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INSTITUTE FOR DEFENSE ANALYSES

Contracting Out Undergraduate Pilot Training

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PREFACE

The Institute for Defense Analyses (IDA) prepared this document for the Office of the Director, Strategic and Tactical Systems, under a task titled "Analysis of Contracting for Undergraduate Pilot Training." The task objective was to report on whether contracting out Navy initial pilot training would reduce training costs without adversely affecting training quality. This document is an annotated version of a briefing of IDA's findings based on a review of existing analyses.

Bruce N. Angier, Daniel L. Cuda, and Waynard C. Devers of IDA were the technical reviewers for this document.

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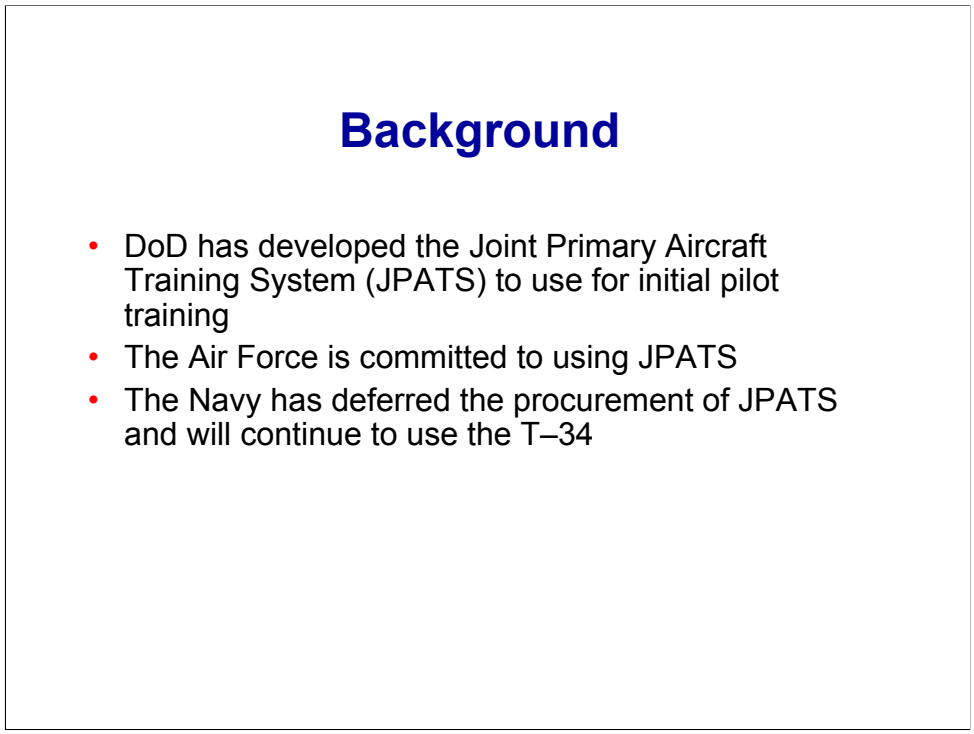


The Department of Defense has developed the JPATS as a modern aircraft for use in initial pilot training. The Air Force is committed to using JPATS. The Navy currently intends to delay procurement of JPATS, while continuing to use the T–34.

Because of the Navy's decision to continue using the T–34 to train its undergraduate pilots and a recent history of reduced Defense spending, the time appears right to determine the most cost-effective way of meeting the Navy's long-term needs for initial pilot training. Although there are a number of ways to meet these needs, contracting out training deserves serious consideration.

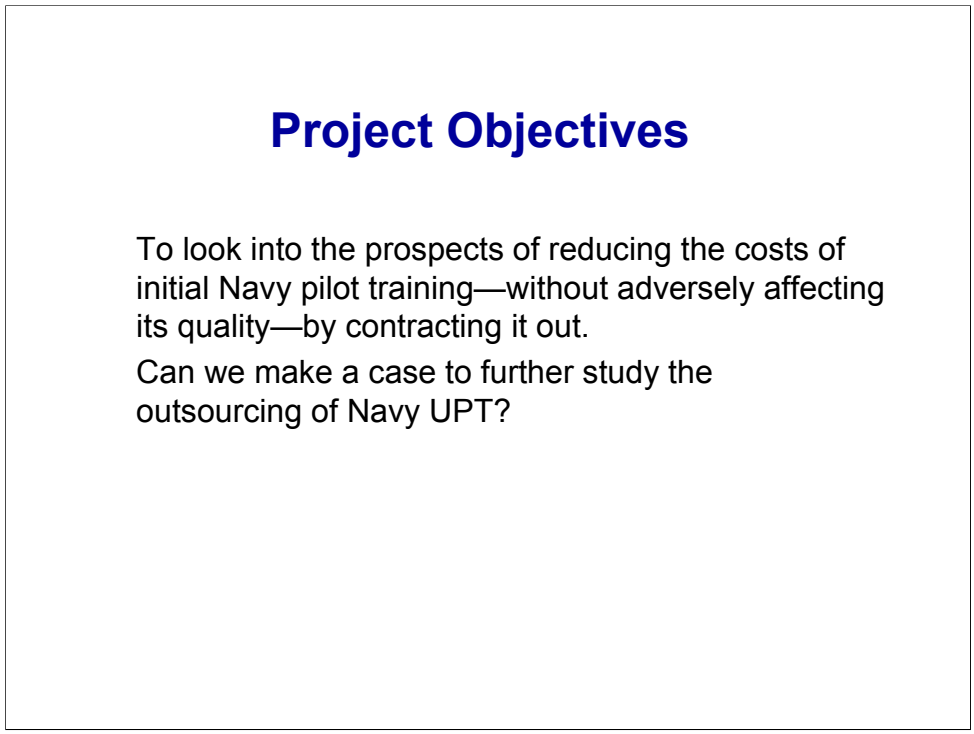
Initial Tasking

- Tasking originated at the February 22, 2001 Defense Acquisition Executive Summary (DAES) Meeting
- For JPATS:

  "S&TS, working with Comptroller, will provide an issue paper that addresses the pros and cons of, and any previous lessons learned regarding, procuring a service vice procuring the capability for conducting training in-house, to USD(AT&L) by April 30, 2001."

