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There have been many technological innovations in recent years that have paved the way toward bringing to the business environment a capability that will effectively eliminate, over time, the need to either create or accommodate paper transactions as a standard practice of conducting business. With down-sizing and shrinking budgets, the Army and DoD are placing major emphasis into new cost and resource saving efforts - Electronic Commerce (EC) through Electronic Data Interchange (EDI) is a necessity for a all of DoD's service level small computer acquisition programs. This paper examines this new technology with an objective of analyzing the feasibility of implementing EC/EDI in the current Indefinite Delivery/Indefinite Quantity (IDIQ) contract delivery order business process in the Army's Small Computer Program. It provides a non-technical overview on the subject, a look at the DoD EC/EDI infrastructure, an overview on the Small Computer Program, and lastly a Small Computer Program EC/EDI implementation strategy including a cost/benefit analysis.

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USAWC STRATEGIC RESEARCH PROJECT

ELECTRONIC COMMERCE/ELECTRONIC DATA INTERCHANGE AS IT APPLIES TO BUYING INFORMATION TECHNOLOGY PRODUCTS AND SERVICES FROM INDEFINITE DELIVERY INDEFINITE QUANTITY CONTRACTS

by

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United States Army

June 1996
U. S. Army War College
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TABLE OF CONTENTS

LIST OF ILLUSTRATIONS iii

ABSTRACT iv

INTRODUCTION 1

AN EC/EDI OVERVIEW 2

Benefits 4

Standardization 5

Value Added Networks and Services 6

DOD EC/EDI INFRASTRUCTURE 7

ARMY'S SMALL COMPUTER PROGRAM: AN OVERVIEW 12

SCP EC/EDI IMPLEMENTATION STRATEGY 17

SCP - EDI feasibility 17

Investment Cost Methodology 18

Benefits Cost Methodology 19

SCP- Cost/Benefit Analysis 20

SCP EDI Prototype 20

Evaluate Prototype Performance 24

CONCLUSION 25

BIBLIOGRAPHY 26

LIST OF ILLUSTRATIONS

Figure 1. Without EDI 3

Figure 2. With EDI 4

Figure 3. EC/EDI Integration Process 10

Figure 4. Initial DoD Procurement Ordering System 11

Figure 5. Mature DoD Procurement Ordering System 12

Figure 6. Army Delivery Order Process - Error Free 14

Figure 7. Army Delivery Order Process - With Errors 15

Figure 8. Interest Payments SMS (Intel 310) Contract 16

Figure 9. SCP Cost/Benefit Analysis 22

Figure 10. SCP EC/EDI Prototype 24

ABSTRACT

AUTHOR: Charles G. Schwoebel, LTC, USA

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Technological innovations in recent years have paved the way toward bringing to the business environment a capability that will eventually eliminate paper transactions as a standard practice of conducting business. With downsizing and shrinking budgets, the Army and DoD are placing major emphasis into new cost and resource saving efforts — Electronic Commerce (EC) through Electronic Data Interchange (EDI) is a necessity for all of DoD's service level small computer acquisition programs. This paper analyzes the feasibility of implementing EC/EDI in the current Indefinite Delivery Indefinite Quantity (IDIQ) contract delivery order business process in the Army's Small Computer Program. It provides a non-technical overview on the subject, a look at the DoD EC/EDI infrastructure, an overview on the Small Computer Program, and a Small Computer Program EC/EDI implementation strategy, including a cost/benefit analysis.

INTRODUCTION

Technological innovations in recent years have paved the way toward bringing to the business environment a capability that will effectively eliminate over time the need to either create or accommodate paper transactions as a standard practice of conducting business. Now, with Electronic Data Interchange (EDI), companies are able to conduct business with each other without so much as a sliver of paper being exchanged between them.

Historically the use of this technology has been largely limited to private industry in such industry groups as transportation, automotive, retail grocery, and apparel manufacturers. Their use of EDI covers such traditional applications as pricing, purchasing, order status, shipping and receiving, invoicing, payment, and reporting. Early EDI practitioners generally communicated with each other via proprietary transaction standards and through various mediums of communications. Today the widespread use of computers for commercial business applications, the increasing maturity of telecommunications techniques, and the emergence of accepted EDI standards has created an explosion throughout the business world of EDI usage.

Because of the maturity that EDI has achieved, it has become a recognized strategic information systems technology, and the Federal Government has now acknowledged that EDI is an advantageous means for conducting business both internally within the Federal Government as well as externally with private industry. New applications of this technology are being implemented throughout the Federal Government with greater frequency. The range of potential applications seems almost endless.

Faced with downsizing and shrinking budgets, the Army and DoD are placing major emphasis into new cost and resource saving efforts. Electronic Commerce (EC) through EDI is a necessity for all of DoD's service-level small computer acquisition programs. This paper examines the feasibility of implementing EC/EDI in the current IDIQ delivery order business process in the Army's Small Computer Program (SCP).

AN EC/EDI OVERVIEW

EC is the paperless exchange of business information, using Electronic Data Interchange (EDI), Electronic Mail (E-Mail), computer bulletin boards, FAX, Electronic Funds Transfer (EFT) and other similar technologies.[1]

EDI , a major part of EC, is the movement of business documents electronically between or within firms in a structured, machine-readable data format that permits data to be transferred, without rekeying, from a business application in one location to a business application in another.[2] It can be thought of as the exchange of routine business documents in a computer-processable format.

In most business environments the present methods of doing business often involve burdensome paperwork, multiple handling of documents, and a significant commitment of staff and significant expenditures of time and money. This is especially true in environments with multiple business partners.

