

OFFICE OF THE DIRECTOR OF NATIONAL INTELLIGENCE



# Creation of Operationally Realistic 3D Environment (CORE3D)

Office of Incisive Analysis

**Proposers' Day Brief**  
**Dr. Hakjae Kim**

30 March 2016



# Agenda

Time	Topic	Speaker
9:00am – 9:15am	Welcome, Logistics	Dr. Catherine Cotell Office Director
9:15 – 9:30am	Program Introduction	Dr. Hakjae Kim Program Manager
9:30am – 9:50am	IARPA Overview	Dr. Stacey Dixon IARPA Deputy Director
9:50am – 10:00am	Break	
10:00am – 11:00am	CORE3D Technical Overview & BAA Overview	Dr. Hakjae Kim Program Manager
11:00am-11:30pm	Doing Business with IARPA	IARPA Acquisitions
11:30pm-12:00pm	Q&A Session	Dr. Hakjae Kim Program Manager
12:00pm – 1:00pm	Lunch – on your own	
1:00pm – 3:00pm	Oral & Poster Session and Teaming Discussions	Attendees <b>(No Government)</b>



## Disclaimers

- This Proposers' Day Conference is provided solely for information and planning purposes.
- The Proposers' Day Conference does not constitute a formal solicitation for proposals or proposal abstracts.
- Nothing said at Proposers' Day changes the requirements set forth in a Broad Agency Announcement (BAA).



## Proposer's Day Goals

- Familiarize participants with IARPA's interest in research in rapid, fully automated 3D model creation leveraging spectral, textural, and dimensional information from satellite data.
- Familiarize participants with IARPA's mission and how to do business with IARPA.
- Provide answers to participants' questions.
  - This is your chance to alter the course of events.
- Foster discussion of synergistic capabilities among potential program participants, i.e., facilitate teaming.
  - Take a chance – someone might have a missing piece of your puzzle.



## Important Points

- Proposer's Day slides will be posted on [iarpa.gov](http://iarpa.gov)
- Please save questions for the end; write on notecards
- Posters are available for browsing during break/lunch
- Government will not be present during the poster/teaming session
- Discussions with PM allowed until BAA release
  - Once BAA is published, questions can only be submitted and answered in writing in accordance with the BAA guidance.
- Name/email list of Proposer's Day participants provided to the group **with permission**



# CORE3D Program Introduction

**Creation of  
Operationally  
REalistic  
3D Environment**





## What is the Problem?

- A persistent U.S. Government need - for global situational awareness as well as military, intelligence, and humanitarian mission planning - is timely access to geospatially accurate 3D object data. We will develop the means to generate accurate 3D object models, rich in physical properties with functional attributes: **Faster, Larger, Globally, Automatically.**

## What is CORE3D?

- The aims of the CORE3D Program are
  - (a) **Physical Modeling** - fully automated methods for timely 3D model creation leveraging spectral, textural, and dimensional information from satellite data, to yield models that are dimensionally true and that accurately render textures, materials, and types of objects within the scene.



- (b) **Functional Modeling** – fully automated methods for object recognition, tagging and updating.





# Current Limitations

## Physical Modeling

- The current best practice is manual:
  - Humans extract outlines of buildings manually by mouse clicks.
  - Humans manually measure heights of objects from high resolution stereo imagery using mensuration tools.
  - Software allows humans to extrude objects.
  - Humans manually clean up and align objects to finalize a modeling process.
- Automated methods are limited:
  - Generate 3D point clouds (surface model) from multi-view satellite imagery.
  - Generate 3D models from LIDAR: high resolution (0.3 m or better) is required to generate reasonably accurate models.

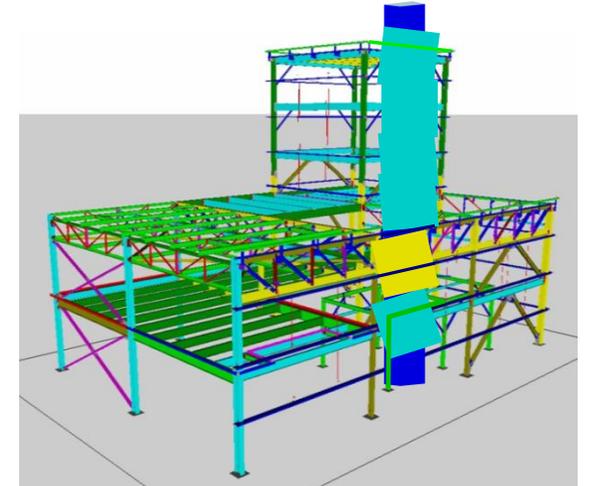
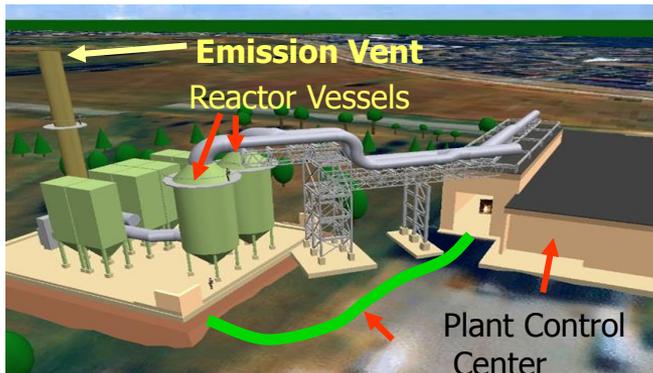
## Functional Modeling

- Entirely manual: timely updating is extremely difficult and costly.



# Applications

- Mission planning/rehearsal
- Human perspective line-of-sight
- Site/target familiarization
- Physical security vulnerability assessments
- Fly-overs and simulations
- Dynamic models/Change detection and updating
- Gaming/Training games
- Disaster relief
- Urban visualization





## Key aspects of the program

- **Physical Modeling** - model fitting problem:
  - Fit best model from library of objects and materials.
  - There is limited information available from sensors and other sources.
  - This program will use only globally available datasets including satellite panchromatic imagery, multispectral imagery, maps.
- **Functional Modeling** – beyond photo matching:
  - Government team will generate large annotated training dataset from ***satellite imagery*** for image recognition and tagging.
  - We intend to release this training dataset to public.
  - Goal is to develop novel and optimized satellite image processing methods to enable image recognition; approaches may include, but should not be limited to, Deep Learning, traditional computer vision (CV) algorithms, and new innovative image understanding algorithms.



