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**ARMY PARTICIPATION IN THE DEFENSE
AIRBORNE RECONNAISSANCE PROGRAM**

BY

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ARMY PARTICIPATION IN THE DEFENSE AIRBORNE
RECONNAISSANCE PROGRAM

by

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ABSTRACT

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The Defense Airborne Reconnaissance Office (DARO) was established in 1994 by Congressional direction to unify the development and procurement activities of airborne reconnaissance assets of the services under the Office of the Secretary of Defense. The Army leadership fought the inclusion of Army programs in the Defense Airborne Reconnaissance Program (DARP). The Army fought and successfully kept its manned reconnaissance programs out of DARP. In light of declining budgets and the increased emphasis on joint warfighting, this research paper examines the rationale and ramifications of this decision. The paper specifically looks at the issues of personnel, programs and architectures and makes recommendations for future Army involvement in the DARO.

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Figure 1 - Organizational Chart of the Defense Airborne
Reconnaissance Office

The Defense Airborne Reconnaissance Office (DARO) was established in 1994 by Congressional direction to unify the development and procurement activities of airborne reconnaissance assets of the services under the Office of the Secretary of Defense. In compliance, Deputy Secretary of Defense Perry established the DARO in November 1993. Fiscal Year 1994 (FY94) funding for specific Air Force, Navy and Army reconnaissance program elements was moved from the budgets of the military departments and placed under OSD control. The Hqs of the Air Force and the Navy complied with Congressional and OSD direction, while the Army leadership fought the inclusion of Army programs in the Defense Airborne Reconnaissance Program (DARP). The Army was ultimately successful in keeping the current programs out of DARO control in the FY95 budget and within Army jurisdiction. With declining budgets and the increased emphasis on joint warfighting, is this decision in the best interests of the Army?

This research paper will provide background on the establishment and responsibilities of the DARO and discuss some significant DARO initiatives. The U.S. Army's current and future involvement will be discussed in terms of personnel assigned to support the DARO; Army reconnaissance programs currently in the DARP and those under consideration for incorporation; and the Army's participation in efforts to establish joint architectural standards for U.S. reconnaissance systems. This paper will present arguments for total incorporation of Army manned reconnaissance programs and conclude with recommendations for

future Army involvement in the DARO.

Background: The DARO was established by Deputy Secretary of Defense (Acquisition) William Perry in a 6 November 1994 memorandum¹. The two-star flag officer level organization was established to manage the development and acquisition of all joint Services and Defense-wide airborne reconnaissance activities. This responsibility included manned and unmanned platforms, their sensors, datalinks, data relays, and ground stations, but did not include operational control over service reconnaissance assets. The DARO was placed under the authority, direction, and control of the Deputy Under Secretary of Defense (Advanced Technology).

Manning requirements of the organization were formalized in an April 1995 Memorandum², which assigned the DARO to the Defense Logistics Agency for administrative support to include manpower and personnel. The DARO's total complement of personnel is 26 billets, of which six come from the Army and Navy, eight from the Air Force and six from OSD. The USAF is the Executive Agent of the DARO with Major General Kenneth Israel (USAF) as its Director and Mr. Dwight Williams (OSD/SES) as the Deputy Director. The DARO organization has evolved into five branches headed by members of the various services: Architecture and Integration (COL/USA), Reconnaissance Infrastructure (LTC/USAF), Advanced Development (CMDR/USN), Manned Reconnaissance (COL/USAF) and Unmanned Aerial Vehicles (CAPT/USN).

Methodology: I will analyze the Army's participation in the DARO by looking at three specific areas: personnel, programs, and architecture. Personnel from each service and OSD man the DARO and other joint program offices under auspices of DARO. The number, quality and functions of the people selected by their organization to serve is critical to the joint effort and health of individual programs. Programs concern the degree of control and oversight maintained by the DARO over specific programs within the Army. The degree of control currently exercised by the DARO over specific programs varies from system to system. This degree of control is generally related to budgetary authority. Architecture establishes the framework for eventual integration and interoperability of all intelligence systems within the Department of Defense. Specific service requirements must be considered and melded into common hardware and software to ensure interoperability and save diminishing resources.