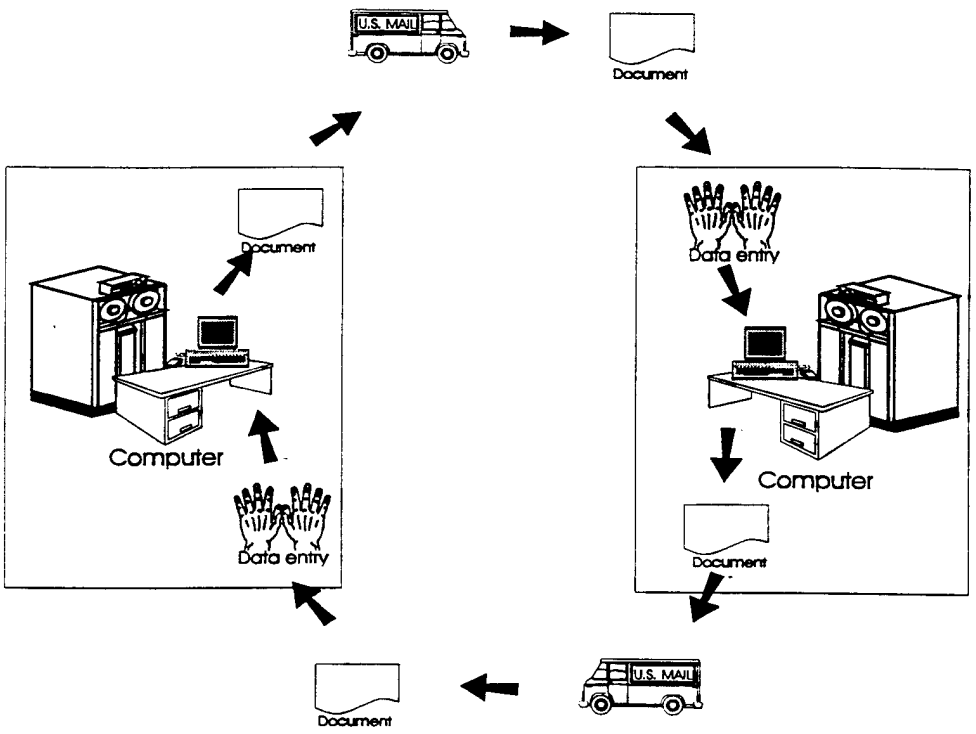

Figure 1. Without EDI

It is often necessary to put significant effort into streamlining internal operations and procedures. The need for greater sophistication calls for the implementation of technology if we are going to survive in this downsizing environment. This has a knock-on effect which creates a greater need to maintain highly-qualified people.

Communications links need to become progressively more integrated with management in order to keep pace with commercial businesses. Communication links are often the bottlenecks. The manner in which we exchange information externally affects overall performance. Improvements in communications links thus strengthen the overall organization.

EDI can eliminate time-consuming clerical activities increasing responsiveness to user needs. The elimination of incoming paperwork is the most important initial result that can be achieved by EDI.[3]

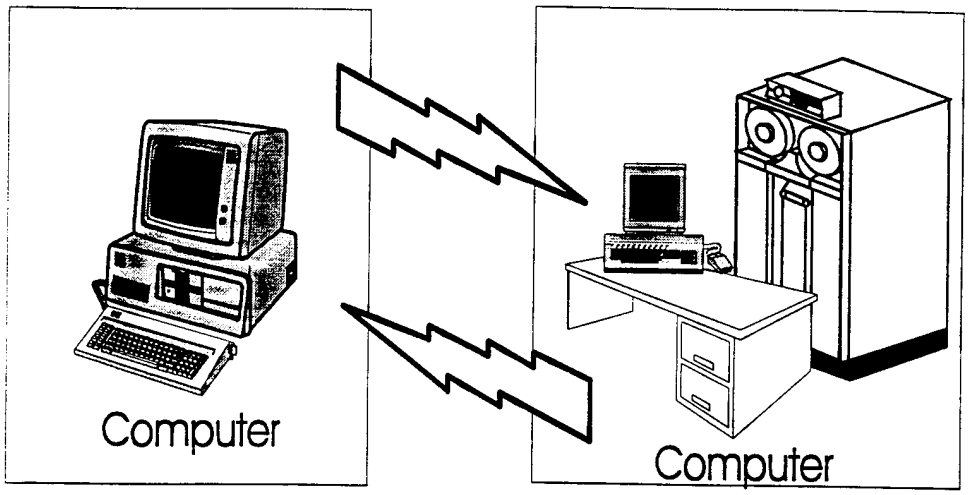

Figure 2. With EDI

Benefits

Businesses which have endorsed specific oriented EC programs have saved money. They have communicated their findings in an effort to improve the Federal Government procurement process. Benefits include the following:

1. EDI greatly increases business opportunities, not only with DoD, but also with many private sector trading partners. In fact, an increasing number of private sector companies now insist that their suppliers and subcontractors adopt electronic contracting.
2. Improvements in overall quality. Experience in the private sector shows that automating your procurement documentation can greatly improve the quality of you record keeping. There are far fewer mistakes and those mistakes are not repeated across different documents.
3. Reduced inventory. EDI permits faster and more accurate filling of orders, helps reduce inventory and assists you in "just-in-time" inventory management.
4. Lower mailing costs. There is far less paper mail to send.

5. Higher customer satisfaction. Customers report faster response to orders, with less paper to handle.
6. Reduced order time. EDI is much faster in processing orders.
7. Faster billing. Since orders are filled and delivered sooner, billing and close-out can occur sooner.
8. Better information for management decision making. EDI provides accurate information and audit trails of transactions, enabling business to identify areas offering greatest potential for efficiency improvement or cost reduction.[4]

The organizations which benefit most from EDI implementation are those which incorporate EDI into their overall business strategy.[5] DoD has expressed its belief that EDI will generate the same types of benefits for the Department that private industry has already achieved through conversion of manual business transaction to standard electronic processes.[6]

Standardization

Computers communicate among one another through particular languages known as protocols. The early users of EDI used proprietary transaction standards to communicate with their respective industry groups. This approach worked sufficiently as long as companies did not become involved in EDI initiatives with industry groups that used different standards. The lack of common standards forced many companies to conduct business in a variety of ways that created many undesirable operational circumstances.

As more and more industry groups discovered that EDI could have substantial benefits, there was a move toward establishing common standards. The American National Standards Institute (ANSI) chartered a new committee in 1979, known as the Accredited Standards Committee (ASC) X12, to develop uniform standards for EDI.

