



USSOCOM

3D Prototyping Initiatives

Ms. Susan Raymie
Acquisition Program Manager

**PEO Special Reconnaissance,
Surveillance & Exploitation**



3D Geospatial Modeling & Simulation Summit, 29 Nov 2017



Agenda

- Use Cases & Operational Need
- Rapid Prototyping Initiatives
 - 3DMAP Foreign Comparative Test
 - Urban 3D Prize Challenge
 - GeoPackage Evolution
- Look Ahead at 2018
 - Collaboration Opportunities
 - How to Engage with SOCOM



Use Cases for 3D Geospatial Data

Mission Analysis of Denied Areas



Virtual Battlespace



3D Battlespace Visualization



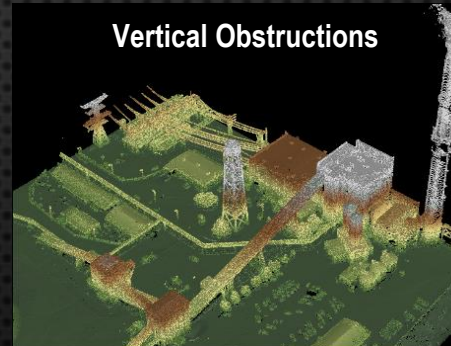
Building Partner Capacity



Irregular Warfare Exercises



Vertical Obstructions



Digital Close Air Support



Interior 3D Mapping & Building Modeling



Mission Rehearsal



Dismounted Route Planning





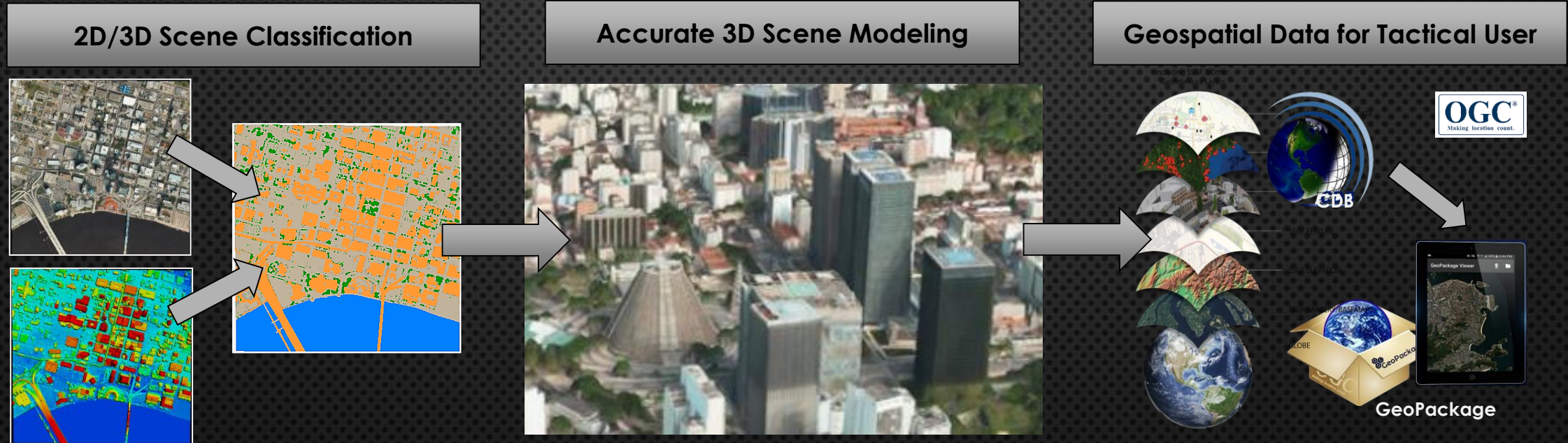
3D Map Operational Need

“On any given day, nearly 10,000 SOF are deployed or forward-stationed in more than 80 countries worldwide...”

