

DEVELOPMENTS IN
CORPORATE ELECTRONIC
TRADE PAYMENTS

INPUT

About INPUT

INPUT provides planning information, analysis, and recommendations to managers and executives in the information processing industries. Through market research, technology forecasting, and competitive analysis, INPUT supports client management in making informed decisions.

Continuous-information advisory services, proprietary research/consulting, merger/acquisition assistance, and multiclient studies are provided to users and vendors of information systems and services (software, processing services, turnkey systems, systems integration, professional services, communications, systems/software maintenance and support).

Many of INPUT's professional staff members have more than 20 years' experience in their areas of specialization. Most have held senior management positions in operations, marketing, or planning. This expertise enables INPUT to supply practical solutions to complex business problems.

Formed as a privately held corporation in 1974, INPUT has become a leading international research and consulting firm. Clients include more than 100 of the world's largest and most technically advanced companies.

INPUT OFFICES

North America

San Francisco

1280 Villa Street
Mountain View, CA 94041-1194
Tel. (415) 961-3300
Fax (415) 961-3966

New York

Atrium at Glenpointe
400 Frank W. Burr Boulevard
Teaneck, NJ 07666
Tel. (201) 801-0050
Fax (201) 801-0441

Washington, D.C.

1953 Gallows Road, Suite 560
Vienna, VA 22182
Tel. (703) 847-6870
Fax (703) 847-6872

International

London

Piccadilly House
33/37 Regent Street
London SW1Y 4NF, England
Tel. (071) 493-9335 Fax (071) 629-0179

Paris

52, boulevard de Sébastopol
75003 Paris, France
Tel. (33-1) 42 77 42 77 Fax (33-1) 42 77 85 82

Frankfurt

Sudetenstrasse 9
D-6306 Langgöns-Niederkleen, Germany
Tel. (0) 6447-7229 Fax (0) 6447-7327

Tokyo

Saida Building
4-6, Kanda Sakuma-cho
Chiyoda-ku, Tokyo 101, Japan
Tel. (03) 3864-0531 Fax (03) 3864-4114

**DEVELOPMENTS IN
CORPORATE ELECTRONIC
TRADE PAYMENTS**

*Developments in
Corporate
Electronic Trade
payments*
AUTHOR

*EDFIN
1991
C.A.*

TITLE

DATE LOANED	BORROWER'S NAME

PRO COPY CAT. No. 23-108 PRINTED IN U. S. A

Published by
INPUT
1280 Villa Street
Mountain View, CA 94041-1194
U.S.A.

Electronic Data Interchange Program (EDIP)

***Developments in Corporate Electronic Trade
Payments***

Copyright ©1991 by INPUT. All rights reserved.
Printed in the United States of America.
No part of this publication may be reproduced or
distributed in any form or by any means, or stored
in a data base or retrieval system, without the prior
written permission of the publisher.

EDFIN • 448 • 1990

Abstract

This report examines the use of electronic trade payments by corporations in the United States. Corporate electronic trade payments are electronic funds transfers by which one corporation pays the other for goods or services. In this report, INPUT examines: the payment mechanisms; the concerns of users; the level of electronic payment activity; the bank, software, and service providers to the market; the directions that the market is taking; and recommendations to users and vendors of electronic payments. The research in this report is based on interviews with users and vendors, payment data made available by the National Automated Clearinghouse, product and service literature of banks and vendors, and periodical-literature research. INPUT finds that the use of electronic payments is still small but is being aggressively adopted by large corporations and the government. Restructuring in the banking industry, government programs, new payment arrangements, and changing payment practices that result from adopting electronic systems, however, promise to significantly change the corporate electronic payment arena by the mid-1990s.

The report contains 70 pages and 19 exhibits. It is part of INPUT's Electronic Data Interchange Program.



Digitized by the Internet Archive
in 2015

Table of Contents

I	Introduction	1
	A. Definition/Objective	1
	B. Advantages of Corporate Electronic Trade Payments	2
	1. General	2
	2. Advantages to the Receiving Company	3
	3. Advantages to the Paying Company	3
	4. Potential Disadvantages	3
	C. Methodology and Data Sources	3
	D. Related INPUT Reports	4
<hr/>		
II	Executive Overview	5
	A. Findings	5
	B. Market Forces	6
	C. Market Opportunities	8
<hr/>		
III	Components of Corporate Electronic Trade Payments	11
	A. Mechanisms for Corporate Electronic Payments	11
	1. Credit Mechanism	11
	2. Debit Mechanism	14
	a. Seller Initiates Payment Instructions	14
	b. Buyer Delivers Remittance Data and Authorizes Payment Instruction	15
	c. Seller's Bank Delivers the Remittance Data	16
	d. The Buyer Delivers the Remittance Data and the VAN Generates the Payment Instruction	17
	B. Data Format Standards	18
	1. Cash Concentration or Disbursement (CCD)	19
	2. CCD Plus Addenda (CCD+)	19
	3. Corporate Trade Payments (CTP)	19
	4. Corporate Trade Exchange (CTX)	19
	5. American National Standards Institute (ANSI) X12 820: Payment Instruction/Remittance Advice	20
	C. Enabling Software and Services	20

Table of Contents (Continued)

IV	Market Structure and Forecast	23
	A. Framework/Background	23
	1. Number of Users	23
	2. Bank Providers	23
	3. Software Vendors	25
	a. Corporate-Site Software Vendors	25
	b. Bank-Site Software Vendors	27
	B. Market Forces	27
	1. Inhibiting Forces	27
	2. Driving Forces	29
	C. Market Opportunities	29
	D. Activity Levels and Forecast	30
	1. General Forecast	30
	2. Assumptions of the Forecast	31
	3. Potential Bank Revenues for Corporate Electronic Trade Payment Services	32
	4. Potential Software Revenues for Bank Payment Software	33
<hr/>		
V	Issues and Trends	35
	A. Current User Practices	36
	1. Float Neutrality/Change in Payment Terms	36
	2. Reducing Payment Transactions, Increasing Dollar Value	36
	3. Reduction in the Number of Disbursement Banks	36
	4. Typing EDI/EFT to EDI and Using the Same Translation Platform	36
	5. Banks Convert Electronically Originated Payments into Paper Checks	37
	6. Corporate Payment Instruction Formats Are Used in Conjunction with Consumer Electronic Payments	37
	7. Corporations Targeting High-Volume Trading Partners That are Both Customer and Supplier	37
	8. Minimal Use of VANs	37
	9. Security	38
	10. Difficulty in Building EDI/EFT Systems	38
	B. Bank Industry Issues	39
	1. U.S. Banking Industry Is Undergoing Fundamental Restructuring	39
	2. CETP Is Similar to Earlier Banking Technologies	39
	3. International Settlement Networks Are Growing	39