The Department of Commerce, National Institute of Standards and Technology (NIST) issued Federal Information Processing Standard (FIPS) 161, Electronic Data Interchange (EDI). FIPS 161 adopted the ASC X12 standards as mandatory for any Federal Government EDI initiative implemented after September 30, 1991. In compliance with this federal standard, DoD is committed to using ANSI X12 standards.[7]

Standardization is an essential element in the success of EDI. The X12 conventions are essential to developing software interfaces between existing automated procurement applications and new translation applications. The rekeying of data from one computer system into another computer system is replaced with the movement of that data from the source computer into a recipient's computer system, using a telecommunications link through an intermediary facility such as an electronic mail box.

Value Added Networks and Services

For businesses of all sizes, the problems of linking a computer system to those of customers and suppliers are considerable. Linking one computer to another is not necessarily a major challenge. Linking one computer to several becomes more difficult. But linking several computers to talk to each other is the major challenge thus the requirement for Value Added Networks.

A Value Added Network (VAN) is generally a commercial entity (similar to a long distance telephone company or a computer on-line service) that provides communications services, electronic storage and forward mailboxing, and other related services for EDI transactions.[8] VANs have long been used as clearinghouses for electronic documents used in manufacturing, retail and

transportation industries.[9] VANs are necessary because it would be too expensive and impractical to establish direct point-to-point connections with all trading partners. VANs are also useful because they 1) are accessible regardless of physical location, 2) support reliable connectivity to trading partners via varying communications speeds and protocols, 3) provide security for transactions including audit trails, and 4) generally offer other value added service features and ANSI X12 EDI translation software. The translation software will convert an agency's data into the standard formats so that it can be routed through the EDI communications infrastructure.[10]

A Value Added Service (VAS) may be a separate commercial organization (also known as an EDI service bureau) or a VAN that provides extra fee-based services beyond standard VAN services to its customers.[11] Such services may include, for example, integrated facsimile transmission and on-line database services.

DOD EC/EDI INFRASTRUCTURE

In a October 26, 1993 memorandum, President Clinton set forth milestones for implementing EC within the Federal Government, including government-wide implementation of EC for Federal Government purchases by January 1997. To accomplish the President's goals a Federal Electronic Commerce Acquisition Team (ECAT)[12] was formed. The Final Report of ECAT identifies 1) the need for consistency in the way federal agencies procure and pay for goods and services 2) the need for these procurement processes to not only be consistent but reengineered as well and 3) a recognition that the EC/EDI solutions

employed are available today and do not have to be reinvented by the federal government.[13]

Within the Final Report the following imperatives were identified:

—The Federal Government must present "one face to industry."

—Transactions must be standardized, timely, accurate, and reliable.

—The Federal Government should use established commercial practices and products where effective.

—Federal, international, and national standards must be used.

—Processes must be automated.[14]

These mandates must be considered when evaluating and selecting Federal Government business process candidates for EC/EDI implementation.

The DoD EC/EDI infrastructure is the system of interconnected communications and computer systems which supports the exchange of EDI transactions between Government activities and their trading partners. The use of a single infrastructure allows vendors to connect with commercial VANs that access the entire DoD system[15] at two Network Entry Points (NEPs) in an economical and efficient manner. The infrastructure also supports the concept of "one face to industry"[16] which allows Government trading partners to register with the Government once through the Central Contractor Registration (CCR) systems in Columbus, Ohio, and be able to do business with any Government procurement activity.

A Network Entry Point (NEP) is a collection of hardware and software systems which provides communications connectivity between VANs and the

Government gateways to support the exchange of EDI transactions between Government procurement activities and private sector trading partners.[17] There are currently two NEPs, located in Columbus, Ohio and Ogden, Utah. The two hubs will serve as the conduits for EDI transactions being sent from DoD organizations to a Value Added Network, where vendors and department contractors will access the department's buying data.[18] A gateway is a point of interconnection; the open door between one electronic network and another.[19] It consists of both hardware and software that provide EDI translation services, archiving, security, and environment management for converting non-standard business application systems data into ANSI X12 format.[20] Gateways typically support numerous Government business systems that are located locally or are dispersed geographically.[21] The Federal Acquisition Network (FACNET) is one example of a gateway that serves as a central solicitation clearinghouse.

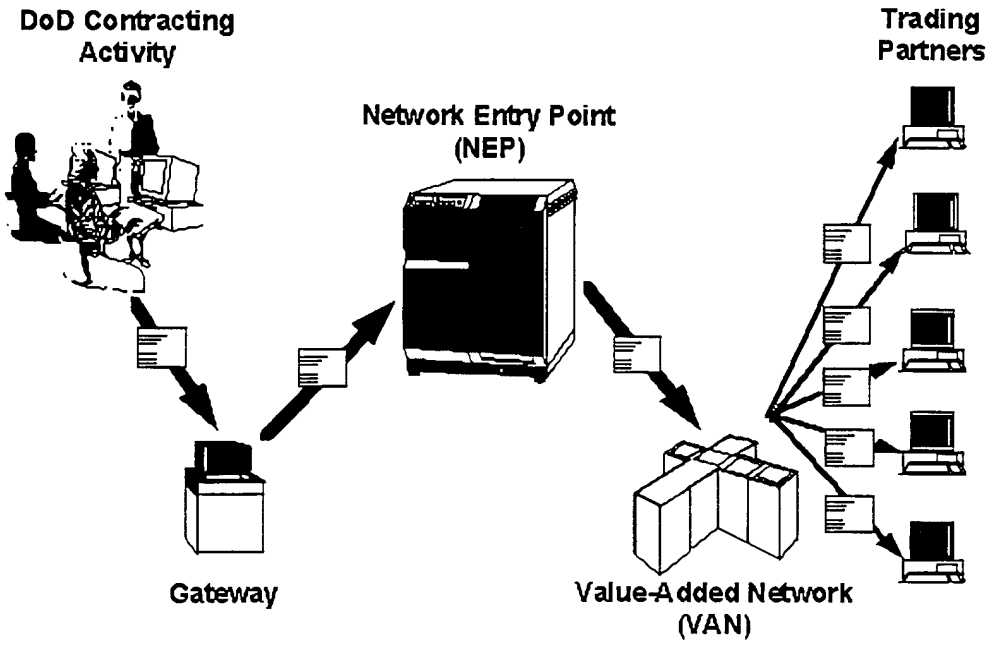

Figure 3. EC/EDI Integration Process

As illustrated above, information from a Government activity such as a DoD contracting activity is sent through an application system to the supporting gateway. After translation, archiving, and other processing by the gateway, the information is transmitted to a NEP. NEPs receive the EDI transactions and transfer them to VANs that have been certified and connected to the DoD infrastructure. VANs distribute the EDI transactions to their customers in ANSI X12 format. EDI transactions are returned to the Government by its trading partners in reverse order.

