

Request for Solutions:

SYNTHETIC TRAINING ENVIRONMENT – INFORMATION SYSTEM (STE - IS) – Training Simulation Software (TSS)/ Training Management Tool (TMT) Prototype Project

11 December 2020

1. Purpose and Authority

This Request for Solutions (RFS) is seeking vendors for an Other Transaction Authority (OTA) agreement, for the Synthetic Training Environment (STE) – Training Simulation Software / Training Management Tool (TSS/TMT) Prototype Project, in accordance with the authority of 10 USC §2371b. This OTA is being sought on behalf of the Program Executive Office for Simulation, Training and Instrumentation (PEO STRI) and the Army Future's Command STE Cross Functional Team (CFT).

The Government's overarching strategy is to accelerate development of the TSS/TMT capabilities through an agile development approach to enable the rapid creation and delivery of an integrated solution. The solution will be placed in the hands of operational units to gain user feedback and ensure our development efforts are meeting the user needs. This effort will leverage modern software development methodologies such as agile software development, modern tools and techniques to include Development Security Operations (DEVSECOPS) and human-centered design processes.

The Government will evaluate the solutions with the intent to competitively award one or multiple Other Transaction (OT) Agreements for prototype projects through the Training and Readiness Accelerator (TReX) Consortium.

2. Summary and Background

The Army currently employs a collection of outdated, cyber-vulnerable, and inefficient live, virtual, constructive, gaming (LVCG) collective training systems that form the Integrated Training Environment (ITE) which is not available at the Point of Need (PoN). These systems do not replicate the complex challenges of the future Operational Environment (OE) nor are they agile enough to allow Warfighters to train multiple iterations prior to mastering training in the live training environment. As we set the foundation for a Multi-Domain Operations (MDO) capable force in 2028, these critical capability gaps degrade Warfighter training readiness and performance placing our Nation's defense at risk.

The U.S. Army's future training capability is the Synthetic Training Environment (STE). The STE will be a single, interconnected training system that provides a training environment, in which units from Soldier/Squad through Army Service Component Command (ASCC) conduct collective training, see Figure 1-1 below.



Figure 1-1. STE OV-1.

The STE is deliberately envisioned to converge the LVCG environments as one complete training capability. This training capability will enable Army units and leaders to conduct realistic multi-echelon / multi-domain combined arms maneuver and mission command training, increasing proficiency through repetition. Units can then master collective training tasks in the live environment. The STE will deliver collective training, accessible at the PoN in the operational, self-development and institutional training domains. The STE is an essential component for the Army to fully realize the Standard of Training Proficiency (STP) required and levels of proficiency.

The STE must have the ability to change with technology, allowing for the replication/representation of current and future force structure, weapons effects, warfighting functions, Joint, Interagency, and Multinational (JIM) capabilities, human interaction, dense urban environment and near-peer threat capabilities. The STE will

be capable of training units across the full range of Unified Land Operations (ULO) in multiple domains (Air, Land, Maritime, Cyber, and Space).

The STE provides a synthetic environment to represent and enable rapid generation of the OE. Scalable immersive collective trainers provide the commander with multiple training capability options to train operational tasks at the PoN with around-the-clock accessibility. The STE operates in connected and disconnected modes (for training under limited or degraded network conditions) and is embedded within the Common Operating Environment (COE). The STE leverages the Army Network (enterprise and tactical) to either host or deliver capabilities and provides intuitive, composable applications and services that enable embedded training with mission command workstations and select platforms. Future Live training systems will interface with the STE to incorporate instrumentation, ranges, targets, and ammunition into the synthetic environment. Next Generation Constructive will expand training of large-scale Brigade Combat Team (BCT) through ASCC. The integrated STE system consists of three foundational capabilities that are each a separate other transaction authority (OTA) effort:

- TSS/TMT and hardware
- Reconfigurable Virtual Collective Trainer(s) (RVCT(s))
- One World Terrain (OWT)

The STE delivers software, application(s) and services that will enable the RVCT and other training capabilities. The STE will enable multi-level security through a cross domain solution (CDS). The STE architecture and design enables and supports interoperability with existing training systems (Live, Virtual, Constructive Integrating Architecture [LVC-IA], Joint Land Component Constructive Training Capability [JLCCTC], Home Station Instrumentation Training System [HITS]); and future training systems Soldier Virtual Trainer (SVT), the embedded Integrated Visual Augmentation System (IVAS) with Soldier Immersive Virtual Trainer (SiVT), future Next Generation Constructive (NGC), Synthetic Training Environment - Live Training System (STE-LTS) and operational capabilities.

TSS/TMT is planning to utilize the Department of Defense (DoD) Software Acquisition Pathway (SAP) as defined by DoDI 5000.02 Operation of the Adaptive Acquisition Framework. In accordance with this pathway the delivery of TSS/TMT capability is defined in terms of Minimum Viable Products (MVP), an initial Minimum Viable Capability Release (MVCR), and annual software releases after initial MVCR. An MVP is an early version of the software to deliver or field basic capabilities to users to evaluate and provide feedback on whereas an MVCR is an initial set of

features suitable to be fielded to an operational environment that provides value to the warfighter or end user in a rapid timeline.

3. General Information

3.1. Vendors interested in responding to this RFS must be members of the Training and Readiness Accelerator (TReX). Information about membership can be found at the following webpage: <https://nstxl.org/membership/>

3.2. The cost of preparing and submitting a response is not an allowable direct charge to any Government contract or agreement awarded pursuant to this RFS.

3.3. An individual vendor may not submit more than one solution to this RFS as a Prime. A vendor may participate as a sub-vendor or team member to multiple solutions.

