



# Air Land Sea Application Center

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## Unmanned Aerial Vehicles (UAVs) – A Model for Joint Weapons Systems

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Each of the services is currently involved in some aspect of the unmanned aerial vehicle (UAV) program. Some services are more heavily committed to the concept than others, and crossovers exist throughout the program. This multi-Service approach presents a tremendous opportunity for commonality, interoperability, and expansion of joint warfighting tactics, techniques, and procedures that must not be lost. If the services can cooperate in the purchase, staffing, and operation of UAVs, there may be hope for expanding this kind of cooperation into other future joint systems.

### History

UAVs have been used in modern warfare for over 50 years. Allied air forces in WWII loaded older or damaged manned bombers with high explosives and flew them across the English Channel against targets in Nazi Germany. After takeoff and once on course in straight and level flight, the aircrew bailed out over water and the unmanned aircraft, continued on its assigned mission. During the Korean War, the Navy developed the QH-50 drone antisubmarine helicopter (DASH) and also used this system to support naval gunfire. Vietnam saw extensive use of UAVs in the aerial reconnaissance role, with over 3000 missions flown by a modified version of the AQM-34 Firebee aerial target. In 1982 the Israelis successfully deployed UAVs during the invasion of Lebanon. The effectiveness of these relatively inexpensive assets against Syrian ground based anti-aircraft systems got the attention of aviation planners worldwide.

### Joint UAV Project Office

The Navy developed the Pioneer UAV System for operation off U.S. Navy battleships because of the success of the Israeli UAV system and a need for increased accuracy for naval gunfire from battleships stationed in EASTMED. About the same time, the Army was developing a separate land based UAV system designated Aquila. There were numerous problems with the UAV acquisition process, and each of the services developed their own UAV system independently. Then in 1988, Congress mandated that the services consolidate all UAV acquisition programs into a central office. That action established the UAV Joint Project Office (JPO) and directed the coordination of a long range UAV Master Plan. Currently, the JPO has representatives from the Army, Navy, Air Force, and Marine Corps. It is now under the direction of the Program Executive Office (PEO) for Cruise Missiles Project and UAV Joint Project, a Navy flag officer in the NAVAIRSYSCOM organization. The UAV Master Plan which guides the

overall program elements breaks down UAVs into four separate categories based on range characteristics. The four designated categories are close-range, short-range, medium range, and endurance.



An U.S. Navy RQ-2B Pioneer Unmanned Aerial Vehicle, assigned to the VC-6) uses its sensor turret to scan at the Webster Field Annex of Naval Air Station Patuxent River, Maryland. 2005 (Photo by: Mate 2nd Class Daniel J. McLain, USN)

## **Desert Storm**

Operation Desert Storm validated under combat conditions the UAV concept by providing real-time tactical intelligence to the battlefield (land) and battle group (sea) commander. During Desert Storm, Pioneer was operated by six detachments from three services: Army, Navy, and Marine Corps. The single Army detachment came online just before ground combat operations began. The Pioneer system executed 164 Navy, 216 USMC, and 46 Army separate sorties during the war. Missions provided critical intelligence directly to combat commanders, who could not get this type of information from any other source. The highlight of Pioneer's success during Desert Storm was history's first ever surrender of a human soldier to a robot when Iraqi forces surrendered on Faylaka Island. In addition to Pioneer, several other unmanned systems supported gathering of tactical intelligence during Desert Storm.

## **The Way Ahead**

The future for joint UAV systems is unclear. Like all military programs, current UAV programs are under tight budgetary scrutiny. The medium-range UAV, designated BQM-145, is a four-service initiative designed to gather intelligence in the "deep" battlefield arena. Flight testing of the ground or air launched .9 Mach UAV has been conducted with promising results; however, recent budget cuts have put this joint system in serious jeopardy. The short-range UAV is a follow-on to the much used but limited and now aging Pioneer system. Currently, two short-range versions are proposed: one land-based for use by the Army and USMC called HUNTER and one sea-based for use in the maritime environment by the Navy called VTOL. The original concept was that the two short-range versions would have common command and control and support systems/equipment. Again, recent fiscal constraints have also put

the VTOL system at risk, and the HUNTER land-based airframe may not be suitable for maritime operations. Beyond the existing budget constraints, there is still reluctance in some circles to support the unmanned concept.

## **Conclusion**

The potential for a truly joint UAV system is undeniable. The concept is combat proven, cost effective, exploits our technological advantage, and supports the emerging roles and missions of the military. The joint UAV system is the way for all four-services to develop a weapon system that will provide soldiers, sailors, airmen, and marines with critical real-time tactical intelligence. A common UAV system points directly towards interoperability with techniques and procedures that cross service boundaries. Most importantly, a joint approach to UAV systems acquisition and development provides a baseline model for other emerging joint systems.



Crewmen disengage a Pioneer I remotely-piloted vehicle (RPV) from a recovery net erected on the stern of the battleship USS IOWA (BB-61) on 1 Nov 1986 (Photo by: PHC Jeff Hilton, USN)