DEFENSE TRAVEL SYSTEM

Estimated Savings Are Questionable and Improvements Are Needed to Ensure Functionality and Increase Utilization

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What GAO Found

GAO's analysis of the September 2003 DTS economic analysis found that the two key assumptions used to estimate annual net savings were not based on reliable information. Two cost components represent the majority of the over $56 million in estimated net savings—personnel savings and reduced commercial travel office (CTO) fees. In regard to the personnel savings, GAO's analysis found that the $24.2 million of personnel savings related to the Air Force and the Navy were not supported.

- Air Force and Navy DTS program officials stated that they did not anticipate a reduction in the number of personnel, but rather the shifting of staff from the travel function to other functions.
- The Naval Cost Analysis Division stated that the Navy will not realize any tangible personnel cost savings from the implementation of DTS.

In regard to the CTO fees, the economic analysis assumed that 70 percent of all DTS airline tickets would either require no intervention or minimal intervention from the CTOs, resulting in an estimated annual net savings of $31 million. However, the sole support provided by the DTS program office was an article in a trade industry publication. The article was not based on information related to DTS, but rather on the experience of one private sector company. Furthermore, the economic analysis was not prepared in accordance with guidance prescribed by OMB and DOD.

- DOD guidance stated that the life-cycle cost estimates should be verified by an independent party, but this did not occur.
- The economic analysis did not undertake an assessment of the effects of the uncertainty inherent in the estimates of benefits and costs. Because an economic analysis uses estimates and assumptions, it is critical that the imprecision in both the underlying data and assumptions be understood. Such an assessment is referred to as a sensitivity analysis.

DOD acknowledged that DTS is not being used to the fullest extent possible, but lacks comprehensive data to effectively monitor its utilization. DOD's utilization data are based on a model that was developed in calendar year 2003. However, the model has not been completely updated to reflect actual DTS usage. The lack of accurate utilization data hinders management’s ability to monitor progress toward the DOD vision of DTS as the standard travel system. GAO also found that the military services have initiated actions that are aimed at increasing the utilization of DTS.

Finally, GAO found that DTS still has not addressed the underlying problems associated with weak requirements management and system testing. While DOD has acted to address concerns GAO previously raised, GAO found that DTS's requirements are still ambiguous and conflicting. For example, DTS displaying up to 25 flights for each inquiry is questionable because it is unclear whether this is a valid requirement. Until DOD improves DTS’s requirements management practices, the department will not have reasonable assurance that DTS can provide the intended functionality.
Mr. Chairman and Members of the Subcommittee:

Thank you for the opportunity to discuss our recent report on problems encountered by the Department of Defense (DOD) in its efforts to successfully implement the Defense Travel System (DTS). As you know, DOD envisions DTS as the department’s standard end-to-end travel system. The department estimates that DTS will be fully deployed at all 11,000 intended locations during fiscal year 2007. The September 2003 economic analysis noted that DTS, when fully implemented, would result in annual net savings of over $56 million. The economic analysis noted that savings would be realized by the department during fiscal years 2009–2016. In December 2003, the department’s Chief Information Officer approved a DTS funding level of approximately $564 million. Of this amount, the contract for the design, development, and deployment of DTS was for about $264 million. The remaining costs are associated with areas such as the operation and maintenance of DTS, operation of the Program Management Office-Defense Travel System (PMO-DTS), the voucher payment process, and management and oversight of the numerous contracted commercial travel offices (CTO).

My testimony today is based on our September 2006 report, which followed up on our September 2005 testimony and January 2006 report. One of the major findings in our previous work was that DOD did not have

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2. DOD expects DTS to perform all functions related to travel or ensure that other systems are provided with adequate information to provide this functionality. For example, obligating funds associated with travel is a necessary function, and DTS is expected to (1) make sure that adequate funds are available before authorizing travel either through information contained in its system or by obtaining the necessary information from another system, (2) obligate funds through issuance of approved travel orders, and (3) provide DOD’s financial management systems with the necessary information so that those systems can record the obligation. Since DTS is required to ensure that all travel-related functionality is properly performed, DOD commonly refers to DTS as an “end-to-end travel system.”

3. As of September 2005, the department had estimated that DTS would be fully deployed during fiscal year 2006.

4. GAO-06-980.

reasonable assurance that flight information was properly displayed for 
DOD travelers because the department failed to properly test the system 
interfaces through which the data are accessed for display. We further 
noted that the continued use of the existing legacy travel systems at 
locations where DTS has been deployed results in underutilization of DTS 
and reduces the envisioned savings.

Today, I will highlight three key findings from our September 2006 report:

- Two key assumptions related to the estimated cost savings in the 
  September 2003 DTS economic analysis were not reasonable. DOD 
  strongly objected to this finding, and I will discuss why we continue to 
  believe that our finding is accurate.

- The department did not have quantitative metrics to measure the extent to 
  which DTS is actually being used.

- DOD still has not addressed several functional problems associated with 
  weak requirements management and system testing.

Finally, I will discuss our recommendations to improve the department’s 
management and oversight of DTS.

