

**FUNCTIONAL EVALUATION
OF
MANAGEMENT SCIENCE AMERICA SOFTWARE**

**Prepared By The
COMMERICAL LOGISTICS APPLICATION SYSTEM
(CLAS) PROGRAM TEAM**

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<u>SUBJECT</u>	<u>PAGE</u>
OVERVIEW-----	1
CATALOGING-----	3
REQUISITIONING-----	5
INVENTORY SYSTEM-----	8
RECEIVING-----	10
DISTRIBUTION-----	12
POLICY HEIRARCHY-----	14
PREAWARD-----	18
PREPARATION OF PROCUREMENT DOCUMENTATION-----	21
POST AWARD-----	25
VENDOR PAYMENT-----	27
MANAGEMENT INFORMATION-----	32
APPROVALS-----	33
POSSIBLE/PROBABLE MODIFICATIONS-----	35
TERMINALS-----	37

OVERVIEW

CAPABILITIES:

The MSA system was matched loosely with the functional processes represented by existing CONIF and ICS systems and manual procedures and regulations currently in effect. The system was also measured against the approved LIMS Objectives and Requirements dating from 1983.

The MSA system appears to support those requirements represented by the materiel system. That is, it will handle supply requisitions (Form 88) and fixed price procurement. The materiel system, as defined, represents approximately 70% of the transactions flowing through the Logistics system.

In support of the materiel system, the MSA software provides the following capabilities:

Electronic requisitioning. The customer has access to the catalog database, can enter multi-line item requisitions complete with special handling and remarks, and transmit items to the appropriate item manager or buying activity.

Procurement support. The buyer has access on screen to all requisition data, to item purchase history, vendor history, and quotation analysis. The system sets up and prints RFQ/RFP and purchase documents.

Receiving. The receiving inspector has on-screen access to the purchase document and, if needed, the requisition document.

Depot Processing. MSA reports capabilities can generate depot movement documentation which can serve to track material through the depot and be used as a packing list.

Vendor Payment. MSA provides for on-line matching of purchase, receipt, and invoice data and on-line certification for payment.

Inventory Control. The system generates daily reports of re-order point penetrations, demand analysis reporting, and on-line replenishment requisitions. The system supports a variety of inventory count cycles. If desired, the system can be used to track recurring demand.

MODIFICATIONS:

To accomplish the above, some modifications will be required to enable the purchasing system to handle all requisitions (stock issues, direct procurement, and service requests) and to structure data collection for requisition header information and procurement management information.

FUNCTIONAL LIMITATIONS:

No effort has been made to assess the capabilities of the MSA system to support financial transactions or interfaces, primarily because of uncertainty regarding how Agency financial systems will be configured. The technical evaluation concluded that interfacing between MSA systems and the Cullinet General Ledger system are practical and simple.

The system does not support other than simple approvals. For practical purposes, approvals must be obtained off-line.

It is not immediately clear that the MSA system can handle complex cost type contracts. Further investigations are underway, more will be required, and custom development to meet contract requirements is a possibility.

Concern has been expressed regarding limitations in the MSA system's handling of multiple vendor addresses and multiple addresses used by Agency procurement organizations. One of the modifications being investigated would alleviate the problem with procurement addresses.

CONCERNS:

The team still has concerns regarding the ability and willingness of the Logistics organization to adapt to MSA system constraints, or to adopt the work efficiencies proposed by the LIMS program.

System security has not been examined closely. Users can be restricted to specific screens, but all data can be viewed from that screen --- there is no segregation of the data base by users.

RECOMMENDATIONS:

1. Permit review of the evaluation by Logistics organizations external to the CLAS Program and solicit guidance regarding directions for further development.
2. Barring major reservations by Logistics organizations, endorse the use of MSA software to the D/OIT.
3. Assuming OL and OIT agreement to proceed with MSA, seek commitment from the Office of Finance on implementation of the Accounts Payable (Vendor Payment) package and establish ground rules for exploring interfaces to the General Ledger and Budgetary systems.
4. With concurrence to proceed with CLAS, initiate acquisition of "production" versions of MSA software: Manufacturing 6.4, Purchasing 2.0, and Accounts Payable 5.0. These versions are either no cost, or full credit is granted for current versions.

FUNCTION: CATALOGING

1. DESCRIPTION OF THE MSA SYSTEM

MSA Cataloging Functions are accomplished with the ITEM MASTER file in the manufacturing system and the ITEM DEFINITION file of the purchasing system. The ITEM MASTER file contains the items definitions (stock number, description, unit of issue, acquisition cost, issue price, stock levels, safety levels, reorder points, substitute stock number, and the item manager) for stocked items. The ITEM DEFINITION file contains the "as purchased" description of items that are stocked, standard items not stocked (recurring), and GENERIC. Generic descriptions permit actual customer descriptions to be captured for one-time purchases. The system provides a number of user defined fields suitable for data capture; there is no processing logic associated with these fields.

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2. MAJOR DIFFERENCES FROM CURRENT SYSTEM

A. The MSA data element for STOCK NUMBER has fifteen characters versus thirteen for the Inventory Control System (ICS). Each stock number in the current system is managed by location, sterility, allocation, and condition (LSAC) and the MSA system does not support this requirement. A non-data processing solution to this would be to replace the stock number as the key field with the model/part number coupled with the LSAC (EX: PRT 250 914 1 00 A, DESKMDLA 903 0 00 1 B). This approach requires conversion of all existing stock numbers and treats each LSAC as an entirely different item. We have not explored the possibility of adding new data elements and program logic to support our present management system.

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B. The MSA catalog function has virtually unlimited free text capability for recording item descriptions. ICS provides 300 characters. Most MSA standard reports reflect only 20 characters.

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C. The SHORT NAME LOOKUP feature permits researchers to cross-reference up to eleven multiple noun names/stock/part/model numbers for each stock number.