Table of Contents (Continued)

V	<ul style="list-style-type: none"> C. Market Drivers 40 <ul style="list-style-type: none"> 1. Electronic Tax Payments May Be Fastest Growing payment Activity 40 2. The Government is the Single Largest Originator of Payments 40 3. Other EFT is Growing 40 4. Financial EDI will Potentially Be Stimulated by EDI Applications in Other Financial Services 41 D. Emerging Payment Practices 41 <ul style="list-style-type: none"> 1. Potential Elimination of Remittance Data 41 2. Debit Mechanism Potentially More Effective than Credit Mechanism 41 3. New Capabilities Stemming from IT put Banks at Risk of Losing Payment Franchise 42
<hr/>	
VI	<ul style="list-style-type: none"> Competitive Environment 43 <ul style="list-style-type: none"> A. Introduction 43 B. Selected Banks 44 <ul style="list-style-type: none"> 1. Chase Manhattan Bank 45 <ul style="list-style-type: none"> a. Background 45 b. Related Services 45 2. Chemical Bank 45 <ul style="list-style-type: none"> a. Background 45 b. Related Services 45 3. CNS, First Bank and Marine Midland 46 4. Continental Bank 46 5. CoreStates Financial Corp. 46 <ul style="list-style-type: none"> a. Background 46 6. First Interstate Bank 47 <ul style="list-style-type: none"> a. Alliances 47 b. Related Services 47 7. First National Bank of Chicago (First Chicago) 48 <ul style="list-style-type: none"> a. Background 48 b. Alliances 49 8. Harris Trust and Savings Bank 49 <ul style="list-style-type: none"> a. Related Services 50 9. Irving Trust 50 <ul style="list-style-type: none"> a. Related Services 50 10. Manufacturers Hanover Trust 50 11. Mellon Bank 51 12. PNC Financial Corporation 51

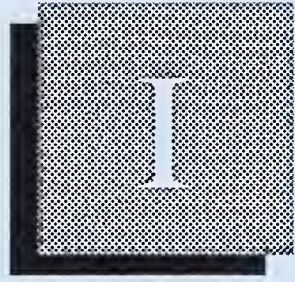
Table of Contents (Continued)

VI	13. Security Pacific	51
	a. Background	51
	b. Alliances	52
	14. Wells Fargo	52
	15. Canadian Banks	53
	C. Service Providers	54
	1. GE Information Services	54
	a. Payment Origination Network Services	54
	b. Payment Collection Network Services	54
	2. IBM Information Network	57
	3. Control Data Corporation, REDINET	57
	4. BT Tymnet	58
	5. Harbinger Computer Services	58
	6. Sears Communications Company	58
	D. Software Vendors	59
	1. EDS Payment Services	59
	2. GE Information Services	59
	3. Interchange Systems Inc.	59
	4. Maxxus Inc.	60
	5. National Systems Corporation	61
	6. Stockholder Systems, Inc.	61
	E. Bank Networks	62
	1. The Automated Clearinghouse (ACH)	62
	2. The Society for Worldwide Financial Telecommunications (SWIFT)	62
	3. Clearing House Interbank Payments System (CHIPS)	63
	F. Large Corporate Users	63
	1. Steel Manufacturer	63
	2. Retailer	63
	3. Tobacco Products Manufacturer	64
	4. Oil Producer	64
	5. Apparel Manufacturer	64
	6. Electronics Manufacturer	64
	7. Power Utility	65
	8. Railroad	65

VII	Conclusions and Recommendations	67
	A. General Conclusions	67
	B. Recommendations to Banks	68
	C. Recommendations to Corporations	68
	D. Recommendations to Service Providers	69
	E. Recommendations to Bank Software Vendors	70

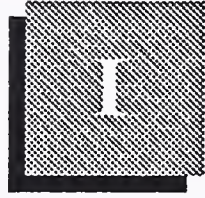
Exhibits

I	-1 Corporate Electronic Trade Payments—Definition	2
<hr/>		
II	-1 Corporate Electronic Trade Payments—Volume Estimate and Forecast	5
	-2 Electronic Payment Market Forces	7
	-3 Basic Debit Mechanism—Seller Initiates Payment Instruction	8
<hr/>		
III	-1 The Players in Corporate Electronic Trade Payments	12
	-2 The Credit Payment Mechanism	13
	-3 Basic Debit Mechanism—Seller Initiates Payment Instruction	15
	-4 Buyer Delivers Remittance Information and Authorizes Payment Instruction	16
	-5 Seller's Bank Delivers Remittance Information	17
	-6 Buyer Delivers the Remittance Information and VAN Generates Payment Instruction	18
	-7 Payment Software at a Corporation Also Conducts EDI Functions	21
<hr/>		
IV	-1 Bank Providers of Corporate Electronic Payments	24
	-2 Vendors of Corporate-Site Payment Software	26
	-3 EDI/EFT Software Providers to Banks	27
	-4 Electronic Payment Market Forces	28
	-5 Corporate Electronic Trade Payments—Volume Estimate and Forecast	31
	-6 The Market for Corporate Electronic Payment Services (Potential Bank Revenues)	33
<hr/>		
V	-1 Areas of Financial EDI Trends	35
<hr/>		
VII	-1 General Conclusions	68



Introduction





Introduction

A

Definition/Objective

The U.S. banking industry processed approximately 63 billion noncash payments in 1988. Forty billion payments were made by consumers, and the remaining 23 billion were made by corporations/institutions. Of the 23 billion corporate payments, 22 billion were made by paper check. Just a little over 1 billion (less than 5%) were made electronically—where funds and the instructions to move funds were communicated among banks and corporations through computers and telecommunication networks.

Most of these electronic payments by corporations and government agencies were made for recurrent, fixed-sum amounts—such as payments for employee payroll, social security, insurance premiums, oil property royalties, loan or mortgage payments, etc.

Those nonrecurrent payments were made via the funds transfer systems of interbank wire transfers, CHIPS, the ACH, or transfers within a single bank (where payor and payee are customers of the same bank).

This report examines corporate-to-corporate electronic payments for nonrecurrent sums. These are payments made as a direct response to commercial exchange.