Our work focused on the validity of the assumptions that were the 
principal drivers of DOD’s net annual estimated savings of over 
$56 million. We determined that the data were sufficiently reliable for this 
purpose. We did not review the accuracy and reliability of the specific 
dollar amounts shown in the September 2003 economic analysis. To 
address our objectives we also (1) reviewed the September 2003 economic 
analysis and met with cognizant officials, (2) analyzed DTS utilization data 
and obtained an overview of the method and data used by DTS program 
officials to report the rate of DTS utilization for the various DOD 
components, and (3) analyzed DTS flight information. Our work was 
performed from October 2005 through July 2006 in accordance with U.S. 
generally accepted government auditing standards. Further details on our 
scope and methodology are included in our September 2006 report.6

6GAO-06-980.
Our analysis of the September 2003 DTS economic analysis found that two key assumptions used to estimate cost savings were not based on reliable information. Two primary areas represented the majority of the over $56 million of estimated annual net savings DTS was expected to realize—personnel savings of $24.2 million and reduced CTO fees of $31 million. The $24.2 million estimated annual personnel savings were attributed to the Air Force and Navy. However, Air Force and Navy DTS officials stated that they did not anticipate a reduction in the number of personnel with the full implementation of DTS, but rather the shifting of staff to other functions. Further, the Naval Cost Analysis Division has stated that the Navy will not realize any tangible personnel cost savings from the implementation of DTS. In written comments on a draft of our report, the Under Secretary of Defense (Personnel and Readiness), strongly objected to our finding that the estimated personnel savings are unrealistic and stated that recognizing fiscal constraints, the department continues to identify efficiencies and eliminate redundancies to help leverage available funds. As noted in our report, DOD officials responsible for reviewing economic analyses stated that while shifting personnel to other functions is considered a benefit, it should be considered an intangible benefit rather than tangible dollar savings since the shifting of personnel does not result in a reduction of DOD expenditures. Because none of the military services could validate an actual reduction in the number of personnel as a result of DTS implementation, and DOD’s comments did not include any additional support or documentation for its position, we continue to believe that the estimated annual personnel savings of $54.1 million are unrealistic.

In regard to the estimated annual savings of $31 million attributed to lower CTO fees, we requested, but the PMO-DTS could not provide, any analysis of travel data to support the assumption that 70 percent of all airline tickets would be considered “no touch”—meaning that there would be no or minimal intervention by the CTO, thereby resulting in lower CTO fees. We found that the 70 percent assumption was based solely upon an article that appeared in a travel industry trade publication. Further, the economic analysis assumed that the Navy would save about $7.5 million, almost 25 percent, of the total savings related to CTO fees once DTS is fully deployed. Again, this figure was based on a reduction in the fees the Navy would pay for “no touch” transactions. However, the Navy paid a flat

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The economic analysis identified annual savings of $11.3 million and $12.9 million for the Air Force and Navy, respectively.
management fee that was the same regardless of the involvement of the CTO—therefore, the reduced "no touch" fee would not apply.

In addition, the economic analysis was not prepared in accordance with guidance prescribed by the Office of Management and Budget (OMB) and DOD. Both sets of guidance require that an economic analysis be based on facts and data and be explicit about the underlying assumptions used to arrive at future benefits and costs. DOD guidance also states that life-cycle cost estimates should be independently validated. An independent review is intended, in part, to provide program management some degree of assurance that the life-cycle cost estimates are reasonable and the cost estimates are built on realistic program assumptions. However, an independent validation was not performed.

Our analysis also found that the department did not have quantitative metrics to measure the extent to which DTS is actually being used. The reported DTS utilization rates were based on a methodology that was developed using estimated data, and PMO-DTS program officials acknowledged that the model had not been completely updated with actual data as DTS continued to be implemented at the 11,000 sites. As a result, the PMO-DTS continues to rely on outdated information in calculating DTS utilization rates that are reported to DOD management and the Congress. Additionally, while the military services have initiated actions to help increase the utilization of DTS, they pointed out that ineffective DTS training is a contributing factor to the lower than expected usage rate by the military services.

Finally, DOD still has not addressed several functional problems associated with weak requirements management and system testing. Requirements represent the blueprint that system developers and program managers use to design, develop, test, and implement a system. Because requirements provide the foundation for system testing, they must be complete, clear, and well documented to design and implement an effective testing program. Adequately defined and tested requirements are one of the key elements to help reduce a project’s risks to acceptable levels. Our February 2006 analysis disclosed that DOD still did not have

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8Acceptable levels refer to the fact that any systems acquisition effort will have risks and will suffer the adverse consequences associated with defects in the processes. However, effective implementation of disciplined processes, which includes project planning and management, requirements management, risk management, quality assurance, and testing, reduces the possibility of the potential risks actually occurring and prevents significant defects from materially affecting the cost, timeliness, and performance of the project.
reasonable assurance that the flight information was being properly displayed to DOD travelers. We identified 246 unique GSA city pair flights that should have been identified on one or more DTS flight displays according to the DOD requirements. However, 87 of these flights did not appear on one or more of the required listings. While the PMO-DTS has taken action to address our concerns, these actions do not fully address the fundamental problems we found during this audit and on which we have previously reported. For example, the DTS requirements we reviewed were still ambiguous and conflicting.

Our September 2006 report includes four recommendations to the Secretary of Defense aimed at improving the department’s management and oversight of DTS. We recommended that the Secretary of Defense (1) evaluate the cost effectiveness of the Navy continuing with the CTO management fee structure, (2) update the DTS Voucher Analysis Model to report DTS actual utilization rates, (3) require the PMO-DTS to provide periodic reports on the utilization of DTS, and (4) resolve inconsistencies in DTS requirements. DOD generally agreed with the recommendations and described its efforts to address them.

