Insitu: Decision Making Superiority Delivered.

Presentation for the Alberta Centre for Advanced MNT Products
Unmanned Vehicles and Robotics Seminar

3 June 2015
Insitu Snapshot

Customers:
- U.S. Marine Corps
- U.S. Navy
- U.S. Army
- U.S. Air Force
- DoD Customers
- Australia
- Canada
- Italy
- Netherlands
- Malaysia
- Singapore
- United Kingdom
- Poland
- Colombia
- Japan
- Czech Republic

- 820,000+ Operational Flight Hours
- 102,000+ Operational Sorties
- 39,000+ Shipboard Flight Hours
- 5,000+ Shipboard Sorties

Insitu is a wholly owned non-integrated subsidiary of The Boeing Company
## Insitu Timeline

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tbody>
<tr>
<td>1998</td>
<td>Insitu UAV becomes first to cross the Atlantic</td>
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<td>2000</td>
<td>Insitu enters strategic alliance with The Boeing Company</td>
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<td>2001</td>
<td>Gyro-stabilized turret &amp; Skyhook retriever developed &amp; patented</td>
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<td>2002</td>
<td>Insitu deploys ScanEagle with USMC</td>
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<td>2004</td>
<td>STUAS Integrator completes its first operational assessment</td>
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<td>2005</td>
<td>Insitu deploys ScanEagle with US Navy</td>
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<td>2006</td>
<td>USAF acquires ScanEagle systems</td>
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<td>2007</td>
<td>Insitu launches Integrator UAS</td>
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<td>2008</td>
<td>Insitu acquired by The Boeing Company</td>
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<td>2009</td>
<td>Insitu opens Insitu Pacific in Queensland, Australia</td>
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<td>2010</td>
<td>Insitu wins STUAS Program of Record</td>
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<td>2011</td>
<td>STUAS Early Operational Capability and first flight</td>
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<tr>
<td>2012</td>
<td>ScanEagle accumulates 700,000 combat flight hours</td>
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<td>2013</td>
<td>RQ-21A Blackjack deployed to Afghanistan</td>
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<td>2014</td>
<td>Insitu acquires 2d3 Sensing, collaborating since 2009</td>
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<tr>
<td>2015</td>
<td>Insitu wins STUAS Program of Record</td>
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Insitu’s Canadian Experience

2009
ScanEagle deploys to Afghanistan with Canadian Army in support of Operation ARCHER

2011
ScanEagle deploys with RCN aboard HMCS Charlottetown in support of Operation METRIC and Operation ARTEMIS

2012
ScanEagle deploys with RCN aboard HMCS Regina in support of Operation ARTEMIS

2013
ScanEagle deploys with RCN aboard HMCS Toronto in support of Operation ARTEMIS

2014
Insitu demonstrates Integrator to the Canadian Army for the SUAS Program

Canada Operations Ltd.

Boeing

Robotic Aviation

NovAtel
Products

ScanEagle®  Integrator™  ICOMC2
ScanEagle®

MWIR 2.0, Dual Imager, EO900 variant

Weights
Empty structure weight: 30.9-39 lb / 14-18 kg
Max takeoff weight: 48.5 lb / 22.0 kg
Max payload weight: 7.5 lb / 3.4 kg

Performance
Endurance: 24+ hours
Ceiling: 19,500 ft / 5,950 m
Max horizontal speed: 80 knots / 41 m/s
Cruise speed: 50-60 knots / 25.7-30.9 m/s
Engine: heavy fuel or gasoline engine

Payload Integration
Onboard power: 60 W

Sensor and Data Options
- EO imager
- Analog or digital encrypted video datalink
- Encrypted or unencrypted C2 datalink
**Integrator™**

**Performance**

- **Endurance:** 24 hours
- **Ceiling:** 19,500ft / 5,944 m
- **Max horizontal speed:** 90+ knots / 41 m/s
- **Cruise speed:** 55 knots / 28.3 m/s

**Weights**

- **Empty structure weight:** 80 lb / 34.0 kg
- **Max takeoff Weight:** 135 lb / 61.2 kg
- **Max payload weight:** 40 lb / 18 kg

**Payload Integration**

- **Onboard power:** 350 W
- **Onboard connectivity**

**Baseline Sensor and Data Package**

- Electro-optic imager
- Mid-wave infrared imager (MWIR)
- IR marker
- Laser rangefinder
- Encrypted S-band video data

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8.2 ft / 2.5 m

16 ft / 4.8 m
Integrator™ Air Vehicle Modularity

- Fuselage Module
- Empennage Module
- Propulsion Module
- Wing Modules
- Payload Bay Module
- Nose Module
- Avionics Module
Integrator™ Payload Modularity
Mark 4 Launcher

Expeditionary, trailer-mounted design for easy transport across rough terrain and unimproved sites

Stand-alone platform, powered by an onboard generator and compressor

Compatible with all of Insitu’s unmanned aircraft; variants available for both land- and ship-based operations.
SkyHook allows recovery of the aircraft with a very small operational footprint.

SkyHook is runway independent and can accommodate a 360-degree approach path. This allows for maximum flexibility for recovery operations in a wide range of weather conditions.

SkyHook comes in variants for both land- and ship-based operations.
Small-footprint solution for command and control of unmanned vehicles and payloads.

Enables a single operator to operate multiple unmanned vehicles from one workstation and manage vehicle sensor command and control.

Features an open architecture design that is easily modified using the software development kit.

Users can create their own customized plug-ins and rapidly add new applications or support for new unmanned systems.
2d3 Sensing Company Overview

- Provides innovative software used to process, exploit, and disseminate (PED) tactical ISR data
- BMA trade studies since 2008 rate software as best-in-class for tactical Full Motion Video (FMV) PED
- Creates differentiated value across several UAS platforms
  - ScanEagle IVEST workstation
  - Integrator ICOMC2/GCS workstation
  - Predator/Reaper, Fire Scout
- Strong position for use with manned platforms
  - P8-A, MSA, future P-8 International
TacitView
- Software to view, edit, annotate, and enhance full-motion video into actionable intelligence for dissemination

Catalina
- Software provides media engine to ingest and process full-motion video, radar, hyperspectral, SIGINT data

Tungsten
- Software development kit used to manage, distribute, and exploit media; in TacitView, Catalina, and 3rd party software
- Contains the computer vision algorithms for image enhancements, metadata & encoding, and other uses

Custom Solutions & Consulting
- Fee-for-service: software deployments, custom sensor integration, technical guidance