Electronic funds transfers have a variety of applications—including cash concentration (where a corporation moves funds from many scattered accounts to a single one for better control or higher returns from short-term investment), lockbox (where banks pick up checks at special post office boxes and deposit them on behalf of the customer), automated teller machines (ATMs), and point-of-sale (POS) settlements and other intracompany funds transfers. This report does not look at these various forms of EFT because they are not transfers of funds for the settlement of commercial exchange between two corporations.

Instead, this report focuses on fund movements resulting from one corporation's paying for the goods or services rendered by another in cases where the payment is initiated and settled entirely electronically. Included in this definition are corporate electronic payments made to state and federal tax authorities (but excluding federal tax deposits that are deducted from employee payroll payments).

Such movements are generally called corporate electronic trade payments (CETP) or corporate trade payments. Corporate electronic trade payments are usually linked to an electronic data interchange system. Typically, EDI invoices, electronically sent by the supplier, will trigger the customer company to create and send a CETP. Because CETP is the final link in an EDI-based commercial exchange, CETP is also called Financial EDI or EDI/EFT (EDI/electronic funds transfer). In this report, all three terms mean the same thing. Exhibit I-1 provides a definition of EDI/EFT or CETP.

EXHIBIT I-1

Corporate Electronic Trade Payments Definition

- The electronic settlement of a commercial exchange in which the corporation-to-bank instruction to transfer funds is communicated using EDI.

The payment activity can also be defined by payments that are enacted through the use of the following electronic data formats: X12 820, ACH CCD, CCD+, CTP, and CTX. These formats are explained below.

B

Advantages of Corporate Electronic Trade Payments

1. General

- **Certainty of disbursements and receipts:** companies know precisely when they will commit or receive funds. This knowledge helps them manage their cash resources; accounting departments gain better control of their functions.
- **Cost-effective:** eliminates much manual processing of paper forms; eliminates certain data entry and clerical labor; eliminates certain redundancies and associated forms, (most spectacularly, the invoice)

- **Security:** less potential for errors stemming from clerical processing, postal system processing, or fraud. For example, the Social Security Administration, which uses the ACH to distribute social security payments, claims that not one electronic payment failed to reach a claimant—whereas over one million checks are lost or stolen each year.

2. Advantages to the Receiving Company

- Automates the cash application function
- Improves control of cash and receivables functions (including reducing and eliminating the possibility for theft or errors perpetrated by low-skilled workers)
- Eliminates the need for billing/invoicing when an evaluated receipts settlement procedure is implemented

3. Advantages to the Paying Company

- Automates entire payments process—including payment and remittance creation
- Eliminates the need to validate invoices when an evaluated receipts settlement procedure is implemented

4. Potential Disadvantages

- Loss of float to payor
- Higher costs for transmission of information (networks are more costly than postal system)
- Managing two systems, one electronic and one traditional, creates cost and control issues

C

Methodology and Data Sources

The research for this report consisted of:

- Structured interviews with product managers at 11 of the 24 bank providers of EDI/EFT payment services
- Structured interviews with executives and/or product managers at the six leading vendors of EDI/EFT bank-site software
- Structured interviews with operation management personnel at 13 organizations that use EDI/EFT. The following is a list of these organizations:

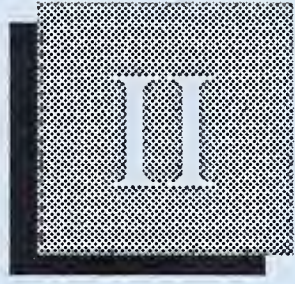
- 2 oil companies
 - 1 steel and aluminum company
 - 2 electronics products manufacturers
 - 1 power utility
 - 1 apparel manufacturer
 - 2 chain retailers
 - 1 transportation conglomerate
 - 1 film products manufacturer
 - 1 federal agency (U.S. Treasury)
- Raw electronic payment transmission data provided by the National Automated Clearinghouse Association (NACHA) and discussions with NACHA officials about it
 - Ongoing discussions and contacts with personnel from the leading vendors to the EDI market—professional service firms, network service providers, and software vendors
 - Analysis of trade and periodical literature pertaining to corporate electronic trade payments
 - Analysis of product and service literature of banks and EDI/EFT software vendors
 - Attendance and conversation at the trimestrial standards meetings of the American National Standard Institute's Accredited Standards Committee (Finance Subcommittee), where EDI/EFT data formats and architectures are designed

D

Related INPUT Reports

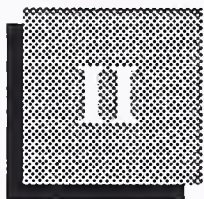
The following reports address various topics in electronic data interchange and banking industry topics.

- *The Electronic Data Interchange Market 1990-1995: Forecast, Implementations, Trends (1990)*
- *EDI Business Integration Issues (1990)*
- *Information Services and Software in the Banking and Finance Sector, (1990), Market Analysis Program Report*
- *The EDI Sourcebook*
- *Advanced EDI Services (1989)*
- *EDI Intertrends: Western Europe (1989)*
- *EDI Standards Reference Guide (1989)*
- *EDI Implementation Case Studies (Volume I and II—1988, 1989)*
- *U.S. EDI Federal Markets (1989)*
- *EDI and X.400 (1988)*
- *EDI Software Products: Issues, Trends, and Markets (1988)*