Personnel. According to the DARO's Manning and Organization Plan (at Figure 1), the Army is authorized to fill six slots within the DARO. Those grades and positions are as follows:

<u>Grade</u>	<u>Position Description</u>
O6	Director, Reconnaissance Infrastructure
O5	Action Officer, Architecture and Integration
O5	Action Officer, Unmanned Aerial Reconnaissance
O4	Action Officer, Manned Aerial Reconnaissance
O4	Action Officer, Advanced Technology
Civ	Security Officer

In the Army's Standup Package to support personnel requirements of the DARO, they agreed to provide only three of the six authorizations. One authorization, grade O4, was provided by the Asst Sec of the Army (Research , Development and Acquisition) for FY95 only; two other authorizations were identified for transfer from the US Army Element supporting Air Force Activities. These two authorizations were to support the Unmanned Aerial Reconnaissance and Advanced Technology positions. The Army declined to commit additional manpower into the DARO because of declining force structure³.

The DARO continues to request transfer of the additional four slots from the Army, but has been unsuccessful to affect that transition. The Army has not transferred the additional four positions to the DARO, but has identified four positions within the Army structure to support the OSD effort. The four positions, two positions in the Intelligence and Security Command (INSCOM) and two positions in the Training and Doctrine Command (TRADOC), currently remain on their respective TDA manning documents. INSCOM and TRADOC view these positions as noncritical to the functioning of their respective organizations and have elected not to fill them. In fact the Army has given up support for all six positions on the current Officer Distribution Plan (ODP)⁴.

The Army's Deputy Chief of Staff for Intelligence (DCSINT), LTG Menoher, understands the need for Army representation in the DARO and elected to fill the Colonel's Position (Director,

Reconnaissance Infrastructure) out of hide from the DCSINT staff⁵. The other key players on the Army staff, the Deputy Chief of Staff for Operations (DCSOPS) and the Secretary of the Army for Research, Development and Acquisition (ASA(RDA)) are less enthusiastic about transferring and filling the positions, because they are not convinced there is an added benefit to the Army.

The Army's decision not to fill all six slots in the DARO is shortsighted and counterproductive to the continued health of Army programs. Without active participation in the DARO by qualified Army personnel, the Army's views and desires go virtually unheard. In the view of numerous Army staff officers the DARO appears to be an extension of the Air Staff, because the U.S. Air Force is the executive agent and most key positions (including the director) are held by Air Force personnel. In fact, only one of the eight senior positions in the DARO is allocated to the Army and the responsibilities of that position (Reconnaissance Infrastructure) are out of the mainstream Army concerns. Another point could be made that while the Army has been allocated six positions within the DARO, the potential contribution of these positions to the Army effort has been marginalized. Quite frankly, these positions are not important to achievement of Army objectives. Even so, the Army leadership must make the decision to fill these positions to ensure that Army interests and desires on other key issues are made known and documented. To put it succinctly, Congress mandated the

establishment of the DARO; the DARO is the future of all DOD Intelligence, Surveillance and Reconnaissance programs; and the Army must support the DARO as an investment in the future.

Programs. The FY94 Congressional language that directed the establishment of the DARO specifically called for the inclusion of Army DeHavilland DHC-7, Beechcraft RC-12 and UAVs (Unmanned Aerial Vehicles) platforms. To emphasize this point, FY94 procurement funds for the RC-12 GUARDRAIL and DHC-7 Airborne Reconnaissance Low and UAV programs were moved from the Army to OSD budget. The Army leadership appealed to OSD and Congress to return the manned reconnaissance funding to the Army control. While the Army was unsuccessful in retaining control in FY94, funds for the RC-12 GUARDRAIL and DHC-7 Airborne Reconnaissance Low programs were returned to the Army's budget authority in FY95. In fact, the DARO was willing to allow these programs to remain under Army control because the DARO considered these programs to be underfunded⁶. Incorporation of these programs into the DARP would have required additional funds (taken from other DARP programs) to complete fielding of the objective systems. Funding for all UAV programs remained in the DARP.

GUARDRAIL Common Sensor (GR/CS). The RC-12 GUARDRAIL Common Sensor is the Army's premier manned airborne reconnaissance program. The program is an outgrowth of the older, highly successful Guardrail V and Improved GUARDRAIL programs. Each GUARDRAIL system utilizes the same operational

concept - two or three aircraft flown within line of sight of a Integrated Processing Facility. Microwave data links between the aircraft and the processing facility enable operators on the ground to control the numerous intercept and direction finding receivers on board the RC-12 aircraft. Each unit is equipped with sufficient aircraft to operate for 20 hours per day for 30 days.