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3. PROCEDURAL IMPACT

A. Workload

Aside from initial conversion efforts, we see no significant changes in the effort required to create or update a catalog entry for stock items. Use of the GENERIC description feature may diminish the ability to track recurring demand, but would simplify and reduce data entry and memory requirements. (8)

B. Policy/Responsibilities

Catalog entries may be made by cognizant offices for stocked items, and by originating offices for repetitive direct procurement requests. (9)

4. COMMENTS

The MSA system has a BILL OF MATERIALS feature that links component parts with end items. Although not investigated yet, we see potential here for technical offices to manage equipment systems. (10)

FUNCTION: REQUISITIONS

1. DESCRIPTION OF THE MSA SYSTEM

A. MSA has requisition functions in both the manufacturing and purchasing packages. It is proposed that an interface be developed between the two packages to permit all customer requests to be entered in the purchasing package. (11)

B. Requisitions for stock issues, directs or services are input via menu. When the requisition process is complete, the requisition is immediately available for procurement action or depot issue.

C. Requisitions for stock replenishments are not input on the requisition menu but on an inventory menu. When the item manager enters the information on this menu, the system automatically creates a requisition record for procurement action.

D. Query menus are available for tracking requisitions or obtaining status information based on a single element such as requisition number, customer name or office, stock number or on a combination of these elements.

E. Once the requisition has been entered, only certain data elements such as the buyer, item description and the information in the requisition comments menu (special instructions, consignee, extended item description) can be amended before procurement action is initiated. After procurement action has been initiated, no requisition data can be amended except the information in the requisition comments menu. The requisition quantity, price, item number and required date can not be amended. Requisition data that can not be amended or data that must be changed after procurement action has been initiated must be cancelled and re-entered. (12)

2. MAJOR DIFFERENCES FROM CURRENT SYSTEM

A. The MSA requisition number field is 10 characters. This satisfies our service requests. However, requisition requests for material use a 12 digit number. This problem may be solved by modifying our requisition number to 10 digits as follows:

o	CUSTOMER NUMBER	FISCAL YEAR	JULIAN DATE	SEQUENCE NUMBER
	0111	6	365	01

B. Our present system uses numerous transaction codes to process specific financial/inventory adjustments. Although the MSA system does have transaction codes, there are a number of transactions in our present system (sale to other government agency) that are not directly supported by MSA. (14)

C. The MSA requisition requires the customer (originator) to identify and input the appropriate purchasing organization for each line item. Our present system does not require that the customer make this determination. (15)

D. The MSA system provides each requisition with a one step approval process that is performed on-line. Our present approval process is 3 steps (approving officer, tech approval, budget approval) and is handwritten on the Form 88.

3. PROCEDURAL IMPACT

A. Workload:

The MSA system encourages all requisition requests (direct purchases, stock issues, services, replenishments) be input by the customer since all requisition information is available on-line and action requirements are sent electronically. This would virtually eliminate the requirement to type, reproduce and file hard copy requisitions. There would be no requirement to submit the hard copy requisitions for subsequent input by SMB which would provide SMB with more time to manage stock items and analyze direct buys for repetitive purchases. The CONIF workload would also decrease because the requisition data would not have to be re-entered into the CONIF system. This would provide CONIF personnel with more time to manage the contracting data and create reports.

B. Policy/Responsibilities:

The concept of electronic requisitions is supported by MSA. Implicit in that concept is the shift of responsibility from SMB to requisitioning officers to research and input data and to ensure the accuracy of the data. The short name look up feature provides the customer with an extensive research tool for making this determination. It is anticipated that the originator (a Logistics careerist or someone under the supervision of a Logistics careerist) will make the original assignment to the appropriate purchasing activity. (16)

4. COMMENTS

A. If the incorrect purchasing organization is used by the customer, the requisition must be cancelled and re-input. We are exploring two solutions (modification to allow changes to the buying entity code or use of the buyer code in lieu of the buying entity code) to allow reassignment of purchase actions. (17)

B. A system modification is needed to link the purchasing requisition functions with the manufacturing inventory functions. However, it is not certain at this time what type of change this will require. (18)

C. There are two proposals for including additional information (extended consignee, special instructions) on the requisition:

- ° To utilize the requisition comments menu which is designed for the customer to input notes regarding the requisition. However, this menu appears as a page of blank lines and has no structured format to separate the special information (procurement instructions, shipping instructions etc.) (19)
- ° To create a new formatted menu for the customers special information.

D. Because the MSA system provides only a one step approval process, our current method of approval would have to change to comply with MSA or the MSA system would have to be modified to allow more than one approval. (20)

E. The MSA system provides the customer with easy methods for inputting, recording and querying a requisition. If customers are permitted to enter their requests, the response time for direct requisitions would improve because the system passes the requisition immediately to procurement and the processing time would improve for all requisitions because they would no longer be mailed to SMB.

F. We have not explored access to and use of the system history files.

FUNCTION: INVENTORY SYSTEM

1. DESCRIPTION OF THE MSA SYSTEM:

The MSA Inventory System provides each stock item with a unique Inventory Records which lists:

- Multiple Warehouse locations and the Quantities available at each location.
- Total Quantity On-hand for each item
- Total Quantity Due-in
- Total Quantity Due-out
- Item description
- Inventory Control settings (reorder point)
- Item Manager

MSA provides the choice of conducting inventories annually, by predefined time cycle or by Warehouse Area. All stock replenishments are input via Menu by the item Manager. When the Menu is entered the System uses this information combined with the information from the Item Master to automatically create a requisition for Procurement action.

All Inventory maintenance (adjustments, returns, item transfers) is processed on specific Inventory Menus. Some of the standard query Menus are:

- Inventory By Stock Item (Lists Inventory Locations and Quantity On Hand by Stock item.)
- Inventory by Warehouse (Lists all the stock items stored in a particular warehouse).
- Stock Status by Stock item (Very similiar to the present Stock Status Report in ICS).