Initially, as shown in Figure 4, the DoD envisions the following generic routing of each EDI transaction between a DoD activity and a trading partner or contractor:

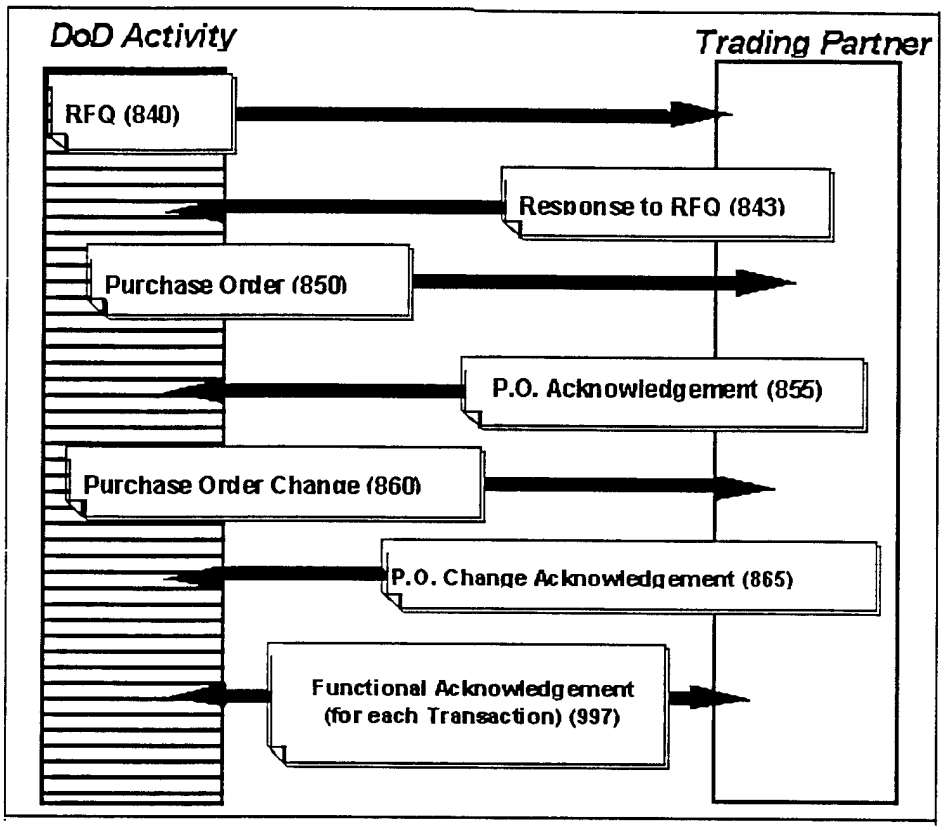

Figure 4. Initial DoD Procurement Ordering System

To insure system integrity, the procurement activity will designate a VAN to receive, store, and forward each EDI transaction. Each participant is insured rights since the VAN logs each transaction, maintains secure encoding/decoding keys for each transaction, and meets requirements through a trading partner agreement.

The DoD envisions a mature procurement ordering system for EDI transactions as shown in Figure 5:

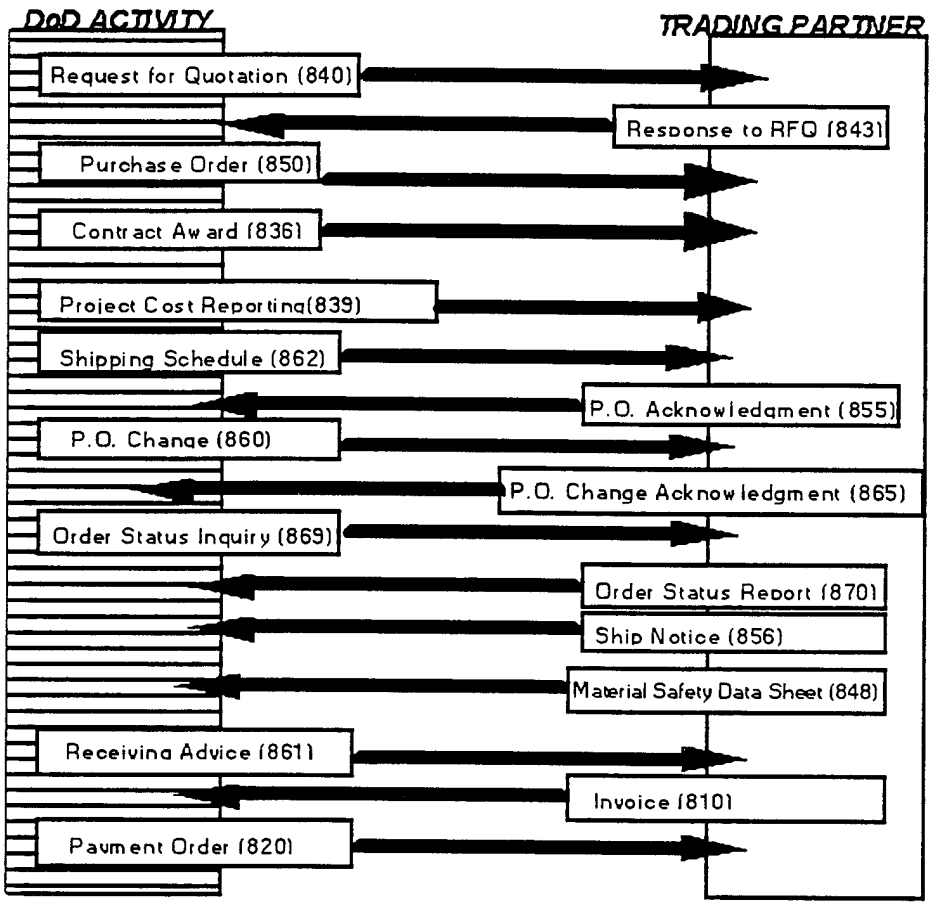

Figure 5. Mature DoD Procurement Ordering System

ARMY'S SMALL COMPUTER PROGRAM: AN OVERVIEW

The Small Computer Program (SCP) provides a source of small and medium computers including hardware, software, and support services for Army sustaining base, strategic and theater/tactical users. This source is a series of IDIQ contracts which were awarded with the objective of supporting full and open competition, obtaining price reductions, reducing contracting cost, ensuring latest technology, and ensuring standardization and interoperability.