- Need for High Resolution Terrain Elevation and Urban Feature Data in areas where data is sparse
- Wide Areas in Operationally Relevant Timeframes
- Rapidly Provisioned and Optimized for Tactical Mobile Users
- Sharing to enable US and Partner Nation SOF Interoperability



3D Map Prototyping & Experimentation



- Speed the generation of 3D data over wide and non-permissive areas
- Improve the accuracy and availability of 3D data in SOF areas of interest
- Optimize data formats for standards-based SOF interoperability & mobility



Urban 3D Prize Challenge

- Objective: Automate and enhance the extraction of building footprints to be extruded into precise 3D maps and models.
- Stimulate technology advances to help SOF visualize complex urban environments in potentially denied areas through the application of machine learning algorithms and neural networks.
- Status as of 28 Nov 2017
 - 210 registered including four teams
 - 49 competitors
 - 4 Top Coders reached the 2nd progress prize target



Urban 3D Prize Challenge

- Challenge Open thru 4 Dec 2017
- Final Results: Early January 2018
- Computer Vision Workshop: Spring 2018
- Warfighter Workshop: April 2018

A promotional banner for the Urban 3D Challenge. The background is a dark, textured image of a city grid. On the left and right sides, there are four small inset images showing different views of urban areas: a top-down view of a city street, a 3D perspective view of a city block, a 3D perspective view of a city block with a river, and a 3D perspective view of a city block with a river.


topcoder™

Urban 3D Challenge

Help USSOCOM build an algorithm that provides reliable, automatic labeling of buildings based solely on orthorectified color satellite imagery and 3D height data.

over
\$35,000
in prizes!

The top 5 competitors will also be invited to participate in a Computer Vision Workshop in early 2018!

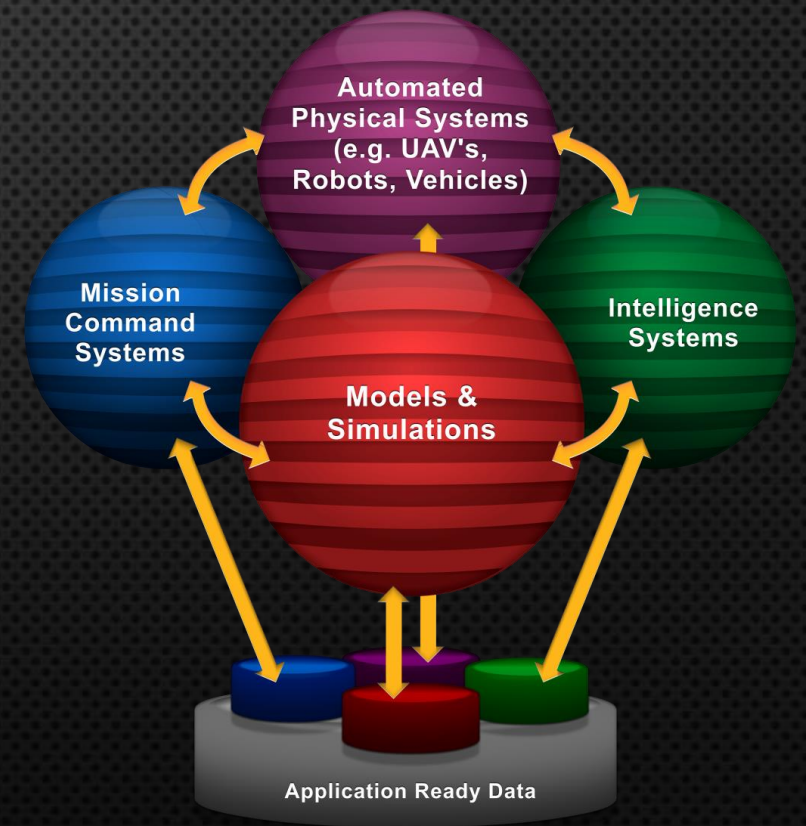
[Pre-Register](#)