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# **CORE3D**

## **Technical**

### **and**

## **Programmatic Overview**



## CORE3D Program Elements

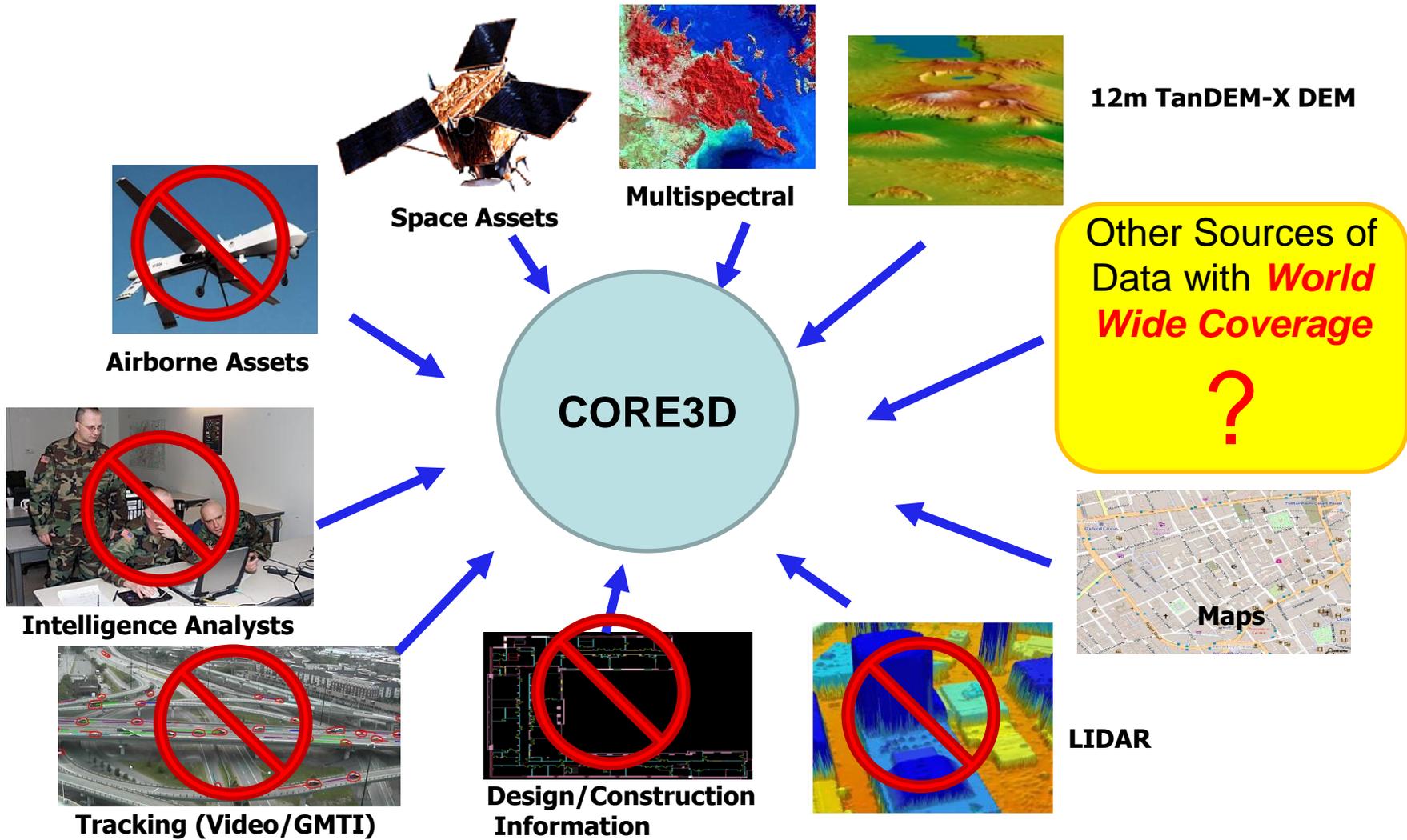
- (a) **Physical Modeling** is focused on creating accurate 3D models of manmade stationary objects that are relatively large in size such as buildings, roads, walls, bridges, towers, dams.
- (b) **Functional Modeling** is focused on wide area manmade object recognition and scene understanding. We will develop methods that can automatically recognize, tag, and update more than 50 object categories from satellite imagery such as communication towers, air fields, power plants, water towers, light houses, schools, hospitals.



# Physical Modeling



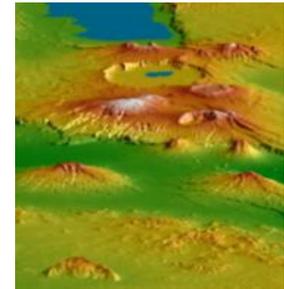
# Physical Modeling - Data





## Physical Modeling: Data (GFI)

- Digital Globe WV3 satellite imagery (>50 images anticipated): PAN(31cm), Multispectral 16 band - VNIR (1.2m), SWIR (3.7m)
- SAR point clouds – Government team will process and provide data in point cloud format to all performers in the beginning of each phase: data will be sparse due to the nature of the sensor but accurate (~ 30cm accuracy on horizontal and 50cm – 1 m vertical direction anticipated).
- GIS data – government owned.
- Digital Elevation Model (DEM) – TanDEM-X (10m)

