

March 1990

**INFORMATION  
TECHNOLOGY**

**DOD's Federal  
Logistics Data on  
Compact Disc Program**





United States  
General Accounting Office  
Washington, D.C. 20548

National Security and  
International Affairs Division

B-236879

March 15, 1990

The Honorable Constance Morella  
House of Representatives

The Honorable Bill Green  
House of Representatives

In response to your joint request, we have reviewed the Department of Defense (DOD) Federal Logistics Data on Compact Disc Program. DOD initiated the program to publish the government's catalog of logistics information using a relatively new technology known as Compact Disc Read Only Memory,<sup>1</sup> instead of the current media, microfiche. The program was developed and managed by the Defense Logistics Agency and its Defense Logistics Services Center.

You expressed concern that a DOD compact disc product would compete directly with Information Industry Association members' products and that DOD's plans to procure a compact disc-based catalog was not in consonance with laws favoring the use of existing commercial products over the development of new ones by the government.

This report addresses (1) the appropriateness of the Services Center's development of a prototype compact disc system; (2) the Services Center's management of the prototype project; (3) the Defense Logistics Agency's plans to procure the software, hardware, and/or services needed to provide a compact disc system and the potential for commercial involvement in the procurement; and (4) the impact of the Agency's decision to include business or otherwise sensitive data in the product on its acquisition approach.

---

## Results in Brief

The Services Center's initiation of the prototype development project was appropriate. Although DOD is required under its acquisition statutes to acquire existing commercial products to the maximum extent practicable rather than develop new ones, a DOD organization must define its needs before acquiring any product. The Services Center initiated the prototype project to define its needs (see app. II).

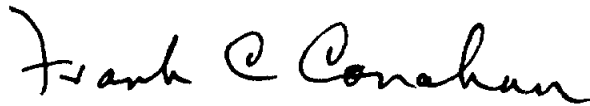
The Services Center used complex contractual arrangements in managing the prototype project. Some of these arrangements did not comply

---

<sup>1</sup>Read only memory means the data are stamped on the disc and cannot be erased or altered.

---

This report was prepared under the direction of Donna M. Heivilin, Director, Logistics Issues (275-8412). Other major contributors are listed in appendix IV.

A handwritten signature in black ink that reads "Frank C. Conahan". The signature is written in a cursive style with a large, stylized 'F' and 'C'.

Frank C. Conahan  
Assistant Comptroller General

---

**Contents**

---

---

**Abbreviations**

CD-ROM	Compact Disc Read Only Memory
DLA	Defense Logistics Agency
DOD	Department of Defense
GAO	General Accounting Office

specific needs as well as provide additional data not included in the system. For example, the Navy data identify items that require special handling or have a security classification.

After DOD initiated the program, the Information Industry Association, representing some of the commercial CD-ROM vendors, raised concerns about DOD developing a product that would compete directly with their products. The Association believes DOD's plan to procure a CD-ROM based catalog is not in consonance with laws favoring the use of existing commercial products rather than the development of new ones.

## Technology Used to Implement the Program

CD-ROM technology is used to provide easy and fast retrieval of large amounts of catalog information to DOD users. Since each compact disc has a capacity of over 640 megabytes, one disc can hold as much information as about 200,000 single-spaced type-written pages or 2,700 microfiche cards. The data are easily retrieved from the disc using a personal computer connected to a compact disc drive.