3.4. Non-compliance with the submission instructions provided herein may preclude the vendor from being considered for award as the prime vendor.

3.5. This prototype project will begin as an unclassified project. Over the life of this agreement, vendors will be required to access classified information and/or facilities, therefore, the Government requires that all vendors who intend to prime this effort have an active secret facility clearance (FCL) by the Demonstration Plan submission deadline.

3.6. The Government also requires that any vendors requesting access to the Technical Data Package (TDP) have been vetted by NSTXL for security approval.

3.7. Government participants and advisors in the evaluation process will file Non-Disclosure Agreement (NDA).

3.8. Non-Government advisors from the Mitre Corporation, a federally funded research and development center (FFRDC), and Circadence, a gaming technology expert will assist in the evaluation. Non-Government advisors will be required to sign a NDA prior to working on the STE TSS/TMT effort. The Agreements Officer will review NDAs for conflict of interest prior to allowing access to source selection information.

Non-Government advisors will only have access to the information corresponding to their area(s) of expertise. Non-Government advisors will not have access to the Price Volume of the response. The Mitre Corporation and Circadence have agreed not to engage in the manufacture or production of

hardware/services/R&D that is related to this effort, and to refrain from disclosing proprietary information to unauthorized personnel.

4. Acquisition Approach:

Vendors for the STE TSS/TMT prototyping activity will be selected through a multi-phased approach.

4.1 Phase 1 – Demonstration Plan Assessment (Down select #1):

For the first phase of the acquisition approach, the Government requests that interested vendors provide a written Demonstration Plan. Prospective vendors are asked to submit a description of the demonstration they plan to conduct and background information on their software and hardware.

The purpose of the demonstrations and demonstration plans is to provide the Government team with insight into the breadth and depth of capability that currently exists in industry with respect to TSS/TMT requirements. Capability includes TSS/TMT required end user applications and enabling technical infrastructure.

The Government anticipates making a down-select to the most qualified vendors based on evaluation of the submitted demonstration plans.

Specific Demonstration Plan instructions are found in Section 8.5, Demonstration Plan Submittal, and evaluation criteria are found in Section 10.2.1, Demonstration Plan Evaluation.

4.2 Phase 2 – Capability Demonstrations (Down select #2):

During the second phase, the Government will invite the most qualified vendors to participate in a capability demonstration to further describe their capabilities, potentially respond to exchange items provided prior to their demonstration, and answer further questions throughout the demonstration. The Government reserves the right to request further substantiating documentation about existing capabilities. The Government anticipates making a down select to the most qualified vendors based on the demonstration.

Specific Demonstration instructions are found in Section 8.6 Instructions for Conducting Demonstration; and Demonstration evaluation criteria can be found in Section 10.2.2, Demonstration Execution Evaluation.

4.3 Phase 3a – Technical Interchange Meetings (TIMs) and Initial Solution Submission:

At this stage, the Government will invite the most qualified vendors to provide an initial solution. The Government anticipates holding TIMs prior to the initial solution submission to facilitate not only vendor solutions but also STE TSS/TMT requirements shaping. TIMs will consist of a general Government industry day with all selectees, one-on-ones, and technical deep-dive exchanges between the Government technical team and the selectee technical teams. The Government expects vendors to provide senior technical personnel with various backgrounds able to have in-depth exchanges about requirements, vendor capabilities, technical risks and technical roadmaps. At the conclusion of the TIMs, the most qualified vendors will be required submit an initial solution, addressing RFS requirements and using knowledge gained during the technical exchanges.

Specific Initial Solution Submission & TIMs instructions are found in Section 8.7, Initial Solution and Technical Exchanges; and evaluation criteria can be found in Section 10.2.3 Initial Solution Evaluation.

4.4 Phase 3b: Revised Solution Submission (Down select #3):

The Government will evaluate the initial solutions and anticipates conducting a second round of technical exchanges with vendors focused on its assessment of the vendor's initial solution submission. At the conclusion of the second round of technical exchanges, each vendor will be required to submit its revised solution. The Government will evaluate the solutions and will select one or more vendors' viable solutions to be considered for award. The Government will collaborate and negotiate the final terms and conditions to award to the successful Vendor(s). In cases where the Government and the selected offeror cannot come to agreement on the agreement terms and conditions, the Government may choose to negotiate with the next most advantageous vendor whose solution was not initially selected for negotiation.

4.4.1 – Extension of competition

Should more than one vendor be selected in Phase 3a, the Government reserves the right to extend the competition through the execution of MVP 1. After MVP 1, a final down select to a single vendor will be made.

5. Technical Objectives of the Program:

The TSS/TMT objective is to provide a Soldier/Squad through Brigade collective training capability that performs in accordance with the Attachment 1, STE TSS/TMT Performance Work Statement (PWS). The STE system enables the

Unit/Staff to train offense, defense and stability support operations realized through the Combined Arms Training Strategy (CATS). Some of the collective training task sets are provided in the TDP Appendix B Collective Training Task Sets.

The TSS/TMT consists of the Training Simulation Software (TSS) and Training Management Tool (TMT). The TSS/TMT vendor is required to design, build, and deliver TSS and TMT software and applicable hardware. TSS/TMT is integrated with the OWT and RVCT to achieve a holistic STE capability. The intent of the integrated STE system is to provide value to the end user with each MVP and MVCR that enables units to conduct their doctrinal collective training. Subsequent STE system releases continue to improve the collective training capability (higher echelon, new functionality, etc.). Program Increments, MVP/MVCR/subsequent software releases build on the capabilities in the previous gate.