2. MAJOR DIFFERENCES FROM CURRENT SYSTEM

All stock issues are placed in-process using a separate allocation Menu which is recorded in a Batch mode. This includes manually allocating a substitute stock item when the primary stock has been depleted and all back order releases when the stock item has been received. Our present stock issues are placed in-process the moment the requisition is input or when receiving has been input. (21)

Much of the Information required by an Item Manager is available using the standard query Menus. (22)

The MSA query Menus can provide a list of all warehouse locations for each stock item and the quantity stored in each of these warehouse locations. The ICS does not provide this breakdown of quantities in each location but only a combined total quantity on-hand per item. (23)

3. PROCEDURAL IMPACT

A. Workload

The Inventory Managers workload would change as follows:

1. A decrease would occur because all the requisitions will be input by the customers. Their workload would also become easier to process and maintain since all replenishments can be input directly on-line instead of using the form 1245. (24)

2. An Increase would occur because all stock issues would have to be manually allocated. We anticipate a system modification to automate the allocation process.

B. Policy/Responsibilities

The MSA System permits and encourages the on-line initiation of replenishment requisitions by the Items Manager. This may result in individual cognizant offices absorbing this work. (25)

4. COMMENTS

Since the Purchasing Requisition function will be used for ordering stock items from Inventory, it is unknown how the purchasing requisition files will affect the Inventory files because there is no direct link currently available between these two files.

FUNCTION: RECEIVING

1. DESCRIPTION OF THE MSA SYSTEM

A. The MSA receiving process encourages a paperless environment while maintaining receipts integrity. Receipt controls (late or early delivery, wrong delivery point, variance in quantity) established within the Purchasing Hierarchy monitor receipts and vendor performance and provide appropriate warnings or exceptions reports.

B. Receiving clerks access the appropriate purchase order electronically and input receiving data directly on line. Purchase order status is updated and receipt information recorded. Receipts for stock replenishments require a separate transaction to update inventory records

C. The system provides search capabilities for vendor name, vendor numbers, part number and purchase order number for unidentified receipts. Discrepant receipts are placed on hold pending final resolution. An authorization code, controlled by system security, permits only authorized individuals to override system exceptions such as overages. All exceptions authorized are reported to the corresponding procurement official.

D. Returns to Vendors and receipt amendment capabilities are also provided.

2. MAJOR DIFFERENCES FROM CURRENT SYSTEM

The present receiving process is totally dependent on hard copy documentation (form 88, purchase order, amendments) while the MSA process supports a paperless environment. Receiving procedures presently consist of a receipt verification on the loading dock and an additional administrative review within the receiving office. Documentation is consolidated into a package for depot processing and returned to the receiving dock for movement. The MSA system provides an electronic copy of the purchase order on line. Normal receivings only require that the purchase order be displayed and receipt information recorded in menu format. Copies of requisitions are also available electronically if required.

3. PROCEDURAL IMPACT

A. Workload

The maintenance of the Supply Action Files will be reduced significantly and the time and effort required to process a receipt will be reduced. The matching of hardcopy requisitions to the purchase orders will no longer be required nor will the copies of these documents be required for distribution.. Individuals will be available for other more productive work assignments related to the receiving process. (26)

B. Policy/responsibilities

The responsibility for physical inspection and any required preparation/matching of documentation could be directed to one responsible individual. The preparation, matching, reproduction, filing and administrative review of receipt documentation should be reduced significantly thus providing the receipt clerk the opportunity to focus on the actual receipt verification. The MSA system encourages and supports a one-stop paperless receiving process while providing electronic copies of documents for review if required.

4. COMMENTS

A. The primary source of receipt verification will be the purchase document. Receipts are matched/verified in accordance with the vendor's packing list and the descriptive data provided on the electronically displayed purchase document.

B. Purchase orders prepared for incorrect material will not be detected within the receiving process. The potential exists that a customer could receive an incorrect item if the requester's item description is erroneously changed or modified by the procurement official. This potential is extremely limited but possible. Initially, receiving clerks could review the original description as entered by the customer until a degree of confidence is developed. (27)

C. The normal receipt process could be reduced from several days to minutes. The on-line accessibility of the purchase order will provide a more efficient method of recording receipt information and subsequent system updates.

FUNCTION: DISTRIBUTION

1. DESCRIPTION OF MSA SYSTEM

- A. The MSA system provides the capabilities to accomplish the following warehouse operational type functions.
- B. Pre-definition of item inspection requirements of stocked items, to facilitate proper routing at the time of receipt from the vendor.
- C. Recording inspection activities.
- D. Generation of a issue/movement document for items to be pulled from stock. This document can be grouped by requisition or by warehouse location sequence.
- E. Recording the shipment of stocked items.

2. MAJOR DIFFERENCES FROM CURRENT SYSTEM

- A. The MSA system does not provide hard copy documentation for the movement of non-stocked material through the warehouse and the document it provides for stocked items does not provide some critical information that is necessary for processing. It is planned to create a movement document for both types of items. The planned document, to be provided by MSA, will consolidate all the necessary processing information (DCN, complete item descriptions, quantity, special instructions, addresses, etc.) onto one document versus today's multi-document movement package (receiving report, original requisition, requisition amendments, depot issue notice). (28)

- B. Does not directly provide for tracking non-stocked items past the point of receipt inspection. (29)

3. PROCEDURAL IMPACT

A. Workload

SMB and Depot reproduction, tracking and filing requirements would be sharply reduced since the information (special instructions, addresses, complete item descriptions, receiving data) not stored in the inventory control system will be online in MSA's system. For the Depot, the need to assemble packets of receiving reports and requisitions is eliminated.

Storekeepers would record the pulling of items from stock. This supports enhanced depot tracking.

The receipt transaction for stock replenishments does not automatically add the items to stock. An additional transaction would be required to update the inventory. When storing stock, the storekeeper will have to record the quantity being stored in each location, not just the total quantity.

