

# Department of Transportation

Office of the Secretary

Washington, D.C.

## ORDER

DOT 1370.10

4-5-77

SUBJECT: MANAGEMENT OF AUTOMATED SYSTEMS DEVELOPMENT AND OPERATION

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1. PURPOSE. This Order prescribes policies and procedures for managing the development and operation of Automated Data Systems (ADS) within the Department of Transportation.
2. REFERENCES.
  - a. Federal Management Circular 74-5, Management Acquisition and Utilization of Automatic Data Processing (ADP), which establishes policies for the management, acquisition, and utilization of ADP equipment (ADPE), software, maintenance, ADP related services and supplies.
  - b. Bureau of the Budget Circular A-71, Responsibilities for the Administration and Management of Automatic Data Processing (ADP) Activities, which identifies certain responsibilities of executive agencies for the administration and management of ADP activities.
  - c. DOT 1370.9, Policy and Guidelines for Determining the Need for Utilization of Automatic Data Processing Resources of 4-5-77, which prescribes policy and guidelines for investigating, costing, and documenting requirements prior to the utilization of Automatic Data Processing (ADP) resources.
  - d. DOT 1050.3, Implementation of the Privacy Act of 1974, of 12-23-75 which establishes the policies and procedures to be followed in implementing the Privacy Act of 1974.
  - e. Federal Property Management Regulation 101-32, Government-wide Automated Data Management Services, which establishes policies and procedures governing the utilization of ADP resources.

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DISTRIBUTION: All Secretarial Offices  
All Operating Elements

OPI: Office of  
Management  
Systems

3. SCOPE.

- a. The provisions of this Order apply to the operating elements and the Transportation Systems Center. Specific policies and procedures applicable to the Office of the Secretary will be promulgated in an OST Order.
- b. This Order applies to new starts and changes to existing systems or applications. It is applicable regardless of the source of the automatic data processing resource, whether it be in-house, inter-governmental, or contractor furnished. While the above policy is applicable to any ADP application, system or other ADP project, the amount of resources committed to analysis, audit, documentation, etc., should be consistent with the cost and complexity of the ADP function under consideration. ADP applications of relatively short life and low cost may be aggregated according to some convenient measure, documented, and reviewed as a singular item. There are some areas such as data processing embedded in contracts, modeling, simulations, and studies that are not easily discernible as data processing. In making a determination for those cases, the following guidance is offered:
  - (1) All projects undertaken specifically by ADP services will be included.
  - (2) Other projects (R&D, special studies, etc.) not designed exclusively for ADP services, but having a significant ADP ingredient, will be included if:
    - (a) An ADP product (software package) is specifically cited as a deliverable item; and,
    - (b) The ADP portion of the total project cost (programming and implementation) is clearly identifiable or can easily be separated from the other project costs.

4. BACKGROUND. Considerable resources are expended within DOT in the design, programming, implementation, operation, and maintenance of automated systems. In addition to the "in-house" and commercial ADP resources involved, there is a considerable expenditure of effort required on the part of functional personnel for data collection and conversion. These systems are intended to produce net savings in the cost of performing labor-intensive tasks and to provide timely, accurate and meaningful information for analysis and decision making. In view of

the significant resource investment required to develop and operate automated systems, it is important that adequate attention be given to planning, management and life cycle control of this investment in order to minimize costs and increase effectiveness.

Special attention must be given to automated decision making systems which initiate action on the basis of decision making criteria established by management and incorporated in computer instructions. Such systems are prominent in numerous functional areas including procurement, supply distribution, billing, and fiscal. The distinguishing characteristic of automated decision making systems is that many actions take place without human review and evaluation; i.e., the actions taken depend solely on the criteria established in the computer instructions and the data being automatically processed in the system. The GAO estimates that Government computers issue annually unreviewed authorizations, bills, requisitions, and shipping and disposal orders totalling billions of dollars.

5. OBJECTIVES. The objectives are to reduce overall costs, optimize compatibility and better utilize available information for management purposes. These objectives will be realized through improved coordination of automated data systems by:
  - a. Establishing management controls over the development, modification and operation of DOT's automated data systems with monitoring of progress against approved milestones and resource projections.
  - b. Providing a standard discipline and framework for documentation of automated data systems planning and for review of each ADS at key points from the inception of the system through its entire life cycle. The life cycle covers the entire period of activity concerning the automated data system, commencing with conception through planning, development, installation, and operation, terminating at the end of the operation phase when the system is deleted or replaced.
  - c. Providing for more uniform and effective management and coordination of efforts on a Department-wide basis through the use of standard documentation and review procedures.
6. POLICY.
  - a. Information needs will be accommodated to the maximum practical extent through the use of existing systems.

