
**TEST PROGRAM COMPOSITION AND THE
TRANSITION TO MDAP**

Some program participants believe that neither the content of the flight test program (what was done) nor its approach (how it was done) was greatly affected by its acquisition strategy. These participants assert that test program management would have been similar under a traditional acquisition approach. Indeed, evidence suggests that the dominant influence on the pace and structure of the test program was the nature of the system; until the HAE UAV ACTD program, very little experience had been accumulated with large autonomous UAVs. System characteristics determined both the profile in which flight hours were accumulated over time and the types of tests that were conducted (e.g., minimal envelope expansion testing). However, the level of system maturity attained at the conclusion of the ACTD was akin to being partway through an EMD flight test program. This creates uncertainty in structuring the post-ACTD flight test program.

The acquisition approach clearly influenced some key elements of the test program: the increased contractor involvement and the early operational testing in the form of user demonstrations.

For Global Hawk, operational experience was gained at a fraction of the resources and flight hours initially presumed to be required; available assets and cumulative flight hours were sufficient to demonstrate military utility. The inherent flexibility of the system was poorly understood until the D&E phase. The CONOPS evolved as flight experience was gained (a primary purpose of an ACTD). The relative importance of imaging rate versus sensor and air vehicle re-

tasking evolved; retasking turned out to be more important to the user community.

A less obvious result of the acquisition approach stemmed from the program's lack of resources. Cost increases in early development stages, long before flight testing began, led to a reduction in assets during the ACTD. The ACTD process put the total effort on a strict overall schedule, effectively placing it on a fixed budget as well. The result was not only a shortened D&E but also fewer assets available for that D&E. Had early development efforts gone more as planned, more assets would have participated in a longer D&E phase. This would almost certainly have allowed more flight hours to be accumulated, thus establishing the criteria desired by JFCOM. Simultaneous operation of multiple air vehicles would almost certainly have been demonstrated as well. Finally, more assets would have included more sensor suites, and thus the EO/IR sensor that was never characterized would almost certainly have been characterized. Through these results of a notional extended D&E phase, some of ACC's current issues could have been addressed and possibly resolved, thereby facilitating the transition to an MDAP.

Even slightly more resources would have made a significant difference. A traditional approach usually includes more resources in the areas of spare parts and trained personnel. The relatively low budget ACTD program led to a parts shortage; other aircraft were commonly cannibalized for parts. Increased spares and other subsystem assets might have increased flight hours. With the severely limited resources at hand, flight operations could not be sustained on more than one air vehicle at a time owing to a lack of trained maintenance and operations personnel. Shortages of both parts and trained personnel meant that air vehicle 5 could not be flown at EAFB while air vehicle 4 was deployed to Eglin.

The Global Hawk D&E program was not expected to accomplish the full set of operational test and evaluation (OT&E) tests required for an MDAP. However, engineering tests performed during the ACTD should satisfy some DT requirements. OT&E should certainly benefit from the operational experience gained during Global Hawk's D&E flight test program.

Following the pattern established during the ACTD, program documents indicated that a combined DT/OT program will be implemented in follow-on phases. A test and evaluation management plan (TEMP) will be developed and approved. AFOTEC will perform an operational assessment (OA) by leveraging Phase III experience. IOT&E/follow-on operational test and evaluation (FOT&E) to evaluate ORD compliance will be initiated when development warrants.¹

The EMD phase will not start with a new air vehicle that corrects identified “deficiencies.” Instead, the GHSP0 intends to use the ACTD configuration to support the EMD program until the next air vehicles (Block 5) become available. All program participants advocate a continued operational flavor to EMD flight tests. Some have recommended roughly three flights per quarter in one D&E exercise to remain visible in the operational world. Funding for operational demonstration flights during EMD had not been assured.

The configuration evolved throughout the program, as is the norm in the early development stages of a traditional approach. What was different in the HAE UAV ACTD program was that there was no stable system specification to test against and to provide input into requirements generation. In a traditional approach, a firm requirement is translated into a system specification prior to entering EMD. In contrast, one purpose of the HAE UAV ACTD was to improve our understanding of what the requirements and CONOPS should be for an autonomous UAV in an ISR mission role. The ACTD test program was more about understanding the capabilities of the system that was designed than about demonstrating a given level of performance corresponding to a system specification. In a traditional program, these priorities are reversed.

This basic difference between an ACTD test program and a traditional approach is one of the key drivers of the challenges facing program officials as Global Hawk transitions to an MDAP using a more traditional approach. The operational experience gained during the Global Hawk test program represents useful information regarding CONOPS and requirements for a system of this type. The development test experience helped characterize the capabilities of the cur-

¹C4ISP briefing, June 7, 2000.

rent system and identify areas in which improvements are needed. If used judiciously, these two sets of information can vastly improve the efficacy of the post-ACTD (EMD) test program.