

IARPA

BROAD AGENCY ANNOUNCEMENT

IARPA-BAA-20-04



I A R P A
BE THE FUTURE

Biometric Recognition and Identification at Altitude and Range (BRIAR) Program

IARPA-BAA-20-04

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BRIAR Program

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GENERAL INFORMATION

This notice constitutes a Broad Agency Announcement (BAA) and sets forth research of interest in the area of whole-body biometric identification. The solicitation process will follow Federal Acquisition Regulation (FAR) Part 35, Research and Development Contracting, as supplemented with additional information included in this notice. Awards based on responses to this BAA will be considered the result of full and open competition.

1. **Federal Agency Name** – Office of the Director of National Intelligence (ODNI)/Intelligence Advanced Research Projects Activity (IARPA)
2. **Funding Opportunity Title** – Biometric Recognition and Identification at Altitude and Range (BRIAR)
3. **Announcement Type** – Initial
4. **Funding Opportunity Number** – IARPA-BAA-20-04
5. **Catalog of Federal Domestic Assistance Numbers (CFDA)** – Not applicable
6. **Questions**
Submit questions on administrative, technical, or contractual issues by email to dni-IARPA-BAA-20-04@iarpa.gov. All requests must include the full name and affiliation of a point of contact. Do not send questions with proprietary content. A consolidated Question and Answer response will be posted on the beta.SAM.gov for Contract Opportunities website (<https://beta.sam.gov/>) and linked from the IARPA website (<https://www.iarpa.gov/index.php/research-programs/BRIAR>). No answer will go directly to the submitter. IARPA will accept questions until January 6, 2021 @ 5:00 PM EST.
7. **Dates**
 - 7.1 **Posting Date:** December 10, 2020
 - 7.2 **Proposal Due Date for Initial Round of Selections:** February 10, 2021, 4:00 PM EST
 - 7.3 **BAA Closing Date:** March 10, 2021 4:00 PM EDT
8. **Anticipated individual awards** – Multiple awards anticipated
9. **Types of instruments that may be awarded** – Procurement Contracts and Other Transactions ¹
10. **Agency Points of Contact**
ATTN: IARPA-BAA-20-04
Office of the Director of National Intelligence
Intelligence Advanced Research Projects Activity
Washington, DC 20511
Electronic mail: dni-IARPA-BAA-20-04@iarpa.gov
11. **Program Manager (PM)** – Lars Ericson, PhD
12. **Program Website** – <http://www.iarpa.gov/index.php/research-programs/BRIAR>
13. **BAA Summary** – The BRIAR Program aims to develop software algorithm-based systems capable of performing whole-body (WB) biometric identification at long-range and from elevated platforms. Many Intelligence Community (IC) and Department of Defense (DoD) agencies require the ability to identify or recognize individuals under challenging scenarios, such as at long-range (e.g., 300+ meters), through atmospheric turbulence, or from elevated and/or aerial sensor platforms (e.g., $\geq 20^\circ$

¹ **Procurement Contract:** This is a standard government contract that follows the processes, format and terms and conditions as outlined in the Federal Acquisition Regulations (FAR) and supplementing Agency specific regulations.

Other Transaction Authority: Agreements generally are not subject to the federal laws and regulations governing procurement contracts and thus are not required to comply with the Federal Acquisition Regulation (FAR), its supplements, or laws that are limited in applicability to procurement contracts. They may be used with non-traditional contractors under certain circumstances.

sensor view angle from watch towers or Unmanned Aerial Vehicles (UAVs)). Expanding the range of conditions in which accurate and reliable biometric-based identification could be performed would greatly improve the number of addressable missions, types of platforms and sensors from which biometrics can be reliably used, and quality of outcomes and decisions.

SECTION 1: FUNDING OPPORTUNITY DESCRIPTION

IARPA often selects its research efforts through the BAA process. The use of a BAA solicitation allows a wide range of innovative ideas and concepts. The BAA will appear on <https://beta.sam.gov/>, Contract Opportunities, as well as the IARPA website at <http://www.iarpa.gov/>. The following information is for those wishing to respond to this Program BAA.

This BAA (IARPA-BAA-20-04) is for the Biometric Recognition and Identification at Altitude and Range (BRIAR) program. IARPA is seeking innovative solutions for the BRIAR Program in this BAA. BRIAR is envisioned to be a 4-year effort, beginning approximately August 1, 2021 through July 31, 2025.

1.A. Program Overview

The BRIAR Program aims to develop software algorithm-based systems capable of performing whole-body (WB) biometric identification at long-range and from elevated platforms. Many IC DoD agencies require the ability to identify or recognize individuals under challenging scenarios, such as at long-range (e.g., 300+ meters), through atmospheric turbulence, or from elevated and/or aerial sensor platforms (e.g., $\geq 20^\circ$ sensor view angle from watch towers or UAVs). Expanding the range of conditions in which accurate and reliable biometric-based identification could be performed would greatly improve the number of addressable missions, types of platforms and sensors from which biometrics can be reliably used, and quality of outcomes and decisions.

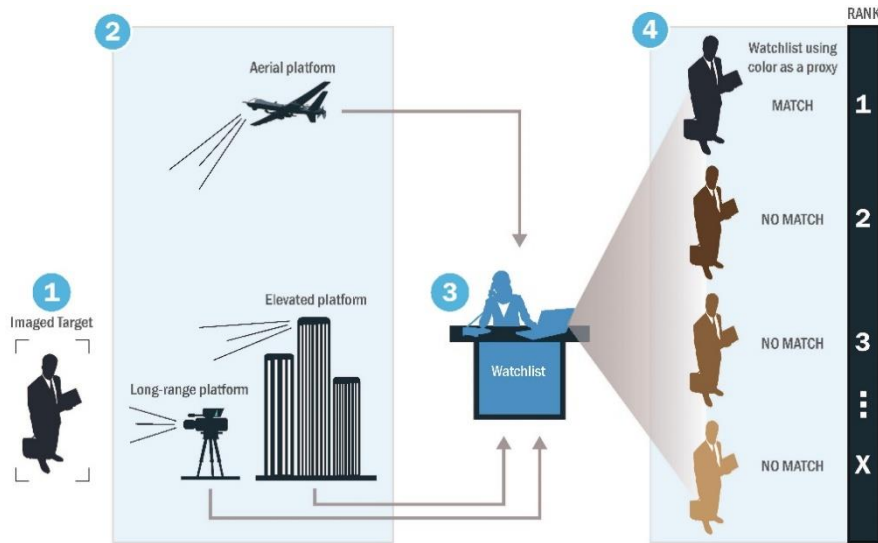


Figure 1: BRIAR Program Concept

Face recognition (FR) has increasingly become the biometric modality best suited for IC and DoD missions in which conditions are unconstrained; that is, conditions in which there is no control over factors that would improve the likelihood of being able to make a biometric identification (e.g., orientation of subject to sensor, lighting, facial expression). In the FR literature, these factors are often abbreviated as “PIE” for pose, illumination, and expression. Over the past six years, there have been notable advances in computer

vision to facilitate unconstrained FR. The IARPA Janus Program (<https://www.iarpa.gov/index.php/research-programs/janus>), for example, drove many recent advances. However, there remain challenges, in particular for diverse face detection, verification, and identification when dealing with low-resolution or noisy imagery (e.g., motion blur, atmospheric turbulence). In addition, limited research has been performed on FR using images captured at high camera pitch angles, such as those collected from security cameras on building tops or from airborne platforms, such as UAVs. This is primarily due to a lack of appropriately collected and sharable research data that represent this type of imagery.

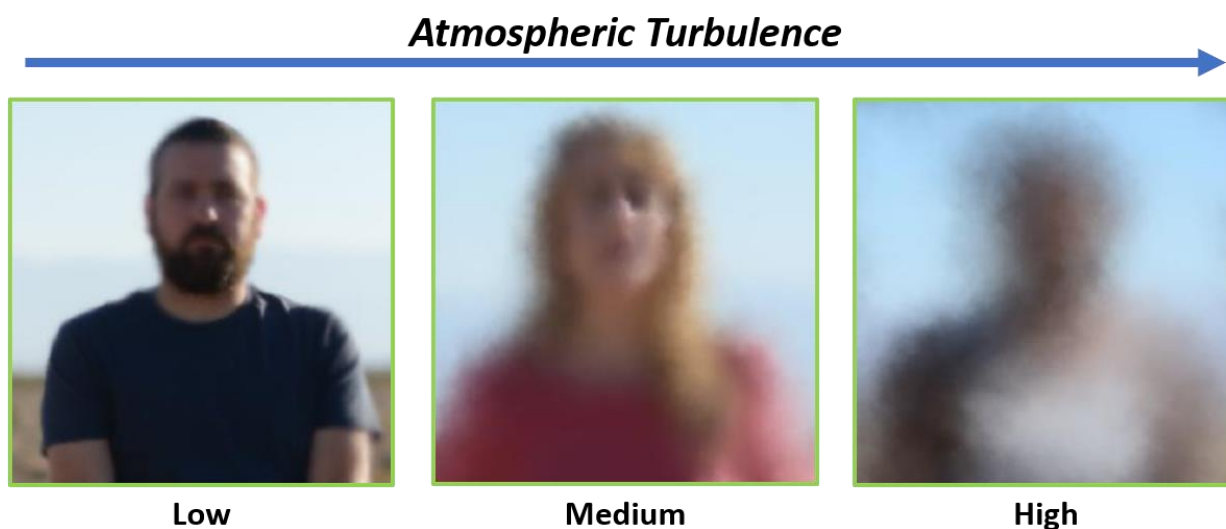


Figure 2: Imagery from volunteer subjects collected under an Institutional Review Board-approved protocol, courtesy of US Army C5ISR Center Night Vision and Electronic Sensors Directorate, demonstrating that images captured under various atmospheric turbulence conditions are challenging for conventional FR.

Imagery captured at long-range or high altitude may also require that additional biometric signatures be used with FR to provide the necessary accuracy or confidence for person identification. Example biometrics that may be relevant include (but are not limited to) WB identification, gait recognition, and/or anthropometric classification (e.g., height, gender). These biometric signatures can enable the identification of a person in a degraded, noisy, or low-resolution video without relying on medium to high resolution views of a subject's face. WB approaches utilize the shape, movement, measurements, or other aspects of a human form to determine biometric signals that are universal, unique, and permanent human characteristics for the purposes of verification, recognition, or identification.

The BRIAR Program will address these technical needs and challenges by pursuing cutting-edge research into multi-modal biometric recognition algorithms to develop innovations in WB biometrics that fuse FR with other biometric signatures. The research will be supported throughout the program with robust, demographically diverse, domain-relevant biometric data that directly capture the full range of challenging conditions represented in long-range and elevated platform imagery. The BRIAR program will focus on visible wavelength imagery only; research involving biometric matching of non-visible band imagery will be out of scope. Research outcomes from the BRIAR Program are intended to support missions such as counterterrorism, protection of critical infrastructure and transportation facilities, military force protection, and border security.

Performers will conduct research to develop algorithms, to be represented in robust software systems, that can perform biometric verification, recognition, and identification of persons in visible-band video imagery captured under challenging range, atmospheric, and view conditions. In addition, the Performer's systems will be required to perform person and face detection, association across video frames, and multi-image template² generation. The developed systems will be required to perform biometric matching on unconstrained imagery in multiple modes – face only, WB, and a multi-modal fusion of FR and WB. Performers will not be developing custom optical sensors, sensor systems, or sensor platforms (e.g., UAVs), but will be focused on advancing the state-of-the-art for end-to-end multi-modal WB biometric recognition software. Research approaches should pursue algorithm solutions that are agnostic to the collection hardware, including platforms and sensors. The delivered interim and final systems will be evaluated by independent Test and Evaluation (T&E) according to a set of program metric targets. Additional details on program metrics are available in 1.F. Program Metrics.

A robust data collection initiative will be part of the BRIAR Program to assemble diverse and relevant imagery for use in R&D for algorithm training and in T&E for comparing the algorithm accuracy against ground truth. The T&E Team³ will be conducting several field and laboratory data collections throughout the life of the program using Institutional Review Board (IRB)-approved Human Subject Research (HSR) protocols. This data will be made available to Performers for Research and Development (R&D). In addition, Performers will be required to conduct their own supplemental IRB-approved HSR data collections and make that data available to the Program. Additional details on program data can be found in 1.D. Program Data.

The BRIAR Program will pursue rigorous and comprehensive T&E to ensure that research outcomes are well characterized, deliverables are aligned with program objectives, and that algorithm performance is measured across the full range of demographic, sensor, and environmental conditions. Such T&E activities will not only inform Government stakeholders on BRIAR research progress but will also serve as valuable feedback to the Performers to improve their research approaches, algorithm training practices, and system development. The BRIAR Program will work closely with Government leaders in biometrics to continually refine and improve T&E methodologies.

1.A.1. Technical Challenges and Objectives

Offerors shall address the following technical challenges (TCs) and objectives in order to meet the goal of BRIAR to advance whole-body and face recognition at long range and from elevated platforms:

- Biometric system capable of matching at long ranges out to 1,000 meters (e.g., body height \approx 200 pixels, face width \approx 20 pixels).
- Biometric system capable of matching at severe sensor pitch angles (e.g., 50°).
- Image processing or algorithm development techniques that mitigate the effect of atmospheric turbulence and image degradations on biometric recognition performance.
- Exploitation of the contextual and temporal content in visible-band full motion video imagery to produce robust biometric encoded representations.
- Multi-image templates that leverage video imagery to produce a single biometric encoding for each individual, regardless of the number of imagery files or frames.

² Biometric Template = A digital representation of the unique features that have been extracted from a biometric sample; used in matching to determine the similarity between two biometric samples.

³ T&E support for the BRIAR program is being provided by three organizations: the Department of Energy Oak Ridge National Laboratory, US Army Combat Capabilities Development Command C5ISR Center Night Vision and Electronic Sensors Directorate, and the National Institute of Standards and Technology.

- Detection and tracking of body and face modalities in video clips, including videos involving moving subjects and moving/changing camera views.
- FR invariant to PIE and robust against degraded visible-band imagery.
- WB biometric recognition invariant to pose, illumination, and clothing changes and degraded visible-band imagery.
- WB biometric recognition capable of cross-view visible-band matching in indoor and outdoor settings.
- Algorithmic approaches robust against incomplete or partially occluded views of biometric signatures, to include both WB and face.⁴
- Fusion of face with biometric signatures derived from whole body motion, shape, or other characteristics for increased matching performance.
- WB and face recognition that perform accurately across diverse demographic and human body shape groups.
- Ability to adapt algorithms to edge processing environments with restricted computing resources.
- Ability to process streaming imagery and generate results at real-time speeds.
- Algorithms robust against changes in sensor platform and optics.
- Research methods to adapt or transfer algorithm solutions to platform-specific environments for further performance recovery, optimization, or improvements.

1.A.2. Program Phases

The BRIAR program will proceed in three (3) phases. Offerors are required to submit a proposal that addresses all three phases. The phases are designed to drive Performers to develop solutions that are suited to a range of biometric capture conditions, robust against imagery degradations, and computationally efficient. The following paragraphs describe the phases and Table 1 summarizes and distinguishes the differences among the program phases.

Table 1: BRIAR Program Phases

Area	Phase 1 (18 months)	Phase 2 (18 months)	Phase 3 (12 months)
System R&D	Subcomponent	Integrated	Optimized
Accuracy ⁵	Feasible	Relevant	Confident
Probes	Unconstrained data with moderate pitch or range	Unconstrained data with severe range or pitch	Unconstrained data with severe pitch and range
Gallery	Controlled	Partially controlled	Unconstrained
Processing	Offline	Real-time	Edge

⁴ Possible occlusions could include but are not limited to: objects in the scene, objects being carried, poses or motions by subjects that occlude face or body views, clothing such as long coats or sunglasses. In addition, occlusions may exist in some or all of a given video sequence.

⁵ Qualitative terms are descriptive of the philosophical focus of each phase; more details on target metrics are available in 1.F Program Metrics.

The ultimate goal of BRIAR is to deliver an end-to-end WB biometric system capable of accurate and reliable verification, recognition, and identification of persons from elevated platforms and at distances out to 1,000 meters across a range of challenging capture conditions.

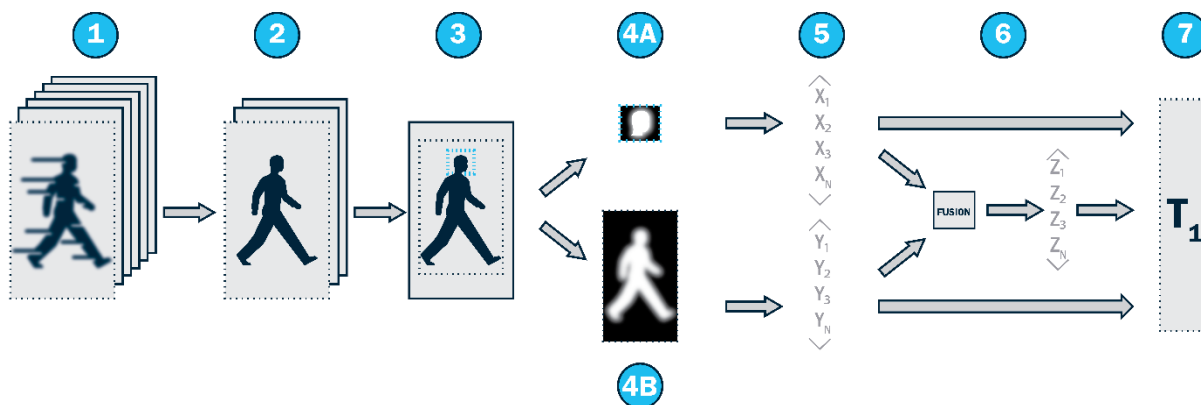


Figure 3: Example Concept Cartoon for a BRIAR End-to-End System.⁶ Possible stages of the pipeline could include: 1) Video input with image degradations (e.g., blur); 2) Image enhancement fuses information from frames; 3) Person and face localization; 4) Image processing into biometric-relevant chips/tracklets; 5) Encoding into feature vectors; 6) Fusion of face and WB features; and 7) Similarity matching against reference template(s).

1.A.2.1. Phase 1

Phase 1 will have a duration of 18 months. In Phase 1, Performers will research WB biometrics, FR, and supporting subcomponents. Supporting subcomponents include anything needed to research and demonstrate end-to-end automated WB biometric matching including, but not limited to, person detector(s), person tracker(s), face detector(s), image enhancement pre-processing module(s), atmospheric turbulence mitigation module(s), and/or biometric fusion module(s). Performer research will focus on foundational explorations and investigations into different approaches, theories, and concepts to establish the building blocks of their BRIAR system(s). To mitigate risk and investigate competing approaches, multiple research endeavors in the same subtopic may take place to compare and contrast performance, characteristics, and scientific insights within a given team. During Phase 1, each Performer will carry out one (1) HSR biometric data field collection to capture diverse program-relevant data for R&D. These datasets will be delivered with Unlimited Rights, in accordance with FAR 52.227-14, to allow use by the USG. More details on these researcher-executed collections are available in 1.D.1.2. Researcher Collections.

The Performers will work towards meeting accuracy targets across a range of biometric use cases that demonstrate the feasibility of their research approaches. While the full range of capture conditions are to be considered during Phase 1, the focus will be on biometric matching involving probe videos containing individual unconstrained subjects with either moderate pitch or range conditions. For the purposes of this BAA, moderate pitch shall mean a 20 – 30° view angle and moderate range shall mean 100 – 500 meters, but the pitch and range may be further refined during the course of the program by the BRIAR PM and T&E Team. In Phase 1, Performer R&D and Government T&E of algorithms will involve biometric database galleries containing controlled enrollment videos of diverse subjects presenting WB, face, and gait information. BRIAR systems will only need to be operated in offline processing and demonstrate batch

⁶ The notional system is not prescriptive. There exist opportunities for innovation or alternate system designs in any or all stages of the BRIAR end-to-end system.

image processing with post-test fusion of modalities. A set of final Deliverables will be due in Phase 1 at a scheduled Milestone (see 1.G.2. Program Milestone, Waypoint, and Deliverables Timeline).