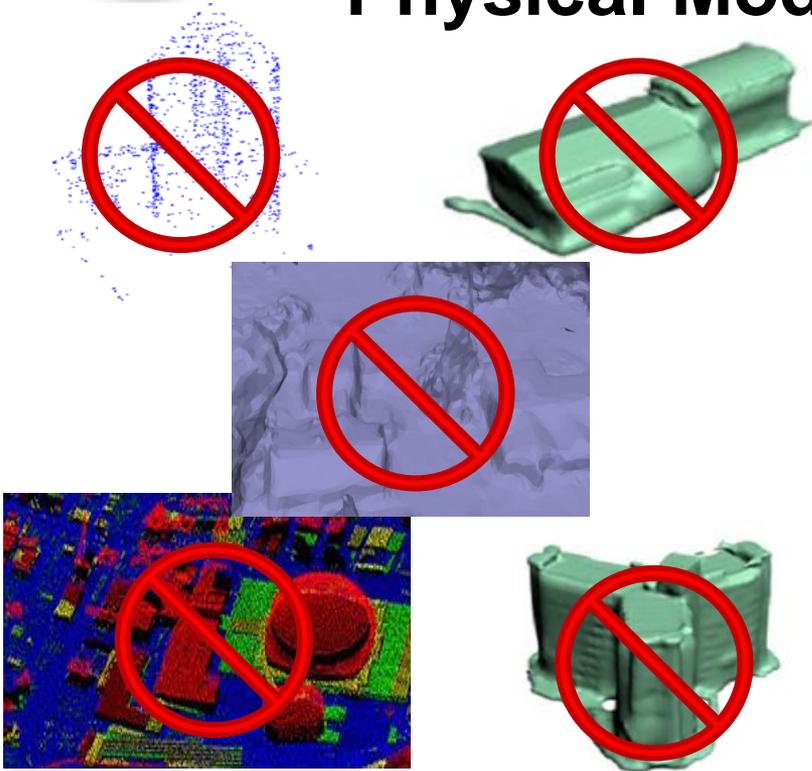




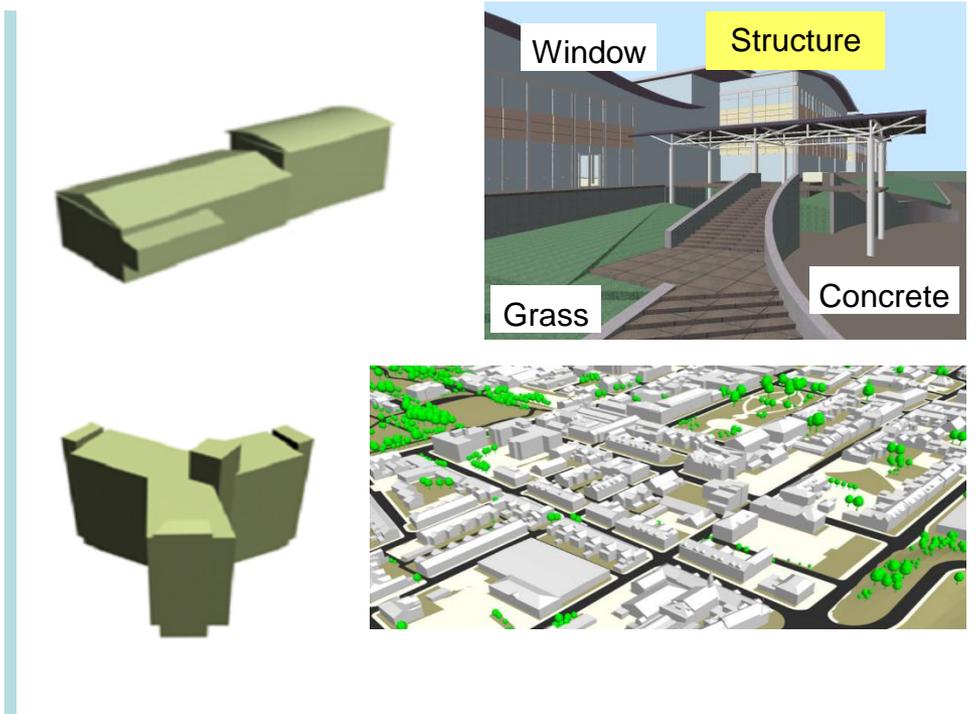
## Physical Modeling: Data (additional)

- Other data – Performer teams are encouraged to identify additional data that may help solve the problem.
  - In addition to the GFI, during the first three months of each phase, teams may request to use additional data;
    - Such data are available for the entire globe.
    - Such data are available for use by government with no restrictions.
    - IARPA will adjudicate and approve use of such data.
    - IARPA will make all approved data available to all performers.

# Physical Modeling: Model Output



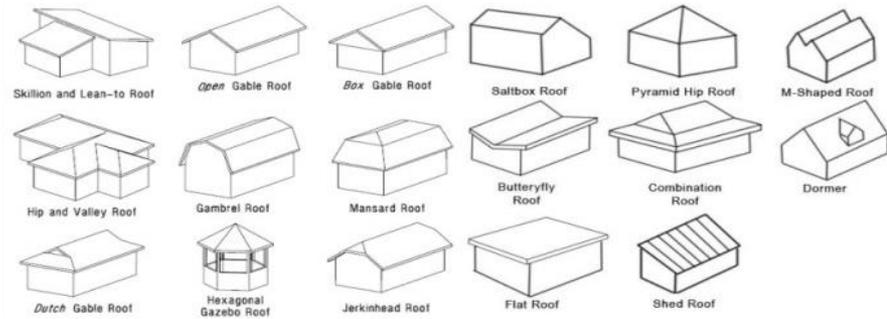
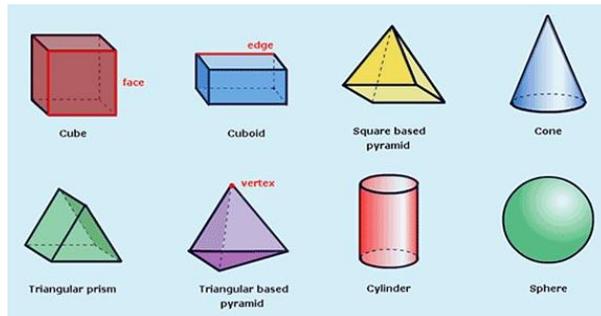
Point Clouds and surface models may be useful at intermediate stage but are not the final model we need.



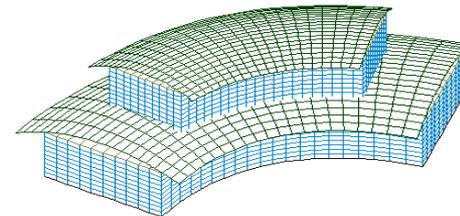
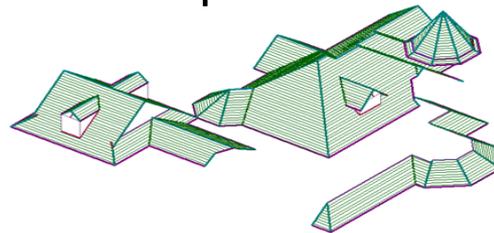
Final model will be created in widely used 3D format such as shape file, VRML, GeoTIF with real texture and specification of materials.

# Physical Modeling: Approaches

- Model fitting from a 3D model library including 3D Geons, Roof models, etc.