B. Policy/Responsibilities

4. COMMENTS

A. Recording of some of the Depot tracking activities is not directly provided for. ~~X.E.~~, inspection data for items pulled from stock, packing data, shipment data for non-stocked items. It is intended that this data will be stored in the requisition file, utilizing either the requisition comments screen or a new screen.

B. Although the MSA system does provide a transaction to record the shipment of stock items, it does not accommodate non-stocked items. A system modification to cover both types of items is needed, and should be addressed as part of the Depot tracking capability. (30)

C. MSA's system provides the capability to capture the date, quantity and warehouse location of the material issued from stock. This feature provides customers and managers with an improved method of requisition tracking, reporting and expediting as well as providing significant time saving improvements in our current inventory procedures.

D. Provides Depot management with the ability to better manage space utilization by providing visibility of empty or under utilized storage locations.

E. At this point we have not addressed how the present or future bar coding functions will interface with MSA software. It should be noted that there are two companies who are presently working with MSA on bar coding.

F. The handling of lot storage, shipping purposes only, property turn-in and repair and return activities have not yet been fully explored.

FUNCTION: POLICY HIERACHY

31

1. DESCRIPTION OF THE MSA SYSTEM

The MSA System's Policy Hierachy is a default hierachy matrix of standardized procurement terms and controls. Policy data does not have to be rekeyed for each requisition, request for quotation, and procurement instrument and the matrix tells the system how to handle each action during the procurement cycle. The buyer has the option to override the data defined in the matrix at the quotation and procurement instrument levels. Through the decision tree the terms and controls are specified for the following:

- A. All activities within a specific procurement unit.
(highest level)
- B. A single buyer within a procurement unit.
- C. A single vendor.
- D. A single item within the item master.
- E. A vendor quotation terms.
- F. A single item on a vendor quotation.
- G. A single procurement instrument.
- H. A single order line of a procurement instrument.
(lowest level)

When processing, the system will use information from the lowest available level. If data is not available at the detail level, the system will default toward the highest level. Data entered at a lower level will always override data entered at any higher level.

The MSA System has twenty seven (27) screens for the initial input of data to define:

- A. Procurement organizational structure.
- B. Terms and controls for ordering and receiving goods/services.
- C. Codes and descriptive processing information which are used by the system.

Also there are thirteen (13) screens for inquiring about policies, buyers, requesters, and codes.

A buying entity is an organizational unit responsible for the procurement of goods and/or services. (i.e. Procurement Division, General Procurement Branch, or ORD Contracting Team) Each buying entity has a set of policies and procedures which controls the ordering and receipt of goods and services. The policies and procedures include defining:

A. Numeric ranges for automatic numbering of documents associated with a buying entity for requisitions, request for quotations, and purchase orders.

B. The authorized buyers for the buying entity. This is the place where a maximum amount the buyer is authorized to issue on a single order can be set.

C. The authorized requesters (customers) for the buying entity are established with dollar amount limit per line. Customers will have to be related to a number of specific buying entities because of the Agency's procurement organizational arrangement.

D. The receiving controls are initially entered at the buying entity level but can be entered at any of the lower detail levels which will override data entered at a higher level, as specified above. These controls include:

- 1) % tolerance over/under the quantity ordered.
- 2) Delivery point.
- 3) Accept early/late delivery and if applicable number of days early/late allowed.

E. If a receipt does not meet control specifications, additional controls indicate how the discrepancies are to be handled:

- 1) Warning message which will allow processing to continue.
- 2) Exception which must be authorized before processing can continue.
- 3) The system keeps track of and reports all warning, and exception on a Receipt of Exception Report.

The vendor is assigned to the paying entity, that is the organizational unit responsible for paying the vendor's invoices. (i.e. A&CD and ADL) Also the weights established for the paying entity are used for calculating a vendor's performance statistics. The vendor's performance statistic consist of an overall rating as well as a rating for the quality, delivery, and price of goods/services received. The weights established for the paying entity apply to all vendors assigned to the paying entity. The terms and controls that can be entered at the vendor level are:

- A. Ship-to location.
- B. Method of shipment.
- C. F.O.B.
- D. Receiving controls.

The current methodology for assigning vendor numbers and groups will be continued.

The system maintains item history that:

- A. Defines vendors from whom an item has been bought.
- B. Compiles statistics related to this purchase.

2. MAJOR DIFFERENCES FROM CURRENT SYSTEM

Today's system is a combination of CONIF's online storage and retrieval of vendor data and WANG word processing for the production of associated documents. CONIF's design allows for multi-address for vendors and is contract oriented tracking system. The MSA System is a single address design and line item tracking system. 32

3. PROCEDURAL IMPACT

A. Workload

Currently it is not clear as to what the workload impact will be for those individuals involved in the procurement cycle.

B. Policy/Responsibilities

Currently it is uncertain what agency policies will have to be changed to implement the MSA System. The resolutions to the concerns listed below may have an impact on the current procurement policies and procedures.

4. CONCERNS

A. The MSA System provides for a single address per each buying entity and each vendor. The address data contained in these records are printed in the heading of RFQ's and procurement instruments. The Agency is required by public law to maintain data on the facility where a vendor performs the actual work. Yet, because of the requirement to protect sources and methods of the procurement of goods/services to protect the fact that the Agency is delving into a particular technical field or to eliminate potential traceability of an item which may ultimately be shipped to and used in an activity that would be damaging if U.S. involvement was identified. (33)

For this reason, vendors and buying entities must have different addresses for the purpose of communication and still have traceability through the maze of actual participants. Also the vendors accounting records may be kept at another location. Therefore, the MSA System should be augmented with the capability of storing multi-addresses for each vendor and each buying entity. (34)

B. System appears to lack traceability of vendor's former name(s), facility location, and corporate relationships to other vendors; commencing with the time they become a member of the agency's vendor stable. A possible solution would be the addition of a field to cross reference the former vendor number and the new vendor number.