Executive Overview





Executive Overview

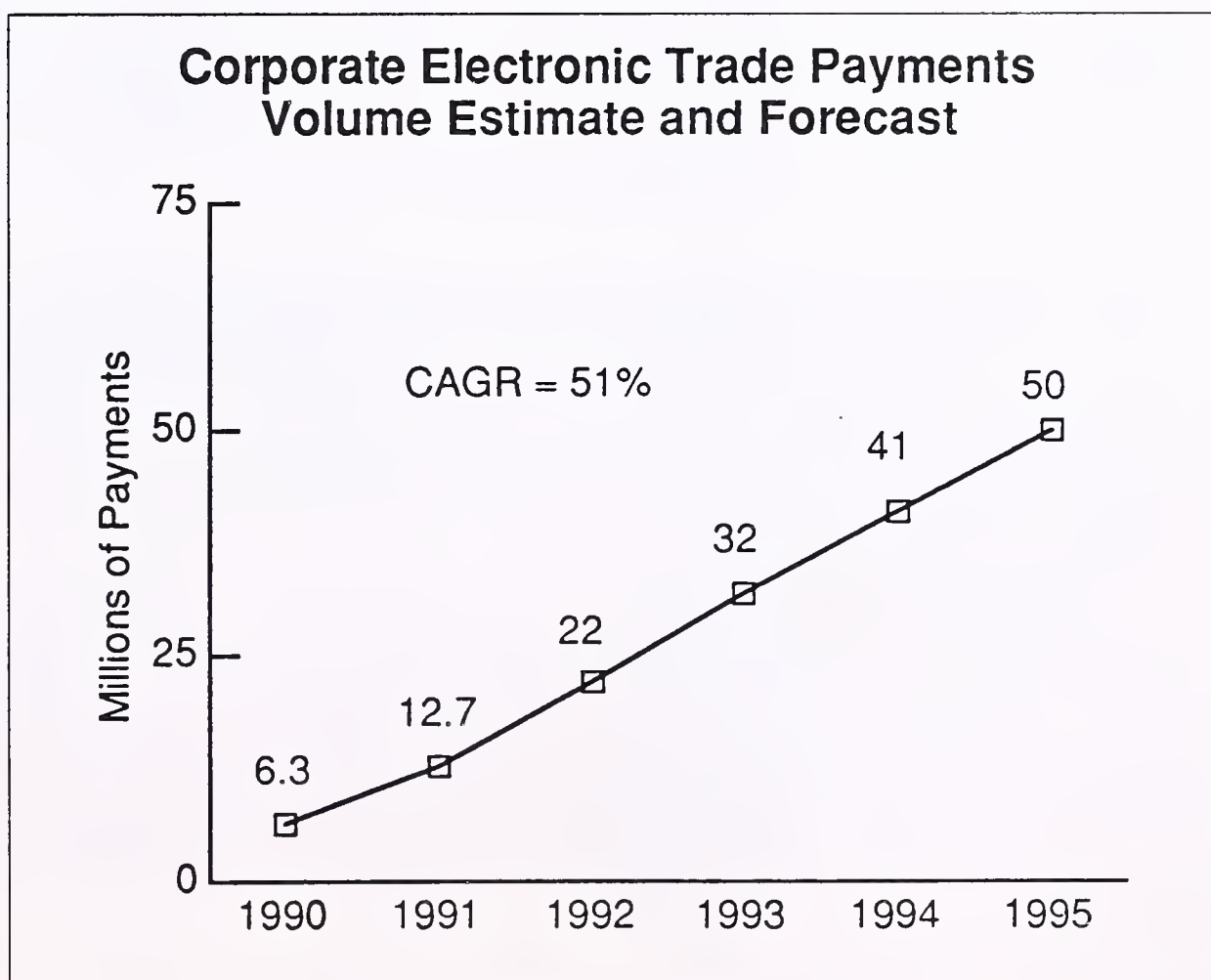
A

Findings

Corporate use of electronic trade payments (otherwise known as financial EDI or EDI/EFT) is sparse, although over the next couple of years, activity levels should rise rapidly.

INPUT finds that the largest 1000 companies in the U.S. are experimenting with electronic payments to or from their trading partners—including tax payments to government. Altogether in 1990, six million corporate trade payments were made electronically. INPUT expects this volume to reach 50 million by 1995, for a compound annual growth rate in payment volume of 50%. Exhibit II-1 depicts the forecasted growth in electronic payment volume.

EXHIBIT II-1



B

Market Forces

The increase in volume is due to the aggressive implementation plans of existing hub companies, not necessarily from a spontaneous burst of new companies adopting electronic payment practices. Like EDI, corporate electronic trade payments are implemented along a hub-and-spoke growth pattern, with large companies pushing their many trading partners to adopt.

Although offering many cost-reducing efficiencies to buyers and sellers, electronic payments between corporations face many inhibiting market forces. Foremost is the asymmetry of incentives and benefits to users. Although electronic payments can be implemented in a win-win fashion, generally it is the recipient of payment (the seller/payee) who has the incentive to change from paper checks to EFT yet, typically, lacks the clout with the payor/buyer.

Users report that the expenses in establishing systems to pay suppliers electronically aren't recouped until high volumes of payments are attained, which generally takes years.

Also inhibiting the growth of corporate electronic trade payments is the fact that the banking industry has not yet established a uniform payment infrastructure for corporations. Of the 14,000 banks in the U.S., only 25 are capable of originating and receiving the electronic payment formats designed specifically for corporate trade payments. All banks can receive the CCD payment format, which is suboptimal in design for corporate trade payments. Nevertheless, approximately 93% of all trade payments today utilize the CCD format.

Remittance data are often sent through the Automated Clearinghouse (ACH). Although third-party networks offer services to deliver this data, corporations are not using these services for the most part. Corporations let banks, the ACH, and the U.S. Postal Service handle the vast majority of payment/remittance traffic.

Often, a bank converts many of the electronically delivered payment instructions from a corporate client into paper checks and mails these to suppliers. Thus, the paying company operates entirely in an electronic mode while its trading partners are in a paper mode.

Exhibit II-2 lists the market forces in the corporate electronic trade payments market.

Users of electronic payments alter fundamental payment practices when they switch from checks to electronics. A buyer will make fewer yet larger payments in a given period. A corporation consolidates not only its payments but also the number of banks it uses to disburse the payments. Often, selling companies agree to extend the payment due dates by three days to compensate for the loss of mail float. Price discounts are used to encourage early payments.