Validity of DTS Economic Analysis

Questionable

In September 2003, DOD finalized its economic analysis for DTS in preparation for a milestone decision review. The highlights of the economic analysis are shown in table 1. In December 2003, the DOD Chief Information Officer granted approval for DTS to proceed with full implementation throughout the department.

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10The September 2003 economic analysis is an addendum to the July 2003 DTS economic analysis.
Table 1: Summary of DTS Estimated Annual Net Savings Reported in the September 2003 Economic Analysis

<table>
<thead>
<tr>
<th>Cost components</th>
<th>Estimated annual net savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Records management</td>
<td>$19.8</td>
</tr>
<tr>
<td>Centrally billed accounts</td>
<td>1.7</td>
</tr>
<tr>
<td>CTO acquisition and administration</td>
<td>2.4</td>
</tr>
<tr>
<td>CTO services</td>
<td>31.0</td>
</tr>
<tr>
<td>Voucher process and compute</td>
<td>54.1</td>
</tr>
<tr>
<td>Voucher pay</td>
<td>0</td>
</tr>
<tr>
<td>Legacy systems</td>
<td>14.5</td>
</tr>
<tr>
<td>PMO</td>
<td>(8.8)</td>
</tr>
<tr>
<td>Help desk/DTA</td>
<td>(36.8)</td>
</tr>
<tr>
<td>System operations</td>
<td>(21.5)</td>
</tr>
<tr>
<td><strong>Total net savings</strong></td>
<td><strong>$56.4</strong></td>
</tr>
</tbody>
</table>

Source: September 2003 economic analysis provided by the PMO-DTS.

Note: In arriving at the estimated annual net savings of over $56 million, the economic analysis took into consideration the estimated costs of over $2.1 billion, which covers fiscal years 2003-2016. The estimated costs included the costs that are estimated to be incurred by the PMO-DTS, the Army, the Navy, the Air Force, and the defense agencies.

Our analysis of the September 2003 DTS economic analysis found that two key assumptions used to estimate cost savings were not based on reliable information. Consequently, the economic analysis did not serve to help ensure that the funds invested in DTS were used in an efficient and effective manner. Two primary areas—personnel savings and reduced CTO fees—represented the majority of the over $56 million of estimated annual net savings DTS was expected to realize. However, the estimates used to generate these savings were unreliable. Further, DOD did not effectively implement the policies relating to developing economic analyses for programs such as DTS. Effective implementation of these policies should have highlighted the problems that we found and allowed for appropriate adjustments so that the economic analysis could have served as a useful management tool in making funding decisions related to DTS—which is the primary purpose of this analysis. While the department’s system acquisition criteria do not require that a new economic analysis be prepared, the department’s business system investment management structure provides an opportunity for DOD management to assess whether DTS is meeting its planned cost, schedule, and functionality goals.
The economic analysis estimated that the annual personnel savings was over $54 million,\(^\text{11}\) as shown in table 2.

<table>
<thead>
<tr>
<th>DOD component</th>
<th>Estimated annual savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Army</td>
<td>$16.0</td>
</tr>
<tr>
<td>Navy</td>
<td>12.9</td>
</tr>
<tr>
<td>Air Force</td>
<td>11.3</td>
</tr>
<tr>
<td>Marine Corps</td>
<td>5.8</td>
</tr>
<tr>
<td>Defense agencies</td>
<td>6.3</td>
</tr>
<tr>
<td>Permanent change of station</td>
<td>1.8</td>
</tr>
<tr>
<td><strong>Total savings</strong></td>
<td><strong>$54.1</strong></td>
</tr>
</tbody>
</table>

As shown in table 2, approximately 45 percent of the estimated savings, or $24.2 million, was attributable to the Air Force and Navy. The assumption behind the personnel savings computation was that there would be less manual intervention in the processing of travel vouchers for payment, and therefore fewer staff would be needed. However, based on our discussions with Air Force and Navy DTS program officials, it is questionable as to how the estimated savings will be achieved. Air Force and Navy DTS program officials stated that they did not anticipate a reduction in the number of personnel with the full implementation of DTS, but rather the shifting of staff to other functions. According to DOD officials responsible for reviewing economic analyses, while shifting personnel to other functions is considered a benefit, it should be considered an intangible benefit rather than tangible dollar savings since the shifting of personnel does not result in a reduction of DOD expenditures. Also, as part of the Navy’s overall evaluation of the economic analysis, program officials stated that “the Navy has not identified, and conceivably will not recommend, any personnel billets for reduction.” Finally, the Naval Cost Analysis Division (NCAD) October 2003 report on the economic analysis noted that it could not validate approximately 40 percent of the Navy’s total costs, including personnel costs, in the DTS life-cycle cost estimates because credible supporting documentation was lacking. The report also

\(^\text{11}\)During fiscal years 2009 through 2016.
noted that the PMO-DTS used unsound methodologies in preparing the DTS economic analysis.

The extent of personnel savings for the Army and defense agencies, which are reported as $16 million and $6.3 million respectively, is also unclear. The Army and many defense agencies use the Defense Finance and Accounting Service (DFAS) to process their travel vouchers, so the personnel savings for the Army and the defense agencies were primarily related to reductions in DFAS’s costs. In discussions with DFAS officials, they were unable to estimate the actual personnel savings that would result since they did not know (1) the number of personnel, like those at the Air Force and Navy, that would simply be transferred to other DFAS functions or (2) the number of personnel that could be used to avoid additional hiring. For example, DFAS expects that some of the individuals assigned to support the travel function could be moved to support its ePayroll program. Since these positions would need to be filled regardless of whether the travel function is reduced, transferring personnel from travel to ePayroll would reduce DOD’s overall costs since DFAS would not have to hire additional individuals.