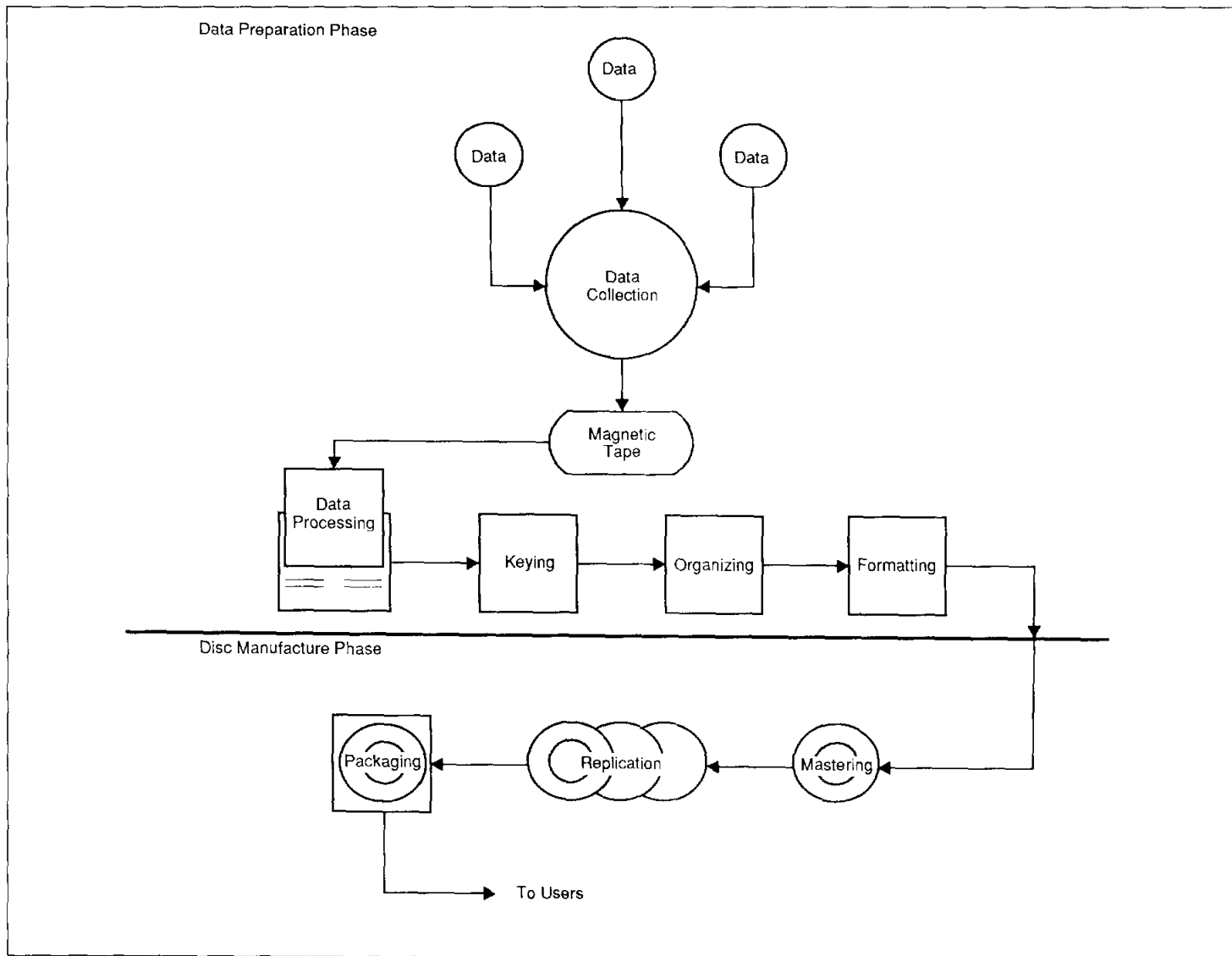
Figure I.1 shows the equipment (personal computer and disc drive) used to access the data on a compact disc.

Figure I.1: How a Compact Disc Product Is Used



Data are retrieved from a compact disc like music is retrieved from a phonograph record. The disc spins on a turntable inside the disc drive. However, instead of using a needle to read the disc, the disc drive uses a

Figure I.2: How a Compact Disc Product Is Made



## Objectives, Scope, and Methodology

Representatives Constance Morella and Bill Green asked us to respond to numerous questions on DOD's Federal Logistics Data on Compact Disc Program. After discussions with their staffs, we grouped these questions into five areas:

- the appropriateness of the Defense Logistics Services Center's development of a prototype CD-ROM system to disseminate its catalog information;

Secretary of Defense and analysts at the Services Center and reviewed DLA's acquisition justifications. We also obtained information about the quantity of sensitive data to be included in the product, DOD's plans to prevent unauthorized disclosure of the data, and DLA's justification for its acquisition strategy.

We performed most of our work from November 1988 through August 1989 at the following locations in accordance with generally accepted government auditing standards:

- Office of the Secretary of Defense, Washington, D.C.;
- Defense Logistics Agency, Alexandria, Virginia;
- Defense Logistics Services Center, Battle Creek, Michigan;
- Defense Applied Information Technology Center, Alexandria, Virginia;
- Advanced Systems Development, Inc., Alexandria, Virginia;
- Defense Supply Service, Washington, D.C.;
- Naval Supply Systems Command, Washington, D.C.;
- Navy Publishing and Printing Service offices, Mechanicsburg, Pennsylvania, and Washington, D.C.;
- Reference Technology Incorporated, Boulder, Colorado;
- Library of Congress, Washington, D.C.;
- CD-ROM technical seminar, sponsored by Hewlett-Packard and Phillips-DuPont Optical, held in Crystal City, Virginia;
- Special Interest Group on CD-ROM Applications and Technology seminar, sponsored by the U.S. Geological Survey, Reston, Virginia; and
- Information Industry Association, Washington, D.C.

from the specifications, and, therefore, considered them to be nonresponsive. The Services Center found no basis for determining whether the third bidder's price was reasonable.

In July 1987, the Services Center returned to its original plan to produce a prototype of a CD-ROM system. The prototype included information taken from the Federal Catalog System, and the Services Center worked with the services to also include catalog data they maintained separately. According to the Services Center, the prototype project was completed in January 1989.