The Centralized Order Processing Office (COPO) is located within the Army's SCP. This office is recognized around DoD and the industrial base as the "Best of Class." Over the period FY 92-94 the COPO processed approximately 45,000 individual Army delivery orders (DD 1155) or modifications (SF 30), totaling over $861 million.[22] Estimates of Government costs to prepare and fully process and IDIQ contract delivery order or modification range from $150 to $300 today. The COPO works with over 25 leading industry vendors and Government agencies responsible for financial payment and quality assurance for over 17 active IDIQ contracts. It receives input from over 300 individual Army contracting activities world-wide. Additionally, the COPO provides the means to track IDIQ contract Delegation of Procurement Authorizations, Congressional oversight requirements (Exhibit 43Ds) and other periodic reporting requirements. The COPO databases provide invaluable empirical ordering histories used in planning new IDIQ acquisitions.

As discussed above, the COPO processes all Army delivery orders. Thirteen man-years per year are expended to record, process, mail, and rectify delivery orders.

The current delivery order process is a labor intensive process. All delivery orders are screened for administrative errors which may require correction before release.

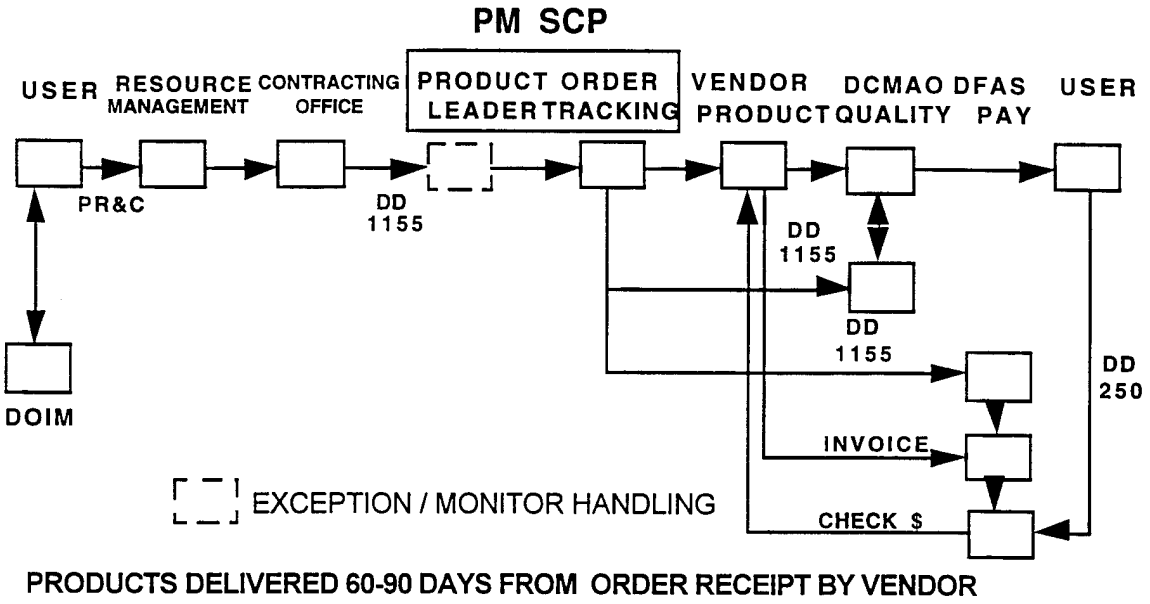

Figure 6. Army Delivery Order Process - Error Free

Figure 6 is a schematic of the ordering process. The user, with assistance from the local Director of Information Management (DOIM)/ Information Management Officer (IMO), determines which products and services are required to satisfy their information system requirements. The funds are obtained from resource management; and the local contracting officer generates the delivery order (DD 1155), ordering products and services. All Army orders are processed by the Army SCP, and distribution is made to the vendor, the administrating contract officer and inspectors, and the paying office. The vendor then delivers the products or services along with an acceptance document, normally a DD 250. At the time of delivery, the vendor also invoices the paying office. The Defense Contracting Management Area Office (DCMAO) personnel inspect the vendors processes and deliveries for quality compliance. The user acknowledges receipt of the products or services by signing the DD 250 and sending it to the paying

office. Defense Finance and Accounting Service (DFAS) then issues a check to pay for the delivered products and services.

The process provides a method for Army customers to obtain small and medium computer items, typically within 30-90 days of the vendor receiving the order.

