monthly written progress reports (covering cost, schedule, performance, risk & opportunity) project metrics
- The JETS DODAF artifacts are delivered at the end of Phase 1
- The POINTS artifacts are delivered at the end of Phase 2

Milestone Payment Schedule (To be provided initially by the Offeror at the time of submission. Submitted information is subject to change through negotiation if the Government selects for funding. The milestone schedule included should be in editable format (i.e., not a picture))

The Milestone Payment Schedule should include all milestone deliverables that are intended to be delivered as part of the project, a planned submission date, the monetary value for that deliverable and any cost share, if applicable. For fixed price agreements, when each milestone is submitted, the MTEC member will submit an invoice for the exact amount listed on the milestone payment schedule. For cost reimbursable agreements, the MTEC member is required to assign a monetary value to each milestone. In this case, however, invoice totals are based on cost incurred and will not have to match exactly to the amounts listed on the milestone payment schedule.

The milestones and associated deliverables proposed should, in general:

- be commensurate in number to the size and duration of the project (i.e., a \$5M multi-year project may have 20, while a \$700K shorter term project may have only 6);
- not be structured such that multiple deliverables that might be submitted separately are included under a single milestone;
- be of sufficient monetary value to warrant generation of a deliverable and any associated invoices;

 include at a minimum Quarterly Reports which include both Technical Status and Business Status Reports (due the 20th of Mar, Jun, Sep, Dec), Annual Technical Report, Final Technical Report, and Final Business Status Report. Reports shall have no funding associated with them.

Milestone No.	Significant Event/Accomplishments Description of Deliverables	Due Date	Total Program Funds	Total Share	Cost
1					
2					
3					
N					
Total					

Shipping Provisions (The following information, if applicable to the negotiated SOW, will be finalized by the Government and the MTEC Consortium Manager based on negotiations)

• The shipping address is:

Classified Shipments: Outer Packaging Inner Packaging

Reporting (The following information, if applicable to the negotiated SOW, will be provided by the Government based on negotiation)

- Quarterly Reports The MTEC research project awardee shall prepare a Quarterly Report which will include a Technical Status Report and a Business Status Report in accordance with the terms and conditions of the Base Agreement. (Required)
- Annual Technical Report The project awardee shall prepare an Annual Technical Report for projects whose periods of performances are greater than one year in accordance with the terms and conditions of the Base Agreement. (Required)
- Final Technical Report At the completion of the Research Project Award, the awardee will submit a Final Technical Report, which will provide a comprehensive, cumulative, and substantive summary of the progress and significant accomplishments achieved during the total period of the Project effort in accordance with the terms and conditions of the Base Agreement. (Required)

• Final Business Status Report – At the completion of the Research Project Award, the awardee will submit a Final Business Status Report, which will provide summarized details of the resource status of the Research Project Award, in accordance with the terms and conditions of the Base Agreement. (Required)

Attachment B: Rough Order of Magnitude (ROM) Pricing

Sufficient cost information to substantiate the proposed cost as realistic and reasonable for the proposed effort must be provided to ensure that a complete and fair evaluation of the cost or price can be conducted. **Use the table format below to provide an initial ROM.** The labor, travel, material costs, other direct costs, and indirect costs, information should be entered for Offeror (project prime) only. Subcontractors and/or consultants should be included only in the "Subcontractor" section of the table.

Labor	\$ 100,000.00
Labor Hours	1,000.0 hrs
Subcontractors	\$ 50,000.00
Subcontractors Hours	500.0 hrs
Consultants	\$ 10,000.00
Consultants Hours	100.0 hrs
Material/Equipment	\$ 75,000.00
Other Direct Costs	\$ 1,000.00
Travel	\$ 5,000.00
Indirect costs	\$ 48,200.00
Total Cost	\$ 289,200.00
Fee (Not applicable if cost share is	\$ 0.00
proposed)	
Total Cost (plus Fee)	\$ 289,200.00
Cost Share	\$ 290,000.00
(if cost share is proposed then fee is un-	
allowable)	
Total Project Cost	\$ 579,200.00

Attachment C: Deliverables Table

Technical Data to be Delivered to the Government	Details/Format	Governme nt Rights	Delivery Schedule
JETS DoDAF artifacts & Supporting Documents	 Integrated, synchronized System Architecture artifacts Aligned with JCIDS manual, (DoDAF), and DoDAF Products Matrix, and defined as required for a CDD Includes AV-1; AV-2; OV-1; OV-2; OV-4; OV-5A; CV-2; CV-3; CV-6; SV-1; SV-2; SV-3; SV-7; SV-8. Follows formatting defined at: http://dodcio.defense.gov/Portals/0/Documents/DOD AF/DoDAF v2-02 web.pdf Supporting documents sufficient to outline assumptions and justify final artifacts 	Unlimited	30 days after completion of Phase I
POINTS DoDAF artifacts & Supporting Documents	 Integrated, synchronized System Architecture artifacts Aligned with JCIDS manual, (DoDAF), and DoDAF Products Matrix, and defined as required for a CDD Includes AV-1; AV-2; OV-1; OV-2; OV-4; OV-5A; CV-2; CV-3; CV-6; SV-1; SV-2; SV-3; SV-7; SV-8. Follows formatting defined at: http://dodcio.defense.gov/Portals/0/Documents/DODAF/DoDAF v2-02 web.pdf Supporting documents sufficient to outline assumptions and justify final artifacts 	Unlimited	30 days after completion of Phase II
Quality Control Plan	Format TBD based on updated guidance from DHA	Unlimited	30 days after initiation of Phase I and Phase II
Data Paths	System Interface description of SV-1 Detailing at least 4 levels down from SV-1	Unlimited	30 days after initiation of Phase I and Phase II
Work Breakdown Structure	Gantt chart Detailed to at least 4 levels	Unlimited	30 days after initiation of Phase I and Phase II
Traceability Matrix	Determined by performer	Unlimited	30 days after initiation of Phase I and Phase II
Minutes from Weekly meeting	Determined by performer	Unlimited	24 hours after meeting