

Military and Commercial Drones: -- Markets Reach \$16.1 Billion By 2021

LEXINGTON, Massachusetts (July 30, 2015) – WinterGreen Research announces that it has published a new study **Drones: Trains, Planes, and Drones Use Remote Control: Market Shares, Strategy, and Forecasts, Worldwide, 2015 to 2021**. Next generation drones leverage better technology, launching from ships anywhere. The technology is evolving better navigation, softer landings, longer flights, better ability to carry different payloads.

The drones are able to achieve military and commercial tasks. They have been evolving airfreight delivery systems capability. They are used for surveillance, reconnaissance and intelligence missions. They do 3D mapping, commercial pipeline observation, border patrol, package delivery, photography, and agriculture. These are more energy efficient, last longer and have a significantly lower cost of operation than manned aircraft.

Drone technology extends everywhere, even to airline control towers. Drones evolving technology is extending uses, even evolving to trains and planes. The use of Drone technology to control moving devices remotely extends the notion of drones, creating a larger potential drone market. Military drones will make every navy ship an aircraft carrier. They can be launched from anywhere, not needing an airfield.

In the recent Germanwings airline crash, the control tower knew for 10 minutes that the airliner was set to destruct with all the passengers on board but the controllers in the tower were powerless to help. This crash represents an instance of how security systems and sensors might be used from a control tower to effect remote control in response to a security issue.



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Headlines like “Amtrak train derailed going 106 M.P.H. on sharp curve; at least 9 killed”, represent another instance of where remote control of a transport unit would improve safety in train operations. Remote monitoring, and remote piloting offer guidelines on the commercial use of unmanned aircraft systems . Drone commercial uses will provide billions of dollars in economic growth.

Drone unmanned aerial vehicle (UAV) technology has reached a level of maturity that has put these systems at the forefront of aerospace manufacturing. Procurement around the world is adapting to drone availability. Use in the global war on terrorism has demonstrated unique usefulness for military intelligence, surveillance, reconnaissance and communications relay.

Relatively low-cost of drones make them work for civilian applications. Law enforcement, mapping, video making, movie making, environmental monitoring, and aerial survey become compelling applications in the future. Drone aircraft are sophisticated and flexible. They take off, fly and land autonomously. They enable engineers to push the envelope of normal flight. Reconnaissance drones can fly for days continuously. Remote, ground-based pilots can work in shifts.

Removal of the need for an onboard pilot ushers in an era of low cost aerial craft called drones. The drone elimination of the need for human support systems on aircraft dramatically reduces the aircraft’s size, complexity, and power requirements. The drones effectively reduce overall program cost, development time and risk. Many advanced flight technologies are for piloted craft. These are initially tested using unmanned subscale demonstrators.

Removing the pilot allows designers to simplify the aircraft’s design and then test it at reduced risk. It allows configurations that would be impossible or impractical for human occupation.



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A common issue with UAV platforms is the need to optimize these aircraft. UAV are used to carry useful payloads. These platforms are flexible as to payload, permitting interchangeable or additional sensors and other electronics, extra fuel or weapons systems. The sole function of an unmanned aircraft is to get to a target location, perform a task, and then return in the most efficient and cost-effective way. Without a pilot aboard, the return trip is optional. Light weight is central to UAV design.

NORTHROP GRUMMAN GLOBAL HAWK



Source: Northrop Grumman

Drones represent a way to use air to travel faster and at less cost. The market is divided between military and commercial drones. Military drones represent the future of the national security presence for every nation. Increasing technology sophistication and lower costs are achieving dramatic market shifts.

Remote operation occurs in a control tower. The control tower knew for ten minutes that the Germanwings flight was headed for disaster and could do nothing about it, the same was true during the airliner participation in the 911 terrorist bombings. What this study is about is control towers that have the ability to stop trains, planes, and control drones.

Control towers are set to become a way of life and drones light the way. Other technologies will follow. If a train is approaching a curve at 100 miles per hour when it should be going 50 miles per hour, there in the future there will be a way to remotely take over the train and slow it or stop it.



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If a plane is hijacked, if there is a bad guy in the pilot's seat, then in the future, the control tower will take over the plane. Drones lead the way in this regard. Drones provide a way to permit a plane to enter an airspace and to be controlled remotely. It is the drone technology that will be adopted by the trains and planes in the future of control tower expansion.

In this study, we illustrate how drones achieve doing work even though they are remotely controlled. Remote operation of trains is now possible. A speeding train can be stopped by trained staff watching remotely. The rules for this have yet to be fully implemented.

Transportation Trades AFL-CIO Endorses Federal Mandates To Require At Least Two Crew Members On U.S. Freight Trains



Source: Brotherhood of Locomotive Engineers and Trainmen.



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Drone market forecasts indicate strong growth anticipated Markets at \$3.6 billion in 2014 are anticipated to reach \$16.1 billion by 2021. A \$3.6 billion market is substantial indicating the presence of many reference accounts for vendors. The wide variety of models and applications speak to the strong foothold in the market. With many vendors pushing products, the aggregate marketing will contribute to building a huge market for drones.

Commercial drone agricultural markets will grow significantly as the aircraft are able to perform more cost efficiently than other ways of farming, ranching, and orchard tending. Package delivery is evolving as a nascent market for commercial drones.

Military markets for drones with strike capability will grow rapidly. Every segment of drone market applications is poised for strong growth as the designs become more mature and vendors spread throughout the world..

Military drones will be used on ships to replace missiles. Drones will master becoming more elusive and able to fly faster to get out of the way of armies firing at them. Drones will be launched from the decks of ships and controlled remotely to deal with trouble anywhere.

Drones markets promise to grow significantly because of the more economical visualization and navigation provided by systems. Visualization includes mapping from the air, inspection from the air, surveillance from the air, and package delivery from the air. The unmanned aircraft equipped with cameras are able to do things that cannot be done in any other way. This bodes well for market development.

Unmanned aircraft systems promise to achieve a more significant aspect of commercial market presence. Army Unmanned Aircraft Systems flying of 3 million flight hours gives drones market credibility. Eighty eight percent of those hours were logged in combat situations in Iraq and Afghanistan, paving the way for commercial drone markets to develop.



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According to Susan Eustis, leader of the team that prepared the study, “Quantities of fielded military and commercial systems of every size and description are set to increase. Every ship can become an aircraft carrier with drones, every commercial endeavor can be made to operate more efficiently with drones. Police departments, the oil and gas industry, border patrol, and utilities are all using commercial drones. Units are used for agriculture. Vendors continue to improve the capabilities of drone aircraft. Governments continue to improve the rules and regulations controlling drones. Their ability to support the military and commercial endeavors is increasing. Unmanned aircraft have fundamentally changed the accuracy of utility and oil and gas inspections. The drones are set to fundamentally change how agriculture is conducted.”

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Key words: Military drones, Commercial Drones, Drone Unmanned Aerial Systems (UAS), Drone 3D Mapping, Drone Commercial Pipeline Observation, Drone Border Patrol, Drone Package Delivery, Drone Photography, Drone Agriculture, Aerial Refueling, Military Drones, Autonomous trains, Autonomous systems, Drones Autonomous planes, Robotics UAS, Planes, Trains, Remote Control, Drone Surveillance, Drone Reconnaissance, Drone Intelligence, Drone Missiles, Drone Launchers



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