

Department of Transportation

Office of the Secretary

Washington, D.C.

ORDER

DOT 1370.9

4-5-77

SUBJECT: POLICY AND GUIDELINES FOR DETERMINING THE NEED FOR UTILIZATION OF AUTOMATIC DATA PROCESSING RESOURCES

1. PURPOSE. This Order prescribes policy and guidelines for investigating, costing and documenting requirements prior to the utilization of automatic data processing equipment, software or services. It provides a uniform method for documenting the determination of need for acquiring, augmenting and developing automatic data processing (ADP) resources.
2. REFERENCES.
 - a. Federal Management Circular 74-5: Management, acquisition, and utilization of automatic data processing (ADP) which establishes policies in the management, acquisition, and utilization of ADP equipment (ADPE), software, maintenance, ADP related services, and supplies.
 - b. Office of Management and Budget Circular A-71, Responsibilities for the administration and management of automatic data processing activities which identifies the responsibilities of executive agencies for the administration and management of automatic data processing (ADP) activities.
 - c. Office of Management and Budget Circular A-76, Policies for acquiring commercial products and services for Government use which states the basic policies to be applied by executive agencies in determining whether commercial and industrial products and services used by the government are to be provided by private suppliers or the government itself.
 - d. Office of Management and Budget Circular A-94, Discount rates to be used in evaluating time distributed costs and benefits which provides guidance in evaluating time distributed costs and benefits.
 - e. Federal Property Management Regulations S101-32, Government-wide automatic data management services (41CFR Part 101-32) which provides policies, procedures, and guidelines pertaining to the government-wide management of automated data services

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including revolving fund, resource utilization, utilization of excess, procurement and contracting, maintenance and repair, and related subjects.

- f. Office of Telecommunications Policy (OTP) Circular No. 13, Federal Use of Commercial Telecommunication Service which emphasizes the need to place maximum reliance on the private sector in providing telecommunications services to the Federal Government.
 - g. General Services Administration (GSA), Guidance to Federal Agencies on the Preparation of Specifications, Selection, and Acquisition of Automatic Data Processing Systems which provides guidance to those personnel involved in the ADP procurement process.
 - h. Office of Management and Budget Circular A-108, Responsibilities for the maintenance of records about individuals by Federal agencies which defines responsibilities for implementing the Privacy Act of 1974.
3. BACKGROUND. The true measure of automatic data processing (ADP) is how effectively it supports the organization's objectives. ADP support can take many forms--from the mechanization of manual functions to the improvement of basic operations and management decision making. With the current level of data processing technology, the number and types of applications which can be computerized is almost without limit. However, the benefits of these applications to their respective organizations varies widely. Benefits may be direct or indirect dollar savings or some other quantifiable form. Benefits may also be qualitative in terms of more effective accomplishment of the DOT mission, better service or reduced time to respond to changed requirements. But, whatever the terms of the benefit, it must be measurable to management's satisfaction. Management must choose those applications which contribute most to the organization's objectives, mission accomplishment and productivity; cost/benefit analysis assists in making these choices.
- a. The single self-contained ADP program is rapidly disappearing in favor of integrated systems which take advantage of communications technology, data base management software and similar techniques. The complex nature of modern systems requires more thorough planning and a longer range commitment to the selected course of action.