A successful TSS/TMT system provides the features identified in the TSS/TMT product roadmap. The product roadmap is a series of incremental capability deliveries that provide a working / functional training capability for the user to provide feedback. A successful TSS/TMT system provides an entity level simulation that provides virtual, gaming and constructive collective training, training to Soldiers, squads, platoons, companies, battalions, and brigades; stimulates the RVCT, SVT, and IVAS-SiVT; is interoperable with LVC-IA; and stimulates and is stimulated by operational capabilities (e.g., Mission Command Information System [MCIS], Avionics Software Emulation [AvSE], Common Software Library [CSL], air, and ground platforms) enabling commanders and unit to achieve their collective training objectives at the PoN. See Figure 5-1. Synthetic Training Environment.

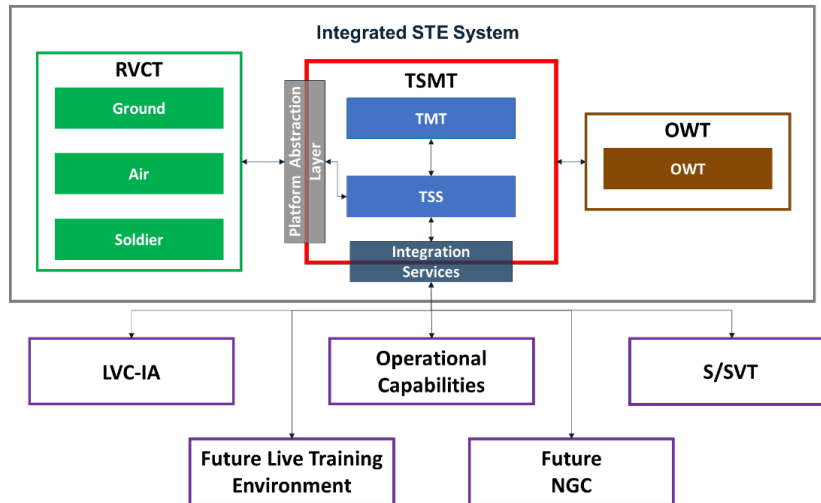


Figure 5-1. Synthetic Training Environment

The end-state of the TSS/TMT system is the creation and successful implementation of a modular open system approach that delivers the foundational capabilities in support of the holistic STE vision. Objective Values provide future holistic STE vision should be considered in the design and development of the TSS/TMT, so that they may be supported for future capability as outlined in Attachment 1, STE TSS/TMT PWS.

6. Government Furnished Information (GFI)/ Government Furnished Equipment (GFE)

For the RFS and accompanying solutions, the Government anticipates the distribution of Controlled Unclassified information (CUI) at a classification level of Distribution C or higher. The Government anticipates this project to be classified up to the SECRET level. The prototype itself will be UNCLASSIFIED. However, in order to develop the STE TSS/TMT prototype, the vendor(s) will need to have access to non-public export controlled information. Therefore, any vendor with an intent to prime this effort must possess an approved FOCI mitigation and SECRET FCL by the time the demonstration plan is submitted.

The Government has included Attachment 1, STE TSS/TMT PWS for use during Solution preparation. Attachment 2, STE TSS/TMT TDP will be made available to those vendors who have been vetted and cleared to receive Distro D GFI. Attachment 2 contains CUI // EXPT information and will require that vendors be vetted prior to obtaining the GFI. In order to obtain the documentation, the vendor shall complete Attachment 6, Security Vetting Form, and submit the request in writing to INITIATIVES@NSTXL.ORG, with "Project STE TSS/TMT Prototype" used in the subject line.

Once vetted, the vendor will then be required to complete and sign a Tech Data Distribution Agreement (Attachment 5) which includes further guidance regarding the handling of the GFI. The documentation will then be available through NSTXL's secure SharePoint. The Government will provide additional GFI to the awardee within 30 days after award of agreement.

7. Funding Profile:

Approximately \$189M-\$228M is available to support the execution of this effort. This funding includes possible incentives.

8. Solution Paper Responses

8.1 Nontraditional Status

The vendor shall provide its nontraditional (see paragraph below for definition) business status or its ability to meet the eligibility requirements of 10 U.S.C. §2371b. The vendor shall check one of the following boxes – with appropriate justification if needed.

- There is at least one nontraditional defense contractor or nonprofit research institution participation to a significant extent in the project.
- All significant participants in the transaction other than the Federal Government are small businesses or nontraditional defense contractors.
- At least one third of the total cost of the project is to be provided by sources other than the Federal Government.

If the vendor is not a nontraditional defense contractor (NDC) additional information is needed. Vendor shall provide the name and CAGE code information for the NDC. Additionally, the vendor shall provide what portion of the work the NDC is performing and an explanation of how the prototype would not succeed based on the portion of work performed by the NDC.

Definition Nontraditional – an entity that is not currently performing and has not performed, for at least one-year period preceding the solicitation of sources by the Department of Defense (DoD) for the procurement or transaction, any contract or subcontract for the DoD that is subject to full coverage under the cost accounting standards prescribed pursuant to 41 U.S.C §1502 and the regulations implementing such section.

The vendor shall provide their non-traditional status as an appendix to the Demonstration Plan, Initial Solution and Revised Solution.

8.2 Foreign Ownership, Control, or Interest (FOCI) Status

Any vendor that is a Foreign Owned, Controlled, or Influenced (FOCI) company that does not have their FOCI mitigated by the Defense Counterintelligence and Security Agency (DCSA) and who does not possess an approved SECRET Facility Clearance Level (FCL) by submission deadline of the Demonstration Plan, cannot serve as a Prime in any Agreement awarded pursuant to this RFS.

The vendor shall provide their FOCI status as an appendix to the Demonstration Plan, Initial Solution and Revised Solution.