The most current program, GUARDRAIL Common Sensor is a leap in technology and capabilities over previous programs. GR/CS combines advanced Communications Intelligence (COMINT) intercept and direction finding capabilities with Electronic Intelligence (ELINT) intercept and direction finding onto a single platform. The first fully functional GR/CS system was fielded to the V Corps in 1991 and provides precision targeting information to supported commanders. The second GR/CS system, which also included a remote relay capability, was fielded to the XVIII Corps in 1994. This remote relay capability allows the aircraft and remote relay equipment to be deployed anywhere in the world while the Integrated Processing Facility remains in the United States and out of harms way.

The final GR/CS system to be fielded in FY98 will possess capabilities far beyond previous systems. In 1992, the Program Executive Officer for Intelligence and Electronic Warfare (PEO-IEW) approved a restructure of the GR/CS program to take advantage of technology that was being developed under a classified program for the USAF's next generation, manned

reconnaissance systems. This technology sharing was possible because ESL Incorporated (A subsidiary of TRW) was the prime contract for the development of both systems. The symbiotic relationship of the programs and their demonstrated commonality in hardware and software was the model of cooperation within OSD.

The creation of the DARO in 1994 and the decreasing defense budget, however, brought the classified USAF program under intense scrutiny. Before OSD agreed to spend over one billion dollars on the program, they required the USAF program office to conduct a Cost and Operational Effectiveness Evaluation (COEA). Although the USAF used the GR/CS system as rationale for continuing the program as structured, the results of the classified COEA were too inconclusive to justify continuation of the Air Force program. On 3 November 1994, the Deputy Secretary of Defense approved a complete restructuring of the program⁷.

Airborne Reconnaissance Low (ARL). The DHC-7 Airborne Reconnaissance Low (ARL) Program was created in response to the USCINCSOUTH's urgent requirements for airborne radio direction finding and electro-optic capabilities in low intensity operations. ARL is rapidly deployable, day/night, all weather platform, with a Short Take Off and Landing (STOL) capability and capability to stay aloft for ten hours. The aircraft maintains a low profile in the host country by utilizing a commercial airframe and paint scheme, and sensors which retract into the airframe when not in use.

The ARL program was initially funded as an OSD counterdrug program in FY91, but funding was moved to the Army budget in FY93. The original procurement obtained and modified two used DeHavilland Dash 7 aircraft to conduct radio intercept and direction finding concentrated in the HF/VHF/UHF frequency ranges. A separate contract procured and modified another DHC-7 aircraft with electro-optic and infrared sensing equipment. These aircraft were fielded to SOUTHCOM in 1993. In addition to supporting SOUTHCOM, the ARL-I (imagery) aircraft received laudatory comments for its valuable intelligence support to the Haitian operation, where it obtained a 98 percent availability rate for 210 days of operation^s. In the aftermath of the destruction caused by Hurricane Marilyn in September 1995, the Federal Emergency Management Agency (FEMA) received ARL support for disaster assessment and relief within 24 hours of their request. FEMA personnel were on bound the ARL and conducted dynamic retasking over the Virgin Islands and Puerto Rico. Congress appropriated funds to procure three additional multi-purpose DHC-7 aircraft. These multi-purpose ARL aircraft will possess equipment to conduct both the COMINT and IMINT (imagery intelligence) missions.

Airborne Common Sensor (ACS). The Army's next generation reconnaissance system is called Airborne Common Sensor. The concept for ACS evolves from the requirement to conduct multiple intelligence operations (SIGINT, IMINT and MASINT (Measurements Intelligence)) from an aircraft which can be self deployed, world

wide, loiter for extended periods and provide near-real-time intelligence to supported commanders. Airborne Common Sensor will maximize the best features of the Guardrail Common Sensor and Airborne Reconnaissance Low programs with common data links at all levels. The draft Operational Requirements Document (ORD) for ACS also requires the aircraft be capable of controlling sensor payloads of UAVs within data link range. Funding for ACS is currently in the Extended Planning Annex of the Army Program Objective Memorandum. According to representatives from HQDA, Research and Development funds are programmed to start in FY02 and the Procurement funding commences in FY05. Those same officers feel that the Airborne Common Sensor program will be incorporated into the DARP. That recommendation is sound because ACS will incorporate hardware and software developed under the auspices of the Joint Airborne SIGINT Program Office (to be amplified under Architecture). Prior to formal initiation of ACS, however, the Army must take every opportunity to convince the DARO that an Advanced Concept Technology Demonstration (ACTD) is in the best interests of the Army and DOD airborne reconnaissance. The integration of GUARDRAIL processing technology with ARL sensor suites and multi-functional operations on an DHC-7 aircraft could provide the transition from current systems into the future. Again, Army personnel within the DARO are essential to championing the idea of an ACTD within OSD.