---

## Approach Used to Develop the Prototype

The Services Center began prototype development work in July 1987 and distributed the first test product to 67 test sites by February 1988. The test product consisted of two compact discs containing Federal Catalog System data plus supplemental data provided by the Navy, and the software needed to retrieve and display the data. About every 3 months the Services Center distributed an updated prototype product to an expanding number of test sites that reached 250 by July 1988. Each updated disc included more data files and/or capabilities. For instance, Air Force-unique data files were added to the May 1988 product and Army-unique data files were included on the July 1988 product.

The Services Center worked with the services throughout the development phase. For instance, prior to production of the July 1988 product, the Services Center and the Army worked together to develop data presentation, manipulation, and retrieval capabilities for the Army field user. Similarly, the Services Center worked with the Navy and Air Force to ensure the prototype product satisfied their individual requirements. The Services Center also developed and incorporated in the prototype product enhancements that were often based on suggestions and other feedback from test site users.

Table II.1 summarizes the information on when data files were added, system capability was enhanced, and the number of test sites.



---

## Contractual Arrangements

Even though the Services Center's decision to develop a prototype was appropriate, the contractual arrangements used to carry out the development work were complex and not always appropriate. The Services Center obtained contractor support through the Defense Applied Information Technology Center and the Navy Publishing and Printing Service. During the life of the project, these organizations, in turn, entered into a series of complex contractual arrangements on the Services Center's behalf. Figure II.1 describes the key organizations involved and the primary contractual arrangements used.

Network agreement. This agreement enabled the Services Center to continue uninterrupted development work with Reference Technology.

<sup>D</sup> The Library of Congress entered into Federal Library and Information Network agreements with several contractors under a delegation of procurement authority from the General Services Administration. Federal libraries and information centers could order information retrieval services through Information Network agreements by issuing purchase or delivery orders against the agreements.

<sup>E</sup> Tresp Associates, Inc., is a contractor at the Technology Center. Its responsibilities were to provide maintenance and technical support services. The Technology Center used the Tresp contract to obtain prototype development support from Reference Technology when the Advanced Systems' contract with Reference Technology ended in March 1988.

<sup>F</sup> Control Data Corporation also operated a laboratory under contract to the Technology Center. The Technology Center used this contract to obtain prototype development support from Advanced Systems' employees while Advanced Systems' contract was being phased out.

<sup>G</sup> Reference Technology Incorporated is a small computer support service company located in Boulder, Colorado. The company provided the majority of the prototype development technical support.

## Internal Control Weaknesses Affected Management of Prototype Effort

Not only were the contractual arrangements complex, but also adequate control techniques were not followed for the prototype project. Effective internal controls should help managers to, among other things, comply with applicable laws and policies, accurately account for revenues and expenditures, and safeguard resources against waste, loss, and misuse. Effective internal controls systems also provide management with assurance that program goals and objectives are met. We found that some acquisition and contracting practices were not in consonance with applicable laws and regulations, and due to inadequate management controls over funding and costs, the Services Center spent about \$145,000 inappropriately.

## Improper Acquisition and Contracting Practices

The contracting practices of federal agencies are governed by the provisions of the Competition in Contracting Act, which is implemented in the Federal Acquisition Regulation. The regulation, for instance, requires that exceptions to the statutory requirements for competition stated in the act be justified and approved at a level above the contracting officer, and specifically precludes the acquisition of supplies or services from another agency for the purpose of avoiding the regulation's requirements for competition. In addition, the regulation requires that Small Business Administration 8(a) contracts require that the contractor obtain contracting officer and Small Business Administration approval of subcontracts.

effort to continue uninterrupted. The multilevel contractual arrangements used to facilitate the mission of the Technology Center were disestablished with the closing of the Center in September 1989. DLA has since justified, in accordance with the Federal Acquisition Regulations, a sole-source acquisition for interim prototype support until the competitive acquisition can be completed.

DOD further stated that the Library of Congress Federal Library and Information Network agreement was utilized by the Printing Service to pursue the required services for DLA. The Library of Congress encouraged the use of this umbrella-type agreement by federal activities to obtain compact disc read-only-memory library services. The Printing Service believed that these services were available under a Library of Congress contractual arrangement that was competitively awarded to contractors providing information-handling services. The Printing Service, therefore, believed that any sole-source justifications or any other necessary contracting requirements were handled by the contracting officer at the Library of Congress. The Printing Service believed that they were within the regulations and when they learned that the arrangement appeared to be questionable, the Printing Service ceased using the Network agreement.