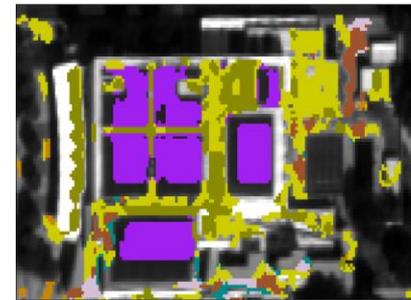
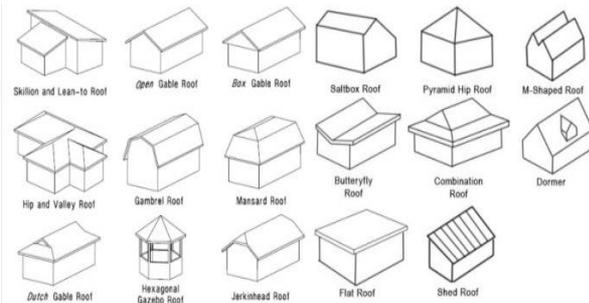
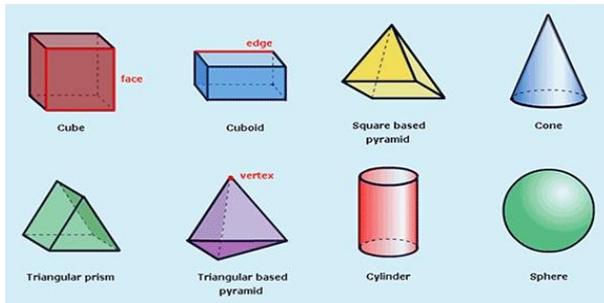
- Complex shape objects can be modeled with piecewise planar or piecewise smooth prior.



Fusion of Multi-Modal data combined with state-of-the-art Computer Vision enables creation of large synthetic 3D environments

# Physical Modeling: Libraries

- 3D Object Library
  - Geons: cylinders, bricks, wedges, cones, ...
  - Roof models: gable, hipped, pyramid, flat, M-shaped, ....
- Material Library:
  - Concrete, Paint on Metal, Paints on concrete, Solar Panel, Metals, Rubber, Ceramic, Clay, Asphalt, Water, vegetation, ....



- Solar Panel
- Steel
- Rubber + Fiberglass, White
- EPDM, White
- Ceramic, Red
- Tile, Red
- Paint on Metal
- Concrete

Performers will collaborate to build these libraries together with the government team.



## Physical Modeling: Libraries

- Performers will be encouraged to provide feedback, during the first three months of each phase, and suggest additional models and materials that help to solve the problem.
  - IARPA will provide a core library of 3D objects that can be combined into single or multiple 3D object models.
  - Performers may request to add more objects into the 3D model library. The request will be reviewed by the government team. The updated library with any additional objects will be made available to all performers.

We will build these libraries together



# Physical Modeling: Technical Challenges

- Point Cloud fusion
  - SAR point clouds are very accurate and distortion free, but are only useful if the objects can be seen by radar.
  - EO point clouds offer complete information of the scene but suffer from low accuracy, low resolution and distortion.
- Cross phenomenology multi-level fusion
  - Certain features can be more reliably extracted from different sensor data at different levels of processing (e.g., satellite image, point cloud, pan-sharpen MSI, etc.)
  - Partial representations of the scene/objects can be fused to compensate for limitations of the sensor data and to enhance the completeness of the model.



## Physical Modeling: Technical Challenges (cont'd)

- Representations of complex scene geometry and appearance
  - It is necessary to establish a probabilistic framework where image evidence, evidence from other sensors, and prior assumptions can be fused into a complete inference process.
- Object-level segmentation and scene classification
  - Deep learning applied to multi-modal data including point clouds, multi-band EO, SAR, and synthetic models.
  - Determination of material characteristics of the object surfaces.



## Physical Modeling: Technical Challenges (cont'd)

- Accurate model fitting
  - Combining all evidence derived from the data and finding the best model that fits each object.
  - CORE3D challenges performers to make optimal use of available data, deriving models that are consistent with data from multiple sensors and sources, and yet may be constructed with judicious choices to optimize accuracy and efficiency of model construction.



# Functional Modeling



# Functional Modeling



We can do this well



Now is the time to solve this

# Functional Modeling: Data

- Government team will provide large annotated training dataset of satellite imagery:
  - Over 100k annotated images in more than 50 categories.
  - Size of chips from 50m x 50m to 1km x 1km.
  - Includes panchromatic, VNIR and SWIR.
- Object Categories (Functional Model):
  - Communication towers, Power plants, Water towers, Hospitals, Schools, Parks, Military bases, Heli-ports, cemeteries, airports/airfields, Amusement parks, vehicle storage, bridges, marinas, ....





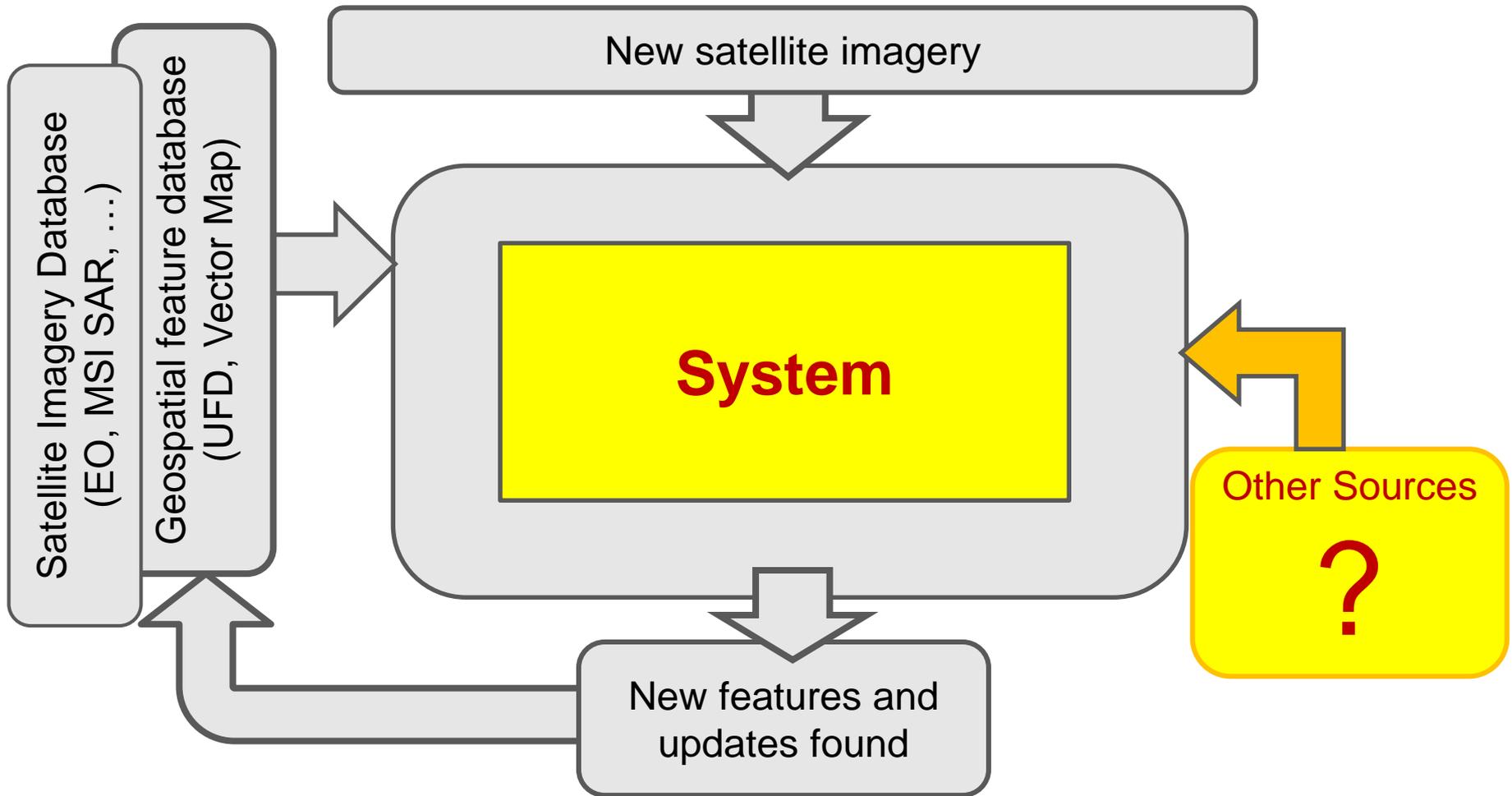
# Functional Modeling: Technical Challenges