8.3 Organizational Conflicts of Interest and Mitigation Plan

Vendors will submit an Organizational Conflict of Interest (OCI) Mitigation Plan via an appendix to the Demonstration Plan, Initial Solution and Revised Solution. In the event there are no real or perceived OCIs, simply state so and annotate what actions would be taken in the event that one is realized.

8.4 General Submittal Instructions for Each Phase

Each submittal shall use no smaller than industry standard 12-point font utilizing Times New Roman or Arial font. Submission shall be in Microsoft office or Adobe PDF. Volumes shall be formatted to 8.5-inch x 11-inch paper. Foldout sheets used for tables and figures will be counted as one page and shall not exceed 11 inches x 17 inches. Font size for tables and figures shall be no smaller than 8-point. If solution volumes/sections exceed the limitations set forth herein, excess text will be removed from the back of that volume/section and not evaluated. Use at least 1-inch margins on the top, bottom, left, and right-side.

8.4.1 Cover Page

Each submittal phase shall include a cover page with the vendor's name, CAGE code (if available), NAICS Code, Business Size, address, primary point of contact, and status of U.S. ownership. NAICS code for this effort is 541512.

8.4.2 Sub-Vendor and Team List

At each submittal phase, vendors shall provide a list of all sub-vendors and team members involved and their role within the performance of your submission as an appendix (which will not count towards the page count). The list shall include Non-Traditional status, FOCI status and OCI for each sub-vendor and team member.

8.5 Instructions for Demonstration Plan Submittal

The Demonstration Plan shall include a description of the prospective vendor's planned demonstration that clearly addresses all areas listed in this section as well as section 8.6 technical and operational areas. The demonstration plan shall include information on the vendor's software solution, and approach to IP/Data Rights and licensing information. It is desired that vendors demonstrate the maximum breadth and depth of TSS and TMT capability that currently meets or can be adapted to meet the requirements outlined below:

- A. A schematic block diagram of the planned demonstration layout depicting all anticipated compute, network and storage nodes or devices and their connectivity.
- B. A diagram of the planned demonstration network(s) abstracted to a level of detail appropriate for a technical audience, but not to the level of detail intended for a network engineer.
- C. An anticipated set of technical specifications for each compute, network and storage node or device planned for use in the demonstration. This does not have to be fully detailed for the demonstration plan and can be refined for a briefing of the demonstration setup to be provided at the demonstration itself.
- D. A list of major TSS and TMT software and infrastructure applications, components, services, and utilities planned for demonstration with a brief description of the capabilities of each and a mapping relevant to the TSS/TMT requirement areas. TMT capabilities shall be decomposed down to at least the Plan, Prepare, Execute and Assess level.
- E. A List of anticipated partners and/or vendors planned to provide each application, component, service, or utility.
- F. A description of the interfaces between major components and infrastructure elements (e.g. RESTful API, DIS, GRPC, etc.) planned for demonstration. The interface descriptions shall also provide an explanation or rationale for the interface types chosen as well as whether the interfaces planned for demonstration will be the same interfaces that will be in vendor's STE TSS/TMT proposed solution.
- G. A description of any ongoing development or integration work, to include any 3rd party dependencies and licenses currently being executed on any applications, components, or infrastructure enablers planned for demonstration or that will not be demonstrated but are planned to be included in the vendor's subsequent STE TSS/TMT initial solution.
- H. A list of any software applications, components, or infrastructure enablers for which the Government would not be anticipated to receive Government Purpose Rights (GPR) or Unlimited Rights. Please include a description of each anticipated vendor license required with corresponding version and IP/Data Rights posture for each item in the list using Attachment 8 Data

rights assertions tables and Attachment 9 Data Rights License Terms and Definitions.

- I. A list of Commercial Off-the-shelf (COTS) and Government Off-the-shelf (GOTS) software products and licensing concept or structure.

Demonstration Plans shall also include the following:

1. POC with contact information
2. Timeline of events for the demonstration day with focus areas being discussed and demonstrated not to exceed one day from 0800 to 1700
3. Location of proposed demonstration
4. Demonstration Description (see below)
5. Security POC and Visit Request information
6. COVID-19 Restrictions for visitors

Following the guidelines under Section 8.4, the submitted demonstration plan shall be no more than 10 pages in length and may include up to 3 foldouts. The Cover Page, Table of Contents, List of Figures, Sub-Vendor List, Data and Software Rights Assertions, FOCl documentation, Non-traditional status, OCI Mitigation Plan, and Acronym Definitions do not count towards the page count limit.

8.6 Instructions for Conducting Demonstrations

If selected by the Government to provide a TSS/TMT OTA demonstration, the prospective vendor will be contacted to schedule a one-day demonstration to be held between the hours of 0800 and 1700.

Demonstrations will be conducted at a facility chosen by the prospective vendor. A Government facility can be used at vendor's request. The Government team plans to send TBD personnel as part of the demonstration evaluation team.

The demonstration should demonstrate the technical and operational merit of the vendor's approach. Listed below are some examples of technical and operational areas that can be used to convey the merit of the vendor's capabilities. It is at the vendor's discretion as to whether to demonstrate capabilities in all areas identified below, a subset of the areas identified below, or additional areas.