Unmanned Aerial Vehicles (UAV). Unmanned Aerial Vehicles provide a impressive cost benefit capability in a time

of declining resources. The DARP has two UAV programs which are designed to satisfy the operational requirements for a mix of close range, short range and endurance capabilities by the JROC. The first program is the Joint Tactical UAV Program, which includes the Hunter UAV and the Maneuver UAV; also support for the deployed Pioneer UAV. DARO's second program, the Endurance UAV Program, consists of the two Advanced Concept Technology Demonstrations: the "Predator" Medium Altitude Endurance UAV (Tier II) and the High Altitude Endurance UAV program.

The Army's participation is essentially limited to the Hunter UAV program which is designed to support division/corps and naval operations reconnaissance, surveillance, targeting and battle damage assessment in the Deep Battle. The first Hunter low-rate initial production (LRIP) system was accepted in April 1995 at Ft Huachuca, AZ. The Hunter completed over 5000 flight hours by December 1995. During FY96, a total of seven LRIP systems (56 aircraft) were to be delivered. Dr. Kaminski, the Undersecretary of Defense for Acquisition and Technology (USA(A&T)) approved a restructured Hunter program in July 1995 and established a go/no-go Milestone Review for LRIP II to be conducted in December 1995.

In an October 1995 memorandum to Mr. Kaminski, the JROC strongly recommended the termination of the Hunter program in light of the potential contributions by other UAVs, especially the Close Range and Medium Altitude Endurance Predator⁹. The memorandum also recommended that savings realized from this

approach (\$984.7 million in FY97-01) be reprogrammed from the DARP to the Services for other warfighting priorities. This recommendation to terminate the Hunter program came as a surprise to many. Three airplane crashes occurred late in the program. According to TRW representatives, two of three aircraft crashes were traced to a mechanical design flaw concerning the servos and the third was attributed to operator error. Although the mechanical problem was corrected, the perception of Hunter UAV unreliability could not be shaken.

The Milestone Review was conducted in December 1995 and resulted in the termination of the Hunter UAV program. In a classified 27 December 1995 Decision Memorandum for the Deputy Secretary of Defense and the Director of Central Intelligence, subject: Intelligence Program Review Decision, the USA(A&T) announced the redistribution of the \$984.7 million from the Hunter program. Since the Army was the proponent for Hunter, the Army assumed that funds would be returned to the Army to fix critical modernization shortfalls. In the redistribution, however, the Army received only \$100 million (FY97-01) for sustainment of one Hunter system and \$15 million for installation of communications equipment into Guardrail Common Sensor in FY97. In the formal Joint Tactical UAV Hunter Program Decision Memorandum, dated 31 January 1996, Mr. Kaminski terminated the Hunter UAV program, provided one system and logistics support to the Army for operations concept refinement and continuation training until the Tactical and Predator UAV programs provide

assets. The Army's concern is the two year gap which has been created between now and the fielding of Predator UAV to the Army. The Army spent the last year training over 100 operators and maintainers on the Hunter UAV. The fragile skills of those soldiers will be lost and their careers will be put on hold for two years.

The Medium Altitude UAV Predator program is currently in a 30 month ACTD phase to be completed in July 1996. The system is designed to provide long-range (500 nm), long-dwell (40 hours), near-real-time IMINT to satisfy reconnaissance, surveillance and target acquisition mission requirements of Joint Task Force and theater commanders. The Predator has logged over 1400 flight hours and is currently operating over Bosnia. Although two aircraft were lost in August 1995, the system has demonstrated military utility¹⁰. Another concern is the mismatch of Predator performance and Army requirements. While the additional loiter time (40 vice 12 hours) and extra sensor (synthetic aperture radar vice electro-optic and infrared only) are nice, my analysis indicates the Predator requires 2500 feet of runway to operate, while the Hunter requires 660 feet¹¹. This requirement will limit the available bases of operation within a division area. Another discriminating factor is that Hunter can be operated via remote control or by preprogramming a mission. Predator operates only through preprogramming. This truly limits the responsiveness of the Predator to the changing requirements in the fluidity of battle.