DOD strongly objected to our finding that the personnel savings are unrealistic. In its written comments, the department stated that it is facing an enormous challenge and continues to identify efficiencies and eliminate redundancies to help leverage available funds. We fully recognize that the department is attempting to improve the efficiency and effectiveness of its business operations. The Comptroller General of the United States testified in August 2006 that increased commitment by the department to address DOD’s numerous challenges represents an improvement over past efforts.\(^{12}\)

The fact remains, however, that the results of an economic analysis are intended to help management decide if future investments in a given endeavor are worthwhile. In order to provide management with this information, it is imperative that the underlying assumptions in an economic analysis be supported by valid assumptions. The September 2003 economic analysis noted that personnel savings of $54.1 million would be realized by the department annually for fiscal years 2009 through

2016. However, based on our review and analysis of documentation and discussion with department personnel, we found that the underlying assumptions in support of the $54.1 million were not valid, particularly in regard to the amounts estimated for the Navy and Air Force. For example, we agree with the statements of DOD officials who indicated that the shifting of personnel to other functions cannot be counted towards tangible dollar savings, since such actions do not result in a reduction of DOD expenditures. Moreover, the department did not provide any new data or related documentation in its comments that were counter to our finding. As a result of these factors, we continue to believe that the estimated annual personnel savings of $54.1 million are unrealistic.

According to the September 2003 economic analysis, DOD expected to realize annual net savings of $31 million through reduced fees paid to the CTOs because the successful implementation of DTS would enable the majority of airline tickets to be acquired with either no or minimal intervention by the CTOs. These are commonly referred to as “no touch” transactions. However, DOD did not have a sufficient basis to estimate the number of transactions that would be considered “no touch” since the (1) estimated percentage of transactions that can be processed using the “no touch” was not supported and (2) analysis did not properly consider the effects of components that use management fees, rather than transaction fees, to compensate the CTOs for services provided. The weaknesses we identified with the estimating process raise serious questions as to whether DOD will realize substantial portions of the estimated annual net savings of $31 million.

DOD arrived at the $31 million of annual savings in CTO fees by estimating that 70 percent of all DTS airline tickets would be considered “no touch” and then multiplying these tickets by the savings per ticket in CTO fees. However, a fundamental flaw in this analysis was that the 70 percent assumption had no solid basis. We requested, but the PMO-DTS could not provide, any analysis of travel data to support the assertion. Rather, the sole support provided by the PMO-DTS was an article in a travel industry trade publication. The article was not based on information related to DTS, but rather on the experience of one private sector company.

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**Savings Associated with Reduction of CTO Fees Are Unknown**

**“No Touch” Transaction Volume Estimates Are Not Supported**

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The economic analysis assumed that DOD could save about $13.50 per “no touch” ticket. Since that analysis, DOD has awarded one contract that specifically prices transactions using the same model as that envisioned by the economic analysis. This contract applies to the Defense Travel Region 6 travel area.\textsuperscript{14} During calendar year 2005, the difference in fees for “no touch” transactions and the transactions supported by the current process averaged between $10 and $12, depending on when the fees were incurred because the contract rates changed during 2005.\textsuperscript{15} In analyzing travel voucher data for Region 6 for calendar year 2005, we found that the reported “no touch” rate was, at best 47 percent—far less than the 70 percent envisioned in the economic analysis.

PMO-DTS program officials stated they are uncertain as to why the anticipated 70 percent “no touch” was not being achieved. According to PMO-DTS program officials, this could be attributed, in part, to the DOD travelers being uncomfortable with the system and with making reservations without using a CTO. Although this may be one reason, other factors may also affect the expected “no touch” fee. For example, we were informed that determining the airline availability and making the associated reservation can be accomplished, in most cases, rather easily. However, obtaining information related to hotels and rental cars and making the associated reservation can be more problematic because of the limitations in the data that DTS is able to obtain from its commercial sources. Accordingly, while a traveler may be able to make a “no touch” reservation for the airline portion of the trip, the individual may need to contact the CTO in order to make hotel or rental car reservations. When this occurs, rather than paying a “no touch” fee to the CTO, DOD ends up paying a higher fee, which eliminates the savings estimated in the economic analysis.

\textsuperscript{14}Defense Travel Region 6 includes the Air Force and defense agencies in the states of Kentucky, Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, and Wisconsin. The contract also applies to Army activities in 8 of the 11 states (excluding Kentucky, Missouri, and Nebraska). As discussed later, the Navy uses a management fee contract, and is therefore not included in the Defense Travel Region 6 contract.

\textsuperscript{15}According to DTS officials, these savings are consistent with the DTS contracts that have been awarded to small businesses. The average savings per “no touch” ticket under these contracts is about $12.88. Because the contractors are paid these fees directly by the traveler, they are unable to determine the percentage of transactions that are actually paid using the “no touch” rate.
The economic analysis assumed that (1) DOD would be able to modify the existing CTO contracts to achieve a substantial reduction in fees paid to a CTO when DTS was fully implemented across the department and (2) all services would use the fee structure called for in the new CTO contracts. The first part of the assumption is supported by results of the CTO contract for DOD Region 6 travel. The fees for the DTS “no touch” transactions were at least $10 less than if a CTO was involved in the transactions. However, to date, the department has experienced difficulty in awarding new contracts with the lower fee structure. On May 10, 2006, the department announced the cancellation of the solicitation for a new contract. According to the department, it decided that the solicitation needed to be rewritten based on feedback from travel industry representatives at a March 28, 2006, conference. The department acknowledged that the “DTS office realized its solicitation didn’t reflect what travel agency services it actually needed.”