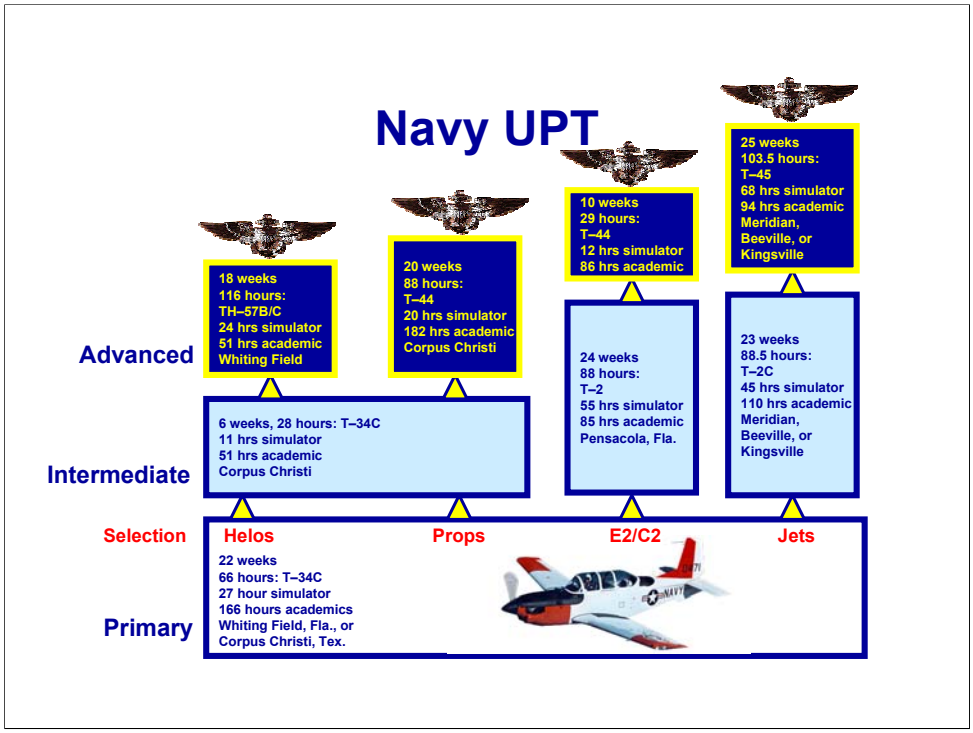
As a result, the Institute for Defense Analyses (IDA) was tasked by the Office of the Under Secretary of Defense (Acquisition, Technology, and Logistics) to look into the feasibility of contracting out Navy undergraduate pilot training (UPT).

IDA was asked to analyze whether contracting out initial Navy pilot training could save money without adversely affecting its quality. The project was initiated in mid-March 2001, and it was scheduled for completion by 30 April 2001.



We reviewed the literature regarding previously performed DoD contracting-out activities. Emphasis was placed on aviation-related activities and pilot training in particular. Based on its review of the literature, we attempted to determine the feasibility of contracting out initial Navy pilot training, to assess the availability of information necessary to conduct an effective cost-benefit analysis, and to identify any other criteria that needed to be considered before a decision could be made to contract out UPT.

Because of the complex nature of this project and the short amount of time allocated for its completion, we met with the project sponsor to narrow its scope. We agreed that the object of the project was to determine if we could make a case for outsourcing Navy primary UPT. (The definition of primary UPT and its relationship to UPT in general are discussed in charts that follow.)



Navy UPT takes place in three stages: primary, intermediate, and advanced. At primary flight training, Student Naval Aviators (SNA) learn the basics of flight training. For Navy and Marine students, the Navy offers training at the Naval Air Station Whiting Field in Milton, Florida; training at the Naval Air Station Corpus Christi in Corpus Christi, Texas; or Joint Training with the Air Force at Vance Air Force Base in Oklahoma. Both Naval Air Stations use the T–34C Mentor to train; Vance Air Force Base uses the T–37B to train for Primary.

Primary Flight Training lasts 22 weeks. It includes 166 hours of academics, 27 hours of simulator training, and 66 flying hours. During this phase of UPT, the SNA learns visual flight, basic instrument flying, introduction to aerobatics, radio instrument navigation, and formation flying and has several solo flights. All flight students go through the same curriculum at Primary, but at the end of it, the SNA are selected for a specific pipeline: Jet, E2/C2, Maritime Prop, Helicopter, or E–6 TACAMO (not shown on the chart).

Based on the specific career path, Intermediate Flight Training varies in length and in the number of academic, simulator, and flying hours. During this phase of UPT, the SNA learn more about navigation and air traffic control by flying to other training bases. Intermediate training for single-seat training, such as the jet platforms, focuses on individual skills. Training for multiseat platforms, such as maritime props, helicopters, and E2/C2, focuses on crew training.

Based on the career path pursued by the SNA, Advanced Training also varies in length and in the number of academic, simulator, and flying hours. This is the final stage of training before the SNA earn their wings. During this phase of UPT, the SNA learn skills specific to the chosen platform such as air-to-air combat, bombing, search and rescue, aircraft carrier qualifications, over-water navigation, and low-level flying.

Study Focus

22 weeks
66 hours: T–34C
27 hour simulator
166 hours academics
Whiting Field, Fla., or
Corpus Christi, Tex.

Primary UPT

Because of the military-specific skills taught during the Intermediate and Advanced Phases of UPT, they are not included in the scope of this study. This study only addresses the feasibility of contracting out the Primary Phase of UPT. Note, however, that the contracted-out portion would not include the entire syllabus of the Primary UPT; some military-specific elements cannot be taught by the private sector. These differences are summarized in background charts.

Briefing Outline

- Examples of DoD outsourcing of military flight training
- Approach to collecting private-sector data
- Private-sector capability to train Navy pilots for Primary UPT
- Private-sector training capacity
- Preliminary cost estimates
- Other considerations

This chart outlines the topics that will be covered in the briefing.

The Department of Defense currently uses competitive sourcing to obtain pilot training services for several portions of advanced flight training. This chart illustrates some of the contracts signed by DoD over the last 3 years. These examples illustrate that there are some circumstances under which all military Services will outsource pilot and flight-engineer training.

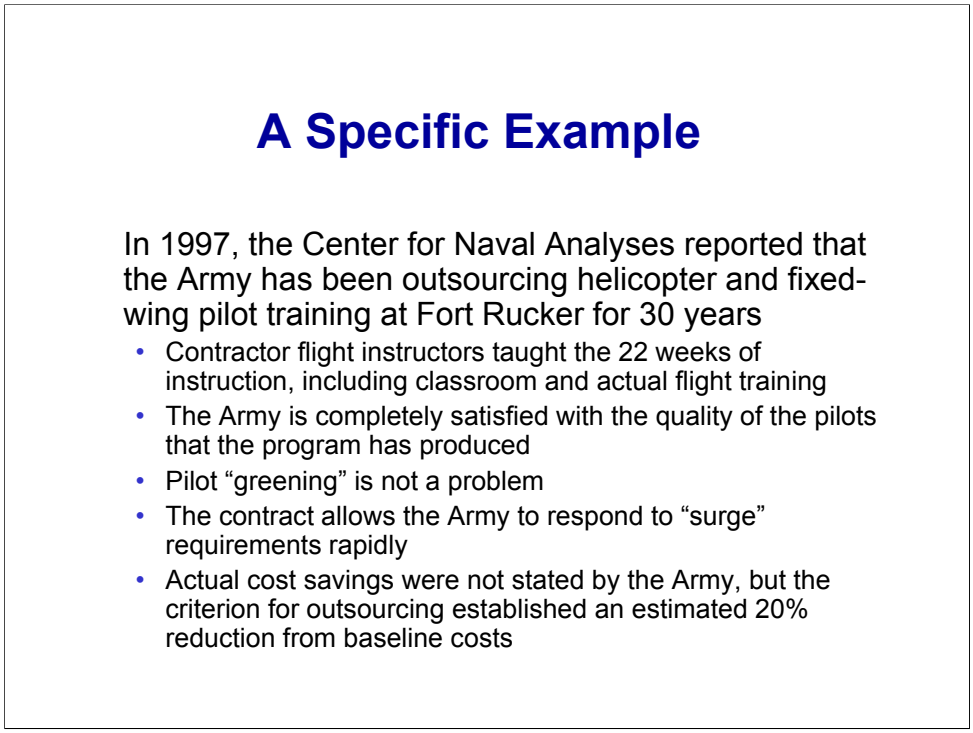
Air Mobility Command has a contract with Simuflite Training International for flight-crew training for the Air Force Gulfstream IV (C20H) aircraft, which is used for proficiency retention for C–141B, C–5B, and KC–10 crews as well as VIP transports around the world.