<https://crowdsourcing.topcoder.com/urban3d>



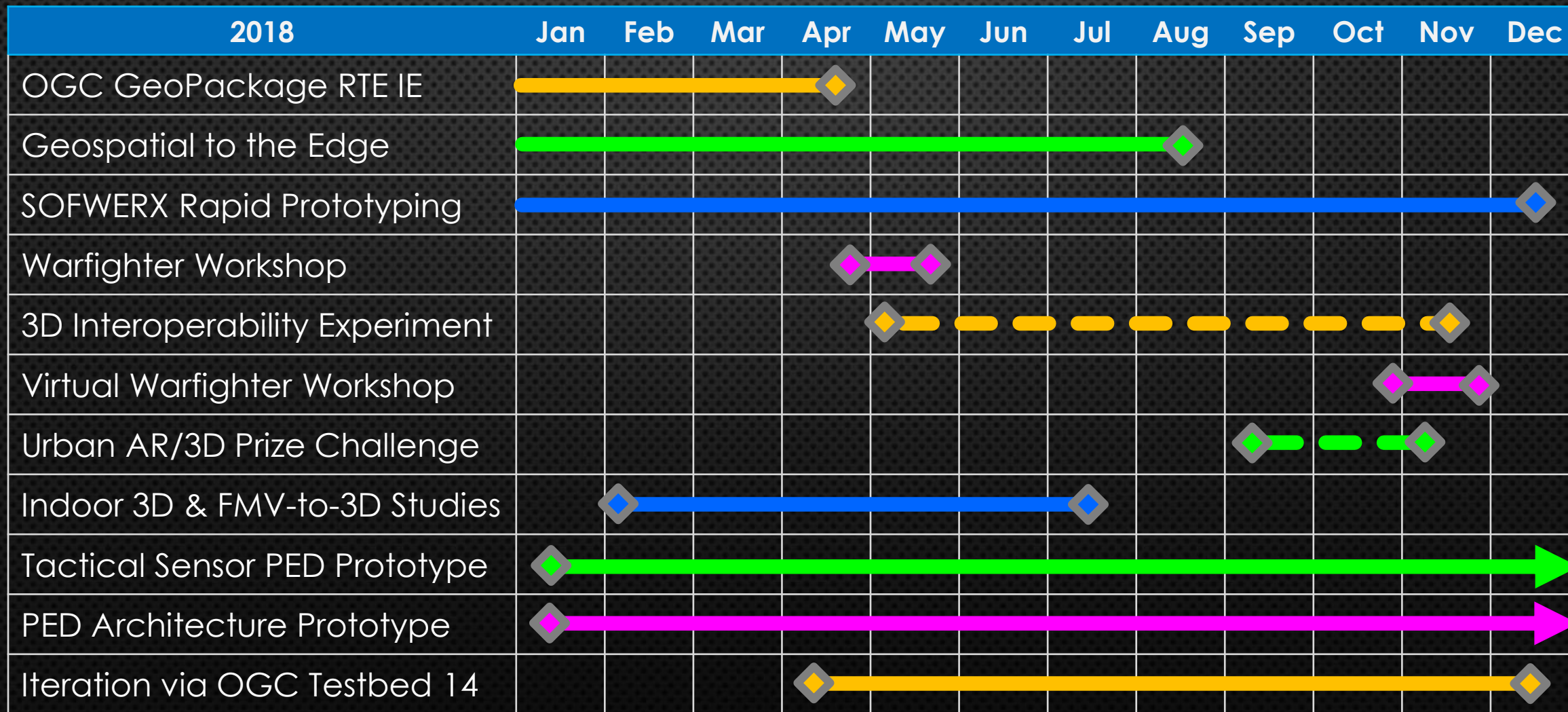
Accelerating the Pace of Innovation

- GeoPackage Evolution
 - Elevation / Gridded, Tiled Data
 - Related Tables (media attachments)
 - 3D Data
- Indoor / Outdoor Convergence
- Dynamic Source Integration
- Automated Interoperability