The department would not say how the solicitation would be refined, citing the sensitivity of the procurement process. The department also noted that the new solicitation would be released soon, but provided no specific date.

The economic analysis assumed that the Navy would save about $7.5 million, almost 25 percent, of the total savings related to CTO fees once DTS is fully deployed. The economic analysis averaged the CTO fees paid by the Army, the Air Force, and the Marine Corps—which amounted to about $18.71 per transaction—to compute the savings in Navy CTO fees. Using these data, the assumption was made in the economic analysis that a fee of $5.25 would be assessed for each ticket, resulting in an average savings of $13.46 per ticket for the Navy ($18.71 minus $5.25). While this approach may be valid for the organizations that pay individual CTO fees, it may not be representative for organizations such as the Navy that pay a management fee. The management fee charged the Navy is the same regardless of the involvement of the CTO—therefore, the reduced “no touch” fee would not apply.

We were informed by Navy DTS program officials that they were considering continuing the use of management fees after DTS is fully implemented. According to Navy DTS program officials, they paid about $14.5 million during fiscal year 2005 for CTO management fees, almost $19

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17These savings translate to about 572,000 tickets annually.
Effective implementation of DOD guidance would have detected the types of problems discussed above and resulted in an economic analysis that would have accomplished the stated objective of the process—to help ensure that the funds invested in DTS were used efficiently and effectively. DOD policy and OMB guidance require that an economic analysis be based on facts and data and be explicit about the underlying assumptions used to arrive at estimates of future benefits and costs. Since an economic analysis deals with costs and benefits occurring in the future, assumptions must be made to account for uncertainties. DOD policy recognizes this and provides a systematic approach to the problem of choosing the best method of allocating scarce resources to achieve a given objective.

A sound economic analysis recognizes that there are alternative ways to meet a given objective and that each alternative requires certain resources and produces certain results. The purpose of the economic analysis is to give the decision maker insight into economic factors bearing on accomplishing the objectives. Therefore, it is important to identify factors, such as cost and performance risks and drivers, that can be used to establish and defend priorities and resource allocations. The DTS economic analysis did not comply with the DOD policy, and the weaknesses we found should have been detected had the DOD policy been effectively implemented. The PMO-DTS had adequate warning signs of the potential problems associated with not following the OMB and DOD guidance for developing an effective economic analysis. For example, as noted earlier, the Air Force and Navy provided comments when the economic analysis was being developed that the expected benefits being claimed were unrealistic. Just removing the benefits associated with personnel savings from the Air Force and Navy would have reduced the overall estimated program cost savings by almost 45 percent. This would have put increased pressure on the credibility of using a 70 percent “no touch” utilization rate.

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Specific examples of failures to effectively implement the DOD policy on conducting economic analyses include the (1) DTS life-cycle cost estimates portion of the economic analysis was not independently validated as specified in DOD’s guidance and (2) September 2003 DTS economic analysis did not undertake an assessment of the effects of the uncertainty inherent in the estimates of benefits and costs, as required by DOD and OMB guidance. Because an economic analysis uses estimates and assumptions, it is critical that a sensitivity analysis be performed to understand the effects of the imprecision in both underlying data and modeling assumptions.

DTS Remains Underutilized by the Military Services

Our September 2005 testimony and January 2006 report noted the challenge facing the department in attaining the anticipated DTS utilization. While DOD has acknowledged the underutilization, we found that, across DOD, the department does not have reasonable quantitative metrics to measure the extent to which DTS is actually being used. Presently, the reported DTS utilization is based on a DTS Voucher Analysis Model that was developed in calendar year 2003 using estimated data, but over the years has not been completely updated with actual data. While the military services have initiated actions to help increase the utilization of DTS, they pointed out that ineffective DTS training is a contributing factor to the lower than expected usage rate by the military services.


22Sensitivity analysis refers to changing the value of a given variable in a model to gauge the effect of change on model results.


24DOD developed a model in calendar year 2003 that compares the expected usage against the actual usage. The expected usage is obtained by using historical data, such as ticket counts, to determine the expected number of vouchers processed by a given location. For example, if a location had 1,000 vouchers as its expected number of vouchers per the model, but now processes 750 actual vouchers through DTS, then the PMO model considers that that location has achieved a 75 percent utilization rate. It then takes the individual computations for each DTS location and “rolls them up” to determine the total utilization for individual service performance on a monthly basis.
Metrics to Measure DTS Utilization Are Inadequate

The DTS Voucher Analysis Model was prepared in calendar year 2003 and based on airline ticket and voucher count data that were reported by the military services and defense agencies, but the data were not verified or validated. Furthermore, PMO-DTS officials acknowledged that the model has not been completely updated with actual data as DTS continues to be implemented at the 11,000 sites. We found that the Air Force is the only military service that submits monthly metrics to the PMO-DTS officials for their use in updating the DTS Voucher Analysis Model. Rather than reporting utilization based on individual site system utilization data, the PMO-DTS continues to rely on outdated information in the reporting of DTS utilization to DOD management and the Congress. We have previously reported that best business practices indicate that a key factor of project management and oversight is the ability to effectively monitor and evaluate a project’s actual performance against what was planned.