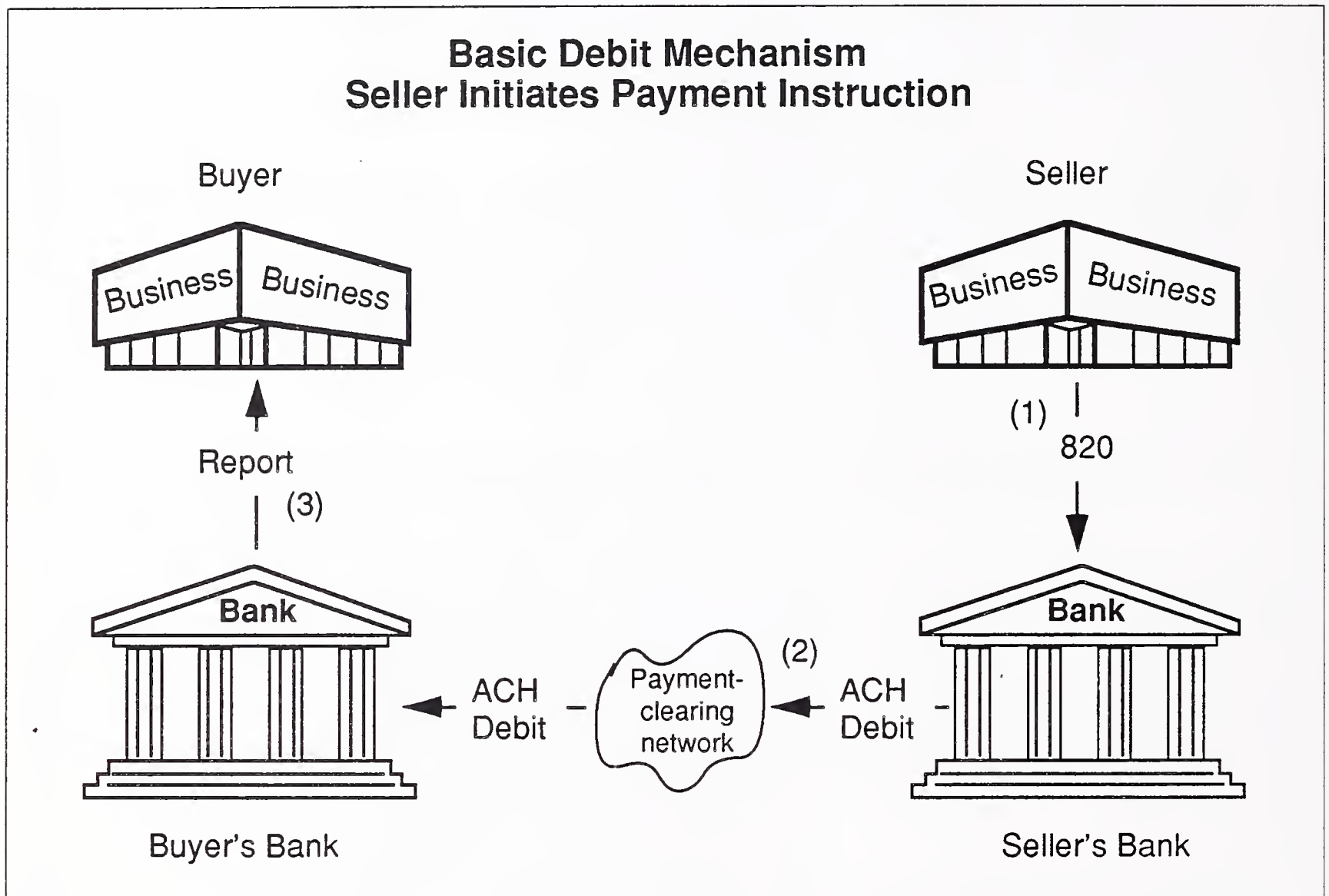
EXHIBIT II-2

**Electronic Payment
Market Forces**

- Driving forces
 - Government programs are propelling EDI/EFT use
 - Long-term benefits are real
 - Large companies already doing EDI/EFT
 - EDI growth will propel EDI/EFT growth
- Inhibiting forces
 - Sellers have incentive but not the clout
 - Payback not achieved until high volumes attained
 - The bank payment infrastructure is incomplete
 - Electronic payments implemented after EDI
 - Payment services not a money earner for banks
 - Paying companies afraid of losing float
 - Most banks cannot originate CTP or CTX formats
 - Unclear who service providers will be
 - Bank software vendors face small market

The use of a debiting mechanism, by which the selling company initiates the funds transfer from the buying company's bank account, is growing in popularity. Borrowing from experience in consumer payment programs (for such items as insurance premiums, utility bills, mortgage payments, etc.), corporations are finding that the debit mechanism frees the paying corporation from the hassle and expense of establishing an electronic payment system. The debit mechanism also limits the liability of the paying company because all action to transfer funds after the paying company's authorization is the responsibility of the receiving company. The debit option may encourage more companies that want to be paid electronically by their customers to actively solicit their customers to switch to electronic payments. State and federal tax authorities are also adopting the debit mechanism for corporations to pay taxes electronically.

EXHIBIT II-3



Companies conducting electronic payments are usually conducting EDI as well, but not always with the same trading partners. In most cases, establishing EDI trading partnerships preceded EDI/EFT trading partnerships.

Like EDI, corporations adopt EDI/EFT with those trading partners who account for the highest payment dollar volumes or transaction volumes. In some cases where two corporations are each other's supplier and customer, payment transactions can be replaced or minimized by barter agreements.

C

Market Opportunities

Software and service providers to the corporate electronic trade payments market are advised to walk cautiously. This is a small market.

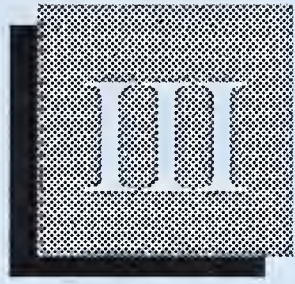
Opportunities exist for vendors of software to banks. The many thousands of banks that are incapable of originating or receiving sophisticated payment formats need software.

Bank providers should view corporate trade payments as a market offering that helps retain or bring in new corporate customers—not as a revenue generator in and of itself. Thus, whether to offer payment services needs to be evaluated in terms of the larger strategic market the bank is trying to play in.

In general, the banking industry is experiencing fundamental restructuring with internal profits falling, nonbank competition rising, regulatory reform causing greater uncertainty, and costs rising. These other issues will probably keep the number of banks that offer payment services constant.

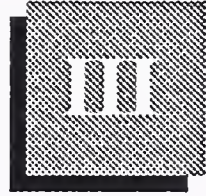
Corporations, it was found, for the most part use EDI translation software to communicate with their banks on payment instructions, remittance advices, and activity reports. Thus, the payment software vendors to corporations are also EDI translation software vendors.

Opportunities exist in software maintenance to corporations and banks. EDI/EFT software must keep better track of which data formats each bank can receive and send.



Components of Corporate Electronic Trade Payments





Components of Corporate Electronic Payments

A

Mechanisms for Corporate Electronic Payments

Buying and selling relationships involve inquiring, bidding, ordering, shipping, invoicing, and similar activities conducted directly between the two trading partners. The process culminates with a financial exchange that not only involves the trading partners, but their banks. Whereas electronic data interchange (EDI) is the transfer of information regarding the first set of activities, electronic funds transfer is the transfer of value regarding the latter activity — the financial exchange.

Corporate payments, electronic or paper, usually involves at least four parties: the buyer company, the seller company, and each of the company's respective banks. (Sometimes the two companies use the same bank, so that only three parties are involved.) Also, a third-party, value-added network may be used as an intermediary to transfer EDI messages among the parties. Exhibit III-1 shows the basic players in the payment process.