Architecture. The DARO set a blistering pace during its first year of existence by publishing a series of documents aimed at developing a DOD-wide airborne architecture structure. The DARO's goal is "extended reconnaissance" - the ability to supply responsive and sustained intelligence data from anywhere within enemy territory, day or night, regardless of weather, as the needs of the warfighter dictate. The DARO's vision is an Objective Architecture, which is defined as an evolving blueprint for an interoperable system comprising a complementary manned-unmanned force mix to answer tomorrow's warfighting needs¹². The three key factors in achieving their goal are enabling technologies, affordable systems and a road map to get there. Also inherent to achieving that goal is the need for systems to operate within a total force infrastructure and deliver their products in a common usable form to the warfighter in a timely manner. The strategic orientation of the DARO is reflected in their concern for the continuing health and responsiveness of the US industrial base in the face of changing economic conditions and military markets. Cost is an ever important consideration as the DARO attempts to leverage current technologies and programmed improvements with new acquisition strategies and technologies that use commercial/government off-the-shelf components and adhere to common standards.

The DARO's first attempt to provide standardization and a vision for the future resulted in the Unmanned Aerial Vehicle Program Plan, which was published in February 1994. It was

followed by the Integrated Airborne Reconnaissance Strategy, published in April 1994, which is a top-level description of the functions, system elements, and interfaces that comprise the future architecture for extended reconnaissance. The third document, the Manned Airborne Reconnaissance Program Plan (MARPP), published in September 1994, provided the DOD-wide airborne reconnaissance and intelligence communities a master plan of manned airborne reconnaissance platforms, sensors, data links, and their associated ground stations.

The DARO established the Joint Airborne SIGINT Architecture (JASA) as a blueprint for all future SIGINT collection systems¹³. One of the drivers behind JASA is the growing population of varied signals that incorporate new modulations schemes and signal multiplexing structures. JASA is meant to provide a common architecture that leads to seamless interoperability of all SIGINT collectors¹⁴.

The Defense Airborne Reconnaissance Steering Committee (DARSC) directed that JASA concentrate initially on the highband and lowband subsystem prototypes for development. The lead integration platform, a Navy EP-3E, will provide early testing of JASA components in development and operational environments. A different lead integration aircraft will probably be selected for follow-on module developments. The Army's original candidate for the lead integration program was ARL. This option was pushed by PEO-IEW, even though the latest GR/CS system uses hardware and software more compliant with the new JASA architecture. Again,

this is the case of poor Army communication within the DARO and the Army's misunderstanding of the DARO's intentions.

Army Participation. If the DARO was established by Congress to unify the development and procurement activities of airborne reconnaissance assets of the services and is appropriately chartered to perform that task, then why is the Army not fully supportive of the DARO's efforts? Why doesn't the Army allow GUARDRAIL Common Sensor and Airborne Reconnaissance Low to compete against the manned reconnaissance programs of the Air Force and Navy by placing the programs under DARO control? What are the Army leadership's reasons for not becoming more involved?

Maintaining the Status Quo. The first reason the Army does not release control of the GR/CS and ARL to the DARO is the right of ownership. GR/CS and ARL are Army systems and should be controlled by the Army. GR/CS was specifically developed and fielded in response to Army requirements to provide SIGINT information of targeting quality on ground targets in the Corps Area of Interest. Although the system also supports the Joint Force Land Component Commander during contingency operations, and certainly has potential to support operations of the Air, Maritime, and Special Operations Component Commanders, the other services were not consulted in the development process. If the GR/CS was transferred to DARO control, the Army would lose flexibility to modify the last GR/CS system currently being

built. Program modifications can be necessitated by changes in requirements; these modifications could also be necessitated by the addition or removal of funds from the program. With the budget authority for GR/CS procurement under Army control, the Army leadership is able to move procurement funds into and out of budget lines without DARO approval. Some coordination with OSD is required, however, because the procurement funding falls under the Tactical Intelligence and Related Activities (TIARA) program¹⁵. The GR/CS program also receives Research and Development (R&D) funds from the Defense Cryptologic Program (DCP). These funds are programmed and distributed by the National Security Agency to support the development of SIGINT applications on tactical intelligence systems. Reallocation of GR/CS R&D funds from the DCP program is possible within programs of the Army's Signals Warfare Project Office.¹⁶ These R&D funds are not under the purview of the DARO.