In Phase 1, IARPA will provide datasets and a BRIAR program Application Programming Interface (API) developed by the BRIAR T&E Team. This Government Furnished Information (GFI) will facilitate productive and useful research in a consistent and standardized manner. Data provided by the T&E Team will be partitioned into development and evaluation datasets. Datasets will be provided at approximately six-month intervals to Performers; development datasets will be for use in algorithm R&D and training, and evaluation datasets for performance characterization. Evaluation of Performer progress towards program metrics will primarily utilize evaluation datasets that are not sequestered but shared with Performers so as to facilitate communication and internal Performer error analyses. Three research datasets and three evaluation datasets will be provided in Phase 1 in addition to Performer self-collected data. The baseline API provided in Phase 1 is to standardize system and subcomponent design and streamline comparative evaluations. More details on the datasets are available in 1.D. Program Data and more details on the API are available in 1.G.3.1. Program API.

1.A.2.2. Phase 2

Phase 2 will have a duration of 18 months. In Phase 2, the Performers will focus on R&D to explore how best to combine their modular research approaches with the objective of integrating and optimizing subcomponent modules into an end-to-end WB biometric matching system. By the midpoint of the phase, the Performers will be required to have demonstrated a prototype system that integrates person detection, face detection, image degradation mitigation technique(s), and the fusion of FR and at least one WB modality in a single, automated pipeline. During Phase 2, each Performer will carry out two (2) HSR biometric data field collections to capture diverse program-relevant data for R&D. These datasets will be delivered with Unlimited Rights, in accordance with FAR 52.227-14, to allow use by the USG. More details on these researcher-executed collections are available in 1.D.1.2. Researcher Collections.

The Performers will work towards meeting accuracy targets across a range of biometric use cases that demonstrate performance relevant to United States Government (USG) needs. While the full combination of capture conditions is to be considered during Phase 2, the focus will be on biometric matching involving probe videos containing unconstrained subjects with either moderate to severe pitch or range conditions. Severe pitch is defined as 30 – 50° view angle and severe range as 500 – 1,000 meters. Moderate pitch or range will continue to be relevant in Phase 2. Probe videos containing small groups of up to three (3) subjects, in addition to single individuals, will be introduced in Phase 2 for detection, tracking, and encoding of biometric signatures. In addition, Performers will begin addressing biometric matching with partially occluded views of subjects for WB, gait, or face views. Possible occlusions could include but are not limited to: objects in the scene, objects being carried, poses or motions by subjects that occlude face or body views, clothing such as long coats or sunglasses. In addition, occlusions may exist in some or all of a given video sequence. In Phase 2, Performer R&D and Government T&E of algorithms will involve biometric database galleries containing both controlled enrollment videos and partially controlled enrollment imagery of diverse subjects presenting WB, face, and gait information. For purposes of this BAA, partially controlled is defined as short range enrollment with limited instruction to subjects or non-ideal lighting. Examples include an outdoor enrollment or a non-cooperative person in an indoor hallway. Performers will also focus their efforts on identifying, characterizing, and addressing imaging data that are proving particularly challenging to their research approaches, subcomponent modules, or integrated systems, to include specific BRIAR environmental conditions, platform/sensor types or behaviors, or demographic or body-type populations. In Phase 2, BRIAR systems will be required to operate in a real-time configuration, processing both batch video files and streaming videos on commodity computing resources. For the purposes of this BAA, “real time” is defined as a single 1080p video stream (i.e., 1920 x 1080 resolution) at 30 fps video. Two sets of interim Deliverables and a set of final Deliverables will be

due in Phase 2 at scheduled Milestones (see 1.G.2. Program Milestone, Waypoint, and Deliverables Timeline).

In Phase 2, the IARPA will be providing additional datasets and an expanded version of the BRIAR API. Three research datasets and three evaluation datasets will be provided in Phase 2 in addition to Performer self-collected data. More details on the datasets are available in 1.D. Program Data and more details on the API are available in 1.G.3.1. Program API.

1.A.2.3. Phase 3

Phase 3 will have a duration of 12 months. In Phase 3, the Performers will focus on advancing the coupled integration of all subcomponents and optimizing biometric signal fusion in the end-to-end system. R&D will expand image processing and fusion to include secondary components and improving the adaptive nature of the pipeline to the full range of capture and environmental conditions. Research will also pursue methods to retrain or adapt the matching algorithms to transfer to new sensor and/or platform conditions as well as methods to optimize performance if deployed on a specific dedicated sensor or platform system. New sensors and platforms will be identified early in Phase 3 by the BRIAR PM and T&E Team, in coordination with USG partners. Performers will continue efforts to address imaging data that are proving particularly challenging to their BRIAR systems across diverse environmental, sensor, platform, and human subject types. During Phase 3, each Performer will carry out one (1) HSR biometric data field collection to capture diverse program relevant data for R&D. These datasets will be delivered with Unlimited Rights, in accordance with FAR 52.227-14, to allow use by the USG. More details on these researcher-executed collections are available in 1.D.1.2. Researcher Collections.

The Performers will work towards meeting performance targets across a range of biometric use cases that demonstrate reliable accuracy and low false match rates. The full combination of capture conditions will be considered during Phase 3 R&D. Biometric matching will involve probe videos containing unconstrained diverse subjects with any combination of moderate to severe pitch and/or range conditions. Research will continue advancing methods to mitigate or utilize partially occluded views of biometric signatures while minimizing the impact to matching accuracy. In Phase 3, Performer R&D and Government T&E of algorithms will include biometric database galleries containing fully unconstrained videos of non-cooperative diverse subjects captured at small to medium range and/or pitch views presenting WB, face, and gait information. Small range is defined as 1 – 100 meters; small pitch is defined as 0 – 20°. In Phase 3, Performers will develop a version of their main BRIAR system that will be capable of processing real-time streaming video at 15 fps on an edge computing platform with matching accuracies to Phase 2 metric targets. Note that this requirement does not apply to the main BRIAR system, which is to process real-time streaming or batch videos in commodity desktop computing environments. One set of interim Deliverables and a set of final Deliverables will be due in Phase 3 at scheduled Milestones (see 1.G.2. Program Milestone, Waypoint, and Deliverables Timeline).

In Phase 3, the IARPA will be providing additional datasets and a completed version of the BRIAR API. Two research datasets and two evaluation datasets will be provided in Phase 3 in addition to Performer self-collected data. More details on the datasets are available in 1.D. Program Data and more details on the API are available in 1.G.3.1. Program API.

1.B. Team Expertise

Collaborative efforts and teaming among Offerors are highly encouraged. It is anticipated that teams will be multidisciplinary and may include expertise in one or more of the disciplines listed below. This list is included only to provide guidance for the Offerors; satisfying all the areas of technical expertise below is not a requirement for selection and unconventional or innovative team expertise may be needed based on the proposed research. Proposals should include a description and the mix of skills and staffing that the Offeror determines will be necessary to carry out the proposed research and achieve program metrics.

- Biometrics theory, applications, and systems with specific emphasis on face, WB, and gait modalities
- Computer vision to include object detection, tracking, camera modeling
- Image processing to address noise, degradations, turbulence, and motion blur
- Optics and sensors
- UAV sensor design and operation, as well as UAV flight concepts of operations
- HSR and data collections
- Anatomy and kinesiology
- Modeling and simulation
- Machine learning, deep learning, or hierarchical modeling
- Artificial intelligence
- Systems integration
- Systems engineering
- Software engineering
- Data reduction and analysis
- Distributed processing, stream processing

1.C. Program Scope and Limitations

Proposals shall explicitly address all the following:

- **Underlying theory:** Proposed strategies to meet program-specified metrics must have firm theoretical bases that are described with enough detail that reviewers will be able to assess the viability of the approaches. Proposals shall properly describe and reference previous work upon which their approach is founded.
- **Research & Development approach:** Proposals shall describe the technical approach to meeting program metrics.
- **Technical risks:** Proposals shall identify technical risks and proposed mitigation strategies for each.
- **Software development:** Proposals shall describe the approach to software architecture and integration.

The following areas of research are **out of scope** for the BRIAR program:

- Research that does not have strong theoretical and experimental foundations.
- Development of optical sensor hardware.
- Development of sensor platforms, such as UAVs, vehicles, aerostats, towers, or camera systems.
- Development of other hardware.
- Approaches that rely on secondary external data signals, such as cell tower tracking or non-optical sensors, to carry out biometric matching tasks.
- Research that utilizes proprietary data that are not made available to other Performers.
- Methods that require a human-in-the-loop as part of the integrated end-to-end system in Phases 2-3.
- Approaches that consist merely of integrating currently existing software.
- Research involving biometric matching of non-visible band imagery (e.g., Near Infrared, Short-Wave Infrared, Mid-Wave Infrared, or Long-Wave Infrared)

The use of additional sensors, imaging or sensing modalities, filters, or calibration targets to assemble training data sets or to support modeling and simulation research is in scope if it is relevant to the proposed

research approach.⁷ However, testing will be restricted to data collected in the visible spectrum without any additional metadata, data feeds, or sensor inputs.

Delivered software will be evaluated by an independent team on sequestered and shared evaluation datasets. During each performance period, Performers will build prototype algorithms, and subcomponent modules, and/or systems for end-to-end WB and FR under challenging imaging conditions that will be run and evaluated by the T&E Team. Testing protocols do not allow for expert operators, human-in-the-loop operation, or any operations not deemed “turnkey”. However, systems or algorithms that have been trained using human-in-the-loop methods may be submitted, provided they run autonomously.

1.D. Program Data

BRIAR is a unique research program in the field of computer vision and biometrics in that data that represent the domain of interest are not commonly available in the academic community due to lack of commercial interest, complexity of collection logistics, and high costs to collect. However, for BRIAR to facilitate innovative R&D and achieve program metrics, diverse program data in sufficient quantities are needed for development and statistically reliable evaluations. As a result, the program will include robust and explicit data collection by the BRIAR T&E Team and R&D Performers.

The program will include two types of data – Development Data and Evaluation Data. The data will consist of WB, gait, and face imagery collected with a range of conditions, sensors, and platforms involving a diverse group of demographic and body types. Development data will be utilized by Performers, as they see fit, to conduct research, development, error analysis, and algorithm training. Evaluation data will be explicitly excluded from any algorithm training approaches and will be used by both Performers and the T&E Team for performance evaluations of subcomponents, modules, and systems measured against the BRIAR program metrics. A summary of HSR collected datasets across the entire life of the program is included in Table 2.

Servers with Globus Endpoints⁸ will be used to facilitate the transfer of datasets between the Government, the T&E Team, and individual Performers. The free version of Globus may be adequate for the data transfer needs of the program. Offerors shall include the cost and resources to acquire, implement, and maintain the necessary computing infrastructure. Organizations may utilize existing Globus Endpoint capabilities if appropriate. High speed internet connections are needed and hundreds of terabytes (TB) of data are expected to be made available to the Performers over the course of the project. The memory size of each dataset release is estimated at ~50 TB.

Table 2: BRIAR Program Datasets

Phase	Type	Origin	Dataset ⁹	Month	# Subjects (Probes) ^{10,11}	# Subjects (Gallery) ¹¹
1	Development	T&E	BRS1	1	200	200
1	Evaluation	T&E	BTS1	1	100	250 ¹²
1	Development	T&E	BRS2	7	200	200
1	Evaluation	T&E	BTS2	7	200	500 ¹²

⁷ Includes the use of non-visible imagery to support supplemental research or algorithm training activities.

⁸ <https://www.globus.org/>

⁹ BRS = BRIAR Research Set, BTS = BRIAR Test Set, BRC = BRIAR Researcher Collection

¹⁰ Minimum number of unique individuals in the probe set with mated entries in the dataset gallery.

¹¹ Each BTS evaluation test set will be a superset of previously released BTS.

¹² Gallery includes additional distractor subjects for improved statistical analysis.

Phase	Type	Origin	Dataset ⁹	Month	# Subjects (Probes) ^{10,11}	# Subjects (Gallery) ¹¹
1	Development	R&D	BRC1 ¹³	13	800 ⁹	800 ⁹
1	Development	T&E	BRS3	13	200	200
1	Evaluation	T&E	BTS3	13	300	750 ¹²
2	Development	T&E	BRS4	19	200	200
2	Evaluation	T&E	BTS4	19	400	1,000 ¹²
2	Development	R&D	BRC2 ¹³	25	600 ⁹	600 ⁹
2	Development	T&E	BRS5	25	200	200
2	Evaluation	T&E	BTS5	25	500	1,250 ¹²
2	Development	R&D	BRC3 ¹³	31	600 ⁹	600 ⁹
2	Development	T&E	BRS6	31	200	200
2	Evaluation	T&E	BTS6	31	600	1,500 ¹²
3	Development	T&E	BRS7	37	200	200
3	Evaluation	T&E	BTS7	37	700	1,750 ¹²
3	Development	R&D	BRC4 ¹³	43	400 ⁹	400 ⁹
3	Development	T&E	BRS8	43	200	200
3	Evaluation	T&E	BTS8	43	800	2,000 ¹²
TOTAL	Development	T&E + R&D	--	--	4,000 ¹⁴	4,000 ¹⁴
TOTAL	Evaluation	T&E	--	--	800	2,000

1.D.1. Development Data

Development data will be utilized by Performers, as they see fit, to conduct internal research, development, error analysis, and algorithm training.

It is anticipated that Performers will need development data specific to each research approach and each subcomponent module of their BRIAR system(s) to achieve program goal, objectives, and metrics. However, because Performer approaches will differ, it is anticipated that Performers may need different development data depending on their individual approaches.

Proposals must specify the development data needed to carry out the proposed research and what data characteristics are necessary for their approach(es) to be successful at meeting program objectives. Offerors' unique data needs in a particular technical area should not be interpreted as requirements input into the program's T&E data collections, but part of a comprehensive research approach that communicates a possible path towards meeting BRIAR program objectives.

There will be four types of development data used in the BRIAR program:

- **Government Research Sets** – Datasets collected, annotated, and curated by the T&E Team and provided to Performers for R&D.
- **Researcher Collections** – Datasets collected, annotated, and curated by R&D Performers. These datasets will be delivered with Unlimited Rights, in accordance with FAR 52.227-14, to allow use by the USG.

¹³ Each Performer will conduct a field data collection and make the data available to T&E and other R&D Performers.

¹⁴ Calculation assumes four Performers in Phase 1, three Performers in Phase 2, and two Performers in Phase 3. Numbers may increase or decrease based on the actual number of Performers in each phase.

- **External Data Sources** – Data obtained by Performers that are available from third parties or that have been collected by a Performer outside of BRIAR with rights to allow all Performers to use them for BRIAR.
- **Government Augmented Data** – Data resulting from the T&E Team applying modeling and simulation tools to transform Performer-identified or provided datasets.

1.D.1.1. Government Research Sets

The Government will be providing BRIAR Research Sets (BRS) and BRIAR Test Sets (BTS) to Performers throughout the program. See Table 2 for a full summary of all BRS datasets. These datasets will include visible-band WB biometric video imagery with ground truth computer vision annotations, identity labels, and metadata information. The datasets will include field collected imagery, enrollment imagery, and may include imagery augmented using Government Owned Technology Solution (GOTS) modeling and simulation tools. The datasets may also include platform or sensor data (e.g., roll, pitch, yaw, or camera angle), but Performer systems should neither expect nor require these metadata inputs during operation or at test time.

The T&E Team will be carrying out HSR biometric field data collections approximately every six months throughout the life of the program. Collections will occur in a variety of outdoor terrain and temperature environments to capture wide variations in atmospheric turbulence. Severe weather (e.g., snow, heavy rain, fog, or heavy winds) will be out of scope for these field collections. This data will be collected using many different optical sensors and platforms at ranges out to 1,000 meters and sensor view angles as steep as 50°. The specifics of these field collections will be determined by the T&E Team during the program, but for purposes of this BAA, Offerors can assume the following characteristics within each of the BRS datasets:

- Full motion visible-band video imagery of varying durations (e.g., seconds up to minutes)
- A minimum of 200 consenting volunteer subjects with a diverse range of demographic and body type characteristics
- A minimum of two different clothing configurations for each subject
- Video containing scenes of single individuals up to small groups of three people
- Ground-truth enrollment for gait, WB, anthropometry, and face biometrics
 - Enrollments are to follow NIST/ANSI standards or best practices for biometric enrollments
 - Enrollment conditions will depend on the Phase of the program (see 1.A.2. Program Phases)
 - Enrollment imagery for each subject to include a combination of video and still photos
- Imagery captured from the following types of platforms:
 - Minimum of one (1) type of Class 2 fixed-wing UAV
 - Minimum of one (1) type of Class 2 quadcopter UAV
 - Elevated surveillance cameras mounted on poles or buildings
 - Man-portable telephoto camera systems
 - Other platforms determined by the Government (e.g., Class 1 quadcopter UAV)
- Imagery captured from multiple optical sensors with varying resolution, optics, stabilization
 - Visible wavelength imagery only
 - Threshold # of different sensors = 10
 - Objective # of different sensors = 20

BRS datasets will be provided to Performers with ground-truth annotations and associated metadata information to include the following:

- WB bounding boxes,
- Face bounding boxes,
- Tracklet associations within full motion video,

- Identity and sighting instance labels,
- Capture range,
- Capture pitch,
- Subject pose,
- Human presence (in scene),
- Subject demographic information,
- Environmental conditions,
- Capture sensor or platform characteristics, and
- Atmospheric turbulence conditions.

Additional platform or sensor characteristics may be included for development or covariant analysis. Examples may include UAV telemetry data, extrinsic or intrinsic camera information. Specific details will not be made available until program kickoff. Proposers with research approaches that rely on or benefit from these data types during algorithm development are encouraged to account for such data needs in planning their BRIAR Researcher Collections (BRCs), see 1.D.1.2. Researcher Collections.

In addition to real imagery captured during field collections, the T&E Team may utilize GOTS modeling and simulation tools to produce augmented data. It is anticipated that these tools will allow well characterized captured data to be transformed into simulated data with expanded or different characteristics (e.g., range, atmospheric turbulence, sensor resolution). This technique will be used by the T&E Team to address gaps in captured data that are relevant to BRIAR program objectives. Priority will be placed on capturing real data across the full range of conditions with simulated data serving as a mitigation measure.

BRS and BTS datasets will include both lossless and lossy low-resolution imagery to reflect a wide range of use cases and types of imagery. Research approaches shall address both types of imagery.

Details regarding the specific UAV and sensor platforms to be used by the T&E Team during field data collections are not available at this time. Offerors shall use their best judgement based on the information provided here on suitable or proxy platforms when planning and proposing their research approaches. Offerors are encouraged to take into account that an objective of BRIAR is the development of algorithms that are robust to changes in sensor platform and optics.

1.D.1.2. Researcher Collections

Each Performer will be required to plan, execute, and annotate several BRIAR Researcher Collections (BRCs) to supplement their own development data and to share among the other BRIAR Performers and the T&E Team. For each Performer, Phase 1 will have one BRC, Phase 2 will have two BRCs, and Phase 3 will have one BRC. Each will be similar in concept, but the specifics of the capture conditions, sensors, and platforms will be determined during the BRC planning stage by the Government with input from the Performers. As part of their proposal, an Offeror may propose additional BRCs beyond the required number. The proposal shall describe how each BRC will be used in the R&D and justify the need for any data collections beyond the required BRCs. BRCs serve two roles in the program – 1) Expand the volume of domain-relevant data available to the entire program, and 2) Provide for customized data collections to directly support a specific Performer’s research approach needs. As such, BRCs should be viewed as a mechanism to address any research data needs that may fall outside of the scope of the BRIAR Government Research Sets. Performers cannot control the quality and depth of data from other teams’ collections, but they can ensure their own collections meet or exceed their own research needs. Annotated BRC datasets will be provided to the Government as Deliverables on a set schedule, as described in 1.G.2.