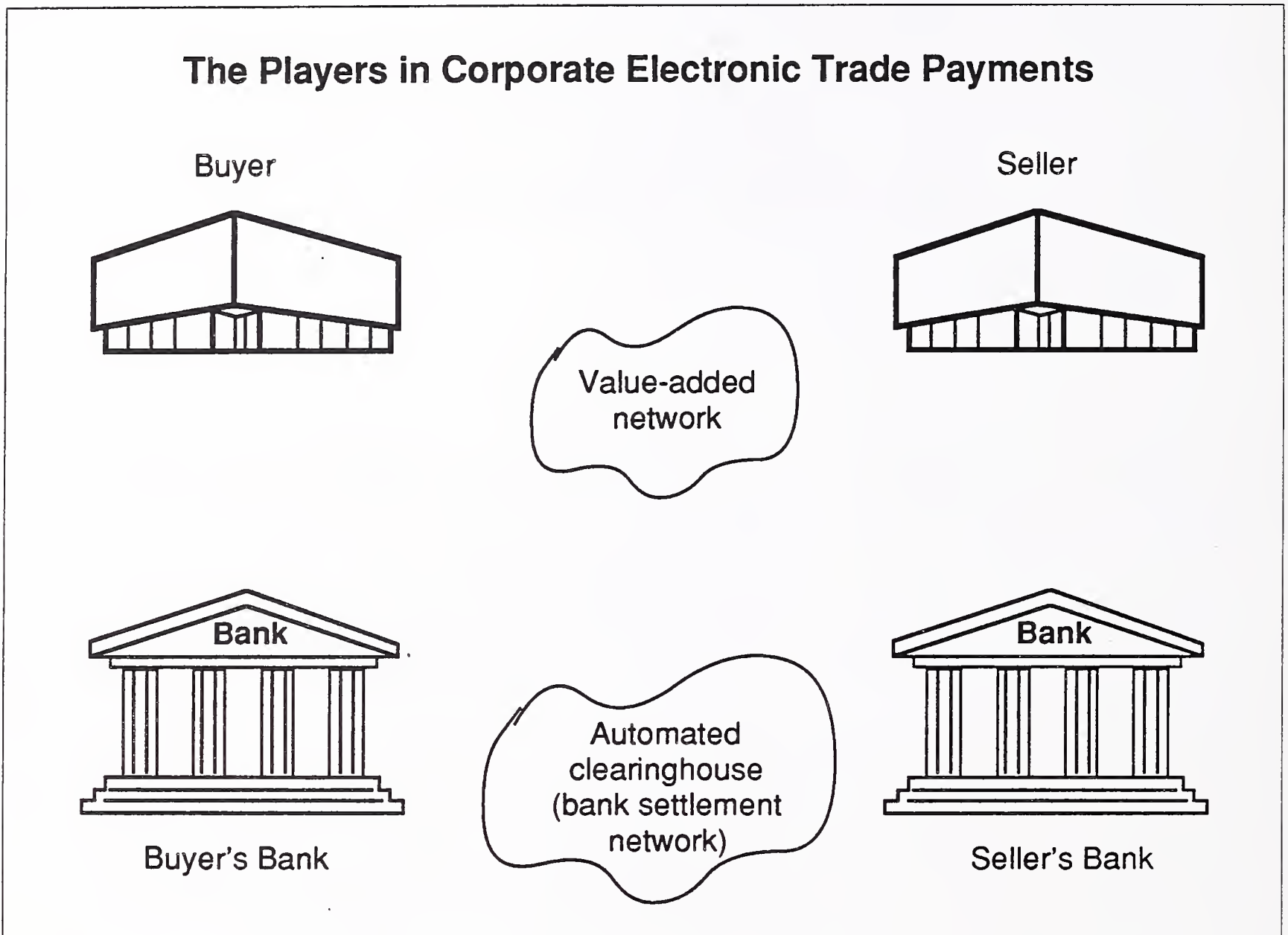
There are three basic procedures for enacting an electronic payment.

1. Credit Mechanism

Upon receiving the invoice from the supplier, the buying company instructs its bank to transfer funds to the supplier's bank. The instruction is sent in either an ACH format, (CCD, CCD+, CTX or CTP), an ANSI X12 820 format, or a proprietary format agreed upon by the corporation and its bank.

The bank debits the corporation's account and sends the funds through the ACH to the supplier's bank. Remittance data that accompanies the payment can also be delivered electronically, along with the payment to the supplier company, but this usually depends on the capabilities of the receiving bank.