---

### Inadequate Management Controls Over Funding and Costs

The Services Center did not properly employ internal control procedures to ensure that prototype development project funding and costs were properly accounted for and resources were used in an efficient and effective manner. We found that the Services Center expended about \$145,000 inappropriately as follows:

- The Services Center did not reconcile all of the funds authorized with actual project expenditures. It did not know how the Technology Center spent funding authority used between July 1987 and October 1988. In addition, the Services Center was unaware that in August 1988 the Technology Center used \$43,000 of funding authority intended for the prototype project for other unrelated Control Data Corporation work.
- The Services Center paid about \$77,000 in overhead charges to the Printing Service and the Library of Congress to obtain prototype and interim product development services from Reference Technology. These charges could have been avoided if the Services Center had gone directly to Reference Technology by justifying a sole-source arrangement when Advanced Systems' subcontract with Reference Technology ended. However, using a sole-source arrangement would have interrupted development work with Reference Technology. The charges the

# Planned Competitive Acquisition

---

## Questions

1. What is DLA's current acquisition strategy? What is the extent of possible commercial involvement in DLA's acquisition of a CD-ROM based catalog system? What alternatives did DLA consider?
2. What is the current status of the acquisition?
3. How much business or otherwise sensitive data is included in the Federal Logistics Data on Compact Disc system? What impact does this have on DLA's acquisition strategy?

---

## DLA's Acquisition Approach, Extent of Commercial Involvement, and Alternatives Considered

The Government Printing Office, on behalf of DLA, recently issued a request for proposals for acquiring a CD-ROM based catalog system. DLA officials indicated this acquisition approach would provide for full and open competition and the maximum extent of commercial involvement. This could include data preparation, disc manufacturing, and software production.

Over an 18-month period, DLA considered three alternative approaches for acquiring a CD-ROM based catalog system. One approach involved allowing users to obtain existing commercial products. Another approach involved acquiring commercially developed software to enable the Services Center to prepare the data for inclusion on the compact discs, after which a commercial contractor would manufacture the discs. The third approach involved contracting with a single commercial source for the software and services needed to prepare the data, manufacture the disc, and use the CD-ROM based catalog system.

DLA decided not to pursue the first approach for several reasons. According to DLA, commercial products do not contain sensitive data needed by government users. The products could accommodate sensitive data. However, the use of multiple commercial products would not provide DOD users with the assurance of a standardized system, consistency of logistics data, or compatibility of hardware and software. DLA officials also said that it would be difficult to monitor the quality of the data and the unauthorized disclosure of sensitive data in multiple commercial products.

On the other hand, DLA actively pursued the other two approaches. Both approaches included opportunities for commercial involvement. DLA's initial approach, beginning in February 1988, was to provide the Services Center with an in-house production capability. It involved acquiring commercially developed software to be used by the Services Center

publication services for the government. The Office's acquisition responsibilities included reviewing industry comments on product specifications, revising them as necessary, and preparing a request for proposals for the commercial service contract. The request for proposals was issued on November 3, 1989.<sup>1</sup>

## Sensitive Data and Impact on Acquisition Strategy

According to DLA officials, the decision to include business or otherwise sensitive data has had no impact on the acquisition strategy. DLA plans to include sensitive data, which are not releasable to the public, in the CD-ROM based catalog system. Sensitive data refer to information that is proprietary to a manufacturer or supplier and data which are not considered sensitive alone but sensitive when combined. The Federal Logistics Data on Compact Disc Program product will include the following data considered sensitive:

- approximately 250,000 proprietary item descriptions;
- North Atlantic Treaty Organization items; and
- 50,000 Navy-coded items that are considered sensitive when combined.

Commercial CD-ROM based catalog products do not include this type of sensitive data. For this and several other reasons previously discussed, DLA did not consider the use of more than one commercial product to be a viable alternative for meeting its requirements.

DLA currently controls sensitive data in microfiche products by restricting the use, release, transfer, sale, and distribution of the products to authorized users. A DLA official said it would be more difficult and costly to monitor compliance with these controls when more than one commercial vendor of CD-ROM products has access to sensitive data. For example, DLA would need to monitor multiple vendors to ensure that the CD-ROM discs were distributed only to authorized users, and that the master discs were protected and destroyed. According to a DLA official, the costs associated with this additional monitoring have not been determined.

<sup>1</sup>The Government Printing Office has since issued an amendment suspending the request for proposals indefinitely. This action was taken after the Industry Association filed two protests at the General Services Board of Contract Appeals against the prototype development and the request for proposals. Both protests have been dismissed, although the protest against the request for proposals could be reinstated. As of February 7, 1990, DLA had a request for a delegation of procurement authority under section 111 of the Federal Property and Administrative Services Act, 40 U.S.C. 759, pending at the General Services Administration. This section, popularly known as the Brooks Act, provides the Administrator of General Services the authority to oversee the acquisition of automated data processing equipment by federal agencies.

---

Requests for copies of GAO reports should be sent to:

U.S. General Accounting Office  
Post Office Box 6015  
Gaithersburg, Maryland 20877

Telephone 202-275-6241

The first five copies of each report are free. Additional copies are \$2.00 each.

There is a 25% discount on orders for 100 or more copies mailed to a single address.

Orders must be prepaid by cash or by check or money order made out to the Superintendent of Documents.



# Major Contributors to This Report

---

National Security and  
International Affairs  
Division,  
Washington, D.C.