Program Milestone, Waypoint, and Deliverables Timeline.

Each Performer's BRC will be an IRB-approved HSR biometric field data collection involving the capture of WB and face video imagery across different visible-band sensors and platforms. The specifics of each BRC are intended to support that Performer's research approach(es) and will have flexibility to accommodate their needs in pursuit of BRIAR program objectives. In general, each BRC will be similar to Government BRS datasets with differences indicated in **bold**, and are required to include all of the elements described below:¹⁵

- Full motion visible-band video imagery of varying durations (e.g., seconds up to minutes)
- A minimum of 200 unique¹⁶ consenting volunteer subjects with a diverse range of demographic and body type characteristics
- Video containing scenes of single individuals up to small groups of three people
- A minimum of two different clothing configurations for each subject
- Ground-truth enrollment for gait, WB, anthropometry, and face biometrics
 - Enrollments are to follow NIST/ANSI standards or best practices for biometric enrollments
 - Enrollment conditions will depend on the Phase of the program (see 1.A.2. Program Phases)
 - Enrollment imagery for each subject to include a combination of video and still photos
- Imagery captured from the following types of platforms:
 - **R&D fixed-wing UAV**
 - **R&D quadcopter UAV**
 - Elevated surveillance camera mounted on poles or buildings
 - Man-portable telephoto camera system
- Imagery captured from multiple optical sensors with varying resolution, optics, stabilization
 - Visible wavelength imagery only
 - **Threshold # of different sensors = 4**¹⁷
 - **Objective # of different sensors = 8**

There is no requirement regarding the time period over which BRCs must be collected. However, annotated BRC datasets are due as deliverables at specified times throughout the program, as described in 1.G. Program Waypoints, Milestones, and Deliverables.

For planning purposes, Offerors are to use their best judgement based on the information provided here for their selection of UAV and sensor equipment when planning and proposing their BRCs. IARPA will not provide a list of approved or acceptable UAVs as part of the BRIAR BAA. At program kickoff, Performers will be provided a list of UAV platforms that are known to meet the requirements of the BRIAR program. The list may include either complete UAV platforms and/or a list of subcomponents with instructions on assembling and operating the UAV. The naming of any UAV or component on this list is not a product endorsement. Offerors may propose other platforms but, prior to use in any BRC, shall obtain verification from IARPA that the proposed platform will meet BRIAR program requirements. The UAVs to be used in the BRIAR program by Performers will be suitable for operation at both a DoD training facility (pending approvals) or a civilian facility (e.g., university campus) and allowable for purchase and operation by third party organizations with foreign national staff (i.e., non-US citizens). Included with each UAV on the IARPA-provided list will be a selection of 1 – 3 sensor payloads for Performers to utilize in field BRC

¹⁵ BRC requirements should be considered minimum threshold requirements. Researchers may propose additional collection details that go beyond the minimum (e.g., larger subject counts, additional changes of clothing), but should include a justification related to their proposed research approach.

¹⁶ Each BRC is to include data from a minimum of 200 new subjects that have not participated in previous BRCs. Subjects may participate in multiple future BRCs but will not count towards the unique subject requirement.

¹⁷ Each of the 200 subjects should be captured in imagery from a minimum of four (4) different sensors, such that a given individual is represented in imagery from 4+ sensors.

events for capturing imagery aligned with BRIAR program objectives. The BRIAR PM may opt to revise the recommended BRIAR UAV platforms and sensors at the start of each program phase or as needed during the program.

Performers will be responsible for annotating all BRC data for their R&D needs. All annotation data are to be delivered to the Government regardless of whether they are developed after the collection or after initial delivery of the BRC dataset. At a minimum, the following pieces of information are to be annotated:

- WB bounding boxes,
- Face bounding boxes,
- Identity and sighting instance labels,
- Capture range,
- Capture pitch,
- Human presence (in scene),
- Subject demographic information,
- Capture sensor or platform characteristics.

The use of additional sensors, imaging or sensing modalities, filters, or calibration targets to assemble training data sets or to support modeling and simulation research is in scope if it is relevant to the proposed research approach. However, testing will be restricted to data collected in the visible spectrum without any additional metadata, data feeds, or sensor inputs.

All data collected, curated, annotated, synthesized, or generated by Performers under the BRIAR program for R&D or any other purpose will be provided to the Government as Deliverables. These datasets will be delivered with Unlimited Rights, in accordance with FAR 52.227-14, to allow use by the USG. Additional datasets beyond the minimum required BRCs that are produced by a Performer are to be delivered to the Government at the next Waypoint or Deliverable on the schedule from among the following list: BRC dataset delivery or final phase software delivery (see Table 6: Program Milestone Timeline). IARPA reserves the right to require delivery of incomplete or partially annotated versions of BRC datasets with 30 days' advance notice.

1.D.1.3. External Data Sources

Performers may utilize external datasets in addition to BRS and BRC datasets. External data are data obtained by Performers that are available from third parties or that have been collected by the Performer outside of the BRIAR program. An example of a third-party dataset would be a biometric dataset, collected by a university under an IRB-approved HSR protocol, that has been approved by the dataset owner for release to the research community. Data collected by a Performer under a different program are considered external data, even if the other program's data collection was Government-sponsored.

All external datasets must be approved for use in the BRIAR program by IARPA, in accordance with HSR and applicable privacy policies, statutes, and regulations. IRB approval or a ruling of IRB HSR exemption may be required before IARPA approval of the use of data in BRIAR.

Performers may not use proprietary datasets unless these datasets are made available to all R&D Performers and Government T&E in the BRIAR program without restriction. Public release of proprietary datasets is not a requirement; however, release for use within the BRIAR program is required. Moreover, for any dataset not collected under the scope of the BRIAR program, Performers must provide the Government with an accounting of all resources used and sources from which data are drawn and describe how the data will be used for development, testing, and training of algorithms.

All external datasets that are part of an Offeror's proposed research approach must be summarized in the proposal with the following minimum information:

- Dataset Name
- Short Description
- Data Owner
- License or use rights
- Method or URL link to obtain data

1.D.1.4. Government Augmented Data

In addition to using GOTS modeling and simulation tools to augment BRS datasets, the T&E Team will be making available their services to Performers to apply the simulation tools to other datasets relevant to Performer algorithm training. Using known or estimated capture conditions and sensor characteristics, simulation tools can transform a given image to one seemingly collected under different (simulated) conditions. For example, an image captured at 100 meters can be modified to simulate the same scene captured at 300 meters or can be modified to simulate moderate turbulence effects in a stable image. Using these supplemental research support activities, more traditional computer vision or biometric training datasets can better approximate the desired imaging conditions within the BRIAR program.

Determination of the details of the data augmentation task and the targeted range of simulated conditions will be by collaboration among IARPA, BRIAR T&E, and the Performer. At fixed waypoints during each Phase, Performers will be invited to submit a Data Augmentation Request (DAR) to BRIAR T&E that details the source dataset(s), use rights within the BRIAR program, and the desired target dataset output characteristics. Validation that the original data are approved for use within BRIAR will be a prerequisite before any augmentation services are conducted by BRIAR T&E. Each Performer will be allowed one DAR per phase, not to exceed 10 million frames or images per pre-augmented dataset. Additional dataset augmentations may be possible but will be dependent on BRIAR T&E resources and staff availability. Any such additional dataset augmentations will be conducted only with the BRIAR PM's approval. All augmented data sets will be made available to all Performers regardless of which Performer initiated the request.

Proposals shall indicate whether the Offeror intends to leverage this service as part of the proposed research, which datasets they have initially identified for augmentation, what their DAR would cover, and how the augmented data will directly address BRIAR objectives. Modeling and simulation by the T&E Team is not intended to replace research activities carried out by the Performers, but instead to supplement them. Offerors are welcome to propose their own modeling and/or simulation research as part of their overall BRIAR approach.

1.D.2. Evaluation Data

BRIAR will utilize distinct test data to evaluate the performance of Performer subcomponents, modules, and systems against program goal, objectives, and metrics. Each BRIAR Test Set (BTS) will consist of diverse multi-modal biometric data, robust metadata annotations, and prescribed evaluation test protocols. The composition and characteristics of imagery within a BTS will be similar to BRS data but constructed to evaluate program metrics in a balanced and intentional manner with subject identities different from any represented in other BRS data. Using different identities for algorithm training from those used in testing will ensure that research approaches are generalizable.

Intended uses of the BTS evaluation datasets include both use by the T&E Team for independent evaluation of program Deliverables against target metrics and use by Performers to refine and improve their algorithms. The evaluation datasets will be provided to Performers to enable internal T&E and exploratory error analysis by Performers and to improve the consistency and communication between Performers and

T&E. The evaluation datasets will be separate and distinct from the development datasets with respect to subject identities. No evaluation data or evaluation identities will be permitted in any aspect of algorithm training or functionality. Additional sequestered or external datasets may be used to supplement performance evaluations at the discretion of the BRIAR PM.

BTS datasets will derive most of their imagery from data collections carried out by the T&E Team with data augmentation using GOTS simulation tools, as needed. Some BTS data will originate from the same data collections used to construct BRS development data but with different subject identities (see SECTION 1.D.1.1. Government Research Sets for BRS details). Additional collections will be carried out to supplement BTS evaluation gallery databases with distractor subject imagery. A summary of BTS dataset characteristics across BRIAR phases is shown in Table 3.

Table 3: BRIAR Evaluation Data

Phase ¹⁸	Probes					Gallery	
	Subjects	Range		Pitch	Noise	Subjects	Enrollment
1 (BTS3)	300	1 – 500 m	OR ¹⁹	0 – 30°	Low – High	750	Constrained
2 (BTS6)	600	1 – 1,000 m	OR ¹⁹	0 – 50°	Low – High	1,500	Semi-constrained
3 (BTS8)	800	1 – 1,000 m	AND ²⁰	0 – 50°	Low – High	2,000	Unconstrained

Evaluation Data Characteristics:

- **Biometric Imagery:** Visible-band videos of subjects presenting WB, face, and gait
- **Subjects:** The number of unique subject identities
- **Range:** The direct linear distance from the optical sensor to subject
- **Pitch:** The angle between the sensor view position and the subject on the ground plane
- **Noise:** The qualitative degree of noise, degradation and/or atmospheric turbulence
- **Enrollment:** The conditions under which the gallery imagery is captured.

1.D.3. Privacy Plan

As part of their proposal, Offeror’s shall prepare a BRIAR Privacy Plan v1.0 that comprehensively describes the efforts the Offeror will take to protect personally identifiable information, and safeguard the security of any personal data collected and that of any devices, applications, networks, or services involved in collection, transmission, processing, and storage of such data. Any claims that data are anonymous must be based on evidence and supported with sufficient information regarding how the data have been anonymized. Each Performer’s BRIAR Privacy Plan shall cover all data categories described in this BAA; relevant information on GFI datasets will be provided by BRIAR T&E in advance of data release.

The initial version of the BRIAR Privacy Plan shall be included in the Offeror’s proposal as a standalone section or appendix that covers all external datasets to be leveraged as part of the proposed research approaches. The BRIAR Privacy Plan shall be updated at the beginning of each Phase and whenever new sources of data or datasets are proposed for use within a Performer’s BRIAR research activities, to include data used for either development or evaluation purposes. Details on BRS-1 and BTS-1 (see 1.D.1.1.

Government Research Sets) will be provided by IARPA at the Phase 1 Kick-off Meeting for inclusion in the BRIAR Privacy Plan v1.1 Deliverable (see Table 6).

1.E. Test and Evaluation (T&E)

¹⁸ Interim BTS datasets during each phase are not listed, only end-of-phase evaluations sets are shown on this table.

¹⁹ Individual videos will possess either moderate to severe range OR pitch as the main challenging condition.

²⁰ The dataset will include videos that possess both challenging range AND pitch conditions.

T&E will be conducted by an independent team of Government and contractor staff carrying out evaluation and analyses of Performer research Deliverables using program test datasets and protocols. In addition to independent T&E, the program will regularly gauge interim progress of Performer research activities towards BRIAR objectives and target metrics using T&E results measured and reported by the Performer teams themselves. The BTS data and test protocols (see 1.D.2. Evaluation Data) will be the primary mechanism by which the T&E Team carries out their evaluations.

The BRIAR Program will pursue rigorous and comprehensive T&E to ensure that research outcomes are well characterized, deliverables are aligned with program objectives, and that algorithm performance is measured across the full range of demographic, sensor, and environmental conditions. Such T&E activities will not only inform IARPA and Government stakeholders on BRIAR research progress but will also serve as invaluable feedback to the Performers to improve their research approaches, algorithm training practices, and system development. The BRIAR Program will work closely with Government leaders in biometrics (e.g., National Institute of Standards and Technology) to continually refine and improve T&E methodologies.

The Government will provide Performers with a uniform test Evaluation Harness (EH) Software Development Kit (SDK) with relevant scripts to run program test protocols on program datasets. The design of the EH will be informed by and consistent with NIST evaluation environments used in standardized testing, such as the Face Recognition Vendor Test. The evaluation environment will be the platform for independent government testing of Performer Deliverables.

Performers will have specific Deliverable Milestones at which all subcomponent and system algorithms and software will be delivered to IARPA and its designated T&E Team. The T&E Team will then conduct evaluations at the direction of the BRIAR PM and with the objective of characterizing the quality, functionality, and performance of the BRIAR Deliverables. In addition to quantitative measurements, T&E will be carried out to establish a thorough understanding of the progress, status, and limitations of the Performer's research.

T&E results and feedback will be provided to Performers at regular intervals to keep them abreast of current independent performance measurements and to inform and improve their R&D approaches and methods. T&E results from all Performers will be shared with all teams to establish an understanding of the current state and progress of BRIAR research; T&E results will also be shared with USG external stakeholders, including their contractors, for Government purposes. For example, a PI Review Meeting will be held annually to share research ideas, progress, and results across the BRIAR program (see 1.H.1. Workshops).

IARPA may conduct other supplemental evaluations or measurements in its sole discretion to evaluate the Performers' research and Deliverables.

1.F. Program Metrics

Achievement of metrics is a performance indicator under IARPA research contracts. IARPA has defined BRIAR program metrics to evaluate effectiveness of the proposed solutions in achieving the stated program goal and objectives, and to determine whether satisfactory progress is being made. The metrics described in this BAA are shared with the intent to scope the effort, while affording maximum flexibility, creativity, and innovation to Offerors proposing solutions to the stated problem. Proposals with a plan to exceed the defined metrics in one or more categories are desirable, provided that all of the other metrics are met, and provided that the proposals provide clear justification as to why the proposed approach will be able to meet or exceed the enhanced metric(s). Program metrics may be refined during the various phases of the BRIAR program; if metrics change, revised metrics will be communicated in a timely manner to Performers.

At its core, BRIAR is a biometric recognition R&D program and as such, its performance metrics are focused on the three common biometric use cases – verification, recognition (i.e., rank retrieval), and identification (i.e., open set search). The primary focus throughout the program is on WB biometrics, to include multi-modal fusion with face and other biometric signatures. FR is also a valuable modality of keen interest to USG applications. For this reason, target metrics are defined for both face-only and WB, with the former target metrics set at a lower level because of the relatively lower amount of facial information compared to WB in BRIAR imagery, due to resolution and sighting pose angles. For all biometric performance metrics, the target goals increase as the program proceeds into later phases. This is captured as either an increase in accuracy targets or a decrease in false alarm rates. Performance progress toward program metrics will be computed using track-based templates generated from single or multiple video input probes matched against similar reference templates. Reference templates will be generated from enrollment videos, with supplemental still images available in some gallery use cases (e.g., Phase 1 controlled enrollment). Video input probes will primarily be short in duration (e.g., 5 – 10 seconds), but could include a subset of videos up to 60 minutes in duration. The final BRIAR T&E protocols and evaluation methodology are currently under development; further details will be provided at program kickoff. The evaluation methodology may be revised by the Government at any time during the program lifecycle to better meet program needs.

Verification is the comparison of two biometric templates to determine whether the same person is present in both. These templates could be derived from multiple imagery instances or a single imagery instance. Verification performance is measured using a Receiver-Operating Characteristics (ROC) curve that plots the True Accept Rate (TAR) as a function of False Accept Rate (FAR), correlated through a common threshold similarity score.

Recognition, also called Rank Retrieval, is the submission of a probe template to a gallery database to determine whether the individual exists in the top set of returned results. The probe query returns a ranked list of the closest matches, sorted by similarity score. A human adjudicator is typically involved in reviewing the returned results to confirm which gallery entries are a true match. Many USG applications return a fixed number of top results, which are all reviewed (e.g., Top 10, 20, or 50). A rank X retrieval rate communicates the likelihood that a given probe with a mate in the gallery will return a match in the top X returned results. For BRIAR T&E, the tests will be conducted without a threshold such that the top X results are always returned.

Identification, also called Open Set Search, is similar to Rank Retrieval in that a probe is submitted to a gallery database but instead of a list of returned results, the test measures whether the top result over a given threshold is a true match. The specific metric of interest for this evaluation is the False Negative Identification Rate (FNIR), which defines the likelihood that a probe will incorrectly return a non-match result when a mate is present in the gallery database. The threshold is determined via a ROC curve using a designated False Positive Identification Rate (FPIR) defined as the likelihood that a probe will return a match to the wrong person.

The specific BRIAR target metrics were selected based on three factors:

1. What is technically achievable but challenging based on current state-of-the-art in the biometrics, computer vision, and image processing R&D communities;
2. What is statistically measurable based on the planned program evaluation data; and
3. What is useful to mission partners based on USG stakeholder needs and use cases.

A summary of metric targets by phase is shown in Table 4; these metrics are preliminary and subject to change over the course of the program. Accuracy targets are defined as aggregated statistical measures for a given phases' BTS evaluation datasets, which contain imagery across the diverse range of environmental, sensor, platform, and human subject characteristics. For WB biometrics, verification targets start at 85%

TAR @ 1% FAR in Phase 1 and progress two orders of magnitude improvement in false alarm rate to 85% TAR @ 0.01% FAR. For retrieval, the Phase 1 target is 90% correct retrieval in the top 20 results when querying a 375-subject gallery. In later phases, the target retrieval rate increases as does the size of the gallery. Ultimately, the Phase 3 target retrieval rate is 98% in the top 20 from a 1,000-subject gallery. For open set identification, the subjects will be split into defined mated and non-mated galleries to ensure that FPIR measurements utilize a gallery where the probe subject is known not to be present. In Phase 1, the FNIR target is 50% @ 1% FPIR when querying 375 subject galleries and by the program's end, the target will be 20% FNIR @ 0.3% FPIR with 1,000 subject galleries. Similar target metrics are defined when using only face biometrics for matching, but at lower accuracy targets.

Program evaluations of BRIAR software solutions will involve video imagery without any additional metadata or input signals. Research approaches may leverage additional data during algorithm development and training, but systems cannot rely on these metadata inputs to meet program performance metrics or as a requirement for software execution. Performers may pursue research approaches that would benefit from additional input signals as a bonus feature.