In order to perform this critical task, best business practices require the adoption of quantitative metrics to help measure the effectiveness of a business system implementation and to continually measure and monitor results, such as system utilization. This lack of accurate and pertinent utilization data hinders management’s ability to monitor its progress toward the DOD vision of DTS as the standard travel system, as well as to provide consistent and accurate data to Congress. With the shift of the DTS program to the Business Transformation Agency (BTA), which now makes DTS an enterprisewide endeavor, improved metrics and training are essential if DTS is to be DOD’s standard, integrated, end-to-end travel system for business travel.

DTS’s reported utilization rates for the period October 2005 through April 2006 averaged 53 percent for Army, 30 percent for Navy, and 39 percent for Air Force. Because the PMO-DTS was not able to identify the total number of travel vouchers that should have been processed through DTS

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26In October 2005, DOD established BTA to advance DOD-wide business transformation efforts, particularly with regard to business systems modernization. BTA operates under the authority, direction, and control of the Under Secretary of Defense for Acquisition, Technology, and Logistics, who is the vice chair of the Defense Business Systems Management Committee—which serves as the highest ranking governing body for business systems modernization activities.
(total universe of travel vouchers), these utilization rates may be over- or understated. PMO-DTS program officials confirmed that the reported utilization data were not based on complete data because the department did not have comprehensive information to identify the universe or the total number of travel vouchers that should be processed through DTS. PMO-DTS program and DTS military service officials agreed that the actual DTS utilization rate should be calculated by comparing actual vouchers being processed in DTS to the total universe of vouchers that should be processed in DTS. The universe would exclude those travel vouchers that cannot be processed through DTS, such as those related to permanent change of station travel.

The Air Force was the only military service that attempted to obtain data on (1) the actual travel vouchers processed through DTS and (2) those travel vouchers that were eligible to be processed through DTS, but were not. These data were site-specific. For example, during the month of December 2005, the PMO-DTS reported that at Wright-Patterson Air Force Base, 2,880 travel vouchers were processed by DTS, and the Air Force reported that another 2,307 vouchers were processed through the legacy system—the Reserve Travel System (RTS). Of those processed through RTS, Air Force DTS program officials stated that 338 travel vouchers should have been processed through DTS. DTS Air Force program officials further stated that they submitted to the PMO-DTS the number of travel vouchers processed through RTS each month. These data are used by the PMO-DTS to update the DTS Voucher Analysis Model. However, neither the Air Force nor the PMO-DTS have verified the accuracy and reliability of the data. Therefore, the accuracy of the utilization rates reported for the Air Force by the PMO-DTS is not known.

Because Army and Navy DTS program officials did not have the information to identify the travel transactions that should have been processed through DTS, the Army and Navy did not have a basis for evaluating DTS utilization at their respective military locations and activities. Furthermore, Navy DTS program officials indicated that the utilization data that the PMO-DTS program officials reported for the Navy were not accurate. According to Navy DTS program officials, the Navy’s primary source of utilization data was the monthly metrics reports provided by the PMO-DTS, but Navy DTS program officials questioned the accuracy of the Navy utilization reports provided by the PMO-DTS.
Although the military services have issued various memorandums aimed at increasing the utilization of DTS, the military service DTS program officials all pointed to ineffective training as a primary cause of DTS not being utilized to a far greater extent. The following examples highlight the concerns raised by the military service officials:

- Army DTS program officials emphasized that the DTS system is complex and the design presents usability challenges for users—especially for first-time or infrequent users. They added that a major concern is that there is no PMO-DTS training for existing DTS users as new functionality is added to DTS. These officials stated that the PMO-DTS does not do a good job of informing users about functionality changes made to the system. We inquired if the Help Desk was able to resolve the users’ problems, and the Army DTS officials simply stated “no.” The Army officials further pointed out that it would be beneficial if the PMO-DTS improved the electronic training on the DTS Web site and made the training documentation easier to understand. Also, improved training would help infrequent users adapt to system changes. The Army officials noted that without some of these improvements to resolve usability concerns, DTS will continue to be extremely frustrating and cumbersome for travelers.

- Navy DTS program officials stated that DTS lacks adequate user/traveler training. The train-the-trainer concept of training system administrators who could then effectively train all their travelers has been largely unsuccessful. According to Navy officials, this has resulted in many travelers and users attempting to use DTS with no or insufficient training. The effect has frustrated users at each step of the travel process and has discouraged use of DTS.

- Air Force officials stated that new DTS system releases are implemented with known problems, but the sites are not informed of the problems. Workarounds are not provided until after the sites begin encountering problems. Air Force DTS program officials stated that DTS releases did not appear to be well tested prior to implementation. Air Force officials also stated that there was insufficient training on new functionality. PMO-DTS and DTS contractor program officials believed that conference calls to discuss new functionality with the sites were acceptable training, but Air Force officials did not agree. The Air Force finance office was expected to fully comprehend the information received from those conference calls and provide training on the new functionality to users/approvers, but these officials stated that this was an unrealistic expectation.
As discussed in our September 2005 testimony and January 2006 report, the unnecessary continued use of the legacy travel systems results in the inefficient use of funds because the department is paying to operate and maintain duplicative systems that perform the same function—travel.