George A. Jahnigen, Assistant Director, (202) 275-8412

---

Detroit Regional Office

Sharon E. O'Neil, Evaluator-in-Charge  
George W. Moore, Evaluator  
Dea M. Crittenden, Evaluator  
Myron M. Stupsker, Evaluator

---

Office of the General  
Counsel

John A. Carter, Senior Attorney



to complete the data preparation phase at its facilities. Under this approach the Services Center would contract for services to carry out the disc manufacture phase. According to DLA, they discontinued this effort due to the Services Center's limited experience with CD-ROM technology.

In April 1989, DLA began pursuing its second approach—contracting with a single commercial vendor for the software and services needed to make and use a CD-ROM based catalog system. Essentially, this approach involved contracting out both the data preparation and disc manufacture phases. DLA officials stated that this approach would enable them to benefit from commercial industry's knowledge of CD-ROM technology and its applications, and it satisfied DLA's objective of establishing a CD-ROM system with the least amount of risk to the government. In addition, this approach provided maximum opportunities for commercial involvement in the final acquisition.

---

## Acquisition Status

DLA's procurement procedures describe the actions which must be taken to support a competitive procurement. Among other things, the procedures require that DLA (1) develop a specific project plan, including milestones, for key events, (2) evaluate available alternatives for obtaining the required services, and (3) establish specifications or performance standards for the services to be acquired. DLA prepared studies, analyses, and plans required by the procedures. Specifically, DLA has

- prepared documents (i.e., a project plan, a requirements analysis, a comparative cost and economic analysis, and a market survey) which provide information on the strategy, approach, and milestones for acquiring the CD-ROM based catalog system;
- released draft specifications on the proposed commercial service contract for comment by industry; and
- defined responsibility for managing the acquisition within the agency and established milestones for completing the acquisition.

DLA did not complete some of these documents until after we completed our field work. Therefore, we did not evaluate their quality and completeness.

In July 1989, DLA transferred the acquisition responsibility to the Government Printing Office, which is responsible for procuring printing and

Services Center paid to the Printing Service and the Library were for administrative services, such as providing the form to periodically transfer funding authority to the Library and paying Reference Technology invoices.

- The Services Center, through the Printing Service, paid Reference Technology about \$25,000 to purchase items not authorized under the company's Information Network agreement. This included payments for travel expenses, computer software, and CD-ROM disc drives for the company's own use. According to a Printing Service representative, neither the Printing Service nor the Library of Congress reviewed the invoices, but relied on the Services Center to review them. A Services Center official said the Services Center's review of invoices did not include verifying whether payments were for items authorized under the Information Network agreement.

DOD acknowledged that some problems did exist in management controls over funding and costs. According to DOD, the Services Center did not perform a full reconciliation of funds as the project progressed, but added it was now planning to do so. DOD also said the \$77,000 overhead charge was paid to the Printing Service and the Library of Congress to proceed in the most expedient and economical manner. DOD believed that the \$77,000 included the cost of other services, such as wrapping, packaging, labeling, and distributing the data discs. However, our analysis showed that these services were not included in the overhead charges and were billed separately.

On the purchase of unauthorized items, DOD believed that the goods and services were within the scope of the Information Network agreement and the Library of Congress was responsible to review the appropriateness of the purchases.

We found the following:

- Advanced Systems' contract required written approval of any subcontracts by the contracting officer and the Small Business Administration. Advanced Systems never obtained these approvals for its subcontract to Reference Technology.
- When the Advanced Systems contract was being phased out, the Technology Center continued some of the prototype development effort by ordering Tresp Associates to award a subcontract to Reference Technology, and issuing an order to Control Data Corporation, which awarded a subcontract to Advanced Systems. A Technology Center official said the subcontracts were awarded only when Tresp Associates and Control Data Corporation determined that they did not have the needed software or sufficient technical expertise among their staffs to continue work on the project themselves. However, DOD records indicate that these actions were taken in the expectation that the subcontracts to Reference Technology and Advanced Systems would be awarded. For instance, a record of a Services Center employee's trip to Reference Technology showed that the work covered by the Tresp Associates subcontract had already been completed by Reference Technology at least a week before the subcontract was awarded. The Technology Center order to Control Data Corporation specifically stated that prototype work contained in the order would be accomplished by the same laboratory operated by Advanced Systems that performed the previous work. Subcontracting efforts like these are, in essence, sole-source acquisitions and should have been considered and justified as exceptions to the statutory requirements for competition.
- The Printing Service obtained services from Reference Technology through an Information Network agreement without either justifying the noncompetitive acquisition of the services or conducting a competition.<sup>3</sup>

DOD concurred with our finding that some of the acquisition and contracting practices used were not in consonance with applicable laws and regulations. It noted that closer oversight by the contracting officer could have resulted in better compliance.