Table 4: BRIAR Program Target Metrics

Figure of Merit		Phase 1	Phase 2	Phase 3
Verification (1:1) TAR @ FAR	Whole Body	85% @ 1%	85% @ 0.1%	85% @ 0.01%
	Face Only	70% @ 1%	70% @ 0.1%	70% @ 0.01%
Rank Retrieval (1:N) Closed Search (# subjects)	Whole Body	90% in Top 20 (375)	95% in Top 20 (750)	98% in Top 20 (1,000)
	Face Only	80% in Top 20 (375)	90% in Top 20 (750)	95% in Top 20 (1,000)
Open Search (1:N) FNIR @ FPIR (# subjects)	Whole Body	50% @ 1% (375)	20% @ 1% (750)	20% @ 0.3% (1,000)
	Face Only	70% @ 1% (375)	50% @ 1% (750)	50% @ 0.3% (1,000)
Template Size	All Modalities Combined	< 1 MB	< 1 MB	< 1 MB
Processing Speed (of full pipeline)	All Modalities Combined	5x Slower than real time on \$10k hardware	Real time on \$10k hardware	Real time on edge hardware (lean algorithm only)

In addition to biometric matching, the program has two other target metrics: Template Size and Processing Speed. Both metrics serve as practical constraints to ensure that BRIAR research Deliverables are functionally usable by USG transition partners with the intent to integrate the Deliverables into future operational capabilities. The template size is the data file output from the end-to-end integrated BRIAR system that is submitted for biometric matching. No assumptions are made as to the internal composition of the template; each Performer's research approach(es) may utilize a unique ensemble of information to encode identity information from input video imagery. There is no requirement that the template be invariant in memory size with variable input imagery, but there does exist a maximum template file size constraint of one (1) megabyte (MB). As part of BTS T&E protocols, input files could include multiple

video and still image files. For many research approaches, the template size will likely be much smaller than 1 MB, but this metric is set at this level to allow for innovative or complex approaches to be considered.

The second non-biometric target metric is Processing Speed. In Phase 1, all foundational subcomponents of the BRIAR system are required to operate in the aggregate at no slower than five (5) times slower than real time on commodity computing resources not to exceed \$10,000 in cost. For the purposes of this BAA, “real time” is defined as a single 1080p video stream (i.e., 1920 x 1080 resolution) at 30 fps video. This is not meant to imply that all BRIAR video imagery will be at this resolution and frame rate, only that these video file settings will be used to evaluate this metric. In Phase 2, processing goals expand to real-time processing by the entire integrated BRIAR system. The computing resource cost constraints do not change for Phase 2. For both phases, this means that subcomponents will likely require faster processing speeds for the aggregated pipeline to process appropriately to meet program target metrics. For Phase 3, a version of the integrated BRIAR system will need to operate on edge hardware that can be deployed on field and aerial platforms. The target metric for this version of the system is the ability to process a single real-time 1080p streaming video at 15 fps on an edge computing platform. For purposes of this BAA, Offerors may plan to use an existing COTS edge computer with GPUs for machine learning algorithms. Examples include, but are not limited to, the NVIDIA Jetson TX2, Intel Up Squared Vision X, or Google Coral Dev Board.²¹ Note that this requirement does not apply to the main BRIAR system, which is to process real-time streaming (1080p, 30fps) or batch videos on commodity desktop computing environments. More discussion on this topic is available in 1.A.2.3. Phase 3.

1.G. Program Waypoints, Milestones, and Deliverables

Waypoints, Milestones, and Deliverables are established from the program’s onset to ensure alignment with BRIAR objectives, organize research activities in a logical and reportable manner, and facilitate consistent and efficient communication among all stakeholders – IARPA, BRIAR T&E, USG Stakeholders, and Research Performers. A schedule of key program Milestones and Deliverables is shown in Figure 4.

²¹ Neither ODNI nor IARPA endorses these products or companies; they are included as illustrative examples only.

Phase 1 (18 Months)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
GFI Datasets (BRS, BTS)	○						○						○					
Researcher Collected Datasets (BRC)													●					
Software Deliverables																●		
Performer Evaluations												◇				◇		
Independent Government Evaluations																		◇
Phase 2 (18 Months)	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
GFI Datasets (BRS, BTS)	○						○						○					
Researcher Collected Datasets (BRC)							●						●					
Software Deliverables						●						●				●		
Performer Evaluations							◇					◇				◇		
Independent Government Evaluations							◇						◇					◇
Phase 3 (12 Months)	37	38	39	40	41	42	43	44	45	46	47	48						
GFI Datasets (BRS, BTS)	○						○											
Researcher Collected Datasets (BRC)							●											
Software Deliverables						●						●						
Performer Evaluations							◇					◇						
Independent Government Evaluations							◇					◇						
LEGEND:	Meeting	X	Deliverable	●	GFI	○	Milestone	‡	Evaluation	◇								

Figure 4: Schedule of Key Milestones and Deliverables

1.G.1. Program Waypoints

Waypoints are the means by which the Performer clearly demonstrates the quantitative and timely progress that must be made for the overall concept to meet end-of-phase Milestones. In other words, the intent of Waypoints is to provide a clear measure of progress towards meeting the program Milestones so the PM and advisors can provide more effective guidance and assistance to the Performers. Performance against these Waypoints will be reviewed throughout the program, and the PM and advisors will use performance against the Waypoints to assess whether course corrections are needed to ensure program success.

The Government has defined Waypoints for all Performers that are included in the Program Milestones and Deliverables (see 1.G.2. Program Milestone, Waypoint, and Deliverables Timeline). Performers are expected to develop additional Waypoints to quantify how their individual systems support the broader goals of the program. Proposals must include Offeror-defined Waypoints as task-driven intermediate steps towards program technical metrics. The Waypoints shall be quantitative accomplishments reflected in the work plan and depicted on the schedule that indicate progress toward Milestones and reduction of program risk. Depending on a Performer’s specific approach, progress toward a Waypoint is not necessarily expected to be linear. A schedule of Waypoint reviews must be included in proposals and shall include a rationale, definition, metrics, and an evaluation plan for each Waypoint. Waypoint reviews may coincide with site visits, reviews at Government locations, and design reviews.

A synopsis of the Offerors’ technical and programmatic Waypoints shall be listed and described in the proposal. A tabular format is recommended (see Table 5). Progress against these Waypoints will be

reviewed during site visits. Offerors shall provide supporting rationale, definition, metrics, and evaluation plan for each proposed Waypoint, and shall also describe how their research advances will be incorporated into successive implementations.

Table 5: Sample Waypoint Table

Phase	Months after Start of Phase	Description	Metric	Success Criteria
1	5			
	⋮			

1.G.2. Program Milestone, Waypoint, and Deliverables Timeline

Table 6 shows a timeline for the program with defined Milestones, Waypoints and Deliverables. The Offeror may add other Waypoints in addition to the minimum set listed in the table. A full schedule-based version of the Milestones, Waypoints and Deliverables is also provided graphically in Figure 5.

Table 6: Program Milestone Timeline

Phase	Month	Event	Description	Comments	Deliverables
1-3	All	Waypoint	Monthly Status Report (MSR)	Due on 15th of each month; Technical and cost	MSR
1-3	All	Waypoint	Progress and Status Meeting	Biweekly teleconference with BRIAR PM	N/A
1	1	Waypoint	BRS1, BTS1 datasets	Provided as GFI	N/A
1	1	Waypoint	Kick-off Meeting	In DC metro area	N/A
1	1	Waypoint	Examples of appropriate UAV-Sensor hardware provided	Provided as GFI	N/A
1	2	Deliverable	DAR	Submitted to T&E	DAR (optional)
1	2	Deliverable	Privacy Plan v1.1	Submitted for IARPA approval	Report
1	5	Waypoint	Site Visit	At Performer site	N/A
1	7	Waypoint	BRS2, BTS2 datasets	Provided as GFI	N/A
1	8	Milestone	IRB Approval	For BRCX1 field collection	Report and IRB documentation
1	11	Waypoint	DAR datasets	Provided as GFI	N/A
1	11	Waypoint	Site Visit	At Performer site	N/A
1	12	Deliverable	Self-reported performance evaluations	All subcomponents and systems	Self-Test Report 1

Phase	Month	Event	Description	Comments	Deliverables
1	13	Waypoint	BRC1 field collection	Includes annotations; ²² Releasable to all Performers; Additional BRCs due ²³	BRCX1 dataset
1	13	Waypoint	BRS3, BTS3 datasets	Provided as GFI	N/A
1	13	Waypoint	PI Review Meeting	In DC metro area	N/A
1	16	Deliverable	Deliver final Phase 1 software	All subcomponents, systems, and documentation; Additional BRCs due ²³	Software
1	16	Deliverable	Preliminary Phase 1 final report		Report
1	16	Deliverable	Self-reported performance evaluations	All subcomponents and systems	Self-Test Report 2
1	17	Waypoint	Site Visit	At Performer site	N/A
1	17	Milestone	Government T&E	Phase 1 metrics	N/A
1	18	Deliverable	Phase 1 final report	Any updated or additional data or software also due	Report
2	19	Waypoint	BRS4, BTS4 datasets	Provided as GFI	N/A
2	19	Waypoint	Kick-off Meeting	In DC metro area	N/A
2	19	Waypoint	UAV-Sensor Recommendations	Provided as GFI; Optional	N/A
2	20	Waypoint	DAR	Submitted to T&E	DAR (optional)
2	20	Deliverable	Privacy Plan v2.0	Submitted for IARPA approval	Report
2	21	Milestone	IRB Approval	For BRCX2 field collection	Report and IRB documentation

²² Note that this waypoint is for delivery of the annotated BRC dataset; the actual data collection should be executed 2 – 3 months prior to allow for data labelling.

²³ Additional datasets beyond the minimum required BRCs that are produced by a Performer are to be delivered to the Government at the next Waypoint or Deliverable on the schedule from among the following list: BRC dataset delivery or final phase software delivery. IARPA reserves the right to require delivery of incomplete or partially annotated versions of BRC datasets with 30 days' advance notice.

Phase	Month	Event	Description	Comments	Deliverables
2	23	Waypoint	Site Visit	At Performer site	N/A
2	24	Deliverable	Deliver interim Phase 2 software	All subcomponents, systems, and documentation	Software
2	25	Waypoint	BRC2 field collection	Includes annotations; ²² Releasable to all Performers; Additional BRCs due ²³	BRCX2 dataset
2	25	Waypoint	BRS5, BTS5 datasets	Provided as GFI	N/A
2	25	Waypoint	PI Review Meeting	In DC metro area	N/A
2	25	Deliverable	Self-reported performance evaluations	All subcomponents and systems	Self-Test Report 3
2	25	Milestone	Government T&E	Phase 2 metrics	N/A
2	27	Milestone	IRB Approval	For BRCX3 field collection	Report and IRB documentation
2	29	Waypoint	DAR datasets	Provided as GFI	N/A
2	29	Waypoint	Site Visit	At Performer site	N/A
2	30	Deliverable	Deliver interim Phase 2 software	All subcomponents, systems, and documentation	Software
2	30	Deliverable	Self-reported performance evaluations	All subcomponents and systems	Self-Test Report 4
2	31	Waypoint	BRC3 field collection	Includes annotations; ²² Releasable to all Performers; Additional BRCs due ²³	BRCX3 dataset
2	31	Waypoint	BRS6, BTS6 datasets	Provided as GFI	N/A
2	31	Milestone	Government T&E	Phase 2 metrics	N/A
2	34	Deliverable	Deliver final Phase 2 software	All subcomponents, systems, and documentation; Additional BRCs due ²³	Software
2	34	Deliverable	Preliminary Phase 2 final report		Report

Phase	Month	Event	Description	Comments	Deliverables
2	34	Deliverable	Self-reported performance evaluations	All subcomponents and systems	Self-Test Report 5
2	35	Waypoint	Site Visit	At Performer site	N/A
2	35	Milestone	Government T&E	Phase 2 metrics	N/A
2	36	Deliverable	Phase 2 final report	Any updated or additional data or software also due	Report
3	37	Waypoint	BRS7, BTS7 datasets	Provided as GFI	N/A
3	37	Waypoint	Kick-off / PI Meeting	In DC metro area	N/A
3	37	Waypoint	UAV-Sensor Recommendations	Provided as GFI; Optional	N/A
3	38	Waypoint	DAR	Submitted to T&E	DAR (optional)
3	38	Deliverable	Privacy Plan 3.0	Submitted for IARPA approval	Report
3	39	Milestone	IRB Approval	For BRCX4 field collection	Report and IRB documentation
3	42	Deliverable	Deliver interim Phase 3 software	All subcomponents, systems, and documentation	Software
3	43	Waypoint	BRC4 field collection	Includes annotations; ²² Releasable to all Performers; Additional BRCs due ²³	BRCX4 dataset
3	43	Waypoint	BRS8, BTS8 datasets	Provided as GFI	N/A
3	43	Deliverable	Self-reported performance evaluations	All subcomponents and systems	Self-Test Report 6
3	43	Waypoint	Site Visit	At Performer site	N/A
3	43	Milestone	Government T&E	Phase 3 metrics	N/A
3	44	Waypoint	DAR datasets	Provided as GFI	N/A
3	47.5	Deliverable	Preliminary Phase 3 final report		Report
3	48	Deliverable	Deliver final Phase 3 software	All subcomponents, systems, and documentation; Additional BRCs due ²³	Software
3	48	Waypoint	PI Review Meeting	In DC metro area	N/A
3	48	Deliverable	Self-reported performance evaluations	All subcomponents and systems	Self-Test Report 7
3	48	Milestone	Government T&E	Phase 3 metrics	N/A
3	48	Deliverable	Phase 3 final report		Report

Phase 1 (18 Months)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18						
Kick-off Meeting	X																							
Site Visit					X						X							X						
PI Review Meeting													X											
Monthly Status Report	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●						
Privacy Plan v1.1		●																						
GFI Datasets (BRS, BTS)	○						○						○											
Data Augmentation Request		●																						
Data Augmentation GFI Datasets											○													
BRIAR UAV-Sensor Recommendations	○																							
IRB Approval								‡																
Researcher Collected Datasets (BRC)													●											
Software Deliverables																	●							
Performer Evaluations												◇					◇							
Independent Government Evaluations																		◇						
Phase 1 Final Report (interim)																	●							
Phase 1 Final Report																		●						
Phase 2 (18 Months)	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36						
Kick-off Meeting	X																							
Site Visit					X						X							X						
PI Review Meeting							X																	
Monthly Status Report	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●						
Privacy Plan 2.0		●																						
GFI Datasets (BRS, BTS)	○						○						○											
Data Augmentation Request		●																						
Data Augmentation GFI Datasets											○													
BRIAR UAV-Sensor Recommendations	○																							
IRB Approval			‡						‡															
Researcher Collected Datasets (BRC)							●						●											
Software Deliverables						●						●					●							
Performer Evaluations							◇					◇					◇							
Independent Government Evaluations							◇					◇						◇						
Phase 2 Final Report (interim)																	●							
Phase 2 Final Report																		●						
Phase 3 (12 Months)	37	38	39	40	41	42	43	44	45	46	47	48												
Kick-off Meeting / PI Review Meeting	X																							
Site Visit						X																		
PI Review Meeting												X												
Monthly Status Report	●	●	●	●	●	●	●	●	●	●	●	●												
Privacy Plan 3.0		●																						
GFI Datasets (BRS, BTS)	○						○																	
Data Augmentation Request		●																						
Data Augmentation GFI Datasets								○																
BRIAR UAV-Sensor Recommendations	○																							
IRB Approval			‡																					
Researcher Collected Datasets (BRC)							●																	
Software Deliverables						●						●												
Performer Evaluations							◇					◇												
Independent Government Evaluations							◇					◇												
Phase 3 Final Report (interim)												●												
Phase 3 Final Report												●												

LEGEND:	Meeting	X	Deliverable	●	GFI	○	Milestone	‡	Evaluation	◇
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Figure 5: BRIAR Program Full Schedule

1.G.3. Software Deliverable Formatting

Performers will be required to provide algorithm and software Deliverables in a manner that conforms to a standardized industrial method or methods that will be provided at program Kickoff. To facilitate planning, Offerors may assume that the standardized configuration will require the use of software containerization technology (e.g., Docker and a REST API). This means that the entirety of a Performer's system, including pre- and post-processing, must be included within the delivered software container. For models that require training, the expectation is for the initial model training to occur on Performer systems, with the ability for the T&E Team to re-train and test the model with the same and/or other data. Offeror teams that do not include the requisite expertise to conduct such software development should include costs in their proposal to obtain software development support.

Each team is required to include among their key personnel a Lead System Integrator (LSI) who shall be responsible for preparing software Deliverable subcomponents, modules, and systems, performing quality control of Deliverable, and integrating key components into the primary BRIAR system(s). The LSI will also oversee communication and coordination across a Performer's research teams including subcontractors, if applicable, to ensure research products are functional and following software coding best practices (e.g., inline comments, documentation). Additional team members and roles are dependent on the proposed research, as such, there is no predetermined or required skill mix.

1.G.3.1. Program API

The BRIAR Program will be utilizing a standardized Application Programming Interface (API) for all software Deliverables and evaluations. The first version of the BRIAR API will be provided to Performers at the Phase1 Kick-off Meeting and updated periodically thereafter. The API will define function calls, data structures, and gallery creation and management for operating and evaluating BRIAR software in a standardized manner. The API will accommodate multi-modal biometric data, to include face, WB, gait, and other anthropometric metadata such as height. The BRIAR API will leverage the JanICE API as a foundation to facilitate backwards compatibility with Janus Program software (<https://github.com/Noblis/janus>) and can be considered a guide to the anticipated level of specificity. Depending on T&E resources and program objectives, the BRIAR API will also be compatible with OpenMPF (<https://openmpf.github.io/>). All solutions must be compatible with the BRIAR API. In addition, to maintain compatibility with the JanICE API, IARPA plans for the BRIAR API to also be in the C programming language.

1.H. Meeting and Travel Requirements

Offerors are expected to assume responsibility for administration of their projects and to comply with contractual and program requirements for reporting, attendance at program workshops, and availability for site visits. The following paragraphs describe typical expectations for meetings and travel for IARPA programs as well as the contemplated frequency and locations of such meetings. In addition to ensuring that all necessary details of developed software, algorithm, and operational instructions are clear and complete, each Performer will be required to be available for questions and troubleshooting from the T&E Team in weekly and/or bi-weekly status meetings.

1.H.1. Workshops

All Performer teams are expected to attend workshops, to include key personnel from prime and subcontractor organizations.

The BRIAR program intends to hold a program Kick-off Meeting workshop in the first month of the program and first month of each subsequent program phase. In addition, the program will hold a PI Review Meeting starting in Month 13 of Phase 1 and then similar workshops annually thereafter. Kick-off Meetings and PI Review Meetings may be combined for logistical convenience. The dates and locations of these meetings are to be specified at a later date by the Government, but for planning purposes, Offerors should

use the approximate times and locations listed in Table 6. Both types of meetings will likely be held in the Washington, D.C. metropolitan area, but IARPA may opt to co-locate the meeting with a relevant external conference or workshop to increase synergy with stakeholders. IARPA reserves the right to hold the meeting virtually for logistical or health and safety reasons.

Kick-off Meetings will typically be one day in duration and will focus on plans for the coming Phase, Performer planned research, and internal program discussions. PI Review Meetings will typically be two days in duration and will have a greater focus on communicating program progress and plans to USG stakeholders. These meetings will include additional time allocated to presentation and discussion of research accomplishments.

In both cases, the workshops will focus on technical aspects of the program and on facilitating open technical exchanges, interaction, and sharing among the various program participants. Program participants will be expected to present the technical status and progress of their projects to other participants and invited guests. Individual sessions for each Performer team with the BRIAR PM and T&E Team may be scheduled to coincide with these workshops. Non-proprietary information will be shared by Performers in the open meeting sessions; proprietary information sharing shall occur during individual breakout sessions with the BRIAR PM and T&E.

1.H.2. Site Visits

Site visits by the Government Team will generally take place semiannually during the life of the program. These visits will occur at the Performer's facility. Reports on technical progress, details of successes and issues, contributions to the program goals, and technology demonstrations will be expected at such site visits. IARPA reserves the right to conduct additional site visits on an as-needed basis.