1. Technical Areas

a. Application – breadth and depth of capability and maturity of the following applications:

- i. RVCT-A software
- ii. RVCT-G software

- iii. RVCT-Soldier Software
- iv. Bde level Constructive Software
- v. TMT Plan Software
- vi. TMT Prepare Software
- vii. TMT Execute Software
- viii. TMT Assess Software

b. Architecture and Infrastructure Elements

- i. Game engine (to include rendering engine / Image Generator)
- ii. Scalability and simulation internal and external data interchange infrastructure
- iii. MCIS interface
- iv. Authoritative Data Source interface
- v. Terrain Server with Streaming capability
- vi. Data Management and data storage solution
- vii. Ability to process glTF / 3D Tiles data
- viii. Ability to render Base Globe capability
- ix. Ability to stitch high resolution terrain packs onto base globe
- x. Modularity

c. Integration of Architecture and Infrastructure Elements

d. Other Capability

- i. Simulation Models and Behaviors
- ii. Ability to train to the Army Combined Arms Training Strategy
- iii. Depiction of the Operational Environment

2. Operational Areas

a. Point of Need

b. Ease of Use

- i. Intuitive Mission Planning Capability
- ii. Troubleshooting
- iii. Ease of Setup

c. Reliability & Maintainability

8.7 Initial Solution and Technical Exchanges

Vendors selected at this stage will also be invited to participate in TIMs prior to the initial solution submission. TIMs will consist of a general Government industry

day with all selectees, one-on-ones, and technical deep-dive exchanges between the Government technical team and the selectee technical teams.

Vendors should plan for TIMs not to exceed 5 days in total. The Government anticipates to allow 20 business days for vendors to submit the initial **solution** after TIM. After Government evaluation, there will be exchanges with vendors based on their proposal before submitting a revised solution in the next phase of the RFS.

The Government anticipates awarding fixed price contracts to the selected vendors in the amount of \$50,000 to assist them with some expenditures that they may incur during this phase of the RFS. Vendors are cautioned that this \$50,000 contract does not constitute an authority to proceed to work in advance or in anticipation of a bona fide future contractual instrument nor to incur any additional costs over \$50,000 during the process of the RFS in the anticipation of being compensated. The Government will not be liable for any claim for relief of any additional costs over \$50,000 that the vendor incurs during any phase of the RFS process.

Vendors selected for this phase shall provide an initial solution describing their technical approach and a separate cost volume using Attachment 3. Vendors are responsible for identifying risks within their submissions, as well as providing specific mitigation solutions. Vendors must provide a list of all Government Furnished Information (GFI) / Government Furnished Equipment (GFE) that the vendor believes is critical to enable development and demonstration of prototype. The Government cannot guarantee that all GFI / GFE requests can/will be accommodated. The technical approach shall address section 8.7.1 to 8.7.7 as well as additional relevant information to substantiate the technical approach. The Cost volume shall address section 8.7.8.

Following the guidelines under Section 8.4, the submitted initial solution shall be no more than 50 pages in length and may include up to 5 foldouts. The Cover Page, Table of Contents, List of Figures, Sub-Vendor List, Data and Software Rights Assertions, FOCl documentation, Non-traditional status, OCI Mitigation Plan, Delivery Schedule, dependencies and Acronym Definitions do not count towards the page count limit.

8.7.1 Capability Roadmap

The initial solution submittal shall contain an incremental plan or Capability Roadmap that depicts the build-up and adaption of existing capability, over time, to meet the full breadth and depth of TSS/TMT requirements. The capability roadmap shall describe the content and timing of a series of Minimum Viable Product (MVP) builds with a list of capabilities planned in each TSS/TMT application, infrastructure and operational area, for each MVP. Capabilities listed

in the Roadmap shall include, for each MVP, both those that are in a state suitable for Government and/or Soldier feedback and those that are technical enablers or building blocks to support user-facing functionality scheduled for future MVP(s). The Capability Roadmap shall identify those MVPs that the vendor believes will be capable of facilitating Soldier and/or leader training in the field. These MVPs would then become the MVCR or a subsequent Annual Release, pending successful completion of Operational Testing and Verification, Validation and Accreditation (VV&A).

For each MVP the capability roadmap shall identify the applicable trainable capability within and corresponding target training audience. For example, MVP number "x" may be indicated as providing integrated RVCT-A capability to support training of an AH-64E Recon/Attack Platoon, RVCT-Solider capability to train an Infantry Company and Constructive Command and Staff capability to train at the Battalion level. In earlier MVPs it is generally expected that fewer training capabilities would be available at lower echelons but vendors are encouraged to deliver the maximum breadth of fully trainable capability, at the highest echelon, as early as possible. The final MVP and associated Annual Release shall contain the full range of required training capabilities.

8.7.1.1 Anticipated Delivery Schedule

The vendor shall include the anticipated delivery dates with their solution that includes all Prototype capabilities and completion dates for all tasks and task stages as described in the RFS. Vendors shall include anticipated development and delivery risks tied to milestone activities including anticipated delivery dates and completion dates for all tasks and stages.

8.7.2 System Engineering and Architecture

The vendor shall describe the degree to which architecture reflects a Modular Open Systems Approach. The vendor shall describe whether components, subcomponents and services be easily replaced in support of future capability or technology insertions. The vendor shall describe any APIs or ICDs that reflect their approach. The Vendor shall describe their approach to document their architecture in Cameo Magic Draw format, perform Model Based System Engineering on new interface development and map SSS and SRS requirements back to PWS/SRD requirements and forward map to test cases.

The Vendor shall describe the scalability and flexibility of the game/simulation engine and infrastructure to leverage multiple game/simulation engine instances to support the Brigade and below collective training requirements for number of entities and number of players, while allowing for future growth. The vendor shall describe their approach to entity level modeling IAW the STE entity definition. The vendor shall describe the degree to which the vendor's architecture and

services will deliver training capability to the Point of Need, taking into consideration denied, degraded, intermittent and low bandwidth (DDIL) environments. The vendor shall describe the degree to which the vendor can quickly provide required data flow input to the Army Cross Domain Management Office (ACDMO) to begin the CDS enterprise waiver and solution identification process.