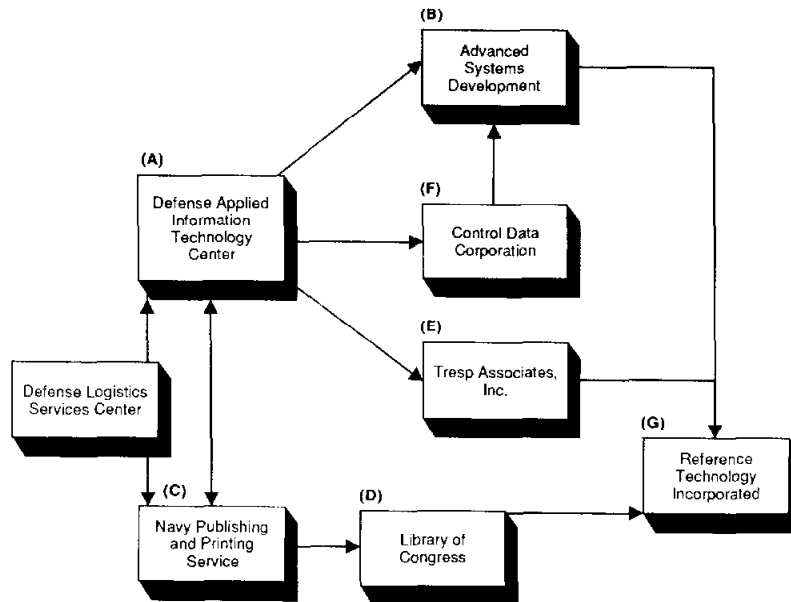
DOD commented that the Technology Center was established to expedite new development efforts, such as the compact disc program. The availability and use of subcontracting arrangements allowed the prototype

---

<sup>3</sup>DOD's Inspector General did a report in February 1990 on the improper use of Information Network agreements by DOD organizations.

**Appendix II**  
**The Prototype Development Project**

**Figure II.1: Contractual Arrangements Used to Support the Prototype Development Project**



<sup>A</sup> The Defense Applied Information Technology Center housed several laboratories. It was established by DLA, the Office of the Secretary of Defense, and the Joint Chiefs of Staff as a joint cooperative activity to (1) provide an environment to explore the application of new information technologies of benefit to DOD and (2) establish arrangements under which technologies can be economically developed, prototyped, introduced, and deployed.

The Services Center requested the Technology Center to develop the prototype software and produce the first prototype product to be distributed to test sites. The Technology Center then assigned the prototype development project to a laboratory operated by Advanced Systems Development, Inc.

<sup>B</sup> Advanced Systems Development, Inc., operated laboratories under contract to the Technology Center. This contract was awarded under the Small Business Administration's Section 8(a) program for socially and economically disadvantaged businesses.

Advanced Systems performed work on a number of tasks under its contract to the Technology Center, including the prototype project. It subcontracted most of the prototype development work to Reference Technology Incorporated because it did not have the software necessary to carry out the data preparation phase or a capability for the disc manufacture phase of the prototype project. Advanced Systems' work primarily involved managing the prototype project, determining product requirements, and preparing special studies.

Advanced Systems' contract with the Technology Center was gradually phased out between April 1988 and January 1989 for several reasons, including its inability to attract a sufficient number of projects from DOD organizations.

<sup>C</sup> The Navy Publishing and Printing Service is the central publishing and printing organization serving the Navy. From the beginning of the prototype development project, the Services Center had requested the Printing Service to procure services for production of the second and subsequent prototype updates. When the Technology Center could no longer provide software development support, the Services Center requested the Printing Service to expand its role to procure this support. The Printing Service obtained both production and software development services from Reference Technology by issuing an order to Reference Technology under a Library of Congress Federal Library and Information

**Appendix II**  
**The Prototype Development Project**

**Table II.1: Information on Prototype Data Files, Capabilities, and Test Sites**

<b>Date</b>	<b>Data files included</b>	<b>Enhancements</b>	<b>Number of test sites</b>
Feb. 1988	Federal Catalog and Navy	Not applicable	67
May 1988	Federal Catalog, Navy, and Air Force	None	183
July 1988	Federal Catalog, Navy, Air Force, and Army	Improved data manipulation and presentation	250
Oct. 1988	Federal Catalog, including characteristics data, Navy, Air Force, and Army	Improved and expanded processing capability and increased retrieval speed	250
Jan. 1989	Same as Oct. 1988	None	250

According to the Services Center, it finished some additional work subsequent to the project's completion date, including work on the capability to transfer data to other media, such as on-line systems and computer floppy discs.

The Services Center planned to provide quarterly "interim product" updates to the 250 test sites beginning in April 1989 until the competitively acquired product becomes available. As of February 1990, three updates have been provided.

The cost to develop the prototype was \$1.74 million. About \$0.96 million was for development, manufacture, and distribution of the prototype system to test sites. The remaining \$0.78 million was for equipping test sites with CD-ROM disc drives and software licenses.