The Air Force Academy in Colorado Springs issued a contract for Introductory Flight Training (IFT) for Air Force Academy Cadets in late 2000. The IFT program is intended to help both the cadets and the Air Force identify individuals with strong aptitude and motivation for future flight training. Outsourcing was selected because the fleet of training aircraft formerly used at the Air Force Academy became uneconomical to operate and could not be returned to flight status no matter how much was reinvested.

The Air Force flight Test Center at Edwards Air Force Base has outsourced selected portions of its Test Pilot School curriculum to the private sector. The original solicitation requires the contractor to provide the following: in-flight training using the contractor's jet trainer aircraft, classroom training, tests, and other flight operations; design and installation of temporary or permanent aircraft modifications; qualified pilots for training staff instructors; and pilot checkout. Similarly, the Air Force outsourced flight crew training for

the E–8C J–STARS: training for pilots and flight engineers, including initial qualification training, recurring training, and pilot and flight-engineer instructor upgrade.

Finally, the Navy outsourced initial pilot training and refresher pilot training for its version of the Cessna Citation corporate jet.



In 1997, the Center for Naval Analyses (CNA) conducted a study on DoD outsourcing. It included a case study about the outsourcing of helicopter pilot training and training aircraft maintenance at Fort Rucker, Alabama, the Army's main aviation training site.

As noted in the accompanying chart, the general results of the Army's experience at Fort Rucker were encouraging; however, CNA expressed the following concerns:

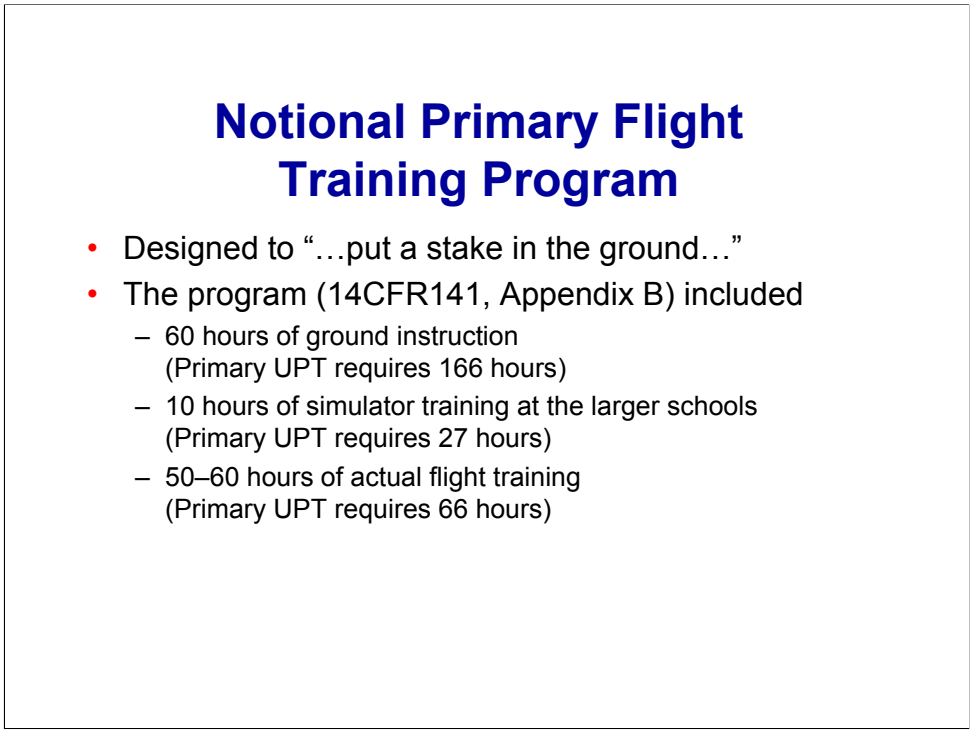
- The A–76 process for base-support functions was time consuming (took about 7 years).
- The staff requirements needed to conduct the A–76 study were considerable.
- Because of the reductions in force that took place at Fort Rucker, new rounds of A–76 competitions would not produce the same level of savings.
- There is a detrimental effect on employee morale.
- There are accounting problems associated with the provision of government-furnished equipment (GFE) to contractors.

Approach to Collecting Private-Sector Data

We surveyed a sample of aviation training programs and universities regarding:

- Their interest in providing contract UPT
- Their capabilities to provide such training, using a *notional* primary flight training program
- The time required to put the training in place
  - Equipment
  - Personnel
- The number of pilots they could produce in a year
- Their estimated cost per pilot
- Areas of concern