8.7.3 Training Management Tool

The vendor shall describe available capability as a starting framework to evolve to meet STE Bde and PPEA requirements. The vendor shall describe the ability to expand to meet future Bde through ASCC requirements. The vendor shall describe approach to training and learning management community frameworks and standards such as TLA, xAPI, etc. The vendor shall describe a training Object Data Model (ODM) or provide a plan to identify or develop a training ODM to facilitate integration of the TMT with the TSS. The vendor shall describe their capability, design or concept for interface to STE required Authoritative Data Sources (ADS). The vendor shall describe their capability, design or concept for data collection and data management to include storage of large data sets (10s to 100s of TB) in a multi-tiered, cloud based hierarchy. The vendor shall describe their approach to automatically produce readiness assessments according to Objective-T/STP standards.

8.7.4 Training Simulation Software

The vendor shall describe their approach for single game/single simulation engine for all STE simulation based training capabilities to include RVCT Soldier/Ground/Air, and SVT for Bde and below. The vendor shall describe their approach to evolve to support future Live Training Environment, and Next Generation Constructive. The vendor shall describe their existing applications that can be quickly expanded or refined to meet STE RVCT Air/Ground/Solider and Constructive Bde and below requirements. The vendor shall describe their approach for a modern, performant (minimum 60 FPS / 4K resolution rendering with as many as 5,000 entities in FoV) game/simulation engine that includes advanced physics modeling (kinematics and destruction), environment and terrain modeling, AI/behaviors, animations, lighting effects, particle system, LOD management, procedural generation of highly detailed terrain and model textures and robust library of art assets. The vendor shall describe their software design efficiently utilizes hardware to include multiple CPU and CPU core servers and modern 3D rendering API and GPUs.

8.7.5 DevSecOps and Integration

The vendor shall describe their approach for routine Government and Solider feedback in all phases of planning and testing to enable rapid and frequent delivery of capabilities. The vendor shall describe their approach for Continuous

Integration and Continuous Delivery (CI/CD) that heavily leverages automated build, test and deployment capabilities and tools. The vendor shall describe their approach to integrate sub-vendor software contributions directly into prime vendor software source code baseline and continuous build process or as frequent handovers. The vendor shall describe their approach to address cybersecurity mitigation and testing early in the DevSecOps process. The vendor shall describe their approach to leverage and expand existing and emerging capabilities to rapidly provide an organic interface to MCIS and interface to SiVT to allow an expanded, higher echelon training context to squad level, SiVT enabled infantry training.

8.7.6 Operational Capability

The vendor shall describe their current, demonstrated capability and approach to provide a significant head start to meeting TSS/TMT requirements at MVPs, MVCR and subsequent Releases. The vendor shall describe their approach for demonstrated capability to receive feedback from Soldiers on usability, accuracy in representation of STE required platforms, terrain, game/simulation engine content (physical and behavior models, 3D models) and overall trainability.

8.7.7 Government Desired Rights in Technical Data and Computer Software

For the purposes of this RFS and final award document, the vendor shall use the data rights and computer software related terms defined in Attachment 9, Data Rights License Terms and Definitions for initial solution submission.

Vendor shall complete the Data Rights Assertions Tables using the format provided in Attachment 8. The vendor's assertions, including any assertions of its sub-vendors or suppliers must be submitted as an attachment to its initial solution. The tables must be completed in the format set forth in the attachment, dated and signed by an official authorized to contractually obligate the vendor. If additional space is necessary, additional pages may be included. There is no page limit for the Data Rights Assertions Tables, and they do not count against the proposed technical solution page limitation.

The dynamic approach to the TSS/TMT is based upon the ability to incorporate the latest commercial capability to drive future STE solutions and needs. Vendor proposed rights in technical data should consider the following Government desired rights:

- (a) Unlimited rights for all TSS/TMT architecture and architecture components (e.g. Application Programming Interface (API), data models, data and source code). To all developed and deliverables of technical data, computer software, and computer software documentation funded under the transaction agreement.

- (b) Government purpose rights to co-developed of technical data, computer software, and computer software documentation funded under the transaction agreement, for at least a five-year period. Upon expiration of the five-year period technical data, computer software, and computer software documentation will become unlimited rights.
- (c) Prime and sub-vendors proprietary software coding or hardware development (to include vendor licensing requirements) shall not be included without prior Government approval.

8.7.8 Cost and Pricing Breakdown

The Vendor shall utilize Firm Fixed Price for Labor, while Other Direct Costs (to include licensing, hardware, etc.) shall be Cost Plus Fixed Fee, and Government directed Travel shall be cost (no fee). Vendors shall provide the pricing for its solution IAW Attachment 3 Cost Template and Notional CLIN Structure, which is divided into severable milestones. The Government will provide incentives starting with MVP2 that will be awarded based on the vendor's ability to accelerate the scheduled deliverables. The CLIN structure is separated by clearly definable, detailed milestones and capability deliverables in each phase. It should be clear, with sufficient detail, what is being delivered at each milestone. Milestones have been established and priced in a manner that prohibits milestone efforts from being worked concurrently. Each CLIN price should provide appropriate build-up to allow the Government the ability to track between the technical approach and proposed pricing structure. The price volume has no page number limitation. Government may require supporting information and documentation from vendors to evaluate price/cost. Vendor shall provide the requested information to Government to assist the evaluation.

The price response shall be submitted as a separate document from the technical response. No pricing details shall be included in the technical response.