1.I. Period of Performance

The BRIAR program is envisioned as a 48-month effort that is intended to begin August 1, 2021. Phase 1 (i.e., Base Period) of the Program will last 18 months; Phase 2 (i.e., Option Period 1) will last 18 months; and Phase 3 (Option Period 2) will last 12 months. Offerors are to submit a proposal that addresses all three phases.

1.J. Place of Performance

Performance will be conducted at the Performers' sites.

SECTION 2: AWARD INFORMATION

The BAA shall result in awards for all Phases of the program. Exercise of the Option Periods shall depend upon performance during Phase I - Base Period and subsequent Option Periods, as well as program goals, the availability of funding, and IARPA priorities. Exercising of Phases II – Option Period 1 and Phase III- Option Period II is at the sole discretion of the Government.

Multiple awards are anticipated. The amount of resources made available under this BAA shall depend on the quality of the proposals received and the availability of funds.

The Government reserves the right to select for negotiation all, some, one, or none of the proposals received in response to this solicitation and to make awards without discussions with Offerors. The Government also reserves the right to conduct discussions if determined to be necessary. Additionally, IARPA reserves the right to accept proposals in their entirety or to select only portions of proposals for negotiations for award. Evaluation and award of proposals will follow FAR 35 processes as described herein.

Awards under this BAA shall be made to Offerors on the basis of the Evaluation Factors listed in Section 5 of the BAA, as well as, successful completion of negotiations. Proposals selected for negotiation may

result in a procurement contract or other transaction. The Government reserves the right to negotiate the type of award instrument (e.g. procurement contract or other transaction) it determines appropriate under the circumstances.

The Government shall contact Offerors whose proposals are selected for negotiations to obtain additional information required for award. The Government may establish a deadline for the close of fact-finding and negotiations that allows a reasonable time for the award of a contract. Offerors that are not responsive to Government deadlines established and communicated with the request may be removed from award consideration. Offerors may also be removed from award consideration should the parties fail to reach agreement within a reasonable time on contract terms, conditions, and cost/price.

SECTION 3: ELIGIBILITY INFORMATION

3.A. Eligible Applicants

All responsible sources capable of satisfying the Government's needs may submit a proposal. Historically Black Colleges and Universities, Small Businesses, Small Disadvantaged Businesses and Minority Institutions are encouraged to submit proposals and team with others to submit proposals; however, no portion of this announcement shall be set aside for these organizations' participation due to the impracticality of reserving discrete or severable areas for exclusive competition among these entities. Other Government Agencies, Federally Funded Research and Development Centers, University Affiliated Research Centers, Government-Owned, Contractor-Operated facilities, Government Military Academies, and any other similar type of organization²⁴ that has a special relationship with the Government, that gives them access to privileged and/or proprietary information or access to Government equipment or real property, are not eligible to submit proposals under this BAA or participate as team members under proposals submitted by eligible entities. An entity of which only a portion has been designated as a UARC may be eligible to submit a proposal or participate as a team member subject to an organizational conflict of interest review.

Foreign entities and/or individuals may participate but only as a part of a U.S. based team. The prime contractor must be a U.S. organization. Foreign entities and individuals may participate as subcontractors or employees of a U.S. organization, however, all foreign participation must comply with any necessary Non-Disclosure Agreements, Security Regulations, Export Control Laws, and other governing statutes applicable under the circumstances. Offerors are expected to ensure that the efforts of foreign participants do not either directly or indirectly compromise the laws of the United States, nor its security interests. As such, both foreign and domestic Offerors should carefully consider the roles and responsibilities of foreign participants as they pursue teaming arrangements.

3.A.1 Organizational Conflicts of Interest (OCI)

According to FAR 2.101 "*Organizational Conflict of Interest*" means that because of other activities or relationships with other persons, a person is unable or potentially unable to render impartial assistance or advice to the Government, or the person's objectivity in performing the contract work is or might be otherwise impaired, or a person has an unfair competitive advantage.

In accordance with FAR 9.5, Offerors are required to identify and disclose all facts relevant to potential OCIs

²⁴

There are instances when these types of entities provide a unique facility, specialized equipment or technical service that is not otherwise obtainable. In such cases, offerors can request use and the Government will determine if the resource can be made available to all offerors as Government Furnished Property/Equipment/Information/Service. If the resource requested cannot be provided directly by the Government, the Government may consider an offeror's request for limited use as a procured service not otherwise available only after an OCI review and determination. It is advised that the offeror have an alternate plan in its proposal in case the Government does not accept the proposed participation. Requests for such resources can be submitted during the Q&A period.

involving the Offeror's organization and any proposed team member (subawardee, consultant). Under this Section, the Offeror is responsible for providing this disclosure with each proposal submitted pursuant to the BAA. The disclosure must include the Offeror's, and as applicable, proposed team member's OCI mitigation plan. The OCI mitigation plan must include a description of the actions the Offeror has taken, or intends to take, to prevent the existence of conflicting roles that might bias the Offeror's judgment and to prevent the Offeror from having an unfair competitive advantage. The OCI mitigation plan will specifically discuss the disclosed OCI in the context of each of the OCI limitations outlined in FAR 9.505-1 through FAR 9.505-4.

IARPA generally prohibits contractors/performers from concurrently providing Scientific Engineering Technical Assistance (SETA), Advisory and Assistance Services (A&AS) or similar support services and being a technical performer. Therefore, as part of the FAR 9.5 disclosure requirement above, address whether an Offeror or an Offeror's team member (e.g. subawardee, consultant) is providing SETA, A&AS, or similar support (e.g., T&E services) to IARPA under: (a) a current award or subaward; or (b) a past award or subaward.

If SETA, A&AS, or similar support is or was being provided to IARPA, the proposal must include:

The name of the IARPA program or office receiving the support;

The prime contract number;

Identification of proposed team member (subawardee, consultant) providing the support.

As part of their proposal, Offerors shall include either (a) a copy of their OCI notification including mitigation plan or (b) a written certification that neither they nor their subcontractor teammates have any potential conflicts of interest, real or perceived. A sample certification is provided in Appendix A.

The Government will evaluate OCIs and potential OCIs to determine whether they can be avoided, neutralized or mitigated and/or whether it is in the Government's interest to grant a waiver. The Government will make OCI determinations, as applicable, for proposals that are otherwise selectable under the BAA Evaluation Factors.

The Government may require Offerors to provide additional information to assist the Government in evaluating OCIs and OCI mitigation plans.

If the Government determines that an Offeror failed to fully disclose an OCI; or failed to provide the affirmation of IARPA support as described above; or failed to reasonably provide additional information requested by Government to assist in evaluating the Offeror's OCI and proposed OCI mitigation plan, the Government may reject the proposal and withdraw it from consideration for award.

3. A.2 Multiple Submissions to the BAA

Organizations may participate as a prime or subcontractor in more than one submission to the BAA. However, if multiple submissions to the BAA which include a common team member are selected, such common team members shall not receive duplicative funding (i.e., no one entity can be paid twice to perform the same task).

3. B. U.S. Academic Institutions

According to Executive Order 12333, as amended, paragraph 2.7, "Elements of the Intelligence Community are authorized to enter into contracts or arrangements for the provision of goods or services with private companies or institutions in the United States and need not reveal the sponsorship of such contracts or arrangements for authorized intelligence purposes. Contracts or arrangements with academic institutions may be undertaken only with the consent of appropriate officials of the institution."

Offerors must submit a completed and signed Academic Institution Acknowledgement Letter for each U.S. academic institution that is a part of their team, whether the academic institution is serving in the role of a

prime, or a subcontractor or a consultant at any tier of their team with their technical proposal. Each Letter must be signed by a senior official from the institution (e.g. President, Chancellor, Provost, or other appropriately designated official). A template of the Academic Institution Acknowledgement Letter is enclosed in APPENDIX A of this BAA. Note that IARPA shall not enter into negotiations with an Offeror whose team includes a U.S. academic institution until all required Academic Institution Acknowledgment Letters are received.

3. C. Other Eligibility Criteria

3. C.1 Collaboration Efforts

Collaborative efforts and teaming arrangements among potential Offerors are strongly encouraged. Specific content, communications, networking and team formations are the sole responsibility of the participants.

SECTION 4: PROPOSAL AND SUBMISSION INFORMATION

This notice constitutes the total BAA and contains all information required to submit a proposal. No additional forms, kits, or other materials are required.

4. A. Proposal Information

Interested Offerors are required to submit full proposals (Volume I, initially and Volume 2, if requested) in order to receive consideration for award. Compliant proposals shall be received by the time and date specified in the BAA, General Information, item 7.2, Proposal Due Date for Initial Round of Selections, in order to be considered in the initial round. It is within IARPA's sole discretion whether to evaluate any proposals received after this date but prior to the BAA Closing Date set forth in General Information, item 7.3. Selection for award remains contingent on the technical and funding availability evaluation factors. Proposals received after the BAA Closing Date are deemed to be late and will not be evaluated.

The Government intends to use Booz Allen Hamilton, Navstar, Inc., Ops Consulting, Bluemont Technology & Research, Patriot Solutions Group, Inc., Whitney, Bradley & Brown, Inc. to provide expert advice, regarding portions of the proposals submitted to the Government and/or to provide logistical support in carrying out the evaluation process.

In addition to supporting evaluations, the following entities: the Department of Energy Oak Ridge National Laboratory²⁵, US Army Combat Capabilities Development Command C5ISR Center Night Vision and Electronic Sensors Directorate, and the National Institute of Standards and Technology will be supporting T&E activities for contracts awarded under this program and should also be considered as part of an Offeror's OCI disclosure.

All Government and Contractor personnel shall have signed and be subject to the terms and conditions of non-disclosure agreements. By submission of its proposal, an Offeror agrees that its proposal information may be disclosed to employees of these organizations for the limited purposes stated above. Offerors who object to this arrangement shall provide clear notice of their objection as part of their transmittal letter. If Offerors do not send notice of objection to this arrangement in their transmittal letter, the Government shall assume consent to the use of contractor support personnel in assisting the review of submittal(s) under this BAA.

Only Government personnel will make evaluation and award determinations under this BAA.

All administrative correspondence and questions regarding this solicitation shall be directed by email to dni-IARPA-BAA-20-04@iarpa.gov. Proposals shall be submitted in accordance with the procedures stated in the BAA.

²⁵ The Department of Energy Oak Ridge National Laboratory is managed and operated by UT-Battelle, LLC.

4. B. Proposal Format and Content

To facilitate the evaluation of the proposal, the government encourages the Offerors to submit proposals which: are clear and concise; limited to essential matters sufficient to demonstrate a complete understanding of the Government's requirements; include sufficient detail for effective evaluation; and provide convincing rationale to address how the Offeror intends to meet these requirements and objectives, rather than simply rephrasing or restating the Government's requirements and objectives.

All proposals shall be in the format given below. Non-compliant proposals may be rejected without review. Proposals shall consist of "Volume 1 - Technical and Management Proposal" and, only if requested (see BAA sections 4.B.2 and 5.B.), "Volume 2 - Cost Proposal." All proposals shall be written in English.

Additionally, text should be black and paper size 8-1/2 by 11-inch, white in color with 1" margins from paper edge to text or graphic on all sides. IARPA desires Times New Roman font with font size not smaller than 12 point. IARPA desires that the font size for figures, tables and charts not be smaller than 10 point. All contents shall be clearly legible with the unaided eye. Excessive use of small font, for other than figures, tables, and charts, or unnecessary use of figures, tables, and charts to present information may render the proposal non-compliant. Text and graphics, if applicable, may be printed on both sides of a sheet (double-sided). Front and backside of a single sheet are counted as two (2) pages if both sides are printed upon. Foldout pages are not permitted. The page limitation for full proposals includes all figures, tables, and charts. All pages should be numbered. No other materials may be incorporated in any portion of the proposal by reference, as a means to circumvent page count limitations. All information pertaining to a volume shall be contained within that volume. Any information beyond the page limitations will not be considered in the evaluation of Offerors.

The Government anticipates proposals submitted under this BAA will be UNCLASSIFIED.

Each proposal submitted in response to this BAA shall consist of the following:

Volume 1 – Technical & Management Proposal (See Section 4.B.1 below)

Section 1 - Cover Sheet (see Appendix A) & Transmittal Letter (not included in page count)

Section 2 – Summary of Proposal

Section 3 – Detailed Proposal

Section 4 – Attachments (Not included in page count, but number appropriately for elements included.

Templates are in the Appendices of this BAA)

1 – Academic Institution Acknowledgment Letter, if required

2 – IP Rights, estimated not to exceed 4 pages

3 – OCI Notification or Certification

4 – Bibliography

5 – Relevant Papers (up to three)

6 – Consultant Letters of Commitment

7 – Human Use Documentation (see Section 6)

8 – Animal Use Documentation (see Section 6) - **Not applicable**

9 – A Three Chart Summary of the Proposal

10 – Security Plan, estimated not to exceed 5 pages - **Not applicable**

11 – Research Data Management Plan, estimated not to exceed 3 pages (see Section 4 and Template under Appendix A)

12 – Privacy Plan, (See Section 1.D.3), no page limit

Volume 2 – Cost Proposal

(To be submitted only upon request of the Contracting Officer (CO), See BAA Sections 4.B.2 and 5.B)

Section 1 – Cover Sheet (see Appendix B)

Section 2 – Estimated Cost Breakdown

Section 3 – Supporting Information

4. B.1 Volume 1: Technical and Management Proposal

Volume 1, Technical and Management Proposal, may include an attached bibliography of relevant technical papers or research notes (published and unpublished) which document the technical ideas and approach on which the proposal is based. Copies of not more than three relevant papers can be included with the submission. Other supporting materials will not be reviewed. Except for the cover sheet, transmittal letter, table of contents (optional), and the required attachments stated in the BAA the allowable page limits are as follows:

- **Not to exceed 40 pages**

Any pages exceeding these limits will not be considered during the evaluation process. Proposals shall be accompanied by an official transmittal letter, using contractor format.

4. B.1.a Section 1: Cover Sheet & Transmittal Letter

A. Cover sheet: (See Appendix A for template)

B. Transmittal Letter

The transmittal letter shall include the following (**not to exceed one page**):

Introduction of Offeror and team (subcontractors and consultants), the BAA number, IARPA program name, Offerors' Program name, the proposal validity period, the type contract vehicle being requested (procurement contract or other transaction) with a short rationale, any non-negotiable conditions on which the offer is based such as contract type (cost type, FFP), IP restrictions, etc., and the Offeror's points of contact information including: name, email and phone number for both technical and administrative issues.

Note: Any information required elsewhere in the proposal must be included in the appropriate section of the proposal (i.e. including the information in the transmittal letter alone may not be sufficient). If there is a conflict between the transmittal letter and the proposal the proposal shall control.

4. B.1.b Section 2: Summary of Proposal (see below for page limit)

Section 2 shall provide an overview of the proposed work as well as introduce associated technical and management issues. This section shall contain a technical description of technical approach to the research as well as a succinct portrayal of the uniqueness and benefits of the proposed work. It shall make the technical objectives clear and quantifiable and shall provide a project schedule with definite decision points and endpoints.

- **Not to exceed 5 pages**

The Summary shall include the elements specified in the sections below:

- A. A technical overview of the proposed research and plan. This section is the centerpiece of the proposal and shall succinctly describe the proposed approach and research. The overview shall clearly articulate the approach and design, technical rationale, and constructive plan for accomplishment of technical objectives and deliverable production. The approach will be supported by basic, clear

calculations. Additionally, proposals shall clearly explain the innovative claims and technical approaches that will be employed to meet or exceed each program metric along with an explanation outlining why the proposed approaches are feasible. Proposals must also clearly identify any technical uncertainties and potential mitigations. The use of non-standard terms and acronyms should be avoided. This section shall be supplemented with a more detailed plan in Volume 1, Section 3 of the proposal.

- B. Summary of the products, transferable technology and deliverables associated with the proposed research results. Define measurable deliverables that show progress toward achieving the stated program milestones. All proprietary claims to the results, prototypes, IP, or systems supporting and/or necessary for the use of the research, results, and/or prototype shall be detailed in Attachment 2. Should no proprietary claims be identified in Attachment 2, Government rights shall be unlimited to all technology and deliverables resulting from or delivered under this BAA.
- C. Schedule and milestones for the proposed research. Summarize, in table form the schedule and milestones for the proposed research. Do not include proprietary information with the milestone chart.
- D. Related research. Include a general discussion of other research in this area, comparing the significance and plausibility of the proposed innovations against competitive approaches to achieve Program objectives.
- Project contributors. Include a clearly defined organizational chart of all anticipated project participants and affiliations (e.g. subcontractor, consultant), organized under functional roles for the effort, along with the associated task number responsibilities for each individuals.
- E. Technical Resource Summary: (NOTE: The full Cost Volume is not required unless requested by the CO; therefore, it is critical that Offerors address the items below in their technical proposal so the Government can evaluate Resource Realism.)
- Summarize the total level of effort by labor category/technical discipline (e.g. research scientist/chemist/physicist/engineer/administrative) and affiliation (e.g. prime/subcontractor/consultant). All Key Personnel and significant contributors shall be identified by name. Provide a brief description of the qualifications for each labor category/technical discipline (e.g., education, certifications, years of experience).
 - Summarize level of effort by labor category/technical discipline for each major task.
 - Identify software and IP required for performance, by affiliation. List each item separately, identifying the task number for which the software or IP is required and the Performer team requiring it.
 - Identify materials or equipment (such as IT) required for performance. List each item separately, identifying the task number for which the material or equipment is required and the Performer team requiring it.
 - Identify any other resources required to perform (e.g., services, data sets, data set repository, facilities, Government furnished property. List each item separately, identifying the task number for these other resources are required and the Performer team requiring it.
 - Estimated travel, including purpose of travel and number of personnel per trip, by affiliation. (See Appendix B.4 for sample template)

The above information shall cross reference to the tasks set forth in the Offeror's statement of work, and shall be supported by the detailed cost and pricing information provided in the Offeror's Volume 2 Cost Proposal, the latter of which shall be submitted only if requested.

4. B.1.c. Section 3: Detailed Proposal Information

This section of the proposal shall provide the detailed, in-depth discussion of the proposed research as well as supporting information about the Offeror's capabilities and resources. Specific attention shall be given to addressing both the risks and payoffs of the proposed research and why the proposed research will achieve the goals, objectives, metrics, and milestones in this BAA. The Government reserves the right to reject a proposal if the information requested below is not adequately addressed. This part shall provide:

- A. Statement of Work (SOW) - Clearly define the technical tasks and sub-tasks to be performed, their durations and the dependencies among them. For each task and sub-task, provide:
- A general description of the objective;
 - A detailed description of the approach to be taken, developed in an orderly progression and in enough detail to establish the feasibility of accomplishing the goals of the task;
 - Identification of the primary organization responsible for task execution (prime, sub-contractor, team member, etc.) by name;
 - The exit criteria for each task/activity (i.e., a product, event or milestone that defines its completion); and
 - Definition of all deliverables (e.g., data rights, reports, software) to be provided to the Government.

Note: Do not include any proprietary information in the SOW

At the end of this section of the proposal, provide a Gantt chart, showing all the tasks and sub-tasks on the left (grouped by research thrust) with the performance period (in years/quarters) on the right. All milestones shall be clearly labeled on the chart. If necessary, use multiple pages to ensure legibility of all information.

- B. A detailed description of the objectives, scientific relevance, technical approach and expected significance of the work. Clearly identify the key elements of the proposed work and how they relate to each other. Describe the technical methods or approaches that will be used to meet or exceed each program milestone along with an explanation outlining why the proposed methods/approaches are feasible. Additionally, describe any anticipated risks along with possible mitigations. Proposals containing only a general discussion of the problem without detailed description of approaches, plausibility of implementation, and critical metrics may be deemed not selectable.
- C. State-of-the-art. Compare with the proposed approach to other on-going research, highlighting the uniqueness of the proposed approach and differences between the proposed effort and the current state-of-the-art. Identify advantages and disadvantages of the proposed work with respect to potential alternative approaches.
- D. Data sources. Identify and describe data sources to be utilized in pursuit of the stated research goals.