FUNCTION: PREAWARD

1. DESCRIPTION OF THE MSA SYSTEM

A. Receipt of Requisition for Buyer Action:

The completed requisition is electronically placed in the inbox of the Chief of the Buying Entity for assignment of a buyer or another buying entity. If the requester knows which buyer will actually process the requisition the buyer can be assigned up front by the requesters.

The buyer will review the inbox for requisition to be processed. If the buyer cannot process the requisition for some reason the requisition can be assigned to another buyer or another buying entity.

The buyer can request that the customer submit additional information such as sole source justification. The data will be submitted to the buyer's inbox.

B. Vendor Selection:

The MSA System assists with sourcing decisions in multiple ways:

Vendor performance statistics.

Vendor product history and statistics.

Vendor quotations.

Item history.

The buyer selects the best vendor as the source for the item or service when competition is not required.

C. Soliciting Vendor Quotations:

The MSA System provides a means of developing and printing RFQs and posting and evaluating quotations.

The buyer has the option of creating a vendor's quotation without first creating a Request for Quotation. When policy requires that a quotation be solicited, you need not enter the quotation number until you create the purchase order. Furthermore, an RFQ does not have to result from a requisition.

35

Information entered into the system at any point can be referenced and carried forward to subsequent screens and documents. The data contained in comment screens for the RFQ and vendor responses cannot be carried forward to subsequent screens and documents.

Once you record quotations, the system displays detailed information to help you evaluate the options. Four screens are used for inquiring about quotes.

- 1) Order quantity and pricing information.
- 2) Summary of basic information such as type, status, important dates, least time, and associated RFQ number, if any.
- 3) List shipping instructions and payment terms. Also list receiving controls.
- 4) List vendor performance. Also lists total number and monetary value of purchase order lines placed against the quote data. The buyer retains the authority to analyze the terms offered and select the best source of supply.

The Buyer's Action Report is a hard copy means of tracking the status of RFQs and vendor's response. There are six online inquiry screens pertaining to the RFQ. The system uses three screens for the input of RFQ data and three screens for posting vendor's response.

In those RFQs requiring CSAD preaward audit the data could be entered in the comment screen.

2. MAJOR DIFFERENCES FROM CURRENT SYSTEM

A. The current system is a manual system with the WANG producing the documentation. There is no database for the storage and retrieval of the RFQ or quotation data. In those RFQs requiring CSADs preaward audit functions, the data is currently input into a VM file.

B. The MSA System is realtime online and provides an efficient means for tracking and collecting quotation data, vendor performance and item history for the non-complex RFQs.

36

3. PROCEDURAL IMPACT

A. Workload

A. The input of RFQ and quotation information is time consuming on the part of the negotiator. Time consuming means that the MSA System allows the input of only one item quote per vendor at a time. This means that when you are on the phone with a vendor who is giving you a quotation for even as few as five (5) line items, you must access two screens for each individual line item and for each individual vendor. (37)

B. Policy:

B. The MSA System is not designed to handle the lengthy text required by the Government for RFQs. Therefore we may have to use preprinted boiler plates containing the clauses required for the RFQs. However, there is a means of using the comment screen for the input of the clauses but it is not as efficient as the WANG word processor is today.

4. COMMENTS

A. The MSA System needs a means of collecting, storing, and data manipulation for tracking and reporting requirements for CSAD proposal audits. When the content is classified, the buyer needs to know that OL/SS has approved the plant facility and the classification levels authorized for technical and administrative material to be received and/or retained by the vendor. Also if the proposed contractual agreement will require Government Furnished Property/Equipment, the buyer needs to know if the vendor has approved property accounting procedures. (38)

The above data is a sample of the types of data currently available in the CONIF System. This data is used in the procurement process by negotiators, OL/SS, OF/CSAD, IG/Audit Staff and OL/PMS just to name a few of the offices using the data.

B. Use of the MSA comment screens as a means of collecting, storing, and retrieval of data not defined in the MSA dictionaries is a concern because the screens are free text and optional input for the user. We anticipate modifying the package with a new screen with new data elements to facilitate data capture.

C. The MSA System does not allow a buying entity to be changed. This capability is required because many requisitions are reassigned to other buying entities as a result of workloads, experience, and sensitivity of the goods/services to be purchased. (39)

FUNCTION: PREPARATION OF DOCUMENTATION (PROCUREMENT INSTRUMENT)

1. DESCRIPTION OF THE MSA SYSTEM

The creating and issuing of a procurement instrument is accomplished through a series of six (6) screens. The system provides a requisition to purchase order processing that carries data forward from related records and the standardized procurement terms and controls, therefore data does not have to be rekeyed. The buyer always has the option to:

- A. Default to information previously entered; or
- B. Override hierarchy common policies with data for the specific order.
- C. Write comments, specifications, and instructions for a procurement instrument line or entire order.

The system keeps track of order quantities, and closes a requisition line once orders for the total quantity requested have been printed.

A requisition line can be split or divided up to five times so that different quantities of the total quantities requested are allocated to different vendors. A requisition line cannot be split or divided between different buyers. The lines of a requisition cannot be split between different buying entities, which is a major limitation of the system. (10)

A procurement instrument is created from a requisition by selecting a requisition line or a split using from one to three screens.

Once a purchase order is ready to be printed the following activity can be performed:

- A. Balance the order.
- B. Change information.
- C. Procurement instrument can be reviewed on line before printing.
- D. Printing a procurement instrument is released by authorized contracting officers.