Airborne Reconnaissance Low (ARL) receives funds to manage the program from R&D, Procurement, and Operations and Maintenance (O&M) budget programs. R&D funds are used to develop systems for integration on the DeHavilland DHC-7 aircraft; procurement funds are used to procure two aircraft and intelligence systems; and O&M funds are used to operate and maintain the systems. The DARO deals exclusively with R&D and Procurement accounts and not with O&M. If the DARO accepts total budgetary control of the ARL program, additional personnel are required to achieve proper accountability.

Another reason for the Army's reluctance to place GR/CS and ARL under DARO control is that both programs are technically in the production phase of their life cycle. If both programs were still under development, then the DARO could exercise greater influence over requirements and systems design. With production contracts well underway and considerable dollars already sunk into both programs, the DARO can realistically have little impact on current designs without substantial cost penalties.

Another reason the Army is reluctant to become more involved is because they are uneasy with where DARO will draw the line on systems. The DARO exerts a direct influence over the development of programs in the DARP. While there is no question about the need to place UAVs under DARO control, there is some question about GR/CS and ARL, because they are late in the procurement cycle. There are more questions about programs like the Army's Joint Surveillance Target Attack Radar System (Joint STARS) Ground Station Module, which receives the downlink from the Joint STARS aircraft, UAVs and other intelligence collectors. Another program in question is the Commanders Tactical Terminal (CTT), which provides the downlink for GR/CS information and other intelligence collectors. Because Joint STARS GSM and CTT provide the primary link between airborne intelligence collectors and intelligence users, will the DARO feel they should be incorporated into the DARP? Where will the line ultimately be drawn on programs? As long as airborne reconnaissance-related programs comply with the established standards and fit in the

framework of the DARO architecture, they should be left under control of the services and not be forced into the DARP.

The acquisition decision authority for both GR/CS and ARL programs lies with the PEO-IEW¹⁷. With authority held at a level below DA, program adjustments and restructuring can occur with relative ease and quickness. Should these programs fall under DARO control, the acquisition decision authority would most likely be moved to the DARO. While this venue would probably place greater emphasis on interoperability issues within DOD, the interoperability with other Army systems at lower echelons would probably be downplayed. For example, during a program review of GR/CS the DARO would probably be more concerned with cost savings associated with the use of common US Air Force hardware and software; while the PEO-IEW would more likely focus on satisfaction of Army specific requirements. Movement of the acquisition decision authority from PEO-IEW level (Army Brigadier General) to the DARO level (Air Force Major General with a joint staff) would also increase the complexity of the program reviews and the amount of time required to obtain a decision.

Reasons for Greater Involvement. Why should the Army programs be fully integrated into DARO? There are good reasons for the Army to consider full or partial involvement in the DARO. In times of decreasing resources, jointness is essential for the survival of programs. Service peculiar programs without application to fulfillment of joint warfighting requirements will not be supported by the Joint Warfighting Capabilities Assessment

(JWCA) process. The Army programs mentioned in this program all support the joint warfighter. Their capabilities and products have application and use across all services. In this regard, GR/CS and ARL should be included in the DARP and under DARO control.

Manned Army reconnaissance programs have a proud history of dedicated support to the warfighter. Both GR/CS and ARL programs are relatively inexpensive to develop, field and operate in comparison to US Air Force RC-135, U-2R and SR-71 systems¹⁸. The capabilities of the Army systems are as good as and in some cases better than Air Force systems of the same type. For instance, while both the U-2R and GR/CS have comparable sensitivity on their COMINT and ELINT systems, GR/CS operates three aircraft simultaneously and can provide far, far greater accuracy on target locations.

Both programs are effectively and efficiently managed within the PEO-IEW and enjoy good reputations within OSD. Programmatically, GR/CS and ARL doing things smart. GR/CS has moved to a single contractor for all subsystems integration in the latest system. In previous systems the government had to overcome significant challenges while serving as the systems integrator for various subsystems. With a single contractor charged with subsystems integration from the initial contract award, control interface issues are worked by contractors without the government interference.

The ARL program has also taken an efficient approach to

systems integration by putting a single contractor in charge of the total development and integration effort, to include awarding subcontracts for used aircraft procurement and modification. Technical risk on the ARL program has also been reduced through the use of surrogate platforms and systems integration laboratories where a "fly-before-you-buy" approach is used for major component and associated software/firmware. Some of these management techniques and procedures could be effectively employed by other services or used by DARO as a measurement for the programs of other services. The bottom line is that the Army programs can compete well against Air Force and Navy manned reconnaissance programs on equal terms.