Offerors proposing to use existing data sets shall provide written verification that said data sets were obtained in accordance with U.S. laws and, where applicable, use will be in compliance with End User License Agreements, Copyright Laws, Terms of Service, and laws and policies regarding privacy protection of U.S. Persons. Offerors proposing to obtain new data sets shall ensure that their plan for obtaining the data complies with U.S. Laws and, where applicable, with End User License Agreement, Copyright Laws, Terms of Service, and laws and policies regarding privacy protection of U.S. Persons. Offeror's shall also address IP restrictions on the use or transfer of such data sets, in Attachment 2 of the Offeror's proposal, as described in Section 4.B.1.d.

Offerors shall also include the documentation required in 6.B.3 (Human Use).

Documentation must be well written and logical; claims for exemptions from Federal regulations for human subject protection must be accompanied by a strong defense of the claims. The Human Use documentation and the written verification are not included in the total page count.

- E. Deliverables. Based on the required deliverables identified in Section 1 of the BAA, clearly identify the data to be delivered, including technical data and computer software. In Attachment 2 to Offeror’s proposal, Offerors shall address IP rights in such data, as described in Section 4.B.1.d.
- F. Cost, schedule, milestones. Describe the cost, schedule, and milestones for the proposed research, including cost estimates by cost element for base period, the option period(s) and the total program summary, and company cost share, if any, as well as, costs by technical area(s) and tasks (see tables below for sample format). The milestones shall not include proprietary information (Offeror can use their own format for milestones).

(Note: The full Volume 2 - Cost Proposal is not required unless requested by the CO; therefore, it is critical that Offerors address this element in their technical proposal so the Government can evaluate funding availability. See BAA Sections 4.B.2, 5.A., and 5.B).

SAMPLE FORMAT

Cost Element (burdened)	Phase 1- Base (18 Months)	Phase 2 - Option 1 (18 Months)	Phase 3 – Option 2 (12 Months)	Total Program Summary
Labor				
Subcontracts/Consultant				
Materials & Equipment				
Travel				
Other Direct Costs				
(Cost Share, if any)				
Total				

- G. Offeror’s previous accomplishments. Discuss previous accomplishments and work in this or closely related research areas and how these will contribute to and influence the current work.
- H. Facilities. Describe the facilities that shall be used for the proposed effort, including computational and experimental resources.
- I. Detailed Management Plan. Provide the Management Plan that clearly identifies both organizations and individuals within organizations that make up the team, and delineate the expected duties, relevant capabilities, and task responsibilities of team members and expected relationships among team members. Identify the expected levels of effort (percentage time, or fraction of an FTE) for all Key Personnel and significant contributors. Additionally, include a description of the technical, administrative, and business structure of the team along with an internal communications plan. Describe project/function/sub-contractor relationships (including formal teaming agreements), Government research interfaces, and planning, scheduling, and control practices utilized, as well as the team leadership structure. Provide a brief biography of all Key Personnel (including alternates, if desired) and significant contributors who shall be involved in the research along with the amount of effort to be expended by each person during the year. Participation by all Key Personnel and significant contributors is expected to exceed 25% of their time. A compelling explanation is required for any variation from this figure.

If the team intends to use consultants, they shall also be included in the organizational chart with

an indication of whether the person shall be an “individual” or “organizational” consultant (i.e., representing themselves or their organization), and organizational affiliation.

See Table 4 below for the recommended format.

Table 4: Team Organization (Example) * if applicable

Participants	Org	Role	Unique, Relevant Capabilities	Role: Tasks	Clearance Level *	Time
Jane Wake	LMN Univ.	PI/Key Personnel	Electrical Engineering	Program Mgr & Electronics: 10		100%
John Weck, Jr.	OPQ Univ.	Key Personnel	Mathematical Physics	Programming: 1-5		50%
Dan Wind	RST Univ.	Key Personnel	Physics	Design, Fab, and Integration: 6-8		90%
Katie Wool	UVW Univ.	Contributor	Quantum Physics	Enhancement witness design: 4		25%
Rachel Wade	XYZ Corp.	Co-PI/Key Personnel	Graph theory	Architecture design: 6		55%
Chris West	XYZ Corp.	Significant Contributor	EE & Signal Processing	Implementation & Testing: 8-9		60%
Julie Will	JW Cons.	Consultant (Individual)	Computer science	Interface design: 10		200 hours
David Word	A Corp.	Consultant (A. Corp.)	Operations Research	Applications Programming: 2-3		200 hours

- J. Resource Share. Include the type of support, if any, the Offeror might request from the Government, such as facilities, equipment, materials, or any such resources the Offeror is willing to provide at no additional cost to the Government to support the research effort. Cost sharing is not required from Offerors and is not an evaluation criterion but is encouraged where there is a reasonable probability of a potential commercial application related to the proposed research and development effort.
- K. The names of other federal, state or local agencies or other parties receiving the proposal and/or funding the proposed effort. If none, so state. Concurrent submission of the proposal to other organizations will not prejudice its review but may impact IARPA’s decision to fund the effort. See 5.A.2.a.
- L. Research Data Management Plan. (RDMP). Submit a RDMP that outlines how they will manage and preserve the Research Data, as defined below, collected or produced through the course of performance. The RDMP need not require the preservation of all Research Data: Offerors shall consider the cost and benefits of managing and preserving the Research Data in determining whether to preserve it. At a minimum, all Research Data associated with a peer-reviewed manuscript or final published article (hereinafter “Publications”) must be made publicly accessible by the award recipient before, on or at a reasonable time after the publication date. The Publications whose associated data must be covered by the RDMP are deliverables as described in Section 1.

Research Data is defined herein as the digital recorded factual material commonly accepted in the scientific community as necessary to validate research findings including data sets used to support scholarly publications, but does not include laboratory notebooks, preliminary analyses, drafts of scientific papers, plans for future research, peer review reports, communications with colleagues, or physical objects, such as laboratory specimens.

The RDMP must address the following:

- Describe the types of Research Data collected or produced in the course of the project. Include standards to be used for Research Data and metadata content and format.
- A plan for making the Research Data that underlie Publications digitally accessible to the public before or, at the time of publication or conference presentation, or within a reasonable time after publication. The requirement could be met by including the data as supplementary information to the Publication or by depositing the Research Data in a searchable, machine-readable and digitally accessible form suitable for repositories available to the public free of charge. Such repositories could be discipline-specific repositories, general purpose research data repositories or institutional repositories. The published article or conference paper should indicate how the public may access Research Data underlying the paper's results and findings. Offerors should attempt to make the Research Data available for at least three years after published article or conference. (NOTE: Offerors shall make a best effort in identifying research data sets that may be used for Publications that occur after contract end. The Offeror shall deliver these data sets to the Government and make them available in repositories available to the public prior to the end of the period of performance, if not included as supplementary information to Publications.)
- Policies and provisions for sharing and preservation, including a) policies and provisions for appropriate protection of privacy, confidentiality, security, and IP, b) descriptions of tools, including software, needed to access and interpret the Research Data, and c) policies and provisions for re-use, re-distribution, and production of derivatives.
- If, for legitimate reasons (e.g., privacy, confidentiality, security, IP rights considerations; size of data sets, cost; time), the Research Data underlying the results of peer-reviewed publications or conference papers cannot be shared and preserved, the plan must include a justification citing such reasons.

In addressing these elements (e.g., types of data to be shared and preserved, standards to be used for data and metadata, repositories to be used for archiving data, timeframes for sharing and preservation), the RDMP should reflect the best practices of the relevant scientific discipline and research community. At a minimum, Research Data underlying Publications and associated metadata shall include an acknowledgement of IARPA support and a link to the associated Publication.

4.B.1.d. Section 4: Attachments

[NOTE: The attachments listed below shall be included with the proposal, if applicable, but do not count against the Volume 1-page limit.]

Attachment 1: Signed Academic Institution Acknowledgement Letter(s) (if applicable). A template is provided in Appendix A.

Attachment 2: IP Rights. A template is provided in Appendix A. This attachment is estimated not to exceed 4 pages and shall address the following:

Representation as to Rights. An Offeror shall provide a good faith representation that they either own or have sufficient licensing rights to all IP that will be utilized under their proposal.

Program-Specific IP Approach. IARPA requires sufficient rights to IP developed or used in the conduct of the proposed research to ensure that IARPA can successfully (a) manage the program and evaluate the technical output and deliverables, (b) communicate program information across Government organizations, and (c) support transition to and further use and development of the program results by Intelligence community (IC) users and others. IARPA anticipates that achieving these goals for the BRIAR program may necessitate a minimum of Unlimited Rights in

all deliverables. However, there may be any number of other approaches to intellectual property rights to achieve IARPA's program goals. "Unlimited rights" means the rights of the Government to use, disclose, reproduce, prepare derivative works, distribute copies to the public, and perform publicly and display publicly, in any manner and for any purpose, and to have or permit others to do so. In addressing their approach to IP rights, Offerors should (1) describe the intended use of patented invention(s) or data, including, technical data and computer software, in the conduct of the proposed research; (2) describe the rights being offered to the Government along with a justification if less than Unlimited Rights is being offered; (3) explain how IARPA will be able to reach its program goals (including transition) with the rights offered to the Government; (4) identify the cost to the Government to acquire additional or alternative rights beyond those being offered, if applicable; and (5) provide possible alternatives in any area in which the offered rights may be insufficient for IARPA to achieve its program goals (e.g., the possibility of future licensing of privately-developed software to U.S. Government agencies at a reasonable cost.)

Patented Inventions. Offerors shall include documentation using the format provided in **Appendix A**, proving ownership of or sufficient rights to all inventions (or inventions for which a patent application has been filed) that will be utilized under the proposal for the IARPA program. If a patent application has been filed for an invention that the proposal utilizes, but the application has not yet been made publicly available and contains proprietary information, the Offeror may provide only the serial number, inventor name(s), assignee names (if any), filing date, filing date of any related provisional application, and a summary of the patent title, together with either: (1) a representation that the Offeror owns the invention, or (2) proof of sufficient licensing rights in the invention. Offerors shall also indicate their intention to incorporate patented technology into any deliverable- i.e., if Offerors intend for any deliverable to embody any invention covered by any patent or patent application the Offerors listed in Volume 1, Attachment 2, Offerors should also specify in the Attachment the deliverable into which the Offerors expects to incorporate the invention. In doing so, the Government requests that Offerors further specify any rights offered to the Government for inventions that shall be utilized in the program (beyond the implied license that accompanies a patent owner's sale of a patented product).

Noncommercial Data. Offerors shall identify all noncommercial data, including technical data and computer software, that it plans to generate, develop and/or deliver under any proposed award instrument in which the Government shall acquire less than unlimited rights. In doing so, Offerors must assert (a) the specific restrictions the Government's rights in those deliverables, (b) the basis for such restrictions, (c) the intended use of the technical data and noncommercial computer software in the conduct of the proposed research and development of applicable deliverables, and (d) a supporting rationale of why the proposed approach to data rights is in the Government's best interest (please see program specific goals above). **If no restrictions are intended, then the Offeror shall state "NONE."**

Commercial Data. Offerors shall identify all commercial data, including technical data and commercial computer software, that may be included in any deliverables contemplated under the research effort and assert any applicable restrictions on the Government's use of such commercial data (please see program specific goals above). **If no restrictions are intended, then the Proposer shall state "NONE."**

Data Developed with Mixed Funding. If mixed funding is anticipated in data generated, developed, and/or delivered under the research effort, the Government seeks at minimum "Government Purpose Rights" (GPR) for all noncommercial data deliverables; offering anything less shall be considered a weakness in the proposal. United States Government purposes include any activity in which the United States Government is a party, including cooperative agreements with international or multi-national defense organizations, or sales or transfers by the United States Government to foreign governments or international organizations. Government purposes include competitive

procurement, but do not include the rights to use, modify, reproduce, release, perform, display, or disclose technical data or computer software for commercial purposes or authorize others to do so. Government Purpose Rights continue for a five-year period upon execution of the contract, and upon expiration of the five-year period, the Government obtains Unlimited Rights in the data.

Open Source. If Offerors propose the use of any open source data or freeware, any conditions, restrictions or other requirements imposed by that software shall also be addressed. Offerors should leverage the format in **Appendix A** for their response.

Identification of Relevant Government Contracts. For all technical data and computer software that an Offeror intends to deliver with other than unlimited rights that are identical or substantially similar to technical data and computer software that the Offeror has produced for, delivered to, or is obligated to deliver to the Government under any contract or subcontract, the Offeror shall identify (a) the contract number under which the data, software, or documentation was produced; (b) the contract number under which, and the name and address of the organization to whom, the data and software was most recently delivered or shall be delivered; and (c) any limitations on the Government's rights to use or disclose the data and software, including, when applicable, identification of the earliest date the limitations expire.

Definitions. For this solicitation, IARPA recognizes only the definitions of IP rights in accordance with the terms as set forth in the Federal Acquisition Regulation (FAR) part 27 or as defined herein. If Offerors propose IP rights that are not defined in FAR part 27 or herein, Offerors shall clearly define such rights in the "Intellectual Property Rights" Attachment of their proposal. Offerors are reminded of the requirement for prime contractors to acquire sufficient rights from subcontractors to accomplish the program goals.

Evaluation. The Government may use the asserted data rights during the evaluation process to evaluate the impact of any identified restrictions. The technical content of the "Intellectual Property Rights" Attachment shall include only the information necessary to address the proposed approach to IP; any other technical discussion in the attachment shall not be considered during the evaluation process.

Attachment 3: OCI Notification or Certification Template provided in Appendix A.

Attachment 4: Bibliography. A brief bibliography of relevant technical papers and research notes (published and unpublished) which document the technical ideas on which the proposal is based.

Attachment 5: Relevant Papers. Copies of not more than three relevant papers may be included in the submission. The Offerors shall include a one-page technical summary of each paper provided, suitable for individuals who are not experts in the field.

Attachment 6: Consultant Commitment Letters. If needed.

Attachment 7: Human Use Documentation, reference section 6.B.3

Attachment 8: Animal Use Documentation. **Not applicable**

Attachment 9: A Three Chart Summary of the Proposal. A PowerPoint summary that quickly and succinctly indicates the concept overview, key innovations, expected impact, and other unique aspects of the proposal. The format for the summary slides is included in Appendix A to this BAA and does not count against the page limit. Slide 1 should be a self-contained, intuitive description of the technical approach and performance. These slides may be used during the evaluation process to present a summary of the proposal from the Offeror's view.

Attachment 10: Security Plan. (Not to exceed 5 pages). **Not applicable**

Attachment 11: RDMP (estimated as 2 to 3 pages). Template provided in Appendix A.

Attachment 12: Privacy Plan, reference section 1.D.3 (No page limit)

4.B.2. Volume 2: Cost Proposal (No Page Limit)

NOTE: This Volume is only required if the Offeror's proposal has been selected for negotiation (see BAA Section 5.B and 5.C). The notification of selection for negotiation will be issued in writing by the CO and will include a request to submit the full Cost Volume within 10 business days or as otherwise authorized by the contracting officer.

IARPA anticipates awarding cost-type procurement contracts however, Offerors requesting other than a cost-type procurement contract (i.e., Firm Fixed Price (FFP) contract or other transaction) may be directed by the CO to provide "other than certified cost or pricing data" (reference FAR Part 15.4) and/or cost supporting information in a different format than described below. The CO will determine whether to grant the request for other than a cost-type procurement contract. Examples of requests that would be considered for approval include those from non-traditional contractors such as commercial entities that do not accept FAR- based cost contracts, small businesses, start-up companies, consortia that may include universities and non-profits or foreign companies; where cost-sharing or government participation in the work is appropriate; where flexibility not available under a procurement contract is needed; or where commercialization by industry is deemed advantageous to the Government.

Regardless of the type of instrument determined to be appropriate by the CO, the Offeror's cost proposal shall contain sufficient factual information to establish the Offeror's understanding of the project, the perception of project risks, the ability to organize and perform the work and to support the realism and reasonableness of the proposed cost, to the extent appropriate. IARPA recognizes that undue emphasis on cost may motivate Offerors to offer low-risk ideas with minimum uncertainty and to staff the effort with junior personnel in order to be in a more competitive posture. IARPA discourages such cost strategies. Cost reduction approaches that shall be received favorably include innovative management concepts that maximize direct funding for technology and limit diversion of funds into overhead.

4. B.2.a Section 1: Cover Sheet.

See Appendix B for the Cover Sheet Template

4. B.2.b. Section 2: Estimated Cost Breakdown.

Offerors shall submit numerical cost and pricing data using Microsoft Excel. The Excel document, in the format provided in Appendix B, shall include intact formulas and shall not be hard numbered. The base and option period cost data should roll up into a total cost summary. The Excel files may be write-protected but shall not be password protected. The Cost/Price Volume shall include the following:

- A. Completed Cost/Price Template - Offerors shall submit a cost element breakdown for the base period, each option period and the total program summary in the format provided in Appendix B.
- B. Total cost broken down by major task.
- C. Major program tasks by fiscal year.
- D. A summary of projected funding requirements by month.
- E. A summary table listing all labor categories used in the proposal and their associated direct labor rates, along with escalation factors used for each base year and option year.
- F. A summary table listing all indirect rates used in the proposal for each base year and option year.

4. B.2.c. Section 3: Supporting Information

In addition to the above, supporting cost and pricing information shall be provided in sufficient detail

to substantiate the Offeror's cost estimates. Include a description of the basis of estimate (BOE) in a narrative for each cost element and provide supporting documentation, as applicable:

Direct Labor – Provide a complete cost breakout by labor category, hours and rates (template available in Appendix B). Specify all Key Personnel by name and clearly state their labor category and proposed rate. Describe the basis of the proposed rates and provide a copy of the most recent Forward Pricing Rate Agreement (FPRA) with the Government. If Offerors do not have a current FPRA with the Government, provide payroll records or contingency hire letters with salary data to support each proposed labor category, including those for key individuals, and the most recent Forward Pricing Rate Proposal Submission, if applicable. Offeror should also address whether any portion of their labor rates is attributable to uncompensated overtime.

Labor Escalation Factor – State the proposed escalation rate and the basis for that rate (e.g., based upon Global Insight indices, Cost Index or historical data). If the escalation rate is based upon historical data, provide data to demonstrate the labor escalation trend. Provide a sample calculation demonstrating application of the factor to direct labor.

Subcontracts (to include consultants and Inter-organizational Transfers (IOTs) – The Offeror is responsible for compiling and providing full subcontractor proposals with the Cost Volume. Subcontractor cost element sheets shall be completed for the base period, each option period and the total summary using the same format required for the prime contractor (See Appendix B). Consultant letter(s) of commitment shall also be attached.

Information shall be presented in Excel with intact formulas using the format provided in Appendix B and addressing the supporting cost information as outlined in Section 4 of the BAA. In addition to the full and complete subcontractor cost proposals, the Offeror shall also provide its analysis of each subcontractor's proposal including justification for why the subcontractor was selected and its determination that the cost/price is fair and reasonable (Reference FAR Part 44 and FAR clause 52.244-2). **If subcontractors have concerns about proprietary cost information, subcontractors can submit their detailed cost proposals directly to the CO.**

Materials and Equipment – Provide copies of quotes, bill of materials, historical data or any other information including Offeror's analysis to support proposed costs.

Travel - The proposed travel supporting detail shall include destination and purpose of the trip, number of trips, number of travelers and days per trip and price per traveler in sufficient detail to verify the BOE. Proposed travel costs shall comply with the limitations set forth in FAR Part 31. (See Appendix B.4 for sample format).

Proposed conference travel must have an immediate, direct, and tangible benefit to the Government such as providing a deliverable at the conference (e.g., gives a presentation, presents a paper or research findings that are sponsored in whole or in part by IARPA). Travel for personnel to simply attend a conference will not be approved as a direct charge to the contract.