E. Monitor status.

F. Receiving can be made against procurement instrument line. If receiving is made against a procurement instrument before it is printed, an original copy cannot be printed. (u)

G. Cancel or delete procurement instrument line.

The system provides ten (10) inquiry screens for reviewing the overall procurement instrument and line detail:

A. Indicate line and receipt status.

B. Summary of order information.

C. Line receipt and invoice controls.*

D. Comparison of order/receipt/invoice information.*

E. Financial information per line.*

2. MAJOR DIFFERENCES FROM CURRENT SYSTEM:

The preparation of documentation function is currently a manual process with the use of the WANG word processor. The contract information is entered into the CONIF database after the fact for the collection, storage, and manipulation of data to meet reporting requirements which includes Federal Data System reporting specifications. The CONIF data validates the present commitment and creates a decommitment and obligation record that is transferred daily to the Agency's General Accounting System (GAS) in a batch process. If commitment has been transferred to CONIF from GAS the CONIF System creates a decommitment and obligation record that is placed in suspense until a commitment is transferred from the current General Accounting System. CONIF contains data for tracking purposes and views information from the vendor. The payment of vendors is accomplished based on verifying and matching data in CONIF and/or by physically matching purchase instruments, receiving reports, and invoices. CONIF produces the required financial vouchers, schedules, remittance advices and EFT data to effect payment for the Office of Finance.

* Available only if integrated with AP (Accounts Payable).

MSA is a realtime online system that assists in producing data for procurement instruments. The system automates the administrative work and reduces paperwork. Its goal is to reduce dependence on paper, eliminate duplicate record keeping. The contract data retained by the MSA System is basic to commercial procurement activities.

As requisitions, RFQs and procurement instruments are processed, the hierarchy matrix insures that the majority of purchasing activities which ~~is~~ is in accord with the general policy are handled automatically by the system. The buyer can concentrate on resolving actions that are complex and/or exceptions to the general rule.

3. PROCEDURAL IMPACT

A. Workload

There will be no need to input data into CONIF, ICS, or WANG. The buyer will be required to input the data into the MSA System. (42)

B. Policy/Responsibilities

The responsibilities for the negotiation process will not change except the buyer will be responsible for the input of the data into the system.

The MSA System has a procedure for recording standard phrases that are printed regularly on request for quotations and procurement instruments. The phrases are limited to ten (10) lines of fifty-five (55) characters each. This procedure provides a phrase table that allows the development of logical groups or sequences of standard phrases. The table is limited to 15 phrases. The phrases cannot be edited for a specific procurement instrument.

The MSA System is not designed to handle the lengthy text required for Government contracts, therefore we may have to use the preprinted boiler plates containing the clauses required for contracts. There is a means of using the item master for the one time keying of clauses, pulling forward data to the comment screen and making any additions and/or changes necessary for a specific procurement instrument. This would be manipulating the MSA System to be a word processor which is a function that it was not designed to perform.

4. COMMENTS

A. The MSA procurement instrument number contains 10 digits. If we implement the decision to use the AF Contract Numbering system, we will require a larger field. This is a key field and the impact of the MSA System is unknown. (43)

B. The lack of a real word processing capability for the production of documentation.

C. The ability to track cost type actions is unknown at this time. (44)

FUNCTION: POST AWARD

1. DESCRIPTION OF THE MSA SYSTEM

MSA System tracks the procurement instrument line status for the receipt of goods or services. The procurement instrument line is closed when DTS (dock-to-stock) activity for a line is finalized and either the total quantity against the procurement instrument line equals the order quantity, the total received falls within the + or - % tolerance, or the line has been cancelled. When all lines are closed the procurement instrument is closed.

2. MAJOR DIFFERENCES FROM CURRENT SYSTEM

A. The current CONIF System tracks the contract from the history of the procurement instrument through the amendment data, payment, CSAD data, COTR inspection reports, and in settlement processes. The fixed price (FFP) contracts are settled once both the final receiving and payment process has been completed. The settlement of cost type contracts is a multi-step process requiring the completion of a number of documents such as certificate of completion, Final Patent and Royalty Report, Cumulative Claim and Reconciliation Report, Final Property Report, and Disposition of GFP/GFE Report just to name a few of the documents required to settle a contract.

B. MSA keeps track of the number of times the target delivery date is changed and stores only the current target date. System also stores only the current amount of the contract. MSA closes the contract when the receipt of all goods or services has been received regardless of the type of contract.

3. PROCEDURAL IMPACT

A. The weakest point of the MSA System is the post award/administration part of the procurement cycle.

B. The inability to capture amendment data for individual amendments that have been written to modify an existing procurement instrument. This data represents a history of all changes that have occurred to the original procurement instrument. (45)

C. The inability to capture the following data:

- 1) COTR's inspection data.
- 2) CSAD data.
- 3) Closing/settlement data.
- 4) Archiving data.

Currently the only way this data can be input to the MSA System is to use the comment screen. The comment screen is optional and free text, thus the user will have to be very disciplined in the data requirements.

FUNCTION: VENDOR PAYMENT

Note: The initial CLAS proposal was based on using an integrated version of Purchasing (2.0) and Accounts Payable (AP 5.0). Un-integrated versions (Purchasing 1.2 and AP 4.2) were used in the current evaluation. The evaluation report emphasizes AP 4.2, but includes an overview of AP 5.0. AP 5.0 comments are based on reviews of user documentation, product demonstrations,, and formal instruction on implementing AP 5.0. Although it is presently available on the market, AP 5.0 in an integrated and IDMS version will not be available until April-June 1987.

1. DESCRIPTION OF THE MSA SYSTEM (4.2)

The 4.2 release of the accounts payable package is basically a batch system with some on-line capabilities. It is not interfaced with any of the other packages but does provide the capability for extracting general ledger data to be passed to a general ledger package. The only file that can be created on-line is the vendor file. The batch transactions may be created on-line but are updated in batch. These include:

1. Policy
2. Invoices
3. Payments
4. Reports

All invoice data collection and payment transactions are processed through batch jobs.

The system permits on-line inquiries against the policy, vendor and data collection files. It also allows for on-line inquiry of invoice status and cumulative payment data. The system consists of forty menus which are comprised as follows:

Policy Inquiry	18
Vendor Inquiry	6
Item Inquiry	6
Data Collection	9
Data Collection Inquiry	2

Of the nine data collection menus, one is used as a transaction header, six are used for the payment of invoices, one is utilized for establishing and modifying vendors and the remaining one is used for cycle control. Pay entities and their attendant policies. They are input via a free form 80 column format which is both cumbersome to use as well as possessing a high potential for error.