Incorporation of Army programs into the DARP will give the Army credibility and influence in dealing with other services. This same opportunity does not currently exist. The Army is viewed as an outsider by the other services. They see the Army as an organization which is unwilling to pay the admission to join the club, but still wants all the privileges of membership.

Incorporation of Army programs into the DARP could actually put pressure on other services to conform to the Army way of doing things. As an equal partner, the Army should enjoy the latitude to express ideas in a more open forum. Since the Army's thoughts and manners are culturally different from the other services, the opportunity exists to sway thinking.

Joint warfighting has been codified through publication of doctrine. The satisfaction of future joint warfighting

requirements will be increasingly accomplished through joint programs - at least the use of common hardware, software and/or standards. The Army is in a much better position to understand and influence those joint requirements by active participation in the process. Critical decisions on requirements, standards and architectures of future reconnaissance programs can be maximized by active involvement in the DARO. Participation in joint programs like JASA and continued emphasis on jointness will force better interoperability with other services. The former (now retired) PEO-IEW's vision of interoperability focused on commonality of hardware and software between systems designed for corps-level and those systems designed for use at echelons division and below. OSD and DARO's vision of interoperability describes the use of common hardware/software between systems of different services, like the use of identical data links to control both the Army's GR/CS aircraft and the US Air Force's U-2R aircraft or the use of identical radios in all services to receive the downlinked intelligence from various sources. Until the Army realizes that OSD's primary concern is interoperability among services, not within the Army, funding for some programs could be in jeopardy.

The final reason that Army programs should be incorporated into the DARP is that this option is the most cost effective for the OSD and the country. Cost savings can be realized when all reconnaissance programs are placed under consolidated management. These savings can be realized in the number of personnel required

to manage the programs, implementation of standards, and use of common hardware and software. With the DARO providing overview of all reconnaissance programs, redundancies and mismanagement can be exposed and corrected quickly and effectively.

Conclusions: From discussions in the areas of personnel, programs and architecture, the following conclusions can be made regarding Army involvement in the DARO:

1. The Army leadership wants to minimize involvement in the DARO because they want to exercise the right of ownership over Army programs; they want to maintain program flexibility; the funding arrangement for some programs is peculiar; because the GR/CS and ARL programs are in production and have significant sunk costs, the DARO could have little actual impact on the programs; and the Army is fearful of where the line may be drawn for programs to be included in the DARP.

2. The Army leadership should increase involvement in the DARO because the requirements of the joint warfighter take precedence over Army requirements; Army manned reconnaissance systems are as good and less expensive than their Air Force counterparts; the Army programs are well managed and could compete effectively for additional funds within the DARP; the Army would obtain greater credibility and influence with other services; we may be able to exert pressure on the other services to conform to the Army way of doing things; interoperability and commonality among services would receive greater importance; and

this is the most cost effective approach from a DOD perspective.

Recommendations: To ensure the Army's future intelligence interests are properly served the Army must take a more active role in the DARO. The DARO was created by Congressional direction and is chartered by OSD to manage the development and acquisition of all airborne activities within DOD. Even though the DARO reflects the culture and interests of Air Force reconnaissance, the Army must attempt to work actions from inside the organization and not as an outsider. Possible short term hardships must be endured for the long term gain and health of Army reconnaissance programs. The following actions should be taken immediately by the Army leadership:

1. Make a conscious decision to provide ODP support for all six positions the DARO and fill them with high quality people. To ensure these positions obtain the requisite visibility a separate Unit Identification Code (UIC) should be established within the Army.

2. Move the FY97 and beyond procurement funding (APA) for GR/CS and ARL into the DARP. Even though both programs are in the later phases of production, it demonstrates the willingness of the Army to become an equal member of the DARO team. In reality the DARO will probably do little to modify the current programs. The operations and maintenance (OMA) funds of the ARL program should be left under Army control, because the DARO is not manned for that funding element.

3. Move research and development (R&D) funding and procurement (APA) funding for Airborne Common Sensor into the DARP as soon as appropriated (FY02). In the interim, the Army should work within the DARO to fund an Advanced Concept Technology Demonstration to demonstrate the use of JASA compliant hardware/software in a multi-functional approach on commercial aircraft.

Figure 1.