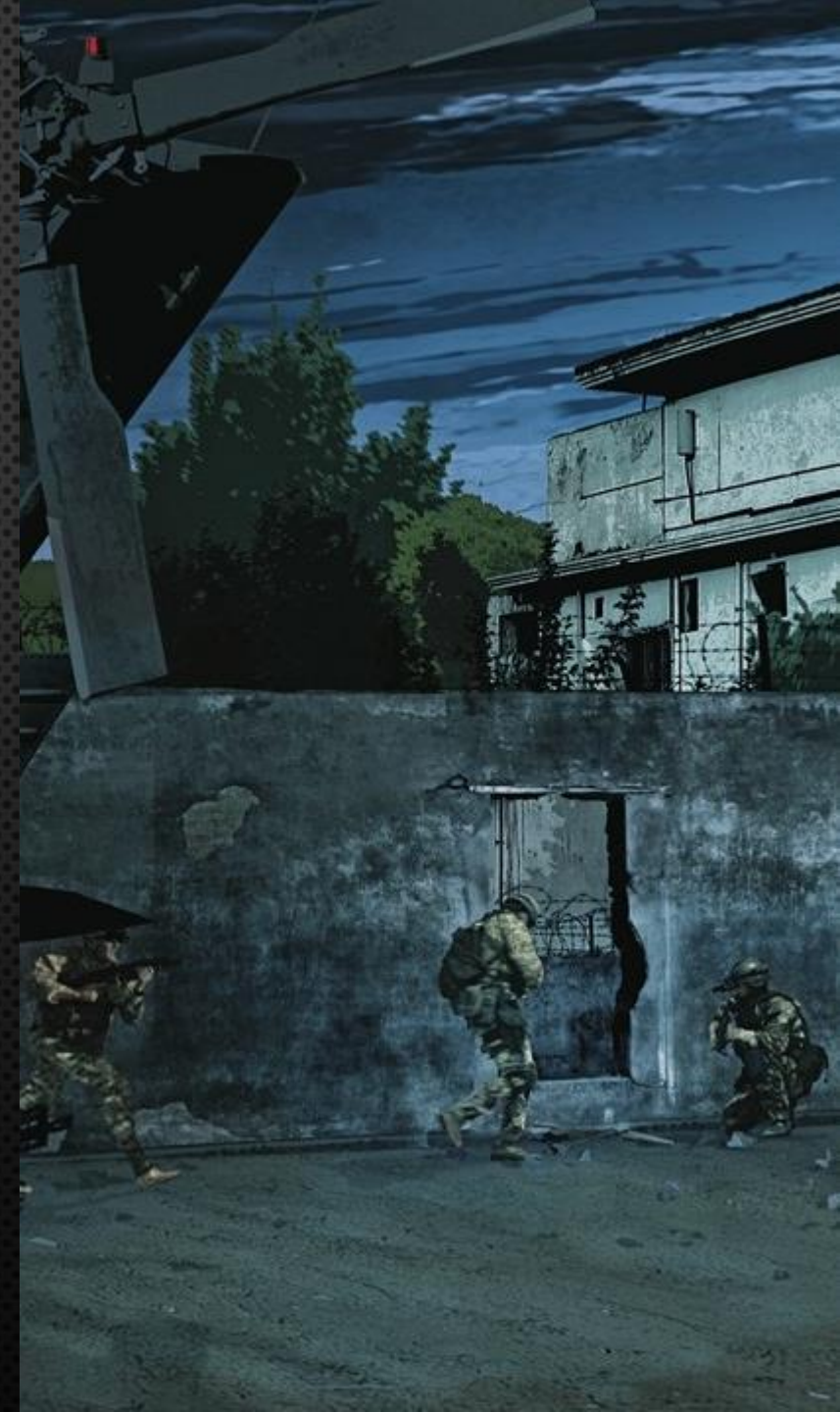
COLLABORATIVE PROTOTYPING





INDUSTRY COLLABORATION

- OGC Initiatives
 - Standards Working Groups
 - Interoperability Experiments
 - Testbeds
- Collaborative Prototyping
 - High Resolution 3D Data
 - Rapid Prototyping Experiments
 - Warfighter Workshop





How to Engage with USSOCOM

- ◆ Website: www.socom.mil
 - Technology & Industry Liaison Office (TILO)
- ◆ PEO SRSE Broad Agency Announcement
 - BAA for Advancement of Technologies for Use by Special Operations Forces
 - Appendix G-1, GEOINT Section 2.7.5
- ◆ OSD Programs
 - Small Business Innovation Research
 - Rapid Innovation Fund
 - Foreign Comparative Testing
- ◆ External Outreach
 - Prize Challenges
 - SOFWERX