8.7.9 TIM and Exchange Topics

Possible topics include, but are not limited to:

1. Scalability of Game or Simulation engine to include multithreaded performance, variable model fidelity, rendering engine performance with large numbers of entities in the field of view.
2. Scalability infrastructure and simulation data dissemination and game/simulation management approach.
3. Terrain: Base Globe capability to allow a low fidelity, reference representation of the earth using OWT provided data with ability to view, "spin the globe" and

select areas for high resolution data pack request, download and replacement stitching.

4. RVCT Ground and Air concurrency approach to utilize Government furnished wrapped and/or emulated versions of platform mission software such as Operational Flight Program (OFP) and Common Software Libraries (CSL).

5. RVCT Soldier software to include representation of soldier avatars using individual Soldier based authoritative performance/parametric data

6. OWT 3D moving, static and relocatable model integration, rendering and supplementation approach, as applicable, to provide modular, compatible models, capable of semi-immersive control capability for select required platforms.

7. Computer generated forces approach to providing highly detailed, yet highly scaled military and civilian representation using validated physical and behavior model. Use of authoritative parametric data, model descriptions and software implementations.

8. Systems Engineering and DevSecOps process and toolchain to include planned/proposed Sprint and Program Increment cadence, processes, deliveries and demonstrations. Development and end to end linkage of architecture, detailed system requirements and test cases/procedures with associated Requirements Traceability Matrix (RTM)

8.8 Revised Solution Submittal

The final solution submittal shall address all areas under section 8.7 and Government feedback and clarification provided in conjunction with vendor demonstrations, TIMs, and initial solution evaluation. Responses shall be submitted in accordance with section 8.4 and limited to no more than 50 pages and a total of 5 foldouts are allowed.

9. RFS Response Instructions

9.1 The Government intends to make a single OT award as a result of this RFS. Government reserves the right to make more than one award may be made if determined to be in the Government's best interest.

9.2 All questions related to this RFS shall be submitted utilizing the Vendor Questions Form provided in Attachment 7. Questions must be submitted via email to initiatives@nstxl.org, with "STE TSS/TMT Prototype Vendor Questions" in the subject line.

9.3 Questions must be submitted no later than 12:00 PM EST on 18 December 2020. The Government will continue to accept questions after the deadline, but they may not be answered prior to Demonstration Plan submittal. Questions shall not include proprietary data as the Government reserves the right to post submitted questions and answers, as necessary (and appropriate), to facilitate vendor solution responses.

9.3.1 Submitted questions will be posted without identifying vendor names.

9.4 Vendor Demonstration Plan responses shall be submitted no later than 12:00 PM EST on 8 January 2021 and shall be submitted electronically to initiatives@nstxl.org, with "STE TSS/TMT Prototype" used in the subject line. Any submissions received after this time on this date may be rejected as late and not considered.

9.4.1 Vendors must clearly state assumptions made within their response. Vendors are encouraged to challenge any Government assumptions or restrictive requirements in its individual solution and should articulate any major discrepancies between the RFS and its technical solution. Should a vendor's solution require a change in policy and/or statute, the vendor shall outline within their technical volume, and describe why the change is needed to realize the benefit of the vendor's prototype (and potential production).

9.4.2 Vendor's final solution shall be valid for at least 180 days after submission.

9.5 Further instructions on when demonstrations will take place as well as initial solution and final solution submittal will be provided during the down select process.

10. Evaluation and Selection Process

Acceptable solutions not selected for the immediate award will be retained by NSTXL & the Government for possible future execution and funding. The non-selected solutions may be considered as viable alternatives for up to 36 months. If a solution (that was not previously selected) is later determined to be a viable alternative, the company will be contacted to negotiate any solution updates and details of a potential project award.

Respondents whose solutions are not selected at a down-select phase to include the final award shall not contact the Government or NSTXL to inquire about the status of any ongoing effort as it relates to the likelihood of their company being selected as a future alternative.

10.1 Selection Process

The Government will review each vendor's submittal against the criteria outlined in this section, with equal importance to the technical merit, feasibility of implementation, and total project risk.

The proposed project price, delivery schedule, and data right assertions will also be considered as aspects of the entire response when weighing risk and reward. Further, the Government will evaluate the degree to which the proposed concept provides an innovative, unique – yet realistic and sustainable - approach to meeting the TSS/TMT PWS and SRD.

The Government will evaluate assess the risk of each vendor's submittal. Assessment of risk is subjective. If the risk is obvious or the schedule seems overly aggressive, the Government will consider that in the total risk assessment. If sufficient validation of the proposed information is not provided, the Government may consider the risk unacceptable for award.

Unsupported assertions will be discounted by the evaluators. Technology and Manufacturing Readiness Levels will be considered when weighing the benefit of the solution.

The Government reserves the right to hold in-depth exchange(s) with individual vendors throughout the evaluation process to ascertain capability and potential of submissions.

The Government reserves the right to make award to the most qualified vendor following any Phase without entering into the next Phase.

10.2 Phase Evaluation and Selection

10.2.1 Demonstration Plan Assessment (Down select #1)

The Government will evaluate the technical merit and feasibility of the vendor's plan to demonstrate applications, significant breadth of capability, infrastructure, and integration of those applications into the aforementioned infrastructure that meets or has potential to meet TSS/TMT requirements. The demonstration plan will also be given a risk assessment based on proposed intellectual property rights, data rights, and software licensing approach.

10.2.2 Capability Demonstration (Down select #2)

The Government will evaluate the technical merit and feasibility of the vendor's product demonstration in relation to TSS/TMT technical and operational requirements as stated in the RFS. The technical areas will be

evaluated based upon the demonstrated applications, infrastructure, and integration of those applications into the aforementioned. The operational areas will be evaluated based on Point of Need, ease of use, and reliability. The Government will also evaluate the degree to which the vendor's solution is innovative and provides leap ahead technology.