EXHIBIT III-1

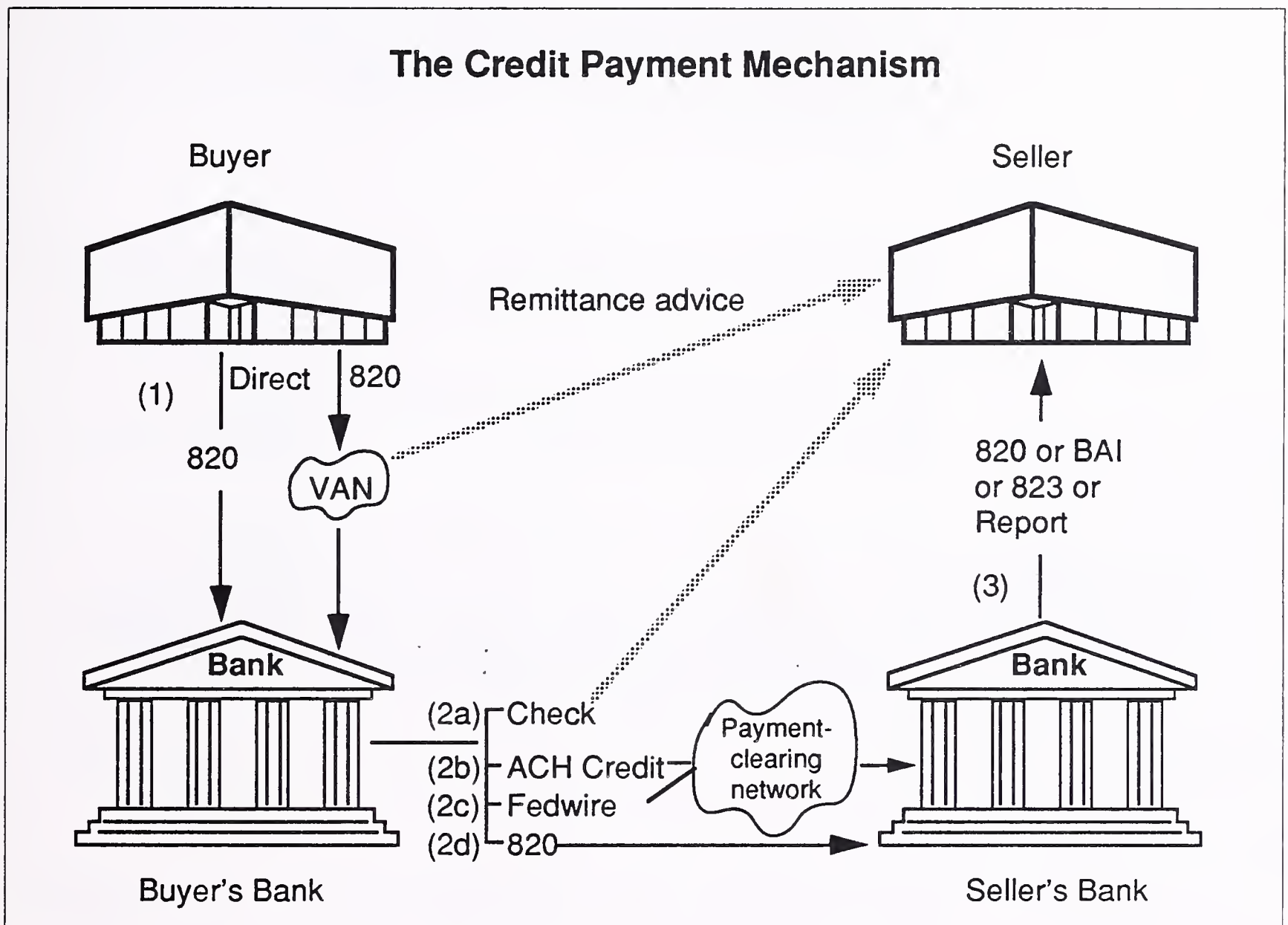


Many receiving banks don't have the processing capacity to electronically receive and forward the remittance detail to the customer. If the receiving bank can at least electronically receive it, it can relay it onward to the selling company by mail. Otherwise, the remittance detail can be sent: (1) by the buying company directly to the selling company (by VAN or mail), (2) by the buying company's bank directly to the selling company (by VAN or mail).

Another option for the credit payment mechanism is for the buying company to send the payment instruction and remittance detail to a VAN, which delivers the payment instruction to the buying company's bank and the remittance data to the selling company. Exhibit III-2 depicts the credit mechanism.

The major point of the credit mechanism is that the buyer's payment order pushes the funds through the payment clearing network.

EXHIBIT III-2



Remarks:

- Improved predictability of cash flow compared to checks
- Remittance information may be delivered to the seller prior to crediting the seller's bank account, depending upon the method chosen for delivery of both payment and supporting detail.
- Information is entered once, thus reducing the potential for human error.
- The seller must rely on the buyer to initiate the payment process.
- If the payment and remittance are separated, the two must be reconciled.

2. Debit Mechanism

The seller company, through its bank or VAN, requests funds from the buying company's bank. In contradistinction to the credit method, it is the seller's payment order (not the buyer's) that pulls the funds through the payment clearing network.

Remarks:

- The seller only needs to establish an ANSI ASC X12 relationship with one bank. There is no need to be concerned about the ANSI ASC X12 capabilities of any of the other banks involved in the payment process.
- This method of funds movement is much like the traditional paper check payment process. Depositing a check is similar to ordering a debit against the buyer's account.
- Possible resistance from the buyer to allow debit access to account.
- A reconciliation process may need to be performed for the payment and the remittance information, especially if the debit is not honored, for example, due to non-sufficient funds (NSF). (Note: the debit initiated to offset a credit transaction could also face an NSF condition.)
- Possible resistance from trading partners to allow another company access to their account.

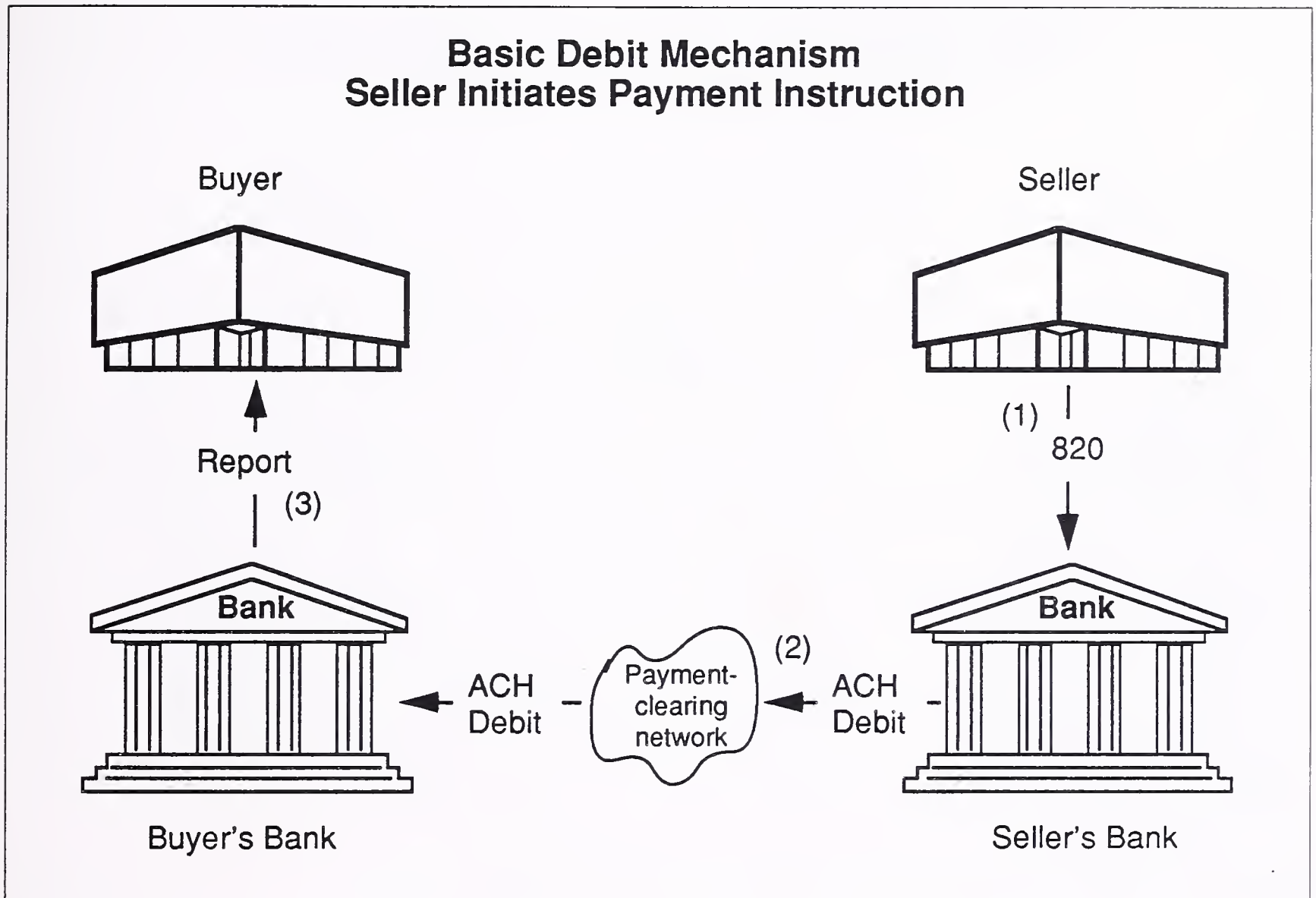
There are a number of routes through which the payment instructions and remittance data can flow. Because the debit mechanism may possibly be a better mechanism for EDI/EFT payments, INPUT outlines below each basic flow (whereas, for the credit flows, only the essential data flow was outlined).