The system processes consist mainly of establishment of paying entities, policies regarding each entity, vendors within the entity, and invoices against the vendors. The rules (or policies) are established at the various levels - policy, vendor, invoice, etc. - and the system operates on a default basis to the next highest level beginning with the data input at the lowest level. For example, discount policy may be established at the paying entity level or at the vendor level however discount information input on the invoice will override the higher levels.

System processes consist of inputting invoices against specific vendors with minimum data such as vendor number, invoice number, amount, payment date, and accounting date. Optional data such as discounts, accounting distribution, etc. may also be entered at this time. When the payments are triggered by the input of payment cycle cards, the system then checks higher level policy and schedules payments based on rules established at either invoice, vendor or policy level.

The outputs of the accounts payable system are checks - or treasury tapes to produce checks or EFT - remittance advises, and data to update the appropriate general ledger accounts.

2. MAJOR DIFFERENCES FROM CURRENT SYSTEM

The collection and retrieval of data in the accounts payable package is at the policy, vendor, and invoice level rather than at the purchase instrument level as in CONIF. (27)

3. PROCEDURAL IMPACT

A. Workload

Audit and Certification Division (A&CD)

The workload in A&CD would increase if release 4.2 is implemented. Because of the need to maintain duplicate vendor files and to prepare remittance advice notices.

Unless modifications are effected to accommodate cost type transactions, implementation of either release would seriously impede the A&CD effort.

Commercial Systems Audit Division (CSAD)

The CSAD function would be impeded by the implementation of either release, predicated on the fact that CSAD is dependent on the current system to collect and extract the data necessary for auditing cost type contracts.

Assistant Director for Liaison (ADL)

If release 4.2 were used, an extract of OGA requisition and receiving reports would have to be passed to ADL, or ADL would be forced into a cumbersome and time-consuming manual matching effort.

The implementation of release 5.0 would result in some savings of time and effort due to the automated matching feature.

4. MSA ACCOUNTS PAYABLE 5.0

The basic concepts of accounts payable releases 4.2 and 5.0 remain the same, but the following changes have been made. In order to convey their impact they are broken down into categories of major, significant, and minor.

Major Changes:

- ° Integration with Purchasing
 - Shared Vendor File
 - Automated Matching
- ° Enhanced Reporting
 - This release utilizes the Information Expert (I.E.) facility which allows for ad-hoc report generation.
- ° Improved Menu Capability
 - New menus for establishing and maintaining policy
 - Less cumbersome, more user friendly
 - Invoice Worksheets
 - Increased flexibility and ease of use

Significant Changes:

- ° On-Line Invoice Approval
 - Individual or group authority
 - Dollar limitations

- Invoice Modelling
 - Used for frequently paid invoices, such as utility payments
- Improved duplicate invoice verification
- General Ledger Interface Menu
 - Allows integration of accounts payable with non-MSA General Ledger
- Links company/account/center to purchase order
 - If automated matching is employed, the general ledger distribution can be linked to the purchase order
 - (This is more in line with the current philosophy of linking to the purchase instrument rather than the vendor)
- Capability to effect partial payment
 - CONIF allows partial payment of suspensions. Release 4.2 could not accommodate this

Major Enhancements:

- Edit on general ledger posting date
 - Under release 4.2, an erroneous posting date could be input. E.g. a posting date of 1986 could be recorded as 1996, thus causing general ledger data to be incorrect
- Use of decimals in amount field
 - 4.2 would not accept decimals thus was less user friendly
- Canned messages
 - Preformatted reason codes and remittance messages
 - Can be easily referenced on invoice
- Ability to inquire and return to invoice
 - This release provides capability to exit the invoice to make inquiries on company terms and vendor policies and return to invoice worksheet.
- Capability to delete and restore lines on invoice

Summary:

The overall evaluation of this release is that it possesses much more functionality than the one that was evaluated at the offsite facility. It has alleviated many of the negatives associated with that release - notably those dealing with the cumbersome processes, the retrieval capabilities, integration with purchasing, release of suspensions and some of the missing edits.

5. COMMENTS

Release 4.2 does not meet the needs and requirements of the Agency and should not be considered for implementation.

Release 5.0, along with purchasing release 2.0, will accommodate the processing of firm fixed price contracts. It will fully meet the requirements of ADL and will satisfy a substantial portion of those in A&CD.

Neither release will satisfy the requirements associated with the cost type contracts. and, therefore, would not fulfill any of CSAD's requirements nor A&CD's to the extent they impact on the cost type contracts. Although these transactions represent the smallest percentage of contract activity, they constitute the highest dollar volume.

The purchasing and accounts payable packages must be integrated in order to fully realize their functionality.

Even though some modifications are necessary, the use of package software will result in changes being made to current operations and policies. This will require management decisions at all levels.

FUNCTION: MANAGEMENT INFORMATION:

1. MSA SYSTEMS

The MSA software design anticipates the majority of information required by managers and users. Menu-driven on-line queries and reports and batch reports are available throughout the system. Many menus are linked with logically related transactions, but any query menu can be readily accessed from any point in the functional process. Access to query menus is controlled by system security. Each selected menu allows the user to define search and sort criteria. For example, an item manager may search by stock number; description; word, partial word, or phrase within a description, cognizant office; value; commodity class; or warehouse location. Criteria may be used alone or in conjunction with each other.

The MSA software is designed around a product called INFORMATION EXPERT, or IE. IE is a menu-driven reports writer that allows the user to design a custom report in a ten-step sequence. Custom designs may be "canned" for repetitive use. Reports may be created and viewed on-screen real-time. Hard copy reports are in batch mode. Although the team has observed IE in demonstrations and classes, there has been limited hands-on experience to date.