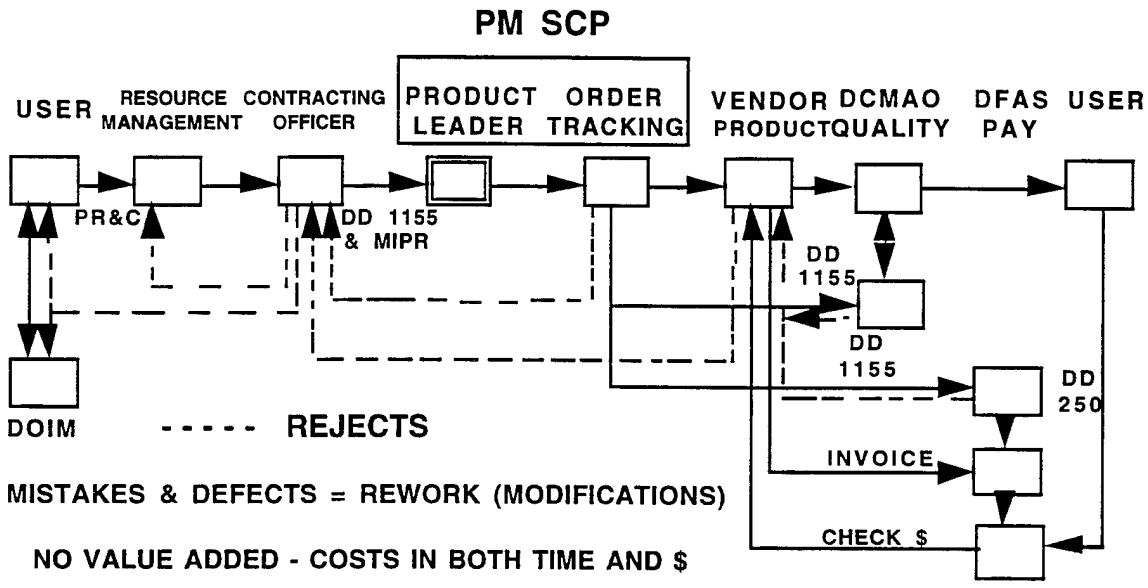

Figure 7. Army Delivery Order Process - With Errors

If the delivery order (DD 1155) is not properly prepared, the process can be interrupted, the order rejected, and significant time added to the process. The dotted lines in Figure 7 show where the order can be rejected and the paths that must be taken for corrective action. Mistakes or defects in the DD 1155 result in order modifications (SF 30s), which are costly in both time and dollars.

Current statistics indicate that 40% of all incoming DD 1155's will contain some type of error. Only 18% of the errors can be corrected with "pen and ink"

changes made by the COPO staff to the delivery order. All other errors are returned to the contracting officer for modifications. After the order is approved at the COPO there is still a 2% error rate at the vendor and DFAS level. Each error adds additional processing time to the procurement.

In addition to delays in getting equipment to Army users when the order process breaks down, serious financial impact can be felt in other segments of the process — one specifically is with vendor payments. Figure 8 shows heavy Federal Government interest payments (about $4 million) made when Federal Government documentation (of the process) did not keep up with the Prompt Payment Act requirements.

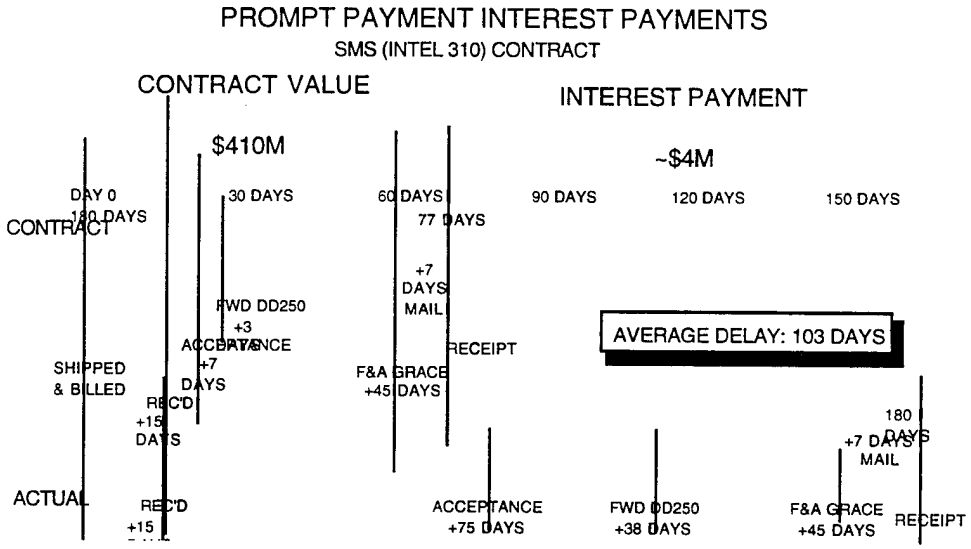

Figure 8. Interest Payments SMS (Intel 310) Contract

SCP EC/EDI IMPLEMENTATION STRATEGY

The conventional wisdom and advice offered by experienced EDI practitioners suggests that when initiating an EDI program, it is advisable to select a single well-focused business process that can be implemented in a controlled environment. This will enable the assessment, evaluation, and adjustment of installed EDI practices and processes before expanding into other areas. The SCP delivery order process is an excellent business area for a pilot EDI initiative.

SCP - EDI feasibility

In order to determine the economic potential of recommending an investment in this pilot program, a cost/benefit analysis was conducted. This cost/benefit analysis reflects only costs and direct benefits to the SCP and not investment costs or cost savings for each trading partner.

EDI Orders: Based on SCP historical order input data from fiscal years 1992-94, approximately 18,000 total orders/modifications were processed, with approximately one third of those being modifications. For this analysis, the number of orders/modifications are assumed to remain constant throughout the cost study years. The number of orders being processed through EDI will steadily increase over a four year period until most orders are processed by EDI. It is estimated that 15% of all orders will still be entered manually due to the costs of implementing EDI at contracting sites with small order volume.

Investment Cost Methodology

Hardware Costs. Existing hardware will be utilized for the EDI host configuration and include the SCP HP 750 and the 3B2 systems. An estimated $5,000 for miscellaneous hardware costs for modems, cables, DDN, etc. with an estimated yearly cost of $1,000 for dedicated EDI hardware upgrades is projected.

Software Costs/ Software Documentation. EDI system software consists of three components: translation software, communications software, and initial mapping software. Estimated software costs for all the required components and documentation in FY96 are estimated at $30,000. In FY97 an additional $30,000 in software cost is required for the server software. Annual software upgrades and patches are estimated at 15% of the original software purchase cost.

Telecommunications. Telecommunications costs are estimates based upon the EDI telecommunication cost methodology as stated in worksheet 3-6 of the EDI Planning and Implementation Guide.[23] Estimated transmission costs are $0.10 per kilocharacter. Average characters per page used in this study are 2625 for the DD 1155 and 1,260 for the SF 30. On average, each document is estimated to be transmitted to four different locations over a VAN.

Systems Integration. Systems integration costs are based on estimates and include a project management plan, AS-IS process analysis, EC/EDI Integration and Test Plan, and EC/EDI Test Analysis Report. Total systems integration costs are estimated at $162,000 over a two-year period.