**DEFENSE AIRBORNE RECONNAISSANCE OFFICE
ORGANIZATION AND MANNING**

DUSD(AT)

D/DARO

Director (0-8) - OSD
Deputy Dir (Civ) - ASD(C3I)
Staff Dir (0-6) - USMC
Exec Ofcr (0-4) - USAF
Admin Mgr (Civ) - OSD
Admin Asst (Civ) - USAF

**Support & Business
Operations**

Bus/Fin Mgr (Civ) - OSD
Prgm/Budget (Civ) - OSD
Security (Civ) - USA
Admin Clerk (Civ) - USN
Admin Asst (E-4/5)- USN

**Architecture &
Integration**

Dir (Civ) - OSD
AO (0-5) - USA
AO (0-5) - USAF

**Reconnaissance
Infrastructure**

Dir (0-6) - USA
AO (0-5) - USAF
AO (0-5) - USAF

**Manned Aerial
Reconnaissance**

Dir (Civ) - USAF
AO (0-5) - USN
AO (0-4) - USA

**Unmanned Aerial
Vehicles**

Dir (Civ) - USN
AO (0-5) - USA
AO (0-4) - USAF

**Advanced Tech
Development**

Dir (Civ) - OSD
AO (0-5) - USN
AO (0-4) - USA

AO - Action Officer

ENDNOTES

1. Deputy Secretary of Defense William J. Perry, "Establishment of the Defense Airborne Reconnaissance Office (DARO)", memorandum for Secretaries of the Military Departments, Washington, 6 November 1993.
2. Deputy Secretary of Defense John Deutch, "Establishment of the Defense Airborne Reconnaissance Office (DARO)", memorandum for Secretaries of the Military Departments, Washington, 5 April 1995.
3. Assistant Secretary of the Army for Manpower and Reserve Affairs, Chief of Manpower, Policy, Plans and Management William H. Kempster, "DARO Standup Package", memorandum for Assistant Secretary of the Army (Research, Development and Acquisition) ATTN: SARD-SA, Washington, 16 November 1994.
4. The Officer Distribution Plan (ODP) is used by the Army military personnel managers to delineate specific positions within the Army which have priority fill over less critical positions.
5. COL Glazer was assigned to the DARO from HQDA DCSINT, but retired from active duty in January 1996. GM-15 Kip Burgeone was assigned temporarily to the DARO from DCSINT pending the arrival of a permanent replacement (TBD).
6. During FY94, the HQDA DCSOPS did remove \$163 million from the GR/CS program for the FY95-FY99 time frame. Congress created the requirement for nine ARL aircraft, but funded only six until completion of operational testing.
7. On 1 June 1994, the DUSD(A&T) stated that the USAF's "Senior Smart" electronic surveillance program should focus on a joint common architecture for multiple airborne platforms. The restructuring of the "Senior Smart" program led the way to the creation of a Joint Airborne SIGINT Architecture (JASA).
8. LTC Stan Niemiec, "Airborne Reconnaissance Low (ARL)", Army Aviation, 30 November 1995, pp. 27-30.
9. The Joint Chiefs of Staff Joint Requirements Oversight Council, "Short Range Unmanned Aerial Vehicle", memorandum for the Chiefs of the Military Services, Washington, 13 October 1995.
10. Defense Airborne Reconnaissance Office, "1995 Unmanned Aerial Vehicle Annual Report", August 1995, p. 21.

11. Ibid., p 27.

12. Ibid., p. i.

13. The Joint Airborne SIGINT Architecture (JASA) Functional Description and Technical Reference Model documents were published in June 1995. The JASA Memorandum of Agreement was signed by the DARO, DIA and the services acquisition executives in September 1995. This MOA also established the Joint Airborne SIGINT Program Office (JASPO) at Wright Patterson AFB, OH.

14. Joint Airborne SIGINT Program Office, JASA Technical Description, Wright-Patterson AFB, OH, 14 June 1995, p. i.

15. The TIARA program was created by OSD to provide oversight of all tactical intelligence programs. Authorization to move funding into or out of a TIARA program rests with the Intelligence Support Group of the Command, Control, Communications, and Intelligence (C3I) Directorate of OSD.

16. Defense Cryptologic Program (DCP) funds for GR/CS are allocated by NSA to the Project Manager for Signals Warfare (PM SW), who also funds R&D efforts for other intelligence systems from the appropriation. These funds can be transferred among programs which are under the purview of PM SW.

17. Even though GR/CS is designated an ACAT II level program, the decision authority has been officially delegated by HQDA to the PEO-IEW.

18. According to PEO-IEW, the approximate hourly operating cost for an RC-12 is \$1200; an DHC-7 is \$1700; an RC-135 is \$8500; an U-2R is \$10,000; and the SR-71 is \$80,000.

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