- b. Conterminous with complexity is cost. The cost of maintaining and operating a poorly designed ADP system can far exceed its developmental costs. Top management should be apprised of the key steps in ADP systems development and should be prepared to veto the system at any time during its life cycle.
 - c. A necessary ingredient for bringing ADP projects to successful fruition is a structured, disciplined approach to ADP systems development. It begins with studies which lead to the design of an ADP application and ends when the application is terminated or replaced. It is essential that studies encompass the total expected life cycle of the application. The preliminary analysis is termed the Feasibility Study. The in-depth analysis covering the full range of investigation over the total proposed ADP activity's life is termed the ADP System Plan (ASP). The terms Feasibility Study and System Plan are used to describe both the actions involved in the investigation and the documents resulting therefrom.
4. POLICY. It is the policy of the Department of Transportation (DOT) that the need to use data processing resources will be properly documented.
5. PROCEDURES. The following actions are required as a minimum.
 - a. Feasibility Study. A Feasibility Study is a preliminary analysis to determine whether there is sufficient expectation to warrant the investment of resources required to develop the complete ADP system plan. The elements to be included in the Feasibility Study are described in Guidelines for Feasibility Studies will be conducted when an initial investigation is deemed appropriate prior to the commitment of significant resources to a comprehensive investigation to develop the ADP System Plan. The approving official may determine that the complexity, magnitude or cost of the proposed ADP activity does not warrant a separate Feasibility Study; in which case the information required by the Feasibility Study will be incorporated in the ADP System Plan.
 - b. ADP System Plan. The ASP is a detailed analysis of the ADP activity's expected life; encompassing design, development, and operations. When a Feasibility Study has been approved, the ASP will investigate the issues raised by the preliminary investigation, refine the cost/benefit analysis, develop the system specifications, implementation plan, post audit plan,

maintenance plan and milestone decision points. A detailed description of the ASP is contained in Guidelines For Feasibility Studies and ADP System Planning. The ASP will vary in scope and complexity commensurate with the activity under consideration. Whether large or small, the ASP should be sufficiently complete within itself such that the decision rationale is clear and supported by the documentation. The ASP is the basis for review and approval of the proposed ADP activity.

- c. Post-Installation Audit. Although the post-installation audit is a required component of the ASP, it deserves particular attention. A thorough review of any system is needed after it has achieved operational status. The primary objective is to determine if the system has achieved the cost and benefit goals which formed the basis for the decision to proceed with the system. Where their goals were not met, a new decision is required--on the basis of the achieved benefits and the continuing cost to operate and maintain the system--as to whether the effort should be continued or abandoned. The post-installation audit also provides an excellent method of evaluating and improving the planning and development process. Post-installation audit must be planned to check accuracy, quality, and completeness of the system. Problems must be anticipated and contingency plans for possible resolution of the problems should be ready, in the event parts of the system prove to be inadequate.
- d. ADPE Documentation. Determination of need shall be preceded by and based upon well documented feasibility and/or ADP system plan studies for any automatic data processing equipment (ADPE) acquisition where the expected five year cost will exceed \$100,000.
- e. Automated Data System (ADS) Documentation. 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.

Below these dollar levels, files should be documented to include appropriate management justification and approval. In any case, the depth of analysis required will be commensurate with the cost and complexity of the system. Other DOT Orders, addressing the specific areas of time sharing, hardware acquisition, contract services and application development will provide specific guidance as to the level of approval authority in each case.

- f. Revalidation of Existing Workload. Periodic review of the existing ADP workload should be a standard function of the ADP management process. It is particularly relevant when new resources are to be expended on increasing the ADP system capability to accept new or changed applications. Revalidation data shall be considered by management prior to any decision to expend resources on ADP system enhancement, upgrade, or replacement.
6. GUIDELINES FOR FEASIBILITY STUDIES AND ADP SYSTEM PLANNING. This document contains detailed guidance for the investigatory planning and appraisal functions to be accomplished in the analysis, design, development, and control of automatic data processing resources. It is a companion document to this Order and, due to its size, is given limited distribution. An initial issuance will be made to all administrations and Secretarial offices and will be included in the DOT ADP Management Manual. It is a guideline and is not necessarily all inclusive nor is the order of presentation of the material necessarily the order of investigation. It will be referenced by other DOT Orders and will be updated as required. Suggestions for changes and requests for additional copies should be addressed to the Information Systems Division, TAD-25.
7. APPLICABILITY. This Order applies to new starts and modifications to existing systems or applications. It is applicable regardless of the source of the automatic data processing resource, whether it be in-house intergovernmental, 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.
 - a. All projects undertaken specifically by ADP services will be included.
 - b. Other projects (R&D, special studies, etc.) not designed exclusively for ADP services, but having a significant ADP ingredient, will be included if:

- (1) An ADP product (software package) is specifically cited as a deliverable item; and,
- (2) The ADP portion of the total project cost (programming and implementation) is clearly identifiable or can easily be separated from the other project costs.

FOR THE SECRETARY OF TRANSPORTATION:



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Administration