



Overview of the Unmanned Systems Industry

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**Association for Unmanned Vehicle Systems
International (AUVSI)**

About AUVSI

AUVSI's mission is to advance the unmanned systems and robotics community through education, advocacy and leadership.

AUVSI's vision is to improve humanity by enabling the global use of robotic technology in everyday lives.

- In its 42nd year, AUVSI is the ***world's largest non-profit association*** devoted exclusively to unmanned systems and robotics
 - Air, Ground and Maritime
 - Defense, Civil and Commercial
- AUVSI represents more than ***7,500 members***, including ***more than 600 corporate members*** from more than ***60 allied countries***
- ***Diverse membership*** from industry, government and academia

AUVSI Events



- **AUVSI's Unmanned Systems Europe Conference (Brussels, 3-5 March 2015)**

- Brings international UAS leaders from Europe together to address the most important trends, advancements and information impacting the UAS industry in Europe.

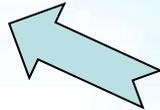


- **AUVSI's Unmanned Systems Symposium and Exhibition (Atlanta, 4-7 May 2015)**

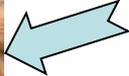
- The world's largest international unmanned systems and robotics event bringing together 8,000 delegates and 600 exhibitors from more than 55 countries



AUVSI Advocacy



- AUVSI advocates for the interests of the entire unmanned systems community with Members of Congress, the FAA, and other stakeholders
- **House Unmanned Systems Caucus**, Co-chaired by Reps. McKeon (R-CA) and Cuellar (D-TX) which has more than 50 members.
- **Senate Unmanned Aerial System Caucus**, Co-chaired by Senators Inhofe (R-OK) and Manchin (D-WV), which already has 7 members.
- **Congressional Robotics Caucus**, Co-chaired by Reps. Doyle (D-PA) and Gingrey (R-GA), which has 24 members
- Testifying at Congressional hearings
- AUVSI hold numerous events on Capitol Hill every year to educate Members of Congress and their staff
- AUVSI works with other US federal agencies (DHS, DOJ, DOD, NASA, USGS...)



AUVSI Chapters

- AUVSI has 30 Chapters across the US and in the UK and Israel
- Many of them have hosted events that include information on non-military uses for UAS
- **Precision Agriculture**
 - Cascade Chapter (Oregon and Washington)
 - USA-OK Chapter (Oklahoma)
 - Atlanta Chapter (Georgia)
 - Pathfinder Chapter (Alabama)
- **First Responders/Law Enforcement/Search and Rescue**
 - Cascade Chapter (Oregon and Washington)
 - Lone Star Chapter (Texas)
- **Commercial/Consumer Robotics**
 - Silicon Valley Chapter (N. California)
 - Twin Cities Chapter (Minnesota)





UAS Industry Outlook

What is an Unmanned Aircraft System (UAS)

- There is nothing unmanned about an unmanned system!
- What are they called:
 - Unmanned Aircraft System (UAS)
 - FAA and Congress
 - Unmanned Aerial Vehicle (UAV)
 - Remotely Piloted Aircraft Sys (RPAS)
 - ICAO and Air Force
- Public perception is somewhat skewed:
 - Drones
 - Military
 - Hostile
 - Weaponized
 - Autonomy



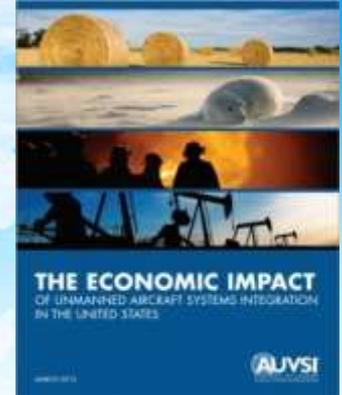
Unmanned Systems Potential Applications



Border Security	Industrial Logistics	Search & Rescue
Arctic Research	Pollution Monitoring	Volcanic Research
Firefighting	Storm Research	Pipeline Monitoring
Flood Monitoring	HAZMAT Detection	Filmmaking
Crop Dusting	Asset Monitoring	Crowd Control
Mining	Event Security	Aerial News Coverage
Farming	Port Security	Wildlife Monitoring
Aerial Photography	Construction	Forensic Photography
Real-estate	Cargo	Power line Surveying
Communications	Broadcasting	Damage Assessment



UAS Economic Potential



■ AUVSI's 2013 Economic Report:

- The UAS global market is currently \$11.3 billion
- Over the next 10 years, the UAS global market will total \$140 billion
- The economic impact of US airspace integration will total over \$13.6 billion in the first three years and will grow sustainably for the foreseeable future, cumulating to over \$82.1 billion between 2015 and 2025
- Every year that airspace integration is delayed will cost the U.S. over \$10 billion in lost potential economic impact, which translates to \$27 million per day

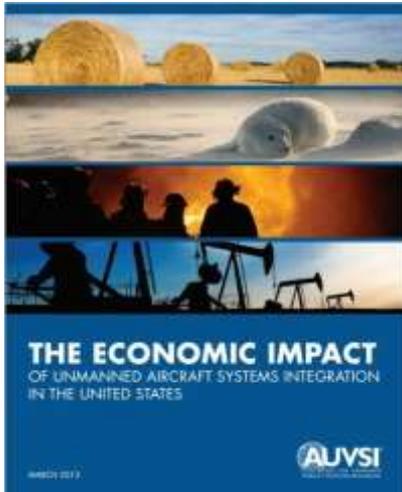


UAS Industry on the Rise

Precision agriculture totals approximately **80%** of the potential commercial market for UAS

- Drought management
- Disease detection
- Watering
- Spraying pesticides

UAS in agriculture has the potential to have an **\$11 billion** economic impact in the first three years following integration. Almost **\$66 billion** over 11 years.



“Precision application, a practice especially useful for crop farmers and horticulturists, utilizes effective and efficient spray techniques to more selectively cover plants and fields. This allows farmers to provide only the needed pesticide or nutrient to each plant, reducing the total amount sprayed, and thus saving money and reducing environmental impacts.”

Recent Examples of UAS Use

- UAS credited with first live save in **vehicle rollover** in **Canada**
- **Japan** is using unmanned helicopters for **spraying crops** for pest control
- Predator B aircraft provided aerial surveillance for **Yosemite National Park** wildfire
- Predator surveyed **flood waters** in the upper Midwest
- **USGS** used small UAS to monitor Sandhill cranes, Pygmy rabbits and several other **wildlife species**
- **NOAA** using UAS to **monitor ice** and **weather conditions** in the U.S. Arctic, in addition to **wildlife monitoring**
- **Police** using small UAS for **public safety**



Recent Examples of UAS Use

- Aurora Flight Sciences is using the Skate UAS to study **archeological sites** in **Peru**
- **Nepal, Russia, South Africa, Thailand** testing UAS to save **endangered animals** from **poachers**
- **Nicholls State University** testing UAS to **map coastline**
- **Colorado State University, Univ. of Oklahoma** testing UAS to fly into **tornados**
- **NASA** launched three UAS into smoke plume of Turrialba volcano in Costa Rica
- **Kansas State University, Virginia Tech University** using UAS for **agriculture research**
- **New Caledonia** using UAS for **nickel ore mine mapping surveys**