## **Appropriateness of the Prototype Development Project**

The Services Center's initiation of the prototype development project was appropriate and consistent with its responsibility to publish the federal catalog. Two statutes<sup>2</sup> require DOD to ensure that it will use existing commercial products to fulfill its needs instead of developing new ones to the maximum extent practicable. These statutes presume that a DOD organization's needs are known. The Services Center initiated the prototype project to identify its requirements. The requirements to be determined included which data files should be incorporated into the product and the best ways in which this data should be manipulated, retrieved, and presented to users.

<sup>2</sup>The statutes cited are 10 U.S.C. 2301 and 2325.

---

# The Prototype Development Project

---

## Questions

1. What events preceded the Services Center's development of the prototype?
2. What approach did the Services Center use to develop the prototype? What was the cost of the project?
3. Was the Services Center's initiation of the prototype development project consistent with laws governing the use of existing commercial products?
4. What contracts were used to develop the prototype?
5. How well was the contracting effort managed?

---

## Events Leading to the Development of a Prototype

The Defense Logistics Services Center began researching optical disc technology, which is the parent of CD-ROM technology, to store catalog information in 1981. In September 1985, the Services Center was requested to investigate using the technology to store and disseminate its catalog of logistics information.

In January 1986, as part of its investigation, the Services Center released a request for information to industry for information on the development of software and hardware to produce an optical disc product, from which it received eight responses. The Services Center decided the development of a prototype would enable it to demonstrate the anticipated benefits of the technology. Benefits of implementing optical disc technology included increased productivity for an estimated 30,000 users and reduced user error rates.

In August 1986, DLA gave the Services Center the authority to proceed with a prototype project of the Federal Catalog System by working with the Advanced Concepts Laboratory at Mather Air Force Base. About 4 months later, however, the Laboratory withdrew from the project when neither it nor the Services Center could agree on the amount of work the Laboratory would perform.

In May 1987, the Services Center requested competitive bids for an off-the-shelf<sup>1</sup> product containing data from the Federal Catalog System. Although three bids were received, no contract was awarded. The contracting officer determined that two of the three bids had deviations

---

<sup>1</sup>Off-the-shelf means a product produced and/or stocked by a contractor or distributor.

- the Services Center's management of the prototype project;
- DLA's plans to procure the software, hardware, and/or services needed to provide a CD-ROM system;
- the potential for commercial involvement in DLA's procurement of a CD-ROM system; and
- the impact of DLA's decision to include business or otherwise sensitive data in the product on its acquisition approach.

To determine whether DOD's initiation of the program was appropriate, we reviewed the Services Center's compliance with federal laws and regulations and DOD policies pertaining to DOD's development of new products instead of using existing commercial products. In addition, we obtained the Services Center's justification for initiating the program.

As part of our review of the Services Center's management of the prototype program, we assessed the actions taken by the Services Center and the organizations through which it obtained prototype development support, the estimated cost of the prototype, and compliance with federal laws and regulations. To do this, we analyzed the contractual instruments, funding authorizations, invoice charges, and other information relating to prototype development. In addition, we interviewed officials at the Services Center, at the organizations that provided prototype support, at a contracting office, and at contractor facilities.

To evaluate the approach the Services Center used to develop the prototype, we analyzed contractor invoices and prototype development planning documents, statements of work, correspondence and visit reports prepared by the Services Center, DLA, and the military services. We also interviewed project officers at the Services Center.

We reviewed past and current DLA plans and actions to procure the software, hardware and/or services needed to provide logistics data on the CD-ROM media. We interviewed DOD and DLA officials and reviewed and analyzed correspondence and acquisition documents including specifications and option studies, and other information.

To determine the potential for commercial involvement in each step of the production process of a CD-ROM based catalog system, we reviewed and analyzed CD-ROM industry trade publications, interviewed industry representatives, and attended CD-ROM technical seminars.

In assessing the impact of including business or otherwise sensitive data in the CD-ROM product, we interviewed officials from the Office of the

laser beam. The laser beam shines on the revolving disc resulting in reflections of light. These reflections are detected by the disc drive as light bursts, which are transmitted by electrical impulses to the personal computer. With the assistance of computer software, the computer transforms the impulses into detectable images.

Making a compact disc product usually involves two processing phases: data preparation and disc manufacture. Data preparation is the process used to prepare the data for inclusion on the compact disc. In this phase, data are collected in one central location and, generally, entered into a computer databank for storage on magnetic tape. Depending on the type of computer the data are stored in, the data on tape may need to be changed to another format before further processing can continue. With the use of special software, the programmer places instructions, called keys, in the data and organizes it for fast retrieval by the computer. Next, before the data are manufactured into a compact disc, they are formatted using a standardized process so the final compact disc may be used in any compact disc drive.

Disc manufacture (i.e., making the actual compact disc) is simply a manufacturing process. A compact disc mold, or master disc, is made by engraving pits in the surface of a 4-3/4 inch glass disc using a laser light beam. The master disc is then used to stamp replica discs from hard plastic, and is later covered with a reflective coating. Finally, the replica discs are packaged in flat plastic boxes and distributed to users.