Other Direct Costs (ODCs) – ODCs shall be listed separately and supported by quotes, historical data or any other information including the Offeror's analysis.

Indirect Costs – The Offeror shall show indirect cost calculations, identify the proposed indirect rate by contractor fiscal year and program period (base, option period) and provide information on indirect cost pools and allocation bases for each year and program period involved. If a Government agency recently audited the Offeror's indirect rates, the Offeror shall identify the agency that conducted the audit, when the rates were approved and the period for which they are effective. Include a copy of this rate agreement. Absent current Government rate recommendations, it is incumbent on the Offeror to provide some other means of demonstrating indirect rate realism (e.g., 3 years of historical actual costs with applicable pools and bases). If proposed rates vary significantly from historical experience,

the Offeror shall explain of the variance.

Cost sharing – Describe the source, nature and amount of cost-sharing, if any. Reference Resource Share from Section 4 of the BAA.

Other Pricing Assumptions – Identify all pricing assumptions, that should be incorporated into the resulting award instrument (e.g., use of Government Furnished Property/Facilities/Information, access to Government Subject Matter Experts, etc.). Reference Resource Share from Section 4 of the BAA.

Facilities Capital Cost of Money (FCCM) – If proposing FCCM, the Offeror shall show FCCM cost calculations, identify the proposed FCCM factors by contractor fiscal year and program year and provide a copy of the Forward Price Rate Agreement (FPRA), Forward Price Rate System (FPRS) or Forward Pricing Rate Recommendation (FPRR), if available.

Profit/Fee - Identify the proposed profit or fee percentage and the proposed profit/fee base. Provide justification for your proposed profit or fee.

Systems - For the systems listed below, provide a brief description of the cognizant federal agency and audit results. If the system has been determined inadequate, provide a short narrative describing the steps your organization has taken to address the inadequacies and the current status. If a formal audit has been performed by a Government Agency, please provide a complete copy of the audit report or adequacy determination letter. If the system has never received a formal Government review and approval include a statement to that effect. Address whether your organization has contracts that are Cost Accounting Standards (CAS) covered and if so, whether they are subject to full or modified CAS coverage.

- Accounting system
- Purchasing system

Certified “cost or pricing data” may be requested for procurement contract awards that exceed the threshold for submittal as set forth in the FAR, unless the CO approves an exception from the requirement to submit cost or pricing data. (Reference FAR Part 15.403.)

4. C. Submission Details

4. C.1. Due Dates

See BAA General Information Section for proposal due dates and times.

4. C. 2 Proposal Delivery

Proposals (Volume 1 **initially**) shall be submitted electronically through the IARPA Distribution and Evaluation System (IDEAS). Offerors interested in providing a submission in response to this BAA shall first register by electronic means in accordance with the instructions provided on the following web site: <https://iarpa-ideas.gov>. Offerors who plan to submit proposals for evaluation are strongly encouraged to register at least one week prior to the due date for the first round of proposals. Offerors who do not register in advance do so at their own risk, and IARPA shall not extend the due date to accommodate such Offerors. Failure to register as stated shall prevent the Proposer’s submittal of documents.

After registration has been approved, Offeror’s should upload a proposal, (initially Volume 1 **only**), scanned certifications and permitted additional information in ‘pdf’ format, or as otherwise directed (Excel, PowerPoint, etc.). Offerors are responsible for ensuring a compliant and timely submission of their proposals to meet the BAA submittal deadlines. Time management to upload and submit is wholly the responsibility of the Offeror. **Note: IDEAS will require Offerors to complete a proposal cover sheet within IDEAS at the time that the Volume 1 – Technical and Management Proposal is submitted.**

This is separate and distinct from the Technical and Cost Volume cover sheets referenced in 4.B.1.a. and 4.B.2.a. (also provided in Appendices A and B). Information requested within IDEAS will include basic cost information (Total funds requested from IARPA, proposed costs by option period and validity period). Please complete the requested information but DO NOT upload your Volume 2 – Cost Proposal. Directions for submittal of Volume 2 – Cost Proposal will be provided by the CO when Offerors are notified of selection for negotiations.

Upon completing the proposal submission, the Offeror shall receive an automated confirmation email from IDEAS. Please forward that automated message to dni-IARPA-BAA-20-04@iarpa.gov. IARPA strongly suggests that the Offeror document the submission of their proposal package by printing the electronic receipt (time and date stamped) that appears on the final screen following compliant submission of a proposal to the IDEAS website.

Volume 1 submitted by any means other than IDEAS (e.g., hand-carried, postal service, commercial carrier and email) shall not be considered unless the Offeror attempted electronic submittal, but was unsuccessful. Should an Offeror be unable to complete the electronic submittal, the Offeror shall employ the following procedure. The Offeror shall send an e-mail dni-IARPA-BAA-20-04@iarpa.gov, prior to the proposal due date and time specified in the BAA, and indicate that an attempt was made to submit electronically and that the submittal was unsuccessful. This e-mail shall include contact information for the Offeror. Upon receipt of such notification, the Government will provide additional guidance regarding submission.

Volume 1 shall be submitted by the date and time specified in the BAA, General Information section, 7.2 Proposal Due Date for Initial Round of Selections, in order to be considered in the initial round. It is in IARPA's sole discretion whether to evaluate proposals received after this date but before the BAA Closing Date set forth in 7.3. Selection remains contingent on the technical and funding availability evaluation factors. Proposals received after the BAA Closing Date are deemed to be late and will not be reviewed. Failure to comply with the submission procedures may result in the submittal not being evaluated.

Although classified proposals are not anticipated for this program, if an offeror chooses to submit a classified proposal, the offeror must first contact IARPA via dni-IARPA-BAA-20-04@IAPA.gov for detailed submittal instructions. In no case shall classified information be uploaded into IDEAS.

4. D. Funding Restrictions

Facility construction costs are not allowable under this activity. Funding may not be used to pay for commercialization of technology.

SECTION 5: PROPOSAL REVIEW INFORMATION

5.A. Technical and Funding Availability Evaluation Factors

The factors used to evaluate and select proposals for negotiation for this Program BAA are described in the following paragraphs. Because there is no common SOW, each proposal shall be evaluated on its own merits and its relevance to the Program goals rather than against other proposals submitted in response to this BAA. The proposals shall be evaluated on the basis of technical and funding availability factors. These are of equal importance. Within the technical evaluation factor, the specific technical criteria are in descending order of importance, as follows: Overall Scientific and Technical Merit, Effectiveness of Proposed Work Plan, Contribution and Relevance to the IARPA Mission and Program Goal, Relevant Experience and Expertise, and Resource Realism. Specifics about the evaluation criteria are provided below.

Award(s) shall be made to an Offeror on the basis of the technical and funding availability factors listed below, and subject to successful negotiations with the Government. Award shall not be made to Offeror(s) whose proposal(s) are determined not to be selectable. Offerors are cautioned that failure to follow submittal instructions may negatively impact their proposal evaluation or may result in rejection of the proposal for non-

compliance.

5.A.1. Technical Evaluation Factor (technical criteria listed below)

5. A.1.a. Overall Scientific and Technical Merit

Overall scientific and technical merit of the proposal is substantiated, including unique and innovative methods, approaches, and/or concepts. The Offeror clearly articulates an understanding of the problem to be solved. The technical approach is credible and includes a clear assessment of primary risks and a means to address them. The proposed research advances the state-of-the-art.

5. A.1.b. Effectiveness of Proposed Work Plan

The feasibility and likelihood that the proposed approach will satisfy the Program's milestones and metrics are explicitly described and clearly substantiated along with risk mitigation strategies for achieving stated milestones and metrics. The proposal reflects a mature and quantitative understanding of the program milestones and metrics, and the statistical confidence with which they may be measured. Any Offeror proposed milestones and metrics are clear and well-defined, with a logical connection to enabling Offeror decisions and/or Government decisions. The schedule to achieve the milestones is realistic and reasonable.

The roles and relationships of prime and sub-contractors are clearly delineated with all participants fully documented. Work plans shall demonstrate the ability to provide full Government visibility into and interaction with key technical activities and personnel, and a single point of responsibility for contract performance. Work plans shall also demonstrate that all Key Personnel and significant contributors have sufficient time committed to the Program to accomplish their described Program roles.

The requirement and rationale for and the anticipated use or integration of Government resources, including but not limited to all equipment, facilities, information, etc., are fully described including dates when such Government Furnished Property (GFP), GFE, GFI or other similar Government-provided resources shall be required.

The Offeror's RDMP is complete, addressing the types of data to be collected or produced, describing how each type of data will be preserved and shared, including plans to provide public access to peer reviewed publications and the underlying Research Data, or provides justifiable rationale for not doing so.

5. A.1.c. Contribution and Relevance to the IARPA Mission and Program Goal

The proposed solution meets the letter and intent of the stated program goals and all elements within the proposal exhibit a comprehensive understanding of the problem. The Offeror clearly addresses how the proposed effort shall meet and progressively demonstrate the Program goals. The Offeror describes how the proposed solution contributes to IARPA's mission to invest in high-risk/high-payoff research that can provide the U.S. with an overwhelming intelligence advantage.

The Offeror's proposed IP and data rights are consistent with the Government's need to be able to effectively manage the program and evaluate the technical output and deliverables, communicate program information across Government organizations and support transition to and further use and development of the program results by IC users and others at a reasonable cost that is acceptable to the Government. The proposed approach to IP rights is in the Government's best interest.

5. A.1.d Relevant Experience and Expertise

The Offeror's capabilities, related experience, facilities, techniques, or unique combination of these, which are integral factors for achieving the proposal's objectives, shall be evaluated, as well as, qualifications, capabilities, and experience of all Key Personnel and significant contributors critical in achieving the program objectives.

5. A.1.e Resource Realism

The proposed resources demonstrate a clear understanding of the program, a perception of the risks and the Offeror's ability to organize and perform the work. The labor hours and mix are consistent with the technical approach and are realistic for the work proposed. Material, equipment, software, data collection and management, and travel, especially foreign travel, are well justified, reasonable, and required for successful execution of the proposed work.

5.A.2. Funding Availability Factor

5. A.2.a. Budget Constraints

The Government will seek to maximize the likelihood of meeting program objectives within program budget constraints. This may involve awarding one or more contracts. **Note:** If the Offeror has submitted the proposal to other federal, state or local agencies or other parties that may fund the proposed effort, it may impact IARPA's decision to fund the effort.

5. A.2.b. Program Balance

The Government will consider IARPA's overall mission and program objectives, which may include but are not limited to the following: broadening the variety of technical approaches to enhance program outcomes, transitioning the technology to Government partners, developing capabilities aligned with the priorities of the IC and national security.

5.B. Method of Evaluation and Selection Process

IARPA's conducts impartial, equitable, comprehensive proposal reviews and to selects the source (or sources) whose offer meets the Government's technical, policy and programmatic goals. For evaluation purposes, a proposal is the document described in Section 4 of the BAA. Other supporting or background materials submitted with the proposal shall not be considered.

The contract award process for this BAA has two steps. The first step is selection for negotiations and is made on the basis of review of the technical and funding availability factors (See BAA Section 5.A.). The second step is negotiation and contract award. Contract award is contingent on CO determination of a fair and reasonable cost/price and agreement on terms and conditions.

Selection for negotiation, will be conducted through a peer or scientific review process led by the PM. This process entails establishing a Scientific Review Panel (SRP) made up of qualified Government personnel who will review and assess each proposal's strengths, weaknesses and risks against the technical evaluation criteria. If necessary, non-Government technical experts with specialized expertise may advise Government panel members and the PM. However, only Government personnel will make selection determinations under this BAA.

Proposals will be reviewed individually and will not be reviewed against each other as they are not submitted in accordance with a common SOW. When SRP reviews are complete, the PM will prepare a recommendation to the IARPA Scientific Review Official (SRO) identifying proposals as selectable, selectable with modification, or not selectable based on consideration of all stated factors (technical and funding availability factors). The SRO will make the final decision as to selectability for negotiations. At this point, Offerors will be notified in writing as to whether they have been determined selectable, selectable with modification, or not selectable.

5.C. Negotiation and Contract Award

After selection and before award, the CO will contact Offerors whose proposals were selected or selected with modifications to engage in negotiations. At that time, the CO will also request a full cost proposal, as described in BAA Section 4.B.2. The CO will review the cost proposal using the proposal analysis techniques described in FAR 15.404-1, as appropriate, to determine a fair and reasonable cost. The CO's evaluation will include review of proposed anticipated costs/prices of the Proposer and those of associate,

participating organizations, to ensure the Offeror has fully analyzed the budget requirements, provided sufficient supporting information, has adequate systems for managing the contract (accounting, purchasing), and that data is traceable and reconcilable. The CO will also determine whether the prospective contractor meets the responsibility standards of FAR Section 9.104. Additional information and supporting data may be requested.

If proposed costs submitted are substantially different than the estimates provided in the technical proposal, then a contract may not be awarded.

Procurement contracts or other transactions, as determined by the contracting officer, shall be awarded to those offerors whose proposals are deemed most advantageous to the Government, all stated evaluation factors considered, and pending the successful conclusion of negotiations.

5.D. Proposal Retention

Proposals shall not be returned upon completion of the source selection process. The original of each proposal received shall be retained at IARPA and all other non-required copies shall be destroyed. A certification of destruction may be requested, provided that the formal request is sent to IARPA via e-mail to dni-IARPA-BAA-20-04@iarpa.gov within 5 days after notification of proposal results.

SECTION 6: AWARD ADMINISTRATION INFORMATION

6.A. Award Notices

As soon as practicable after the evaluation of a proposal is complete, the Offeror will be notified that: (1) its proposal has been selected for negotiations, or (2) its proposal has not been selected for negotiations.

6.B. Administrative and National Policy Requirements

6.B.1. Proprietary Data

IARPA treats all proposals as proprietary information and will disclose their contents only for the purpose of evaluation. All proposals containing proprietary data shall have the cover page and each page containing proprietary data clearly marked as containing proprietary data. It is the Offeror's responsibility to clearly define to the Government what the Offeror considers proprietary data.

6.B.2. Intellectual Property

General. The Government may request additional information from the Offeror, as may be necessary, to evaluate the Offeror's IP rights assertions. If Offerors do not identify any restrictions with respect to a particular deliverable, the Government shall assume in its review of the proposal that there are no restrictions on the Government's use of such deliverables. Further, failure to provide full information may result in a determination that the proposal is not compliant with the solicitation, and the Government reserves the right to reject a proposal if the Offeror does not appropriately address all required IP rights issues.

IP Ownership. Regardless of the scope of the Government's rights, Offerors may freely use data for their own commercial purposes (unless restricted by the negotiated contract, U.S. export control laws or security classification). Therefore, data including technical data and computer software developed under any contract resulting from this solicitation may remain the property of the Offerors, subject to IARPA's rights as set forth in the contract. IARPA seeks the rights to technical data and/or computer software leveraged, developed, or used for the BRIAR program in accordance with FAR 52.227-14. For inventions first conceived or actually reduced to practice under for this effort, IARPA will obtain a nonexclusive, nontransferable, irrevocable, paid-up license to practice, or have practiced for or on its behalf, such invention throughout the world; Offeror may elect to retain title as described in FAR 52.227-11.

Indemnification. Offerors expecting to use, but not to deliver, data or patentable inventions, including commercial open source tools in implementing their approach shall be required to indemnify the Government against legal liability arising from such use.

Technical Data--Withholding of Payment. If technical data specified to be delivered under a contract awarded under this solicitation is not delivered within the time specified by the contract or is deficient upon delivery (including having restrictive markings not specifically authorized by the contract), the CO is permitted, until such data are accepted by the Government, to withhold payment to the contractor of ten percent (10%) of the total contract price or amount unless a lesser withholding is specified in the contract. Payments may not be withheld, nor any other action taken pursuant to this paragraph when the contractor's failure to make timely delivery or to deliver such data without deficiencies arises out of causes beyond its control and without fault or negligence of the contractor. The withholding of any amount or subsequent payment to the contractor shall not be construed as a waiver of any rights accruing to the Government under the contract.

6.B.3. Human Use

All research involving human subjects, to include use of human biological specimens and human data, selected for funding must comply with the federal regulations for human subject protection, namely 45 CFR Part 46, Protection of Human Subjects.

Institutions awarded funding for research involving human subjects must provide documentation of a current Assurance of Compliance with Federal regulations for human subject protection, for example a Department of Health and Human Services, Office of Human Research Protection Federal Wide Assurance (<http://www.hhs.gov/ohrp>). All institutions engaged in human subject research, to include subcontractors, must also have a valid Assurance. In addition to a local IRB approval, IARPA will review and approve the HSR documentation before HSR may begin. However, IARPA does not require a secondary review by a Government IRB.

For all proposed research that will involve human subjects, the institution must provide evidence of or a plan for review by an Institutional Review Board (IRB) with the final proposal submission to IARPA as outlined in the management plan. (Reference Section 4 of the BAA). The IRB conducting the review must be the IRB identified on the institution's Assurance. The informed consent document must comply with federal regulations (45 CFR Part 46).

The amount of time required to complete the IRB review/approval process may vary depending on the complexity of the research and/or the level of risk to study participants. Ample time should be allotted to complete the approval process. No IARPA funding can be used towards human subject research until ALL approvals are granted.

In limited instances, human subject research may be exempt from Federal regulations for human subject protection, for example, under Department of Health and Human Services, 45 CFR 46.101(b). Offerors claiming that their research falls within an exemption from Federal regulations for human subject protection must provide written documentation with their proposal that cites the specific applicable exemption and explains clearly how their proposed research fits within that exemption.

6.B.4. Animal Use

No research proposals involving animal subjects shall be accepted under this BAA. Use of non-human primates is not permitted under this BAA.

6.B.5. Publication Approval

It is anticipated that research funded under this Program shall be unclassified research that shall not require a pre-publication review. However, Offerors should note that pre-publication approval of certain information may be required if it is determined that its release may result in the disclosure of sensitive intelligence information. A courtesy soft copy of any work submitted for publication shall be provided to the IARPA PM and the COTR a minimum of 5 business days prior to release in any forum.

6.B.6. Export Control

(1) The Offeror shall comply with all U.S. export control laws and regulations, including the International Traffic in Arms Regulations (ITAR), 22 C.F.R. Parts 120 through 130, and the Export Administration Regulations (EAR), 15 C.F.R. Parts 730 through 799, and any amendments thereto, in the performance of this contract. In the absence of available license exemptions/exceptions, the Offeror shall be responsible for obtaining the appropriate licenses or other approvals, if required, for exports of (including deemed exports) hardware, technical data, and software, or for the provision of technical assistance.

(2) The Offeror shall be responsible for obtaining export licenses, if required, before utilizing non-U.S. persons (as defined in the ITAR and EAR, as applicable) in the performance of this contract, including instances where the work is to be performed on-site at any Government installation (whether in or outside the United States), where the foreign person shall have access to export-controlled technologies, including technical data or software.

(3) The Offeror shall be responsible for all regulatory record keeping requirements associated with the use of licenses and license exemptions/exceptions.

(4) The Offeror shall appropriately mark all contract deliverables controlled by ITAR and/or EAR.

(5) The Offeror shall be responsible for ensuring that the provisions of this section apply to its sub-contractors.

(6) The Offeror may be required to certify knowledge of and intended adherence to these requirements in the representations and certifications of the contract.

6.B.7. Subcontracting

It is the policy of the Government to enable small business and small disadvantaged business concerns to be considered fairly as sub-contractors to contractors performing work or rendering services as prime contractors or sub-contractors under Government contracts and to assure that prime contractors and sub-contractors carry out this policy. Each Offeror that is selected for negotiation for award and is expected to be awarded a contract which exceeds the simplified acquisition threshold may be asked to submit a subcontracting plan before award in accordance with FAR 19.702(a) (1). The plan format is outlined in FAR 19.704.