- Deep learning (DL) approaches optimized for satellite imagery scene recognition:
  - DL has not been studied and exploited in the satellite imagery domain extensively because of lack of annotated training and test data sets.
  - Multi-modal DL architectures that are optimized for satellite data such as Panchromatic, MSI, SAR, point clouds should be explored.
- Hybrid approaches, where DL, traditional CV algorithms, and new innovative image understanding modules work together.
  - Traditional CV algorithms such as SIFT, bag of words, SVM, can be very effective if they are custom tuned for specific conditions and scenarios.
- Fine tuning or transfer learning only approaches using existing DL frameworks such as AlexNet or Caffe are not adequate for the program.



# Functional Model: Notional System

not a system design suggestion



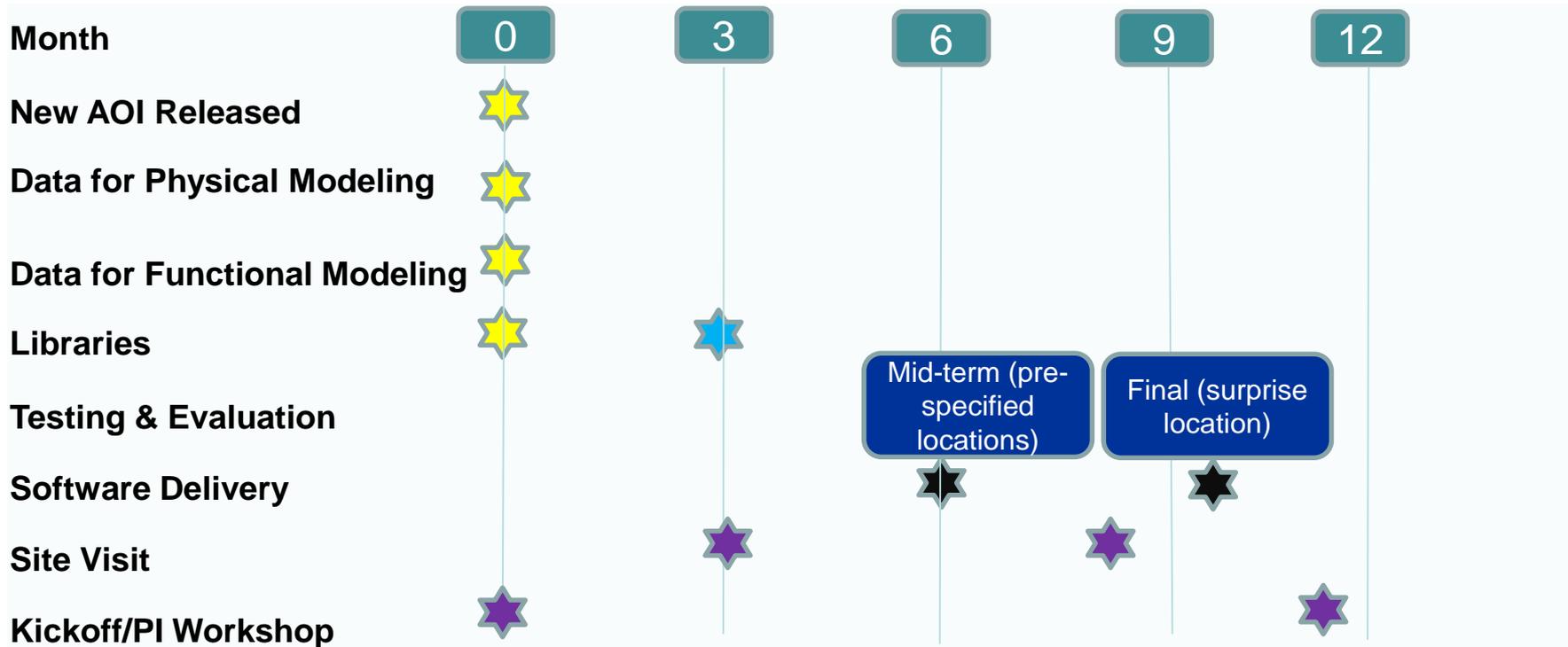


# Phases

Phase	1A	1B	2A	2B
Duration	15 months	12 months	12 months	12 months
<b>Physical Modeling</b>				
World Region(s)	1	1 & 2	1 & 2	1, 2 & 3
# of AOIs	4 pre-specified 1 surprise	6 pre-specified 1 surprise	2 pre-specified 1 surprise	3 pre-specified 1 surprise
Size of each AOI	1 km <sup>2</sup>	1 km <sup>2</sup>	100 km <sup>2</sup>	100 km <sup>2</sup>
	Multiple Types of Terrain		Typical Mid-size City Area	
<b>Functional Modeling</b>				
# of Object Categories	20-30	>50	>50	>50
Size of Search Area	1 km <sup>2</sup>	1 km <sup>2</sup>	100 km <sup>2</sup>	100 km <sup>2</sup>
	Object Recognition		Wide Area Search	



# Phase Schedule\*



### Target Schedule

Proposer's Day: 30 March 2016  
 BAA Release: June 2016  
 Proposals Due: August 2016  
 Source Selection: October 2016  
 Program Kickoff: December 2016

\* Phase 1A will have an additional 3 months to accommodate start-up.