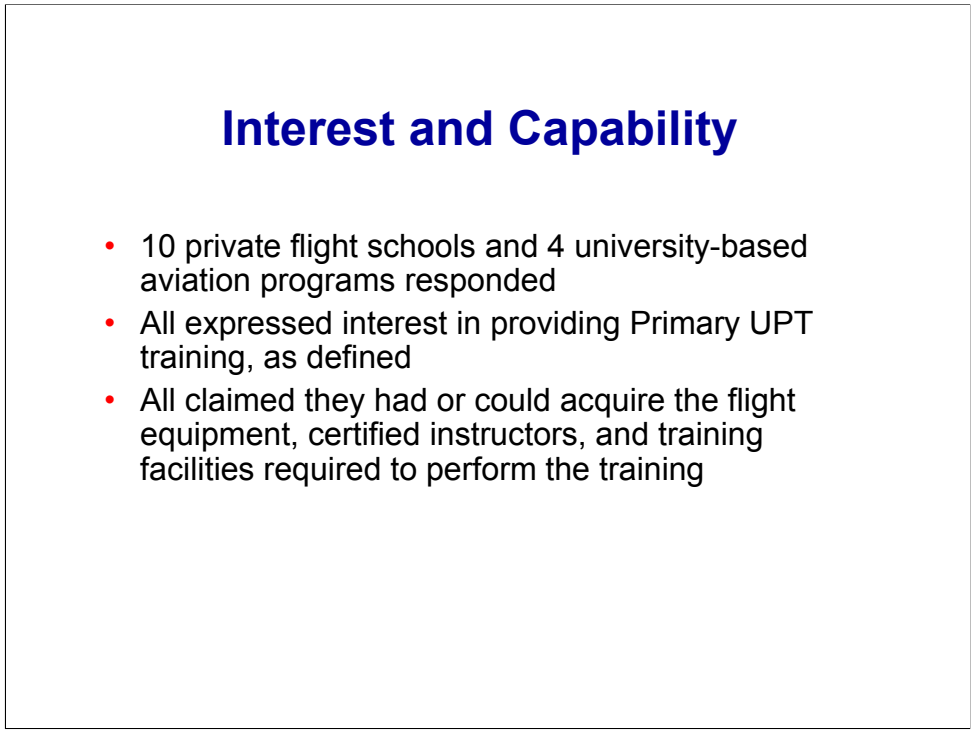
Before we could determine the feasibility of contracting out Navy Primary UPT, we needed to collect data from the private sector. We used the Internet to identify flight-training schools that had either Cessna 172 or Piper PA–28 aircraft in their training fleets (the study sponsor considered them to be reasonable substitutes for the T–34). Next, we surveyed the aviation training schools to acquire the information listed on the slide.



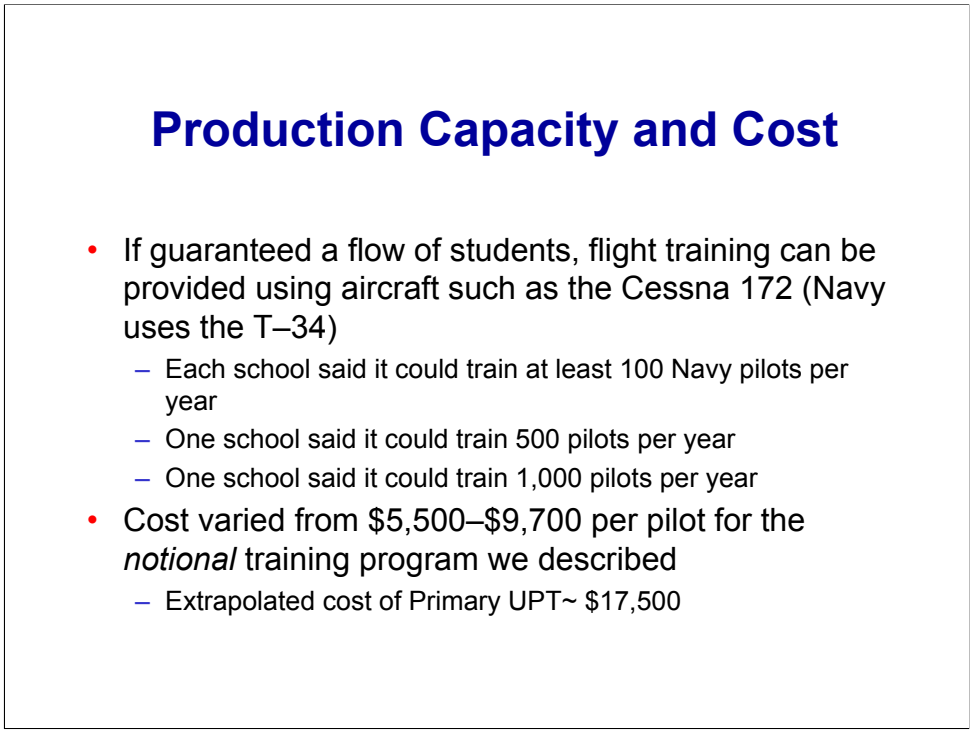
The specifications for Navy Primary UPT are found in the Navy's CNATRAT 1542.140 dated September 1999. Primary UPT lasts about 22 weeks. It includes 166 hours of ground instruction, 27 hours of simulation training, and at least 66 hours of actual flight training.

To help us compare Navy Primary UPT to the flight training that is available in the private sector, we created a notional program. The notional program includes all the material that the private schools felt was necessary to "train pilots to standard" in a specified type of aircraft—60 hours ground school, 10 hours of simulator training, and 50–60 hours of flight training (10 hours of solo time). Some of the schools that we surveyed do not have access to simulators. To compensate for this lack of capability, they use actual flight time.

The notional program surpasses the FAA standard for a private pilot's license, but it is well below the standards described in the Navy syllabus. As a result, future cost comparisons must take this fact into consideration. A comparison of the Navy's primary UPT syllabus and the notional program provided to the civilian flight schools is provided in the backup slides.

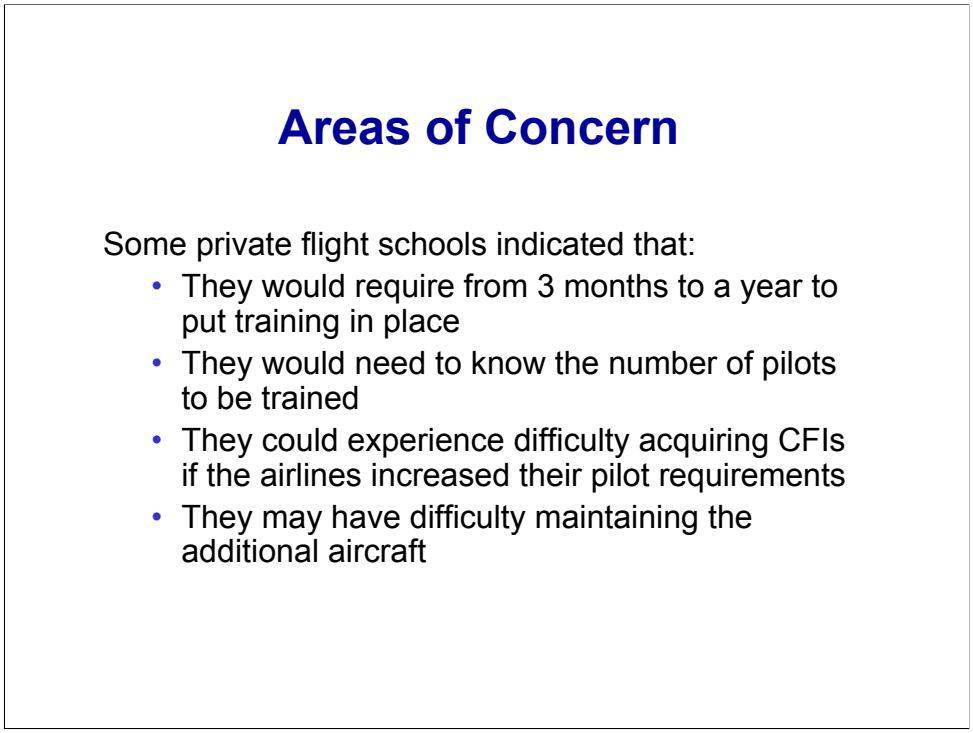


We collected data from 10 private flight schools and 4 universities that have flight training programs. All the schools that we surveyed were interested in providing Primary UPT training. Each school also claimed that it had or could acquire the certified pilots, equipment, and facilities that would be necessary to train Navy pilots to standard.