Offerors shall declare teaming relationships in their Technical and Cost proposals and shall specify the type of teaming arrangement in place, including any exclusive teaming arrangements. IARPA neither promotes nor discourages the establishment of exclusive teaming agreements within Offeror teams. Individuals or organizations associated with multiple teams shall take care not to over-commit those resources being applied.

6.B.8. Reporting

Fiscal and management responsibility are important to the Program. Although the number and types of reports shall be specified in the award document, all Offerors shall, at a minimum, provide the CO, COTR and PM with monthly technical reports and monthly financial reports. The reports shall be prepared and submitted in accordance with the procedures contained in the award document and mutually agreed upon before award. Technical reports shall describe technical highlights and accomplishments, priorities and plans, issues and concerns, evaluation results, and future plans. Financial reports shall present an on-

going financial profile of the project, including total project funding, funds invoiced, funds received, funds expended during the preceding month, and planned expenditures over the remaining period. Additional reports and briefing material may also be required, as appropriate, to document progress in accomplishing program metrics.

The Offeror shall prepare and provide a research report of their work by month 18 for Phases 1 and 2 and month 12 for Phase 3. The reports shall be delivered to the CO, COTR and the PM. The reports shall include:

- Problem definition
- Findings and approach
- System design
- Possible generalization(s)
- Information on performance limitations and potential mitigation
- Anticipated path ahead
- Final identification of all commercial, third-party, or proprietary hardware, software, or technical data integrated into any deliverable and all applicable use restrictions.
- Any research products, including publications, data, and software, resulting from the project during the reporting period. The final report shall list in-progress scientific manuscripts and other research products.

6.B.9. System for Award Management (SAM)

Selected Offerors may be required to register in the Systems for Award Management (SAM) prior to any award under this BAA. Information on SAM registration is available at <http://www.sam.gov>.

6.B.10. Representations and Certifications

Selected Offerors may be required to complete electronic representations and certifications at <http://www.sam.gov> and may also be required to complete additional representations and certifications prior to award.

6.B.11. Lawful Use and Privacy Protection Measures

All data gathered by the Offeror shall be obtained in accordance with U.S. laws and in compliance with the End User License Agreement, Copyright Laws, Terms of Service, and laws and policies regarding privacy protection of U.S. Persons. Before using such data, the Offeror shall provide proof that the data was acquired in accordance with U.S. laws and regulations.

6.B.12. Public Access to Results

IARPA is committed to making the results of this research available and maximally useful to the public, industry, government, and the scientific community, in accordance with the policy set forth in the White House Office of Science and Technology Policy's memorandum "Increasing Access to the Results of Federally Funded Scientific Research," dated February 22, 2013, consistent with all other applicable law and policy; agency mission; resource constraints; and U.S. national, homeland, and economic security. (https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/ostp_public_access_memo_2013.pdf)

Upon acceptance for publication, the author's final peer-reviewed manuscript(s) or conference paper(s) must be submitted to the IARPA-designated repository for public access, in accordance with the instructions on IARPA's website at www.iarpa.gov. The Government will make the Publication available to the public through the repository at no charge, following a one-year embargo to preserve the rights of the publisher. The author must inform the publisher of rights that will be retained by the author and IARPA by including

in the publishing/transfer of copyright agreement a provision substantially as follows:

“Journal acknowledges that Author retains the right to provide a copy of the final peer-reviewed manuscript (“Work”) to the Federal agency funding the research on which the Work is based upon acceptance for Journal publication, for public archiving as soon as possible but no later than 12 months after publication by Journal. Journal further acknowledges that the Federal Government, having funded the research upon which the Work is based, has certain irrevocable and non-exclusive contractual rights in the Work, which are not affected or altered in any way by this Agreement.”

Additionally, awardee must deposit the data underlying the results and findings in the publication in a suitable public repository, in accordance with the project’s Data Management Plan. If the metadata describing the underlying or supporting research data is not included in the Publication, the awardee must provide the metadata to the IARPA-designated public access repository, in accordance with the instructions on IARPA’s website at www.iarpa.gov.

IARPA will accept a final published article in lieu of a final peer-reviewed manuscript, provided the author has the right to provide the article and authorize IARPA to release the article publicly.

Data produced under the program, reports to IARPA, and program-related publications should be consistent with the Transparency and Openness Promotion Guidelines of the Center for Open Science, including preregistration of studies and analysis plans. (<https://cos.io/our-services/top-guidelines/>). To the extent possible, all reports to IARPA and all program-related publications should be consistent with statistical best practices described in (Psychological Science (2014) <http://pss.sagepub.com/content/25/1/3>). For example, wherever appropriate, effect sizes and confidence intervals (or the Bayesian equivalents) should be reported, and the data and methodology must be presented so that it is easily used for meta-analysis and independent re-analysis of the data. All Offerors must describe plans to ensure that the above requirements are satisfied.

Appendix A: Templates for Volume 1: Technical Proposal

A.1 Cover Sheet for Volume 1: Technical Proposal

(1) BAA Number	IARPA-BAA-20-04
(2) Technical Area(s) – (TA)(s), if applicable	
(3) Lead Organization Submitting Proposal	
(4) Type of Business, Selected Among the Following Categories: “Large Business”, “Small Disadvantaged Business”, “Other Small Business”, “HBCU”, “MI”, “Other Educational”, or “Other Nonprofit”	
(5) Contractor’s Reference Number (if any)	
(6) Other Team Members (if applicable) and Type of Business for Each	
(7) Proposal Title	
(8) Technical Point of Contact to Include: Title, First Name, Last Name, Street Address, City, State, Zip Code, Telephone, Fax (if available), Electronic Mail (if available)	
(9) Administrative Point of Contact to Include: Title, First Name, Last Name, Street Address, City, State, Zip Code, Telephone, Fax (if available), Electronic Mail (if available)	
(10) Volume 1 no more than the specified page limit	Yes/No
(11) Restrictions on Intellectual property rights details provided in Appendix A format?	Yes/No
(12) Research Data Management Plan included?	Yes/No
(13) OCI Waiver Determination, Notification or Certification [see Section 3 of the BAA] Included?	Yes/No
(13a) If No, is written certification included (Appendix A)?	Yes/No
(14) Are one or more U.S. Academic Institutions part of your team?	Yes/No
(14a) If Yes, are you including an Academic Institution Acknowledgment Statement with your proposal for each U.S. Academic Institution that is part of your team (Appendix A)?	Yes/No
(15) Total Funds Requested from IARPA and the Amount of Cost Share (if any)	\$
(16) Date of Proposal Submission	

Appendix A.2 Academic Institution Acknowledgment Letter

-- Please Place on Official Letterhead --

<Insert date>

To: Contracting Officer
ODNI/IARPA
Office of the Director of National Intelligence Washington,
D.C. 20511

Subject: Academic Institution Acknowledgment Letter Reference: Executive Order 12333, As Amended, Para 2.7

This letter is to acknowledge that the undersigned is the responsible official of <insert name of the academic institution>, authorized to approve the contractual relationship in support of the Office of the Director of National Intelligence's Intelligence Advanced Research Projects Activity and this academic institution.

The undersigned further acknowledges that he/she is aware of the Intelligence Advanced Research Projects Activity's proposed contractual relationship with <insert name of institution> through IARPA-BAA-20-04 and is hereby approved by the undersigned official, serving as the president, vice-president, chancellor, vice-chancellor, or provost of the institution.

<Name>
<Position>

Date

Appendix A.3 Intellectual Property Rights

[Please provide here your good faith representation of ownership or possession of appropriate licensing rights to all IP that shall be utilized under the Program.]

Patents

PATENTS				
Patent number (or application number)	Patent name	Inventor name(s)	Patent owner(s) or assignee	Incorporation into deliverable
(LIST)	(LIST)	(LIST)	(LIST)	(Yes/No; applicable deliverable)

- (1) Intended use of the patented invention(s) listed above in the conduct of the proposed research:
- (2) Description of license rights to make, use, offer to sell, or sell, if applicable, that are being offered to the Government in patented inventions listed above:
- (3) How the offered rights will permit the Government to reach its program goals (including transition) with the rights offered:
- (4) Cost to the Government to acquire additional or alternative rights, if applicable:
- (5) Alternatives, if any, that would permit IARPA to achieve program goals:

Data (Including Technical Data and Computer Software)

NONCOMMERCIAL ITEMS			
Technical Data, Computer Software To be Furnished With Restrictions	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions
(LIST)	(LIST)	(LIST)	(LIST)

COMMERCIAL ITEMS			
Technical Data, Computer Software To be Furnished With Restrictions	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions
(LIST)	(LIST)	(LIST)	(LIST)

- (1) Intended use of the data, including, technical data and computer software, listed above in

the conduct of the proposed research:

- (2) Description of Asserted Rights Categories, specifying restrictions on Government's ability to use, modify, reproduce, release, perform, display, or disclose technical data, computer software, and deliverables incorporating technical data and computer software listed above:**
- (3) How the offered rights will permit the Government to reach its program goals (including transition) with the rights offered:**
- (4) Cost to the Government to acquire additional or alternative rights, if applicable:**
- (5) Alternatives, if any, that would permit IARPA to achieve program goals:**

Appendix A.4 Organizational Conflicts of Interest Certification Letter

(Month DD, YYYY)

Office of the Director of National Intelligence
Intelligence Advanced Research Projects Activity (IARPA)
BRIAR Program
ATTN: Michelle Crecca, Contracting Officer
Washington, DC 20511

Subject: OCI Certification

Reference: <Insert Program Name>, IARPA-BAA-20-04, (Insert assigned proposal ID#, if received)

Dear _____,

In accordance with IARPA Broad Agency Announcement IARPA-BAA-20-04, Organizational Conflicts of Interest (OCI), and on behalf of (Offeror name) I certify that neither (Offeror name) nor any of our subcontractor teammates has as a potential conflict of interest, real or perceived, as it pertains to the BRIAR program. Please note the following subcontractors and their proposed roles:

[Please list all proposed contractors by name with a brief description of their proposed involvement.]

If you have any questions, or need any additional information, please contact (Insert name of contact) at (Insert phone number) or (Insert e-mail address).

Sincerely,

(Insert organization name) (Shall be signed by an official that has the authority to bind the organization)

(Insert signature)

(Insert name of signatory)

(Insert title of signatory)

Appendix A.5 Three Chart Summary of the Proposal

Chart 1: Overview

- Self-contained, intuitive description of the technical approach and performance
 - Avoid acronyms! Especially those that are contractor specific.

Chart 2: Key Innovations

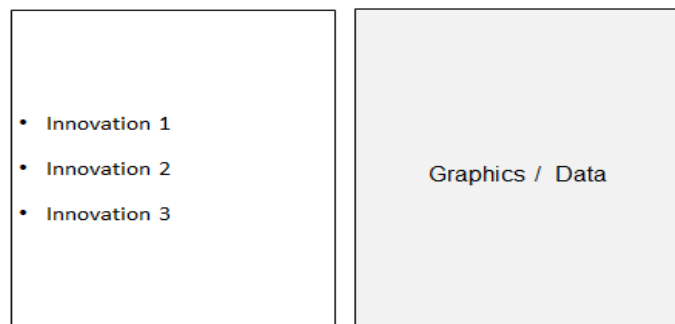


Chart 3: Expected Impact

- Deliverable 1; Performance and Impact
- Deliverable 2; Performance and Impact
- Unique aspects of the proposal

Appendix A.6 Research Data Management Plan (RDMP) BAA 20-04

The Offeror must address each of the elements noted below.

The RDMP shall comply with the requirements stated in Section 4 of the BAA. In doing so, it will support the objectives of the ODNI Public Access Plan at

<https://www.iarpa.gov/index.php/working-with-iarpa/public-access-to-iarpa-research>

1. **Sponsoring IARPA Program** (required):
2. **Offeror** (i.e., lead organization responding to BAA) (required):
3. **Offeror point of contact** (required):
The point of contact is the proposed principal investigator (PI) or his/her Designee.
 - a. **Name and Position:**
 - b. **Organization:**
 - c. **Email:**
 - d. **Phone:**
4. **Research data types** (required):
Provide a brief, high-level description of the types of data to be collected or produced in the course of the project.
5. **Standards for research data and metadata content and format** (required):
Use standards reflecting the best practices of the relevant scientific discipline and research community whenever possible.
6. **Plans for making the research data that underlie the results in peer-reviewed journal articles and conference papers digitally accessible to the public** at the time of publication/conference or within a reasonable time thereafter (required):
The requirement could be met by including the data as supplementary information to a peer reviewed journal article or conference paper or by depositing the data in suitable repositories available to the public.
 - a. **Anticipated method(s) of making research data publicly accessible:**
___ Provide dataset(s) to publisher as supplementary information (if publishers allow public access)
___ Deposit dataset(s) in Data Repository
___ Other (*specify*) _____
 - b. **Proposed research data repository or repositories** (for dataset(s) not provided as supplementary information):
Suitable repositories could be discipline-specific repositories, general purpose research data repositories, or institutional repositories, as long as they are publicly accessible.
 - c. **Retention period, at least three years after publication of associated research results:**
State the minimum length of time the data will remain publicly accessible.
 - d. **Submittal of metadata to IARPA:**
Offerors are required to make datasets underlying the results published in peer-reviewed journal or conferences digitally accessible to the public to the extent feasible. Here, the Proposer should state a commitment to submit metadata on such datasets to IARPA in a timely manner. Note: This does not supersede any requirements for deliverable data, as the award document may include metadata as a deliverable item.
7. **Policies and provisions for sharing and preservation** (as applicable):
 - a. Policies and provisions for appropriate protection of privacy, confidentiality, security, and intellectual property:
 - b. Descriptions of tools, including software, which may be needed to access and interpret the data:

c. Policies and provisions for re-use, re-distribution, and production of derivative works:

8. **Justification for not sharing and/or preserving data underlying the results of peer-reviewed publications** (as applicable):

If, for legitimate reasons, the data cannot be shared and preserved, the plan must include a justification detailing such reasons. Potential reasons may include privacy, confidentiality, security, IP rights considerations; size of data sets; cost of sharing and preservation; time required to prepare the dataset(s) for sharing and preservation.

Appendix B: Templates for Volume 2: Cost Proposal
Appendix B.1 Cover Sheet for Volume 2: Cost Proposal

(1) BAA Number	IARPA-BAA-20-04
(2) Technical Area(s) (TA)(s)	
(3) Lead organization submitting proposal	
(4) Type of Business, Selected Among the Following Categories: “Large Business”, “Small Disadvantaged Business”, “Other Small Business”, “HBCU”, “MI”, “Other Educational”, or “Other Nonprofit”	
(5) Contractor’s Reference Number (if any)	
(6) Other Team Members (if applicable) and Type of Business for Each	
(7) Proposal Title	
(8) Technical Point of Contact to Include: Title, First Name, Last Name, Street Address, City, State, Zip Code, Telephone, Fax (if available), Electronic Mail (if available)	
(9) Administrative Point of Contact to Include: Title, First Name, Last Name, Street Address, City, State, Zip Code, Telephone, Fax (if available), Electronic Mail (if available)	
(10) Contract type/award Instrument Requested: specify	
(11) Place(s) and Period(s) of Performance	
(12) Total Proposed Cost Separated by Basic Award and Option(s) (if any)	
(13) Name, Address, Telephone Number of the Offeror’s Defense Contract Management Agency (DCMA) Administration Office or Equivalent Cognizant Contract Administration Entity, if Known	
(14) Name, Address, Telephone Number of the Offeror’s Defense Contract Audit Agency (DCAA) Audit Office or Equivalent Cognizant Contract Audit Entity, if Known	
(15) Date Proposal was Prepared	
(16) DUNS Number	
(17) TIN Number	
(18) CAGE Code	
(19) Proposal Validity Period [minimum of 180 days]	
(20) Cost Summaries Provided (Appendix B)	
(21) Size of Business in accordance with NAICS Code 541712	

Appendix B.2 Prime Contractor/Subcontractor Cost Element Sheet for Volume 2: Cost Proposal

Prime Contractor/Subcontractor Cost Element Sheet for Volume 2: Cost Proposal					
Complete a Cost Element Sheet for the Base Period and each Option Period					
COST ELEMENT	BASE	RATE	AMT		
DIRECT LABOR (List each labor category separately. Identify all Key Personnel by name.)	# of Hours	\$	\$		
TOTAL DIRECT LABOR			\$		
FRINGE BENEFITS	\$	%	\$		
TOTAL LABOR OVERHEAD	\$	%	\$		
SUBCONTRACTORS, IOTS, CONSULTANTS (List separately. See below table.)			\$		
MATERIALS & EQUIPMENT (List each material and equipment item separately.)	Quantity	\$ unit price	\$		
SOFTWARE & IP (List separately. See table below.)	\$	\$	\$		
TOTAL MATERIALS & EQUIPMENT			\$		
MATERIAL OVERHEAD	\$	%	\$		
TRAVEL (List each trip separately.)	# of travelers	\$ price per traveler	\$		
TOTAL TRAVEL			\$		
OTHER DIRECT COSTS (List each item separately.)	Quantity	\$ unit price	\$		
TOTAL ODCs			\$		
G&A	\$	%	\$		
SUBTOTAL COSTS			\$		
COST OF MONEY	\$	%	\$		
TOTAL COST			\$		
PROFIT/FEE	\$	%	\$		
TOTAL PRICE/COST			\$		
GOVERNMENT SHARE, IF APPLICABLE			\$		
RECIPIENT SHARE, IF APPLICABLE			\$		
SUBCONTRACTORS/IOTs) & CONSULTANTS PRICE SUMMARY					
A	B	C	D	E	F
SUB-CONTRACTOR IOT & CONSULTANT NAME	SOW TASKS PERFORMED *	TYPE OF AWARD	SUB-CONTRACTOR, IOT & CONSULTANT QUOTED	COST PROPOSED BY PRIME FOR SUBCONTRACTOR, IOT & CONSULTANT	DIFFERENCE (Column D - Column E) IF APPLICABLE
TOTALS					
*Identify Statement of Work, Milestone or Work Breakdown Structure paragraph, or provide a narrative explanation as an addendum to this Table that describes the effort to be performed.					

Appendix B.3 - Software and IP Costs

Software and IP Costs		
Item	Cost	Date of Expiration
(List)		

NOTE: Educational institutions and non-profit organizations as defined in FAR part 31.3 and 31.7, respectively, at the prime and subcontractor level may deviate from the cost template in Appendix B when estimating the direct labor portion of the proposal to allow for OMB guided accounting methods (2 CFR 220) that are used by their institutions. The methodology shall be clear and provide sufficient detail to substantiate proposed labor costs. For example, each labor category shall be listed separately; identify all Key Personnel and significant contributors provide hours/rates or salaries and percentage of time allocated to the project.

Appendix B.4 – Travel Costs Trip breakdown

		Trip Breakdown					
Base - Phase I:							
Trip #	Month of Trip	# of Travelers	Name of Traveler/Company	# of Days	Location	Purpose of Travel	Estimated Cost
Option Period - Phase II:							
Trip #	Month of Trip	# of Travelers	Name of Traveler/Company	# of Days	Location	Purpose of Travel	Estimated Cost
Option Period - Phase III:							
Trip #	Month of Trip	# of Travelers	Name of Traveler/Company	# of Days	Location	Purpose of Travel	Estimated Cost

Appendix B.5 – Contract Deliverables Table

Contract Deliverables				
SOW TASK#	Deliverable Title	Format	Due Date	Distribution/Copies
Continual	Monthly Contract Status Report	Gov't Format	10th of each month	Copy to PM, CO and COTR
Continual	Monthly Technical Status Reports	Gov't Format	10th of each month	Standard Distribution**
** Standard Distribution: 1 copy of the transmittal letter <u>without the deliverable to the Contracting Officer.</u> 1 copy of the transmittal letter with the deliverable to the Primary PM and <u>COTR.</u>				