- b. Whenever it is practical to do so, ADSs will be structured to satisfy the needs of other DOT elements having compatible requirements as well as those of the developing DOT element.
- c. Development of new ADSs or modifications to existing ADSs will be justified on a cost versus benefit basis or certified as extremely essential to the operating element's mission.
- d. ADSs will be integrated and/or interfaced across operating element and Secretarial Office boundaries whenever more meaningful and useful information can be provided to meet basic DOT objectives.

7. STANDARD DOCUMENTATION REQUIREMENTS.

- a. General. Documentation of ADSs should be made in accordance with a well defined management control process established by each DOT operating element. Such a process should emphasize the needs of the user rather than the ADP system and include a means for initially focusing on conceptualization of the desired system and implementing the subsystem involved in a logical, incremental manner. Systems development documentation should show that:
  - (1) Functions or processes for which the ADS is to be used are essential and can be effectively automated.
  - (2) Workload requirements have been evaluated to ensure that only mission-essential work is being performed.
  - (3) New procedures and methods are designed to achieve the highest practical degree of effectiveness and operational economy.
- b. Major Developments. When estimated development and/or modification costs of an ADS exceed \$100,000 or when the estimated total development cost plus the projected costs of maintaining and operating the system for the first five years after completion of development exceed \$500,000, the decision to proceed with the development and/or modification shall be preceded by well-documented general system and/or feasibility studies (see reference c).
- c. Minor Developments. When costs are below the thresholds delineated in 7b above, the system files shall be documented to include appropriate management justification of the need for the development and/or modification of an ADS. In determining costs, the costs of using "in-house" personnel, facilities, and equipment shall be combined with the costs of externally obtained services and support.

- d. Pre-project Planning. Prior to the initiation of any development the following documentation will be provided to the approving official:
  - (1) The basic requirements the proposed ADS is intended to satisfy.
  - (2) A milestone progress report.
  - (3) Identification of the key milestones of the development.
- e. Project Progress Tracking. During the developmental phase of any project the following documentation will be provided to the approving official:
  - (1) At each key milestone:
    - (a) An update of the economic analysis used in the proposal for the development.
    - (b) A milestone progress report.
    - (c) An updated cost analysis of the system development.
  - (2) An alert report if a milestone is expected to be delayed more than 30 days beyond a scheduled date.
- f. In every instance, documentation requirements will be commensurate in scope and depth to the size and importance of the development project.

### 3. REVIEW REQUIREMENTS.

- a. An in-depth management review of an ADS development will be conducted whenever:
  - (1) The incremental cost actually incurred from a key milestone to its successor exceeds by 25% or more the predicted incremental cost.
  - (2) A key milestone slips by more than 90 days.

b. In-depth management reviews will be directed by the official who approved the ADS development and will be commensurate in scope to the size and importance of the development project and the circumstances which precipitated the review. In-depth management reviews shall include:

- (1) Examination of the management tools used for forecasting and ADP project monitoring.
- (2) Review of the costs and workload, both forecast and actual, over the developmental history of the system.
- (3) Review of the key technical and administrative decisions and examination of alternatives to assist in developing a remedial plan.
- (4) Revised economic analysis where costs have significantly increased.

9. RESPONSIBILITY.

a. The Assistant Secretary for Administration is responsible for:

- (1) Reviewing the procedures and methods used in managing the development and operation of automated data systems throughout the Department.
- (2) Conducting in-depth reviews of ADS developments and operational ADSs on a selective basis throughout the Department.

b. The head of each operating element and TSC is responsible for:

- (1) Adopting documentation standards which precisely define the quantitative and qualitative information needed to make valid management decisions concerning development and procurement actions.
- (2) Providing for review and approval of proposals for ADS development and/or modification, at levels commensurate with estimated costs.

- (3) Providing for the review and approval at each key milestone of each ADS development or modification by an organizational level commensurate with the size and importance of the proposal. The review level will be specified by the official approving the proposal.
- (4) Ensuring adequate documentation of the review and approval process for each development and modification.
- (5) Establishing policies and procedures to assure active monitoring and control of the development and operation of automated data systems.
- (6) Establishing procedures to ensure annual reconciliation of the development progress reports and operation cost reports with applicable budget submission.

10. MONITORING OF OPERATIONAL ADSS. The Assistant Secretary for Administration will monitor operational ADSS in the Department of Transportation on a selective basis. Heads of operating elements will also selectively monitor operational ADSS under their cognizance. ADSS will be monitored to assure:
  - a. Operation in a cost-effective manner.
  - b. That systems containing personal data are in compliance with the Privacy Act of 1974.
  - c. That automated decision making systems are functioning correctly and that procedures are in effect for discovering, reporting, and correcting any decision logic found to be in error.
11. IMPLEMENTATION. Procedures for implementing this Order will be developed and documented in each operating element. Copies of the documentation will be provided to the Office of the Secretary (TAD-25) within 180 days of the effective date of this Order.

OR THE SECRETARY OF TRANSPORTATION:



William S. Heffelfinger  
Assistant Secretary  
Administration