★ Released

★ Updated

★ Meetings



# Anticipated Timeline

Event/Phase	1A 15 mths	1B 12 mths	2A 12 mths	2B 12 mths	Additional Information
	Month after Kickoff				
Site Visits	3	18	30	42	Performers provide results
Software Delivery	9	21	33	45	Performers deliver interim software
Evaluation	9-11	21-23	33-35	45-47	T&E Team run systems and provide evaluation results; Performers continue development after evaluation
Site Visits	11	23	35	47	Performers provide results
Software Delivery	13	25	37	49	Performers deliver final software
Evaluation	13-14	25-26	37-38	49-50	T&E Team run systems and evaluation on surprise area
PI Workshop	14	26	38	50	Performers provide results
End of Phase	15	27	39	51	All Deliverables Due (Final report due; Program ends on month 51)



# Phases (cont'd)

	<b>Physical Modeling</b>	<b>Functional Modeling</b>
<b>Phase 1A (15 months)</b>	Model Development (1 km <sup>2</sup> areas) <ul style="list-style-type: none"><li>• Create 3D object models with physical properties for 1km<sup>2</sup> areas.</li><li>• Multiple types of terrains</li><li>• World Region (WR) 1 (TBD)</li><li>• 4 AOIs (1 km<sup>2</sup> areas )</li></ul>	Object Recognition from Satellite Imagery <ul style="list-style-type: none"><li>• Size of the search AOIs (50m x 50m to 1km x 1km)</li><li>• Number of object categories : 20-30</li></ul>
<b>Phase 1B (12 months)</b>	Model Improvement (1 km <sup>2</sup> areas) <ul style="list-style-type: none"><li>• Enhance 3D object model generation in speed and accuracy.</li><li>• WRs 1 &amp; 2 (TBD)</li><li>• 6 AOIs (1 km<sup>2</sup> areas ) in two WRs</li></ul>	Object Recognition from Satellite Imagery <ul style="list-style-type: none"><li>• Size of the search AOIs (50m x 50m to 1km x 1km)</li><li>• Number of object categories : &gt; 50</li></ul>
<b>Phase 2A (12 months)</b>	Model Scale-up (100 km <sup>2</sup> areas) <ul style="list-style-type: none"><li>• Scale up 3D object model generation to cover typical mid-size city area.</li><li>• WRs 1, 2 (TBD)</li><li>• 2 AOIs (100 km<sup>2</sup> areas ) in two WRs</li></ul>	Wide Area Search from Satellite Imagery <ul style="list-style-type: none"><li>• Scale up by 100 times - Size of the search AOI (100 km<sup>2</sup>)</li><li>• Number of object categories : &gt; 50</li></ul>
<b>Phase 2B (12 months)</b>	Model Optimization (100 km <sup>2</sup> areas) <ul style="list-style-type: none"><li>• Optimize 3D object model generation in speed and accuracy.</li><li>• WRs 1, 2 ,3 (TBD)</li><li>• 3 AOIs (100 km<sup>2</sup> areas ) in three WRs</li></ul>	Wide Area Search from Satellite Imagery <ul style="list-style-type: none"><li>• Size of the search AOI (100 km<sup>2</sup>)</li><li>• Number of object categories : &gt; 50</li><li>• Improve precision, recall, and geolocation accuracy</li></ul>



## Physical Modeling: T&E

Human generated models and machine generated models compared to ground truth.

### **Ground Truth:**

T&E team manually creates a model using LIDAR and ground survey data forming the “ground truth” best possible model.

### **Human Generated Model:**

T&E team creates a 3D model for AOIs using the same sensor data as the performer systems to simulate expert human performance.

- Model Building Time (man-hrs): Time it takes for human to manually create a 3D model in specified AOIs.

### **Machine Generated Model:**

Each performer’s system automatically creates 3D models using the data allowed by the program.

- Model Building Time (hrs): Time it takes to create a 3D model in specified AOIs

Performers are evaluated on how well their created site model compares to ground truth and expert created models from the same data



# Physical Model: T&E

- True Positive: an entity classified as an object that is also classified as an object in reference
- False Negative: an entity classified as an object in reference that is classified as a background
- False Positive: an entity classified as an object that is classified as a background in reference

- Completeness (Detection rate):

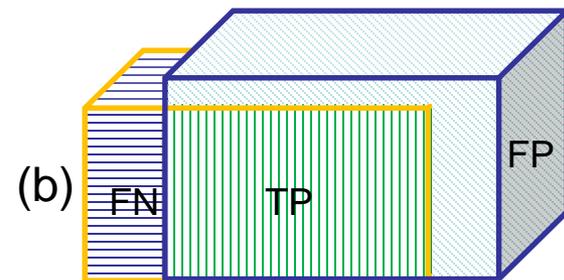
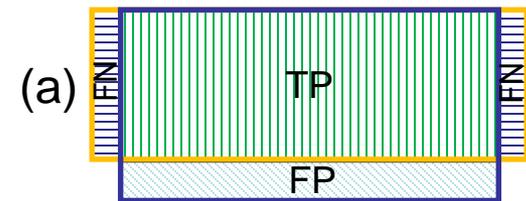
$$Comp = \frac{\|TP\|}{\|TP\| + \|FN\|}$$

- Correctness (Detection accuracy):

$$Corr = \frac{\|TP\|}{\|TP\| + \|FP\|}$$

- Quality of the results

$$Quality = \frac{\|TP\|}{\|TP\| + \|FP\| + \|FN\|} = \frac{Comp * Corr}{Comp + Corr - Comp * Corr}$$





# Physical Modeling: Performance Goals

	Phase 1A	Phase 1B	Phase 2A	Phase 2B
Size Area	1 km <sup>2</sup>	1 km <sup>2</sup>	100 km <sup>2</sup>	100 km <sup>2</sup>
Geolocation Error (respect to sensor error)	2.0 x	1.5 x	1.5 x	1.0 x
2D Completeness*	80%	85%	90%	95%
2D Correctness*	80%	85%	90%	95%
3D Completeness*	60%	70%	80%	90%
3D Correctness*	60%	70%	80%	90%
Material Identification Accuracy	85%	90%	95%	98%
Model Build Time (computer)*	< 8 hr/km <sup>2</sup>	< 2 hr/km <sup>2</sup>	< 2 hr/km <sup>2</sup>	< 1 hr/km <sup>2</sup>

\* - Human generated model will be evaluated on these categories.