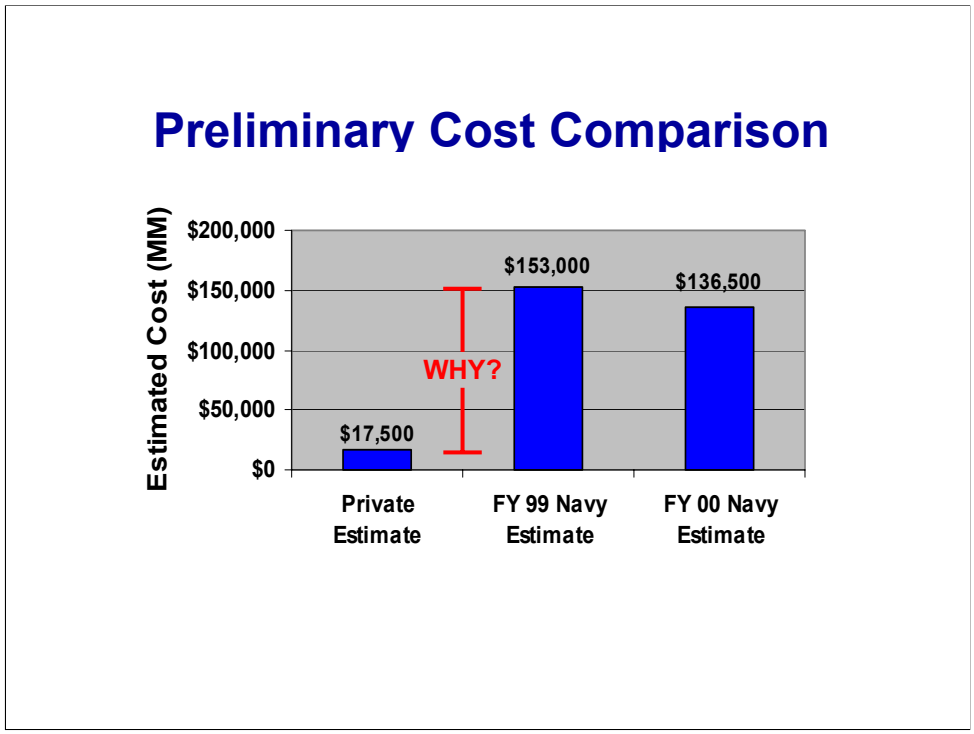
All the private schools pointed out that they could not train the Navy's Primary UPT syllabus in its entirety, but said that they could train the requisite number of pilots using the notional program. Several of the schools said that they had the capability to train 100 or more additional pilots to standard and needed no additional time to put the training in place. One of the schools said it could train 500 additional pilots per year, but would require 3 months to put the training in place. Another school said it could begin training 1,000 additional pilots per year with minimal time to put training in place.

We also asked the schools to provide an informal quote for the cost of a "trained-to-standard" pilot using the notional program. The quotes ranged from between $5,500 to $9,700 per pilot. Because the notional program is not as comprehensive as Navy Primary UPT, we adjusted the quoted costs upward based on actual flight hours. Our adjusted estimate is $17,500 per pilot. (A list of the topics not covered in the notional program is included in the backup slides.)



Most of the training schools mentioned that the availability of Certified Flight Instructors (CFI) could become a problem if the airlines increased their hiring requirements. However, to offset this potential problem, several schools had organic flight-instructor training programs.

Schools in the Phoenix area and in Florida mentioned that the requirement to maintain additional aircraft could become troublesome.



The Center for Naval Education and Training (CNET) provided an initial estimate of $144,000 in FY 99 dollars for Primary UPT. This equates to about $153,000 in FY 01 dollars. CNET subsequently provided an updated estimate of $136,500 in FY 01 dollars. Based on the information received from the private schools we surveyed, the extrapolated cost of private-sector UPT is about $17,500. Because we do not know whether the private sector cost is comparable to the Navy's cost of Primary UPT, we cannot conclude that large amounts of money can be saved without conducting a detailed cost- benefit analysis.

Preliminary Observation

Question:

Can we make a case to further study the outsourcing Navy UPT?

Answer:

Yes, but …

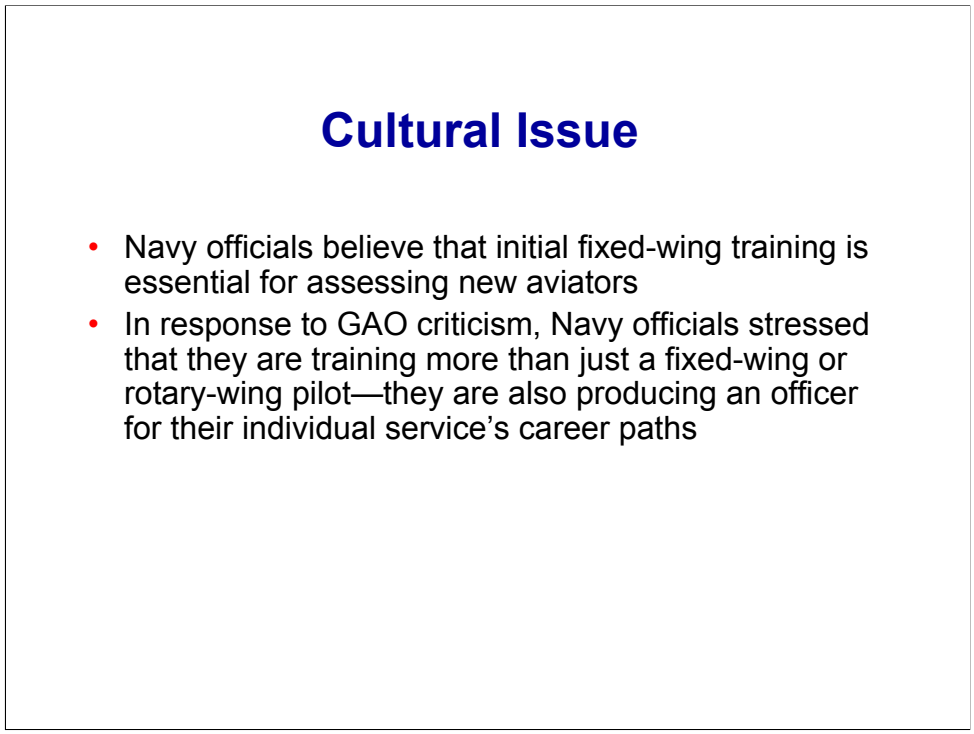
Based on our preliminary analysis, we believe that the Primary portion of Navy UPT can be outsourced to the private sector. We also believe that the cost of private sector Primary UPT training is likely to be less than the Navy's current in-house Primary UPT training program. However, before these observations can be confirmed, a detailed cost-benefit analysis needs to be conducted.