Previously Reported DTS Requirements Management and Testing Deficiencies Have Not Been Resolved

Our September 2005 testimony and January 2006 report noted problems with DTS’s ability to properly display flight information and traced those problems to inadequate requirements management and testing. DOD stated that it had addressed those deficiencies, and in February 2006, we again tested the system to determine whether the stated weaknesses had been addressed. We found that similar problems continue to exist. Once again, these problems can be traced to ineffective requirements management and testing processes. Properly defined requirements are a key element in systems that meet their cost, schedule, and performance goals since the requirements define the (1) functionality that is expected to be provided by the system and (2) quantitative measures by which to determine through testing whether that functionality is operating as expected.

We briefed PMO-DTS officials on the results of our tests and in May 2006 the officials agreed that our continued concerns about the proper display of flight information were valid. PMO-DTS officials stated that the DTS technology refresh, which was to be completed in September 2006, should address some of our concerns. While these actions are a positive step forward, they do not address the fundamental problem that DTS’s requirements are still ambiguous and conflicting—a primary cause of the previous problems. Until a viable requirements management process is developed and effectively implemented, the department (1) cannot develop an effective testing process and (2) will not have reasonable assurance the project risks have been reduced to acceptable levels.

Providing Complete Flight Information Has Been a Continuing Problem

In our earlier testimony and report, we noted that DOD did not have reasonable assurance that the flights displayed met the stated DOD requirements. Although DOD stated in each case that our concerns had been addressed, subsequent tests found that the problems had not been corrected. Requirements represent the blueprint that system developers and program managers use to design, develop, and acquire a system.


Requirements should be consistent with one another, verifiable, and directly traceable\textsuperscript{29} to higher-level business or functional requirements. It is critical that requirements be carefully defined and that they flow directly from the organization’s concept of operations (how the organization’s day-to-day operations are or will be carried out to meet mission needs). Improperly defined or incomplete requirements have been commonly identified as a cause of system failure and systems that do not meet their cost, schedule, or performance goals.

Requirements represent the foundation on which the system should be developed and implemented. As we have noted in previous reports,\textsuperscript{30} because requirements provide the foundation for system testing, significant defects in the requirements management process preclude an entity from implementing a disciplined testing process. That is, requirements must be complete, clear, and well documented to design and implement an effective testing program. Absent this, an organization is taking a significant risk that its testing efforts will not detect significant defects until after the system is placed into production. Our February 2006 analysis of selected flight information disclosed that DOD still did not have reasonable assurance that DTS displayed flights in accordance with its stated requirements. We analyzed 15 U.S. General Services Administration (GSA) city pairs,\textsuperscript{31} which should have translated into 246 GSA city pair flights for the departure times selected. However, we identified 87 flights that did not appear on one or more of the required listings based on the DTS requirements. For instance, our analysis identified 44 flights

\textsuperscript{29}Traceability allows the user to follow the life of the requirement both forward and backward through these documents and from origin through implementation. Traceability is also critical to understanding the parentage, interconnections, and dependencies among the individual requirements. This information in turn is critical to understanding the impact when a requirement is changed or deleted.


\textsuperscript{31}GSA awards contracts to airlines to provide flight services between pairs of cities. This is commonly referred to as the GSA city pair program. Under this program (1) no advanced ticket purchases are required, (2) no minimum or maximum length of stay is required, (3) tickets are fully refundable and no charges are assessed for cancellations or changes, (4) seating is not capacity controlled (i.e., as long as there is a coach-class seat on the plane, the traveler may purchase it), (5) no blackout dates apply, (6) fare savings average 70 percent over regular walk-up fares, and (7) fares are priced on one-way routes permitting agencies to plan for multiple destinations. We selected the first 15 city pairs that were provided by DOD to GSA in support of a GSA study on accuracy of flight displays and fare information by DTS and the GSA eTravel providers.
appearing on other DTS listings or airline sites that did not appear on the 9:00 am DTS listing even though those flights (1) met the 12-hour flight window\textsuperscript{32} and (2) were considered GSA city pair flights—two of the key DTS requirements the system was expected to meet.

After briefing PMO officials on the results of our analysis in February 2006, the PMO-DTS employed the services of a contractor to review DTS to determine the specific cause of the problems and recommend solutions. In a March 2006 briefing, the PMO-DTS acknowledged the existence of the problems, and identified two primary causes. First, part of the problem was attributed to the methodology used by DTS to obtain flights from the Global Distribution System (GDS). The PMO-DTS stated that DTS was programmed to obtain a “limited” amount of data from GDS in order to reduce the costs associated with accessing GDS. This helps to explain why flight queries we reviewed did not produce the expected results. To resolve this particular problem, the PMO-DTS proposed increasing the amount of data obtained from GDS. Second, the PMO-DTS acknowledged that the system testing performed by the contractor responsible for developing and operating DTS was inadequate and, therefore, there was no assurance that DTS would provide the data in conformance with the stated requirements. This weakness was not new, but rather reconfirms the concerns discussed in our September 2005 testimony and January 2006 report\textsuperscript{33} related to the testing of DTS.

DOD’s Planned Corrective Actions Will Not Address Fundamental Requirements Management Problems

While DOD’s planned actions, including a recent technology upgrade, should address several of the specific weaknesses we identified related to flight displays, they fall short of addressing the fundamental problems that caused those weaknesses—inadequate requirements management. DTS’s requirements continue to be ambiguous. For example, DOD has retained a requirement to display 25 flights for each inquiry. However, it has not determined (1) whether the rationale for that requirement is valid and (2) under what conditions flights that are not part of the GSA city pair program should be displayed. For example, we found that several DTS

\textsuperscript{32}A flight window is the amount of time before and after a specified time and is used for determining the flights that should be displayed. DTS uses a 12-hour flight window for domestic flights and a 24-hour flight window for foreign flights. The system is also expected to display up to 25 flights for the flight window.