# Functional Model: T&E and Performance Goals

## Test & Evaluation

	<u>Predicted 1</u>	<u>Predicted 0</u>
<u>True 1</u>	a	b
<u>True 0</u>	c	d

$PRECISION = a / (a + c)$

$RECALL = a / (a + b)$

## Performance Goals

	Phase 1A	Phase 1B	Phase 2A	Phase 2B
Size Area	1 km <sup>2</sup>	1 km <sup>2</sup>	100 km <sup>2</sup>	100 km <sup>2</sup>
Precision	90%	95%	80%	90%
Recall	80%	90%	70%	90%
Categories	20-30	>50	>50	>50
Geolocation Error (respect to sensor error)	-	-	3.0 x	1.5 x



# Teaming

- Because of the many challenges presented by this program, both depth and diversity will be beneficial for overcoming these challenges
  - Throughput: Consider all that you will need to do, all the ideas you will need to test. Make sure you have:
    - Enough people and expertise to do the job
    - Sufficient resources to follow critical path while still exploring alternatives – risk mitigation
  - Completeness: teams should not lack any capability necessary for success, e.g., should not rely on enabling technology to be developed elsewhere.
  - Tightly knit teams
    - Clear, strong, management; single point of contact
    - Each team member should be contributing significantly to the program goals. Explain why each member is important, i.e., if you didn't have them, what wouldn't get done?



# Teaming

- IARPA CORE3D program anticipates offeror teams may include, but are not limited to, experts in the technical areas of:
  - Multi-view satellite image processing
  - Multi-modal information fusion
  - Computer vision focused on deep learning
  - Remote sensing
  - Photogrammetry
  - Image segmentation and classification
  - Satellite imagery processing: VNIR, SWIR, Pan, etc
  - Statistical inferencing



# Proposal Guidance

- Your proposal should include a full discussion of the technical approach that will be used to meet the program goals.
- Programmatic issues to be addressed in the proposal:
  - Your team's current technical capabilities
  - Key resources needed (not currently available to your team), to include capital equipment and special expertise (teaming will likely play an essential role in providing special expertise). The risk in acquiring these key resources, and mitigation strategies, should be indicated as well
  - A teaming plan along with the roles and responsibilities of each member of the research team
  - End of phase and some intermediate milestones are set, but it is expected that other intermediate milestones that are on the critical path of the proposed approach will be offered
  - A schedule of all milestones including a clearly charted description of the various risk mitigation strategies that will be undertaken to achieve program goals



## Proposal Evaluation Criteria

- Overall Scientific and Technical Merit
- Effectiveness of Proposed Work Plan
- Relevance to IARPA Mission and CORE3D Program Goals
- Relevant Experience and Expertise
- Cost Realism

Evaluation criteria will appear in the BAA.



## Let's Build the World in 3D



OFFICE OF THE DIRECTOR OF NATIONAL INTELLIGENCE



# IARPA Overview

**Stacey Dixon, IARPA Deputy Director**



# Office of the Director of National Intelligence

Central Intelligence Agency

Defense Intelligence Agency

Department of State

National Security Agency

Department of Energy

National Geospatial-Intelligence Agency

Department of the Treasury

National Reconnaissance Office

Drug Enforcement Administration

Army

Federal Bureau of Investigation

Navy

Department of Homeland Security

Air Force

Coast Guard

Marine Corps





# IARPA Mission and Method

IARPA's mission is to invest in high-risk/high-payoff research to provide the U.S. with an overwhelming intelligence advantage

- **Bring the best minds to bear on our problems**
  - Full and open competition to the greatest possible extent
  - World-class, rotational Program Managers
- **Define and execute research programs that:**
  - Have goals that are clear, measureable, ambitious and credible
  - Employ independent and rigorous Test & Evaluation
  - Involve IC partners from start to finish
  - Run from three to five years
  - Publish peer-reviewed results and data, to the greatest possible extent



# Analysis R&D

*“Maximizing insight from the information we collect, in a timely fashion”*

## Large Data Volumes and Varieties

Providing powerful new sources of information from massive, noisy data that currently overwhelm analysts

## Social, Cultural, and Linguistic Factors

Analyzing language and speech to produce insights into groups and organizations

## Improving Analytic Processes

Dramatic enhancements to analytic process at the individual and group level



# Collection R&D

*“Dramatically improve the value of collected data”*

## Novel Access

Reach hard targets in denied areas

## Asset Validation and Identity Intelligence

Assess trustworthiness and advance biometrics in real-world conditions

## Tracking and Locating

Accurately locate emitters and other intelligence interests



# Anticipatory Intelligence R&D

*“Detecting and forecasting significant events”*

## S & T Intelligence

Detecting and forecasting the emergence of new technical capabilities

## Indications & Warnings

Early warning of social and economic crises, disease outbreaks, insider threats, and cyber attacks

## Strategic Forecasting

Probabilistic forecasts of major geopolitical trends and rare events



# Operations R&D

***“Operate effectively in a globally interdependent and networked environment”***

## Computational Power

Revolutionary advances in science and engineering to solve problems intractable with today’s computers

## Trustworthy Components

Gain the benefits of leading-edge hardware and software without compromising security

## Safe and Secure Systems

Protecting systems against cyber threats



# How to engage with IARPA

- **Website:** [www.IARPA.gov](http://www.IARPA.gov)
  - Reach out to us, especially the IARPA PMs. Contact information on the website.
  - Schedule a visit if you are in the DC area or invite us to visit you.
- **Opportunities to Engage:**
  - **Research Programs**
    - Multi-year research funding opportunities on specific topics
    - Proposers' Days are a great opportunity to learn what is coming, and to influence the program
  - **“Seedlings”**
    - Allow you to contact us with your research ideas at any time
    - Funding is typically 9-12 months; IARPA funds to see whether a research program is warranted
    - IARPA periodically updates the topics of interest
  - **Requests for Information (RFIs) and Workshops**
    - Often lead to new research programs, opportunities for you to provide input while IARPA is planning new programs