10.2.3 Initial Solution Evaluation

The Government will evaluate the vendor's technical approach, data rights, risk, and schedule of the vendor's initial solution. The Government will evaluate the reasonableness of the vendor's price. The Government may also evaluate the price/cost for realism to determine whether the estimated proposed price/cost elements are realistic for the work to be performed. As a result, Government may require supporting information and documentation from vendors to evaluate price/cost. Vendor shall provide the requested information to Government to assist the evaluation. The Government will evaluate the technical merit and feasibility of the vendor's technical approach. The Government will evaluate the merit and feasibility of the schedule, and the correlation of the schedule with technical approach and program costs. The Government will provide clarification and have open exchanges with vendors during the TIMs as well as 1-on-1 technical overview to ensure the vendors understand and provide the optimal solution to meet the requirement.

10.2.4 Revised Solution Evaluation: Comprehensive Evaluation encompassing Vendor Demonstrations, Initial Solution and Exchanges

The Government will evaluate the vendor's technical approach, data rights, risk, and schedule of the vendor's final solution. The Government will evaluate the reasonableness of the vendor's price. The Government may also evaluate the price/cost for realism to determine whether the estimated proposed price/cost elements are realistic for the work to be performed. As a result, Government may require supporting information and documentation from vendors to evaluate price/cost. Vendor shall provide the requested information to Government to assist the evaluation. The Government will evaluate the technical merit and feasibility of the vendor's technical approach. The Government will evaluate the merit and feasibility of the schedule, and the correlation of the schedule with technical approach and program costs.

11. Additional Information

11.1 Export Controls

Research findings and technology developments arising from the resulting proposed solution may constitute a significant enhancement to the national defense and to the economic vitality of the United States. As such, in the conduct of all work related to this effort, the recipient will comply strictly with the International Traffic in Arms Regulation (22 C.F.R. §§ 120-130), the National Industrial Security Program Operating Manual (DoD 5220.22-M) and the Department of Commerce Export Regulation (15 C.F.R. §§ 730-774).

11.2 Interaction and/or Disclosure with Foreign Country/Foreign National Personnel

The Vendor should comply with foreign disclosure processes described in US Army Regulation (AR) 380-10, Foreign Disclosure and Contacts with Foreign Representatives; Department of Defense Directive (DoDD) 5230.11, Disclosure of Classified Military Information to Foreign Governments and International Organizations; and DoDD 5230.20, Visits and Assignments of Foreign Nationals.

11.3 All submissions will be unclassified. Submissions containing data that is not to be disclosed to the public for any purpose or used by the Government except for evaluation purposes will include the following sentences on the cover page:

“This submission includes data that will not be disclosed outside the Government, except to non-Government personnel for evaluation purposes, and will not be duplicated, used, or disclosed -- in whole or in part -- for any purpose other than to evaluate this submission. If, however, an agreement is awarded to this Company as a result of -- or in connection with -- the submission of this data, the Government will have the right to duplicate, use, or disclose the data to the extent agreed upon by both parties in the resulting agreement. This restriction does not limit the Government's right to use information contained in this data if it is obtained from another source without restriction. The data subject to this restriction are contained in sheets [insert numbers or other identification of sheets]”

11.4 Each restricted data sheet should be marked as follows:

“Use or disclosure of data contained on this sheet is subject to the restriction on the title page of this submission.”

11.5 Notice Regarding Document Markings

Certain types of information having the potential for award of an OT are exempt from disclosure requirements of 5 U.S.C. §552 [the Freedom of Information Act (FOIA)] for a period of five years from the date the Department receives the information. Specifically, 10 U.S.C. §2371(i), as amended, provides that

disclosure of this type of information is *not required*, and *may not* be compelled, under FOIA during that period if a party submits the information in a competitive or noncompetitive process having the potential for an award of an OT.

- a. Such information includes the following:
 - i. A proposal, proposal abstract, and supporting documents.
 - ii. A business plan submitted on a Business Proprietary basis.
 - iii. Technical information submitted on a controlled basis as outlined in DoDI 5230.24.
- b. Vendors are to mark business plans and technical information that are to be protected for five years from FOIA disclosure with a legend identifying the documents as being submitted on a confidential basis.
- c. To the extent that the Agreement involves classified information, the vendor shall ensure that the Agreement is conducted as required by the National Industrial Security Policy outlined in, DoD 5220.22-M and DD Form 441.

The vendors must comply with DoDI 8582.01 and DoDM 5200.01 Volume 4; implement the security requirements in NIST SP 800-171 for safeguarding the vendor's unclassified internal information system; and report cyber incidents that affect the controlled unclassified information directly to DoD at <https://dibnet.dod.mil>.

To the extent that the Agreement will involve National Security, the Government has the ability to exclude vendors on the National Security System Restricted List.

12. Follow-On Production

Upon successful completion of the prototype, the Government may award a follow-on production contract or transaction without the use of competitive procedures. Successful completion will occur when the prototype has been validated and is accepted by the Government.

13. Attachments

- Attachment 1, TSS TMT PWS V1.2, Distribution A
- Attachment 2, TSS TMT Technical Data Package (TDP) V1.2, CUI//EXPT
- Attachment 3, Cost Template and Notional CLIN Structure
- Attachment 4, Security Process for Vetting Contractors
- Attachment 5, GFI Tech Data Distribution Form
- Attachment 6, Security Vetting Form
- Attachment 7, Questions Form
- Attachment 8, Data Rights Assertions Tables
- Attachment 9, Data Rights License Terms and Definitions
- Attachment 10, Terms and Conditions and EULA