We also realize that operational feasibility and potential cost reductions alone are not likely to motivate the Navy to outsource Primary UPT. There are a number of other criteria that also need to be considered before a decision is made to contract out Navy Primary UPT. These criteria are introduced in the next chart.

Other Considerations

- Navy cultural/officership issues
- OMB Circular A–76 considerations
- Operational implications
- Joint acquisition/training program implications

There are a number of other issues that would need to be investigated before Navy Primary UPT could be contracted out. These issues include the cultural and officership issues that the Navy sees as an important part of Primary UPT training; the legal, political, and administrative issues that are associated with OMB Circular A–76; operational issues such as "ship-to-shore" rotation; and the political implications on future joint acquisition/training programs. Each of these other considerations is covered in more detail in the following charts.

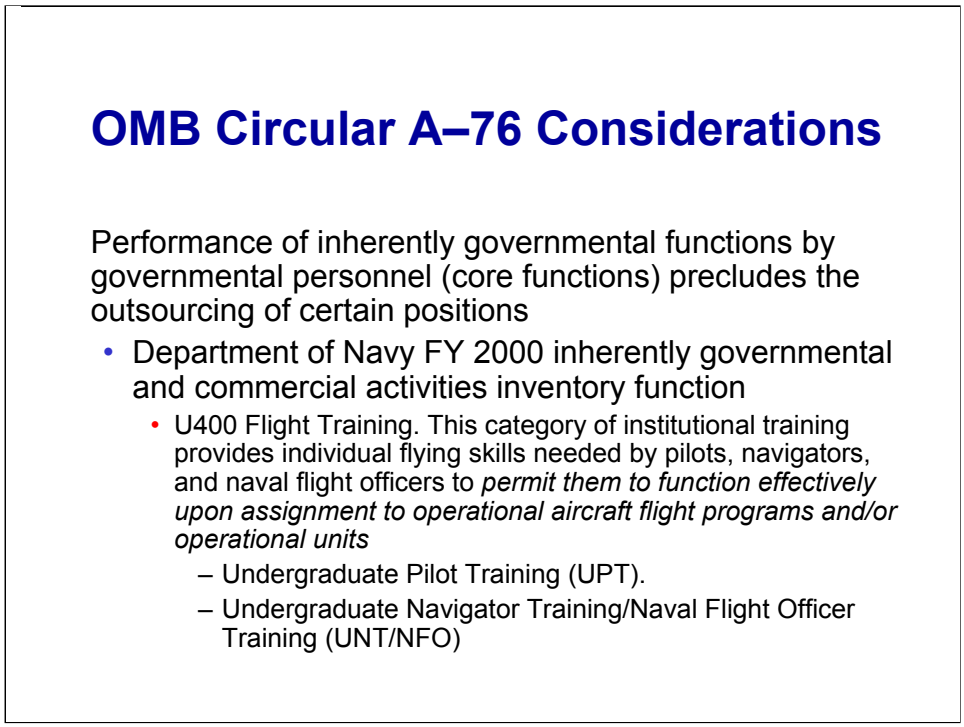


The U.S. General Accounting Office has studied the training of military pilots for many years. In a July 1999 report to Congress, *Defense Infrastructure: Observations on Aviation Training Consolidation and Expansion Plans* (Washington, D.C.: NSIAD–99–143, July 1999), GAO took note of Navy objections to the suggestion that all helicopter pilot training be further consolidated at Fort Rucker, Alabama, where Air Force and Army helicopter pilots are now trained. According to GAO,

> Navy officials are opposed to consolidating helicopter pilot training with the Army for a number of reasons.… The Navy wants all of its pilots to learn the fundamental rules of flight in fixed-wing aircraft before moving on to helicopter training in intermediate and advanced undergraduate flight training. This initial fixed-wing training provides general aviation orientation and allows Navy trainers to evaluate student aptitudes and capabilities for placement into one of the four advanced undergraduate training tracks. (p. 8)

The Navy also told GAO that they "are training more than just a fixed- or rotary-wing pilot—they are producing an officer for their individual service's career paths." (p. 13.)

GAO further noted "The Navy and the Marine Corps strongly believe that further consolidation[of helicopter pilot training with the Army] would result in the loss of needed orientation to their missions and a failure to establish early identification with the Navy way of life." (p. 14).



OMB Circular A–76, *Outsourcing of Commercial Activities,* generally encourages the government to rely on contracting with the private sector or competing commercial activities among public sector or public and private sectors to obtain the best value of service for the taxpayer. Circular A–76 prohibits the outsourcing of certain inherently governmental functions.

In FY 2000, the Navy performed its inventory of all inherently government and commercial activity functions to identify positions that might be suitable to study for competitive sourcing. The FY 2000 inventory concluded that all flight training positions filled by Navy Department personnel performed inherently governmental (core functions), and as a result, they were not eligible for inclusion on lists of positions suitable for study under A–76 rules.

A–76 Competitive Sourcing Process Considerations

- The A–76 Process establishes strict ground rules by which commercial activities are competed between government employees (Most Efficient Government Organization) and commercial providers
  - Positions must be identified
  - Congress must be notified
  - Cost Effectiveness Study must be performed in accordance with standard OMB methodology
  - Performance Work Statement must be drafted
  - Competition (subject to multiple levels of review and protest) must be held
  - Contract must be awarded

The process by which government positions are evaluated for potential performance either as competitively awarded contracts to government organizations or outsourced to the private sector is rigorously described in several multivolume references. Among these are the *Revised Supplemental Handbook: Performance of Commercial Activities* (Washington, D.C.: Office of Management and Budget, March 1996); Draft DoD Manual 4100.XX–M, *A–76 Costing Manual* (Washington, D.C., DoD Competitive Sourcing and Privatization Office, March 14, 2001); Chief of Naval Operations, *OPNAV Instructions 4860.7C Navy Commercial Activities Program* (Washington, D.C.: Navy Department, 7 June 1999); and Secretary of the Navy, *SECNAV Instruction 4860.44F Commercial Activities* (Washington, D.C.: Navy Department, 29 September 1989).

OMB Circular A–76 also includes a process for direct conversion of uniformed military personnel positions to outsourced civilian positions. The Direct Conversion Process is somewhat less cumbersome in terms of its bureaucratic process, but it is subject to even more intense scrutiny within the executive and legislative branches than the traditional cost-comparison competitive-sourcing process.

Results of A–76 Competitions

- Government "Most Efficient Organizations" win about 50% of A–76 competitions
- The government must add personnel resources to conduct an A–76 study
- Cost-Benefit Studies are not free
- A–76 studies are time consuming

A large number of studies have been performed within and outside DoD to examine the overall results of A–76 competitions. The General Accounting Office has compiled a long list of studies (see Appendix A) in which it generally concludes that A–76 competitions have generally saved DoD some money, but probably not as much as DoD believes. GAO consistently criticizes DoD and other advocates for commercial outsourcing of positions and for claiming savings that cannot be adequately documented.