Project Management and Support. Project management and support costs are based on estimated hours for contractor support and Government

Project Management and Support. Project management and support costs are based on estimated hours for contractor support and Government personnel to plan and coordinate the implementation plan, develop standards, implement guidelines, training, and trading partner expansion. This effort is estimated at 1/2 Government person for one year, followed by a recurring Government support effort of 40 hours per month for the entire EDI effort.

Other Expenses. Operator training costs are estimated at one course for three days for a total of 10 people with an annual retraining rate of two people per year.

Benefits Cost Methodology

Value of Direct Benefits. Direct benefit cost analysis is based upon rates provided from the EDI Planning and Implementation Guide[24] as stated below:

	DD 1155	*SF30*
Document Distribution and Mailing	$0.30	$0.30
Document Receipt and Processing	$0.89	$0.89
Document Prep. Control, and Data Entry	$1.95	$1.95
Document Reproduction	$0.10	$0.10 (6 copies each)
Document Storage and Retrieval	$0.68	$0.68
Error Resolution	$0.32	$0.32

Value of Indirect Benefits. Although indirect benefits from EDI have the potential to be substantially larger than the direct benefits, these are more

difficult to estimate. Some studies indicate that indirect savings may exceed the direct benefits by a factor of three. Other DoD EDI studies, have found that indirect-to-direct benefits ratio range from a modest 1.0 to 1.8. In this analysis, the indirect-to-direct cost factor is estimated to be 1.4.

SCP- Cost/Benefit Analysis

The chart in Figure 9 reflects an EDI implementation projection for delivery orders and modifications converted from paper to an EDI environment each year over a ten-year period. Additionally, investment costs and benefits are estimated over the same ten-year period. In summary, with an initial investment of slightly more that $212 thousand in the first year, $77 thousand in the second, and approximately $37 thousand in the out years, the SCP could realize a payback on its investments in approximately 3.3 years and produce an internal rate of return over the period of approximately 35%.

SCP EDI Prototype

The comprehensive development of an EDI prototype will require action requisite to both the initial performance of the prototype project and for accommodation of enlarging the scope of the prospective EDI application. While not all inclusive, the following are representative of some of the more significant tasks that will be required:

—An evaluation of the trading partner base to determine EDI potential. The success of an EDI initiative is measured by the maximum percentage of trading partner participation achieved from those contracting offices that contribute the largest percentage of business to the deliver order process. A

query of the SCP COPO database indicated that the top ten Army contracting offices submitting delivery orders accounts for approximately 60% of the total delivery orders submitted.

—Determination of potential EDI trading partners. The extent to which potential partners are capable of joining SCP in an active EDI program must be determined. Initially, a Trading Partner Survey should be prepared and targeted for the top ten contracting offices. This survey will provide an assessment of each potential trading partner's knowledge, commitment, and requirements, regarding EDI. The information derived from the survey will allow the SCP to determine 1) the kind of computer hardware that currently exists, and 2) the kind of computer software that currently exists for delivery order processing.

Following analysis of the survey results, at least two possible contracting offices will be selected to participate in the prototype project. An implementation schedule for the remaining top ten will be developed to bring these contracting offices into the SCP EDI program. An invitation and survey will then be extended to the next ten largest contracting offices submitting delivery orders with this process continuing until all Army contracting offices become active participants in the program. These contracting offices will then be scheduled to be incorporated into the program as soon as the SCP can accommodate them.

EDI Implementation Projection	Total Orders	40%	65%	75%	85%	85%	85%	85%	85%	85%	85%	
Number of Orders per Year (DD 1155)	13500	5400	8775	10125	11475	11475	11475	11475	11475	11475	11475	
Number of Modifications per Year (SF 50)	4500	1800	2925	3375	3825	3825	3825	3825	3825	3825	3825	
	Non-Recurring Investment	FY97	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	Total
INVESTMENT COST												
PM Funded Costs	$212,200	$77,097	$33,708	$35,352	$36,997	$36,997	$36,997	$36,998	$36,999	$36,997	$36,997	$617,339
Hardware	$5,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,001	$1,002	$1,000	$1,000	$15,003
Software (Translation, Comm., Mapping)	$30,000	$30,000	$4,500	$4,500	$4,500	$4,500	$4,500	$4,500	$4,500	$4,500	$4,500	$100,500
Telecommunications	$0	$6,577	$10,688	$12,332	$13,977	$13,977	$13,977	$13,977	$13,977	$13,977	$13,977	$127,436
Systems Integration	$140,000	$22,000										$162,000
Project Management and Support	$33,600	$16,800	$16,800	$16,800	$16,800	$16,800	$16,800	$16,800	$16,800	$16,800	$16,800	$201,600
Other Expenses (Training)	$3,600	$720	$720	$720	$720	$720	$720	$720	$720	$720	$720	$10,800
BENEFITS												
Value of Direct Benefits	$0	$31,248	$50,778	$58,950	$66,402	$66,402	$66,402	$66,402	$66,402	$66,402	$66,402	$605,790
Document Distribution and Mailing	$0	$2,160	$3,510	$4,050	$4,590	$4,590	$4,590	$4,590	$4,590	$4,590	$4,590	$41,850
Document Receipt and Processing	$0	$6,408	$10,413	$12,015	$13,617	$13,617	$13,617	$13,617	$13,617	$13,617	$13,617	$124,155
Document Prep. Control, and Data entry	$0	$14,040	$22,815	$26,325	$29,835	$29,835	$29,835	$29,835	$29,835	$29,835	$29,835	$272,025
Document Reproduction	$0	$1,440	$2,340	$2,700	$3,060	$3,060	$3,060	$3,060	$3,060	$3,060	$3,060	$27,900
Document Storage and Retrieval	$0	$4,696	$7,956	$9,180	$10,404	$10,404	$10,404	$10,404	$10,404	$10,404	$10,404	$94,660
Error Resolution	$0	$2,304	$3,744	$4,320	$4,896	$4,896	$4,896	$4,896	$4,896	$4,896	$4,896	$44,640
Value of Indirect Benefits	$0	$43,747	$71,089	$82,026	$92,963	$92,963	$92,963	$92,963	$92,963	$92,963	$92,963	$847,603
Total Benefit Value	$0	$74,995	$121,867	$140,616	$159,365	$159,365	$159,365	$159,365	$159,365	$159,365	$159,365	$1,453,033
Net Benefit (Cost) (BENEFIT - INVESTMENT)	($212,200)	($2,102)	$88,159	$105,264	$122,368	$122,368	$122,368	$122,367	$122,366	$122,368	$122,368	$835,694
Cumulative Net Benefit (Cost)	($212,200)	($214,302)	($126,143)	($20,879)	$101,489	$223,857	$346,225	$468,592	$590,958	$713,326	$835,694	