Figure I.2 shows the individual steps included in the data preparation and disc manufacture phases of making a compact disc product.



---

# Introduction

---

## Background

The Defense Cataloging and Standardization Act of 1952 requires the Department of Defense (DOD) to operate a single catalog system for supply data. The system, known as the Federal Catalog System, falls under the direction of the Office of the Assistant Secretary of Defense for Production and Logistics. Under the assistant secretary, the Defense Logistics Agency (DLA) is responsible for the administration of cataloging policies and overall control of cataloging for the federal government. The Defense Logistics Services Center, a DLA field activity, is responsible for preparing cataloging publications and for processing data for inclusion in the catalog system.

The Federal Logistics Data on Compact Disc program was developed by DLA and the services to put DOD's catalog of logistics information on compact disc. The data are used by about 49,000 customers to provide information on equipment, parts, and supplies used by DOD and other government agencies for various purposes such as requisitioning and purchasing items. Logistics data included in the catalog for an individual item include the item name, a government-assigned national stock number, manufacturer names and part numbers, and such characteristic data as physical and performance information.

Over the years, the Services Center has published such information in a variety of forms, including paper, microfilm, and microfiche. Some commercial vendors have also published DOD's catalog and supplied it to the government and other users through various media, including on-line computer access services. In November 1986, a new means of providing this data to users was marketed by a commercial vendor using Compact Disc Read Only Memory (CD-ROM) technology. Since that time, at least four other commercial vendors have marketed similar products.

Prior to the introduction of the first commercial product, DOD initiated the Federal Logistics Data on Compact Disc program to replace its current publications on microfiche. DLA delegated the responsibility for managing the development of a prototype of the CD-ROM based catalog to the Services Center, and DLA retained responsibility for procuring the production version of the CD-ROM product through the Government Printing Office, which is generally responsible for processing publication services for the government.

The majority of information included on the prototype was taken from the Federal Catalog System. The balance of the data was provided by the services to tailor some of the Federal Catalog System data to their

---

# Contents

---

Letter		1
Appendix I		6
Introduction	Background	6
	Technology Used to Implement the Program	7
	Objectives, Scope, and Methodology	9
Appendix II		12
The Prototype	Questions	12
Development Project	Events Leading to the Development of a Prototype	12
	Approach Used to Develop the Prototype	13
	Appropriateness of the Prototype Development Project	14
	Contractual Arrangements	15
	Internal Control Weaknesses Affected Management of Prototype Effort	17
Appendix III		21
Planned Competitive	Questions	21
Acquisition	DLA's Acquisition Approach, Extent of Commercial Involvement, and Alternatives Considered	21
	Acquisition Status	22
	Sensitive Data and Impact on Acquisition Strategy	23
Appendix IV		24
Major Contributors to This Report		
Table	Table II.1: Information on Prototype Data Files, Capabilities, and Test Sites	14
Figures	Figure I.1: How a Compact Disc Product Is Used	7
	Figure I.2: How a Compact Disc Product Is Made	9
	Figure II.1: Contractual Arrangements Used to Support the Prototype Development Project	16

---

---

with existing laws and regulations, and the Services Center did not follow commonly accepted internal control procedures in managing these arrangements. In addition, the Services Center did not adequately monitor DOD organizations acting on its behalf to ensure that they properly administered the contracting efforts. As a result, the Services Center inappropriately expended about \$145,000. The prototype project was completed in January 1989 (see app. II).

With regard to Defense Logistics Agency plans to procure a production version of the prototype disc system, the Agency has adopted a competitive acquisition strategy. The Agency is acquiring a logistics data system through the Government Printing Office, which issued a request for proposals on November 3, 1989. Agency officials indicate the request provides for full and open competition and the maximum extent of commercial involvement that is possible (see app. III).

According to Agency officials, the decision to include business or otherwise sensitive data has had no impact on the acquisition strategy, but was one of several reasons for ruling out the use of existing commercial products. The Agency did not consider this a viable option because the government would not be able to effectively control the quality and distribution of the sensitive information in multiple vendor products, and use of multiple products would not meet its requirement for standardization (see app. III).

Our objectives, scope, and methodology are described in appendix I.

---

## Agency Comments

DOD provided official oral comments on the draft report. It generally concurred with our findings, stating most of the problems we had identified were caused by DOD's desire to field a uniform, DOD-wide compact disc capability as rapidly as possible. We have incorporated specific comments where appropriate.

---

Unless you publicly announce its contents earlier, we plan no further distribution of this report until 5 days from the date of this letter. At that time, we will send copies to the Chairmen, House and Senate Committees on Appropriations and on Armed Services; the Chairman, Senate Committee on Governmental Affairs; the Chairman, House Committee on Government Operations; the Secretary of Defense; the Director, Defense Logistics Agency; and the Director, Office of Management and Budget. We will also make copies available to others upon request.