The Purchasing portion of the software is IE driven. IE versions of Inventory and Payment functions will be acquired in the April 1987 time frame. Until that time, the purchasing system will be used to explore reporting on requisition, procurement, and receiving functions.

2. CULLINET DATABASE (IDMS/R) PRODUCTS

Although the functional evaluation team has not attempted to use them, OIT's technical team has done exploratory work on Cullinet's CULPRIT reports writer and ON-LINE QUERY (OLQ) system. Both of these products can be used in lieu of or in conjunction with MSA products. As an ad hoc query tool, OLQ seems cumbersome to a casual user. However, the syntax required for a frequent query can be recorded and assigned a QUERY NAME, and the question posed by any user by calling the QUERY NAME.

FUNCTION: APPROVALS

The approvals capability of the MSA system is rudimentary. Authorizing menus are provided, and their use required, to release requisitions, purchase documents, and invoices for payments to vendors. Access to authorizing menus is controlled by system security; the purchase and payment authority may be further restricted by dollar levels. It appears that the authorization screens are intended primarily for supervisory reviews.

REQUISITIONING:

Each line item of a requisition must be approved before further processing of the complete requisition takes place. The system provides for automatic approval (completed requisitions are immediately released), semi-automatic approval (dollar thresholds require manual approval), or manual approval (authorized approving officer must release each line item). Prior to that approval, all data on the requisition may be changed. Once approved, line items may not be added nor line-item data amended.

A proposed scenario for requisitions would have originators construct requisitions on-line, without the necessity of Form 88 or 2420. A completed requisition is printed in the originator's office--that hard copy document would be used to obtain any needed coordinations and approvals, and retained for audit purposes. The approval/release screen is used by or under the supervision of the component logistics/administrative officer, who is responsible for ensuring that necessary signatures are present for each requisition being approved/released. This method is consistent with regulations currently being published [redacted] However, it may be contrary to [redacted] which states that OL will check to see if approval signatures are present. OL does not authenticate signatures.

48

To facilitate monitoring for compliance with approval and coordinating requirements, periodic (daily?) reports recapping activity would be sent to each originating office and to any coordinating offices for which reports search criteria can be identified. It is incumbent on recipients of those reports to actively monitor requisitions, to challenge questionable ones, and to request that further processing of unapproved/uncoordinated requisitions be suspended. Disputes on coordinations are between the originator (whose approval certifies that necessary coordinations were obtained) and the coordinating component.

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PURCHASE DOCUMENTS:

The authorization/release screen is used after a purchase document is set up (all information relative to the purchaser is assembled) and prior to printing of the document. While access to the authorizing screen is controlled by system security, and use of the screen is required, the screen seems best suited to providing on-screen editorial review of a completed document. Actual control of purchasing, and the authority for releasing a purchase document, rests with the hard copy document being reviewed and signed within the bounds of existing delegations of authority. Information on the Determination and Finding/Contract Review Record can be recorded in the comment portion of the on-line purchase document using maintenance menus, or a separate screen with data elements can be developed. (49)

VENDOR PAYMENT:

The approval screen in the payment module may be restricted by several criteria, primarily dollar amounts. The screen may be used for supervisory review or for certification, depending on Office of Finance desires.

POSSIBLE/PROBABLE MODIFICATIONS

1. Provide additional interface between the Manufacturing and Purchasing Systems to provide a single requisitioning format for stock issues, direct material purchases, and service requests. A uniform format will simplify user involvement, provide uniform data entry and query, and provide a single data stream from which to interdict budget and financial processes.

Estimated Cost \$60,000
2. Provide structured input screens for data capture; no logic is associated with the data elements, although simple edits are possible.
 - Requisitioning: header information identifying originators, shipping addresses, and special handling/remarks/transportation. 15,000
 - Depot Tracking: 15,000
 - Purchasing: Contract management information not present in the contract that is currently input to CONIF. 15,000
 - Payment: Payment information relating to cost type contracts and progress payments. 15,000
3. Special reports/forms utilizing data extracts and standard forms generator.
 - Purchase document: conform to USG standard. 10,000
 - Depot Instruction Notice: Stand-alone document to move material into stock and to transportation. 10,000
 - Requisition document: hard copy auditable document, printed, approved, and retained by the originator. 10,000
 - Business Justification/Contract Reviews. 10,000
4. Modify Purchasing Maintenance Screen to include data elements recording Date Contract Mailed and DATE BI-LATERAL CONTRACTS ARE RETURNED. 10,000

5. Provide multiple Buying Entity Codes on single requisition, and allow multiple Buying Entity Codes between Manufacturing and Purchasing.	40,000
6. Provide capability to change Buying Entity Codes without cancelling/re-creating requisition data.	15,000
7. Provide for automatic allocation on requisitions for stock items, retain manual process for substitutions.	15,000
8. Modify requisition approval program to allow approval at the requisition (vice line item) level.	15,000
9. Interface with Agency budget system.	100,000
10. Alter system security, per OIT/SEG.	<u>100,000</u>
	\$455,000
	(say \$500,000)

FUNCTION: TERMINALS

1. There is a concern regarding the terminals that will be used to support CLAS. The MSA system was intended for use with the IBM 3270 family of color terminals. Four different colors differentiate between system generated data (menus), required and optional data, and error messages. The team found these colors to be very helpful.
2. Although the IBM 3270 family has been selected as the standard terminal replacing Delta Data, the selection of a procurement source is not expected until September 1987. Terminals may be purchased prior to that date at 6-7K per work station. In any event, none of the outbuildings (including Page) are wired to handle the 3270 protocol, and there are no firm plans/funds to do so. The Headquarters Building will support 3270-protocols late FY-86. The New Headquarters Building, and possibly the Reston Complex, will provide 3270 - connectivity.
3. OIT has installed an ADESSA emulator that allows Delta Data terminals to use the 3270 protocol. The emulator adds 50% - 100% to terminal response time and does not provide color capabilities.