The Center for Naval Analyses and the RAND Corporation have undertaken several studies for various Service proponents and have generally found that savings have accrued as a result of A–76 efforts. Like GAO, however, CNA and RAND analysts typically caution DoD and Service sponsors against grandiose claims of huge dollar savings. Baseline costs are difficult to ascertain, given DoD accounting rules for capital costs, arbitrary allocation of workloads, and base infrastructure costs at training and maintenance facilities. Furthermore, the costs of performing A–76 studies for either Direct Conversion or competi-tion among in-house and commercial service providers are sometimes neglected. (See Appendix B for a list of selected relevant CNA and RAND studies.)

The Navy's recently published manual, *Succeeding at Competition: Guide to Conducting Commercial Activities Studies* (Washington, D.C.: Department of the Navy, 2000), outlines a 12-month process, but adds repeated warnings of pitfalls and problems that can extend the process to as many as 48 months for a multifunction analysis for position outsourcing.

Examples of A–76 Process Times

- The outsourcing of Army and Air Force library services ran 2 to 3 years
- The outsourcing of Air Force depot maintenance ran 3 to 5 years
- The outsourcing of educational services on Army and Navy facilities ran 3 to 5 years

The experience of the military Services in outsourcing activities, even in those instances where there was general agreement that such outsourcing was appropriate and worthwhile, demonstrates that the process is time consuming and quite stressful. Not only are these issues documented in detail by GAO reports, the Services have assembled significant "lessons learned" materials and posted them at various World Wide Web sites in an attempt to improve the outsourcing process.

Operational Implications

- The outsourcing of UPT training might increase the pressure to subject NAS Whiting Field and NAS Corpus Christi to Base Realignment and Closure (BRAC) processes
- The outsourcing of UPT might adversely affect ship-to-shore rotation

One of the issues requiring further analysis is the potential impact of Primary UPT outsourcing on the requirement for continued Navy use of Whiting Field and NAS Corpus Christi. If all primary UPT training were conducted at contractor facilities around the country, it is conceivable that workloads at these two facilities could fall below a minimum economically acceptable level, thereby triggering the process by which the facilities would be declared surplus. This might create additional pressures to seek legislative authority to close or realign these two Navy facilities, adding to the noneconomic costs (and potential economic benefits) of outsourcing primary UPT. Once again, this is an issue on which further analysis is needed—it was not within the scope of this study.

The conversion of uniformed military instructor pilot and maintenance personnel positions to government or contractor civilian positions may adversely affect Navy military personnel management and retention. Depending upon the total number of military personnel affected by outsourcing and other Navy personnel realignments, the loss of such positions might result in longer periods of sea duty for Navy pilots and aircraft maintenance personnel. The GAO has reported that the Navy was already experiencing personnel management problems with ship-to-shore assignments (see U.S. General Accounting Office, *Defense Outsourcing: Impact on Navy Sea-Shore Rotations* (Washington, D.C.: NSIAD–98–107, 8 May 1998).

Joint Acquisition/Training Program Implications

JPATS is an OSD acquisition reform success story

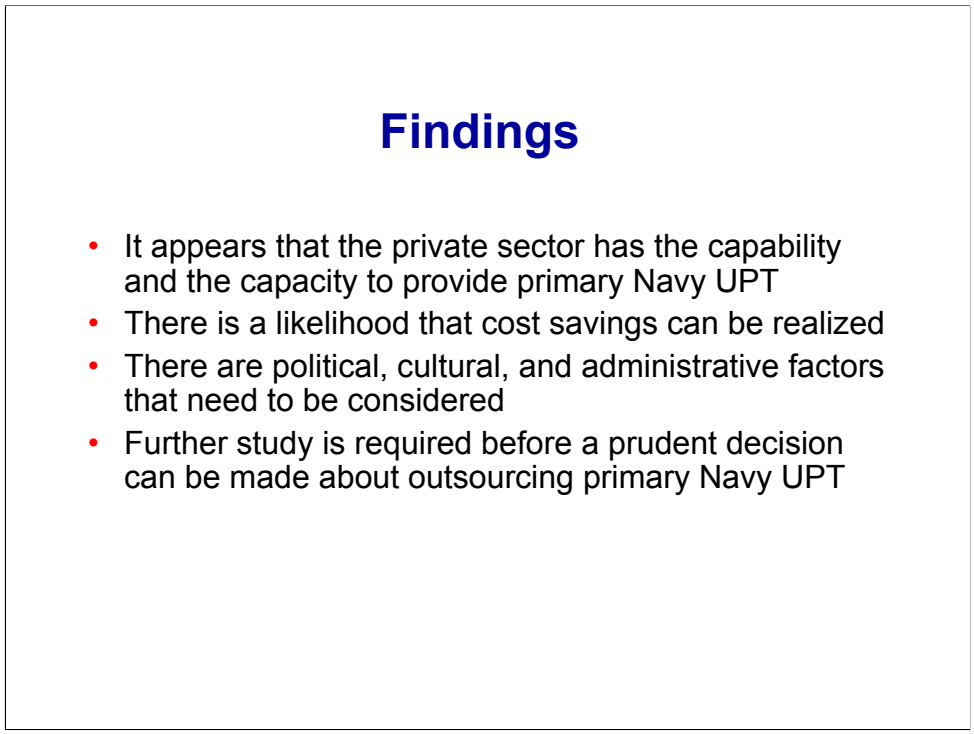
- What happens to JPATS, if the Navy outsources UPT?
  - Implications for USAF/Raytheon Contract
  - Implications for USAF JPATS Total System Costs
- What are the broader implications for joint acquisition and joint training?

JPATS has been identified as an acquisition reform success story. To leverage the economic and materiel benefits of the joint acquisition, the Navy and Air Force developed a joint UPT curriculum, common pedagogical policies and procedures, and they modified a substantial portion of their individual service training infrastructure.