# Concluding Thoughts

- **Our problems are complex and truly multidisciplinary**
- **Technical excellence & technical truth**
  - Scientific Method
  - Peer/independent review
  - Full and open competition
- **We are always looking for outstanding PMs**
- **How to find out more about IARPA:**

[www.IARPA.gov](http://www.IARPA.gov)
- **Contact Information**

Phone: 301-851-7500

OFFICE OF THE DIRECTOR OF NATIONAL INTELLIGENCE



# Doing Business with IARPA

Mr. Tarek Abboushi

March 30, 2016



## Doing Business with IARPA - Recurring Questions

- Questions and Answers (<http://www.iarpa.gov/index.php/faqs>)
- Eligibility Info
- Intellectual Property
- Pre-Publication Review
- Preparing the Proposal (Broad Agency Announcement (BAA) Section 4)
  - Electronic Proposal Delivery (<https://iarpa-ideas.gov>)
- Organizational Conflicts of Interest  
(<http://www.iarpa.gov/index.php/working-with-iarpa/iarpas-approach-to-oci>)
- Streamlining the Award Process
  - Accounting system
  - Key Personnel
- IARPA Funds Applied Research
- RECOMMENDATION: Please read the entire BAA



## Responding to Q&As

- Please read entire BAA before submitting questions
- Pay attention to Section 4 (Application & Submission Info)
- Read Frequently Asked Questions on the IARPA @ <http://www.iarpa.gov/index.php/faqs>
- Send your questions as soon as possible
  - HFC BAA: **dni-iarpa-baa-16-06@iarpa.gov**
  - Write questions as clearly as possible
  - Do NOT include proprietary information



# Eligible Applicants

- Collaborative efforts/teaming strongly encouraged
  - Content, communications, networking, and team formation are the responsibility of Proposers
- Foreign organizations and/or individuals may participate
  - Must comply with Non-Disclosure Agreements, Security Regulations, Export Control Laws, etc., as appropriate, as identified in the BAA



## Ineligible Organizations

Other Government Agencies, Federally Funded Research and Development Centers (FFRDCs), University Affiliated Research Centers (UARCs), and any organizations that have a special relationship with the Government, including 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.



# Intellectual Property (IP)

- Unless otherwise requested, Government rights for data first produced under IARPA contracts will be UNLIMITED.
- At a minimum, IARPA requires Government Purpose Rights (GPR) for data developed with mixed funding
- Exceptions to GPR
  - State in the proposal any restrictions on deliverables relating to existing materials (data, software, tools, etc.)
- If selected for negotiations, you must provide the terms relating to any restricted data or software, to the Contracting Officer



# Pre-Publication Review

- Funded Applied Research efforts, IARPA encourages:
  - Publication for Peer Review of **UNCLASSIFIED** research
- Prior to public release of any work submitted for publication, the Performer will:
  - Provide copies to the IARPA PM and Contracting Officer Representative (COR/COTR)
  - Ensure shared understanding of applied research implications between IARPA and Performers
  - Obtain IARPA PM approval for release



# Preparing the Proposal

- Note restrictions in BAA Section 4 on proposal submissions
  - Interested Offerors must register electronically IAW instructions on: <https://iarpa-ideas.gov>
  - Interested Offerors are strongly encouraged to register in IDEAS at least 1 week prior to proposal “Due Date”
  - Offerors must ensure the version submitted to IDEAS is the “Final Version”
  - Classified proposals – Contact IARPA Chief of Security
- BAA format is established to answer most questions
- Check FBO for amendments & IARPA website for Q&As
- BAA Section 5 – Read Evaluation Criteria carefully
  - e.g. “The technical approach is credible, and includes a clear assessment of primary risks and a means to address them”



## Preparing the Proposal (BAA Sect 4)

- Read IARPA's Organizational Conflict of Interest (OCI) policy:  
<http://www.iarpa.gov/index.php/working-with-iarpa/iarpas-approach-to-oci>
- See also eligibility restrictions on use of Federally Funded Research and Development Centers, University Affiliated Research Centers, and other similar organizations that have a special relationship with the Government
  - Focus on possible OCIs of your institution as well as the personnel on your team
  - See Section 4: It specifies the non-Government (e.g. SETA, FFRDC, UARC, etc.) support we will be using. If you have a potential or perceived conflict, request waiver as soon as possible



## Organizational Conflict of Interest (OCI)

- If a prospective offeror, or any of its proposed subcontractor teammates, believes that a potential conflict of interest exists or may exist (whether organizational or otherwise), the offeror should promptly raise the issue with IARPA and submit a waiver request by e-mail to the mailbox address for this BAA at [dni-iarpa-baa-16-06@iarpa.gov](mailto:dni-iarpa-baa-16-06@iarpa.gov).
- A potential conflict of interest includes but is not limited to any instance where an offeror, or any of its proposed subcontractor teammates, is providing either scientific, engineering and technical assistance (SETA) or technical consultation to IARPA. In all cases, the offeror shall identify the contract under which the SETA or consultant support is being provided.
- Without a waiver from the IARPA Director, neither an offeror, nor its proposed subcontractor teammates, can simultaneously provide SETA support or technical consultation to IARPA and compete or perform as a Performer under this solicitation.



## Streamlining the Award Process

- Cost Proposal – we only need what we ask for in BAA
- Approved accounting system needed for Cost Reimbursable contracts
  - Must be able to accumulate costs on job-order basis
  - DCAA (or cognizant auditor) must approve system
  - See <http://www.dcaa.mil>, “Audit Process Overview - Information for Contractors” under the “Guidance” tab
- Statements of Work (format) may need to be revised
- Key Personnel
  - Expectations of time, note the Evaluation Criteria requiring relevant experience and expertise
- Following selection, Contracting Officer may request your review of subcontractor proposals



# IARPA Funding

- IARPA funds Applied Research for the Intelligence Community (IC)
  - IARPA cannot waive the requirements of Export Administrative Regulation (EAR) or International Traffic in Arms Regulation (ITAR)
  - Not subject to DoD funding restrictions for R&D related to overhead rates
- IARPA is not DOD



## Disclaimer

- This is Applied Research for the Intelligence Community
- Content of the Final BAA will be specific to this program
  - The Final BAA is being developed
  - Following issuance, look for Amendments and Q&As
  - There will likely be changes
- The information conveyed in this brief and discussion is for planning purposes and is subject to change prior to the release of the Final BAA.



# QUESTIONS ?