\textsuperscript{33}GAO-05-998T and GAO-06-18.
flights displayed to the user “overlap” other flights. Properly validating the requirements would allow DOD to obtain reasonable assurance that its requirements properly define the functionality needed and the business rules necessary to properly implement that functionality. As previously noted, requirements that are unambiguous and consistent are fundamental to providing reasonable assurance that a system will provide the desired functionality. Until DOD improves DTS requirement management practices, it will not have this assurance.

Our recent report included four recommendations to improve the department’s management and oversight of DTS. We recommended that DOD (1) evaluate the cost effectiveness of the Navy continuing with the CTO management fee structure versus adopting the revised CTO fee structure, once the new contracts have been awarded, (2) develop a process by which the military services develop and use quantitative data from DTS and their individual legacy systems to clearly identify the total universe of DTS-eligible transactions on a monthly basis, (3) require the PMO-DTS to provide periodic reports on the utilization of DTS, once accurate data are available, and (4) resolve inconsistencies in DTS requirements by properly defining the functionality needed and business rules necessary to properly implement the needed functionality. DOD concurred with three and partially concurred with one of the recommendations. In regard to the recommendations with which the department concurred, it briefly outlined the actions it planned to take in addressing two of the three recommendations. For example, the department noted the difficulties in obtaining accurate utilization data from the existing legacy systems, but stated that the Office of the Under Secretary of Defense (Personnel and Readiness) and BTA will evaluate methods for reporting actual DTS utilization.

Additionally, DOD noted that the Defense Travel Management Office developed and implemented a requirements change management process.

34For example, DTS displayed a GSA city pair flight between Washington, D.C., and Atlanta, Georgia, that departed at 10:05 a.m. and arrived at 1:50 p.m. This flight “overlapped” two other GSA city pair direct flights that were available and required less travel time. One flight left at 10:05 a.m. and arrived at 12:02 p.m. while another left at 11:05 a.m. and arrived at 12:56 p.m. Furthermore, DTS displayed a non-GSA city pair flight that left at 9:20 a.m. and arrived at 1:05 p.m. This flight did not meet any of the acceptable criteria for not using a GSA city pair flight.

35GAO-06-980.
on May 1, 2006. In commenting on the report, the department stated that this process is intended to define requirements and track the entire life cycle of the requirements development process. While we fully support the department’s efforts to improve its management oversight of DTS’s requirements, we continue to believe that the department needs to have in place a process that provides DOD reasonable assurance that (1) requirements are properly documented and (2) requirements are adequately tested as recommended in our January 2006 report. This process should apply to all existing requirements as well as any new requirements. As discussed in this report, we reviewed in May 2006 some of the requirements that were to have followed the new requirements management process and found problems similar to those noted in our January 2006 report. Although we did not specifically review the new process, if it does not include an evaluation of existing requirements, the department may continue to experience problems similar to those we previously identified.

DOD partially concurred with our recommendation to evaluate the cost effectiveness of the Navy continuing with the CTO management fee structure. However, DOD’s response indicated that the Defense Travel Management Office is currently procuring commercial travel services for DOD worldwide in a manner that will ensure evaluation of cost effectiveness for all services. If DOD proceeds with the actions outlined in its comments, it will meet the intent of our recommendation.

Effective implementation of these recommendations as well as those included in our January 2006 report will go a long way towards improving DTS functionality and increasing utilization. Furthermore, the shift of DTS to the BTA, which makes DTS an enterprisewide endeavor, should help in making DTS the standard integrated, end-to-end travel system for business travel. Management oversight is essential for this to become a reality. As I stated previously, in written comments on a draft of our report, the Under Secretary of Defense (Personnel and Readiness), strongly objected to our finding that the estimated personnel savings included in the economic analysis are unrealistic. Because none of the military services could validate an actual reduction in the number of personnel as a result of DTS implementation, and DOD’s comments did not include any additional support or documentation for its position, we continue to believe that the

36 GAO-06-18.
37 GAO-06-18.
estimated annual personnel savings of $54.1 million are unrealistic. Although the department’s criteria do not require that a new economic analysis be prepared, the fiscal year 2005 defense authorization act\textsuperscript{38} requires the periodic review, but not less than annually, of every defense business system investment. If effectively implemented, this annual review process provides an excellent opportunity for DOD management to assess whether DTS is meeting its planned cost, schedule, and functionality goals. Going forward, such a review could serve as a useful management tool in making funding and other management decisions related to DTS.

In conclusion, overhauling the department’s antiquated travel management practices and systems has been a daunting challenge for DOD. While it was widely recognized that this was a task that needed to be accomplished and savings could result, the underlying assumptions in support of those savings are not based on reliable data and therefore it is questionable whether the anticipated savings will materialize. Even though the overall savings are questionable, the successful implementation of DTS is critical to reducing the number of stovepiped, duplicative travel systems throughout the department. We have reported on numerous occasions that reducing the number of business systems within DOD can translate into savings that can be used for other mission needs. As noted above, management oversight will be an important factor in DTS achieving its intended goals. Equally important, however, will be the department’s ability to resolve the long-standing difficulties that DTS has encountered with its requirements management and system testing. Until these issues are resolved, more complete utilization of DTS will be problematic.

Mr. Chairman, this concludes my prepared statement. We would be happy to answer any questions that you or other members of the Subcommittee may have at this time.

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