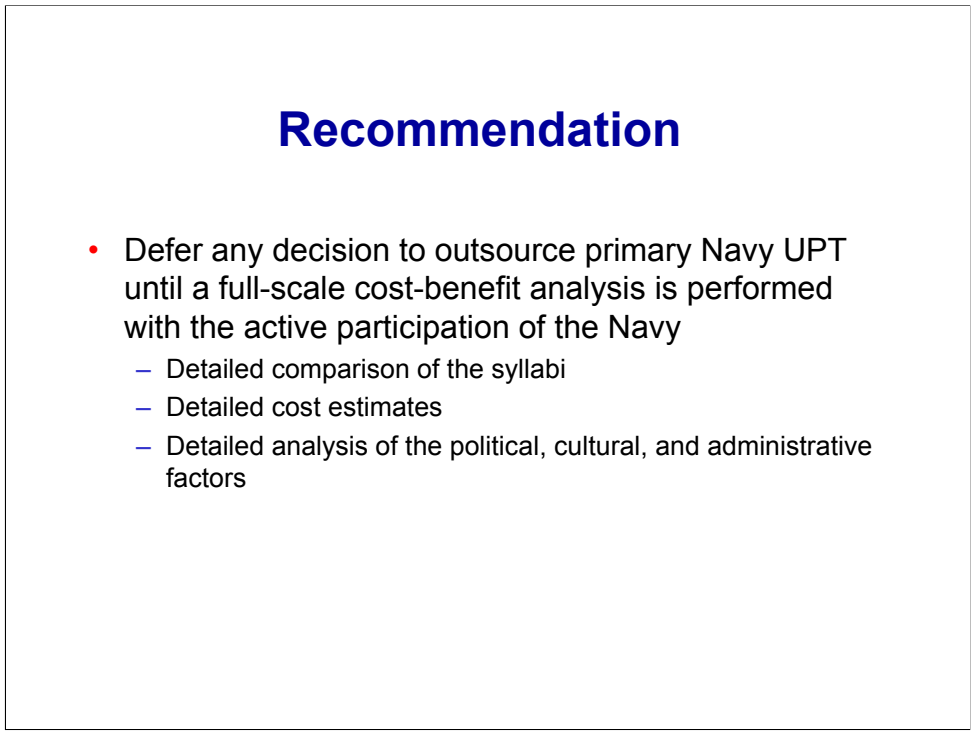
General Fogleman observed at the press conference announcing award of the JPATS contract to Beech Aircraft Corporation (now Raytheon Corporation):

> The Navy and the Air Force are committed to improving the efficiency and the standardization of their pilot training.…Commonality with the Navy is going to allow a better cross-flow of information between pilots of both land- and carrier-based aircraft. This common foundation can only prove service interoperability.

If outsourcing Navy Primary UPT results in substantial cost growth for Air Force UPT, what will the impact of such cost growth be not only on Air Force programs, but all other joint acquisitions in the future? For more information, see Headquarters, Air Education and Training Command and Chief of Naval Air Training, *Operational Requirements Document (ORD) for the Joint Primary Aircraft Training System (JPATS) 005–88–11* (Revision 1, 5 March 1996); see also DoD News Briefing, June 22, 1995, Dr. Sheila E. Widnall, SecAF; see also Assistant Secretary of the Air Force (Acquisition), "Acquisition Reform Success Story," (Washington, D.C.: Air Force, July 1997).



Based on our review of the literature and our preliminary analysis of the data, we believe that the private sector has the capability to provide primary Navy UPT and that it probably can provide this training at a lower cost per pilot. We also believe that there are a number of political, cultural, bureaucratic, and administrative obstacles that need to be breached before Navy UPT can be contracted out. As a result, to validate our preliminary findings, we feel that a detailed cost-benefit analysis is needed.



Because this was only a feasibility study, our findings were based on a preliminary analysis. Before a decision can be made to outsource primary Navy UPT, a comprehensive study needs to be conducted. This study would include a detailed comparison of the Navy's Primary UPT syllabus with those available in the private sector. Differences would need to be documented, and a standardized syllabus acceptable to the Navy would need to be developed.

Next, an implementation plan should be developed. A number of competing alternatives should be compared, so that the best alternative is identified. Selection of the best alternative would be based upon operational feasibility, cost, and the non-quantitative measures that we discussed earlier: Navy cultural/officership issues, OMB Circular A–76 considerations, operational implications, and Joint acquisition and training program implications.

Generic alternatives might include the following:

- Current Model—train military personnel with military instructors, on a military base, with military-owned equipment.
- Fort Rucker Model—train military personnel with contracted instructors, on a military base, with military-owned equipment.
- Traditional Outsourcing Model—train military personnel with contracted instructors, on a contractor's facility, with government-furnished equipment (GFE).

- Full Outsourcing Model—train military personnel with contracted instructors, on a contractor's facility, with contractor-owned equipment.
- Direct Commissioning Model—train pre-accessed personnel with contracted instructors, on a contractor's facility, using contractor-owned equipment.
- Combinations of the above.

BACKUP SLIDES

Notional Program Gaps
(1 of 2)

Topics not covered by the notional program include:

- Emergency procedures
  - Ditching
  - Rough field/improvised field landing
  - Egress from aircraft
- Flight physiology
  - G-induced loss of consciousness
  - Oxygen mask procedures
- Flight syllabus requirements
  - Formation flying
  - Aerobatic maneuvers

This chart and the one that follows were derived by comparing the requirements specified in 14 CFR 41, Appendix B (requirements to obtain a private pilot license) with the curriculum for Naval Flight Officer promulgated by Chief of Naval Air Training in CNATRAINST 1543.32D, Primary/Intermediate Naval Flight Officer (NFO)/Air Force Navigator (AF NAV)/T–34C Instructor Under Training (IUT) Curriculum, 3 February 1988, and CNATRAINST 1542.14D, Multi-Service Pilot Training System.

Taken together, the charts are intended to identify some of the material not explicitly included in the notional curriculum used to elicit responses from the private sector.

Notional Program Gaps
(2 of 2)

- Military-unique navigation systems
  - TACAN
- Military-unique communication systems
  - Hand signals (related to formation flying)
- Instructional "burden" of additional requirements
  - Bailout trainer 2.0 Hours
  - Spin quiz 2.0 Hours
  - Physiology 7.0 Hours
  - Swimming 6.0 Hours
  - Formation exposure 2.0 Hours (flight)
  - Aerobatics training 3.0 Hours (flight)

As noted above, this chart represents a brief summary of material omitted from the notional primary UPT curriculum that exceeds the minimum standards of 14CFR 141, Appendix B. The information and demonstrated flight skills would have to be acquired and demonstrated somewhere during the entire UPT training sequence.

Including the material and acquiring and demonstrating flight skills during competitively sourced primary UPT might have a significant impact on the cost of such training as a result of increased accident liability (aerobatics and formation flying, flight physiology training, and swimming), higher equipment costs (more powerful training aircraft engines, more aerobatic-capable training aircraft, etc.), and additional flight hours.

Modification of the intermediate UPT curriculum taught by military instructors on military training aircraft might be an alternative worth examining in the future.

APPENDIX A

SELECTED GENERAL ACCOUNTING REPORTS ON COMPETITIVE SOURCING

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14. ABSTRACT

The Department of Defense has developed the Joint Primary Aircraft Training System (JPATS) as a modern aircraft for use in initial pilot training. The Air Force is committed to using JPATS, while the Navy intends to delay procurement while continuing to use the T-34. Because of the Navy's decision to continue using the T-34 to train its undergraduate pilots and a recent history of reduced defense spending, the time appears right to determine the most cost-effective way of meeting the Navy's long-term needs for initial pilot training. Although there are a number of ways of meeting these needs, contracting out deserves serious consideration. In this document, we look into the feasibility of contracting out the primary phase of Navy undergraduate pilot training (UPT).

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