Figure 9. SCP Cost/Benefit Analysis

Identification and Implementation of technology and training requirements. Hardware, software, and telecommunications network capabilities intrinsic to the creation of an EDI architecture must be acquired. These capabilities must support performance of the prototype EDI project and be sufficiently expandable to accommodate additional contracting offices inclusion into the program. Application system development work required to alter or enable local contracting, finance, or administrative system applications must also be identified and scheduled.

An effective training program is essential to ensure that all SCP personnel and trading partners are trained prior to prototype implementation if successful performance is to be achieved.

Development of a standard trading partner agreement. The expectations of all parties (SCP and the trading partners) entering into the mutual exchange of delivery order transactions in an electronic environment must be recorded in a legal document. This agreement will outline all conditions that will allow the parties to communicate with each other.

The prototype system should support two contracting sites transmitting to the SCP COPO. The system would provide the ability for SCP COPO personnel to electronically view, edit, suspend or process a specific ANSI X12 transaction set (850 - Purchase Order), acknowledge receipt of that specific transaction set (997 - Functional Acknowledgment) and generate a flat file to update the existing COPO database. It shall also create the appropriate ANSI X12 transaction set (850 - Purchase Order) to be transmitted to the Vendor, DCMAO, and DFAS, accept the appropriate transaction sets in response (997 - Functional

Acknowledgment and/or 855 - Purchase Order Acknowledgment) and then be able to match specific transactions together (received/sent and acknowledge) and transmit to the appropriate contracting office the appropriate transaction set (855 - Purchase Order Acknowledgment). Figure 10 is a graphical representation of the SCP prototype configuration.

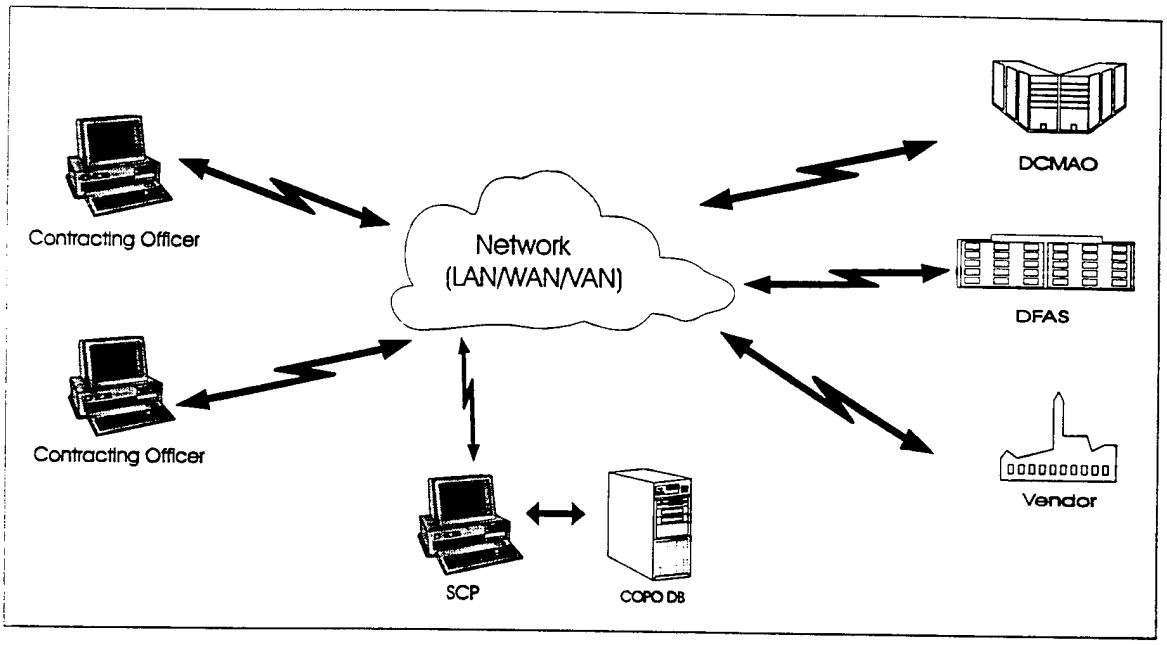

Figure 10. SCP EC/EDI Prototype

Evaluate prototype performance

Following implementation of the prototype, close observation of system performance will be necessary to ensure that internal systems, procedures, and communications between the SCP COPO and the trading partners are being conducted in an accurate and timely manner. A fine tuning of any process, system, or procedure found to be inconsistent with expectations must be accomplished before declaring the SCP EDI project ready for expansion to other contracting offices and DCMAOs.

CONCLUSION

The implementation of EDI in the SCP IDIQ Delivery Order Process will provide a win-win scenario for the Army, DoD and small computer industry. The Army and DoD will save close to 80% in administrative and order processing costs yearly for IDIQ contract small computer buys. Industry will benefit from prompt payments and faster problem order resolution. Less overhead means better product pricing to the Federal Government from industry. Less handling means savings by eliminating repeated data entry for Federal Government agencies within the process. Once the Army's SCP prototype is developed, tested and approved, it can be easily ported to other services, MACOMs, or agencies who perform similar functions.

The selection of the Army's SCP Delivery Order process as an EDI prototype initiative is a sound decision. The development and implementation of this prototype project should be built upon a thorough evaluation and survey of trading partners and the identification and implementation of technology and training requirements.

Conducting the prototype project will generate the experience and information necessary to expand the use of EDI for small computer purchases by all Army contracting offices, DCMAO offices, and DFAS. DoD's EDI implementation policy should promote the assimilation of this valuable technology to the other services IDIQ contract small computer purchases.

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