a. Seller Initiates Payment Instruction

- (1) The seller sends X12 820, CCD, or other payment instruction to its bank, via a VAN or directly.
- (2) The seller's bank sends an ACH debit with remittance detail to the buyer's bank via the ACH.
- (3) The buyer's bank reports debit and remittance detail to the buyer.

Exhibit III-3 depicts the communication flow for the basic debit mechanism.

EXHIBIT III-3



b. Buyer Delivers Remittance Data and Authorizes Payment Instruction

- (1) The buyer sends an X12 820 to the seller either directly or via a VAN.
- (2) Optionally, the buyer sends a "specifically authorized debit" file to its bank.
- (3) The seller sends a debit instruction (in an X12 820, NACHA, or proprietary format) to its bank directly or via a VAN.
- (4) The seller's bank sends an ACH debit to the buyer's bank.
- (5) The buyer's bank reports the debit to the buyer.

EXHIBIT III-4

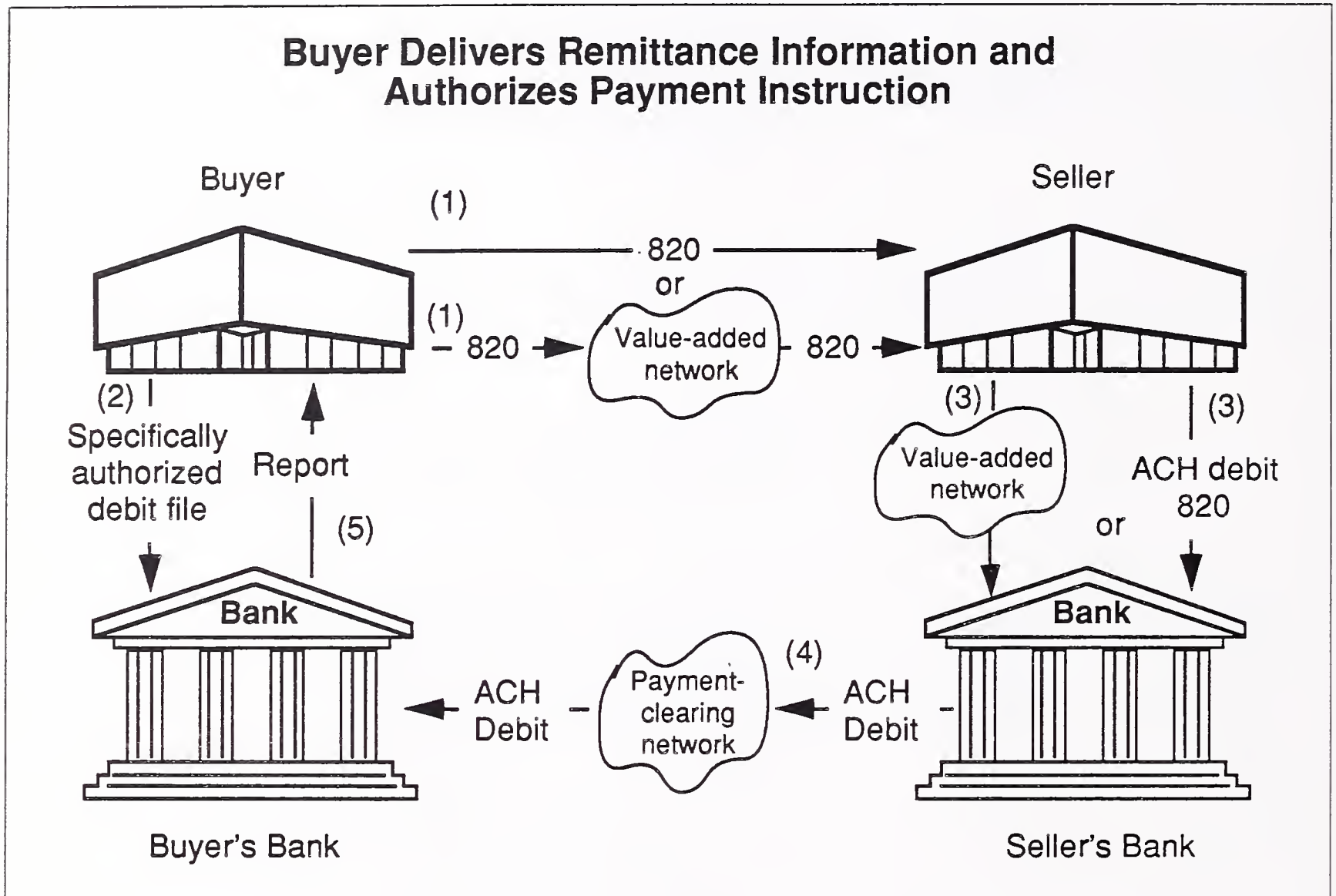


Exhibit III-4 depicts a debit payment mechanism where the buyer delivers the remittance data and authorizes payment instruction.

c. Seller's Bank Delivers the Remittance Data

(1) The buyer sends an 820 to the seller's bank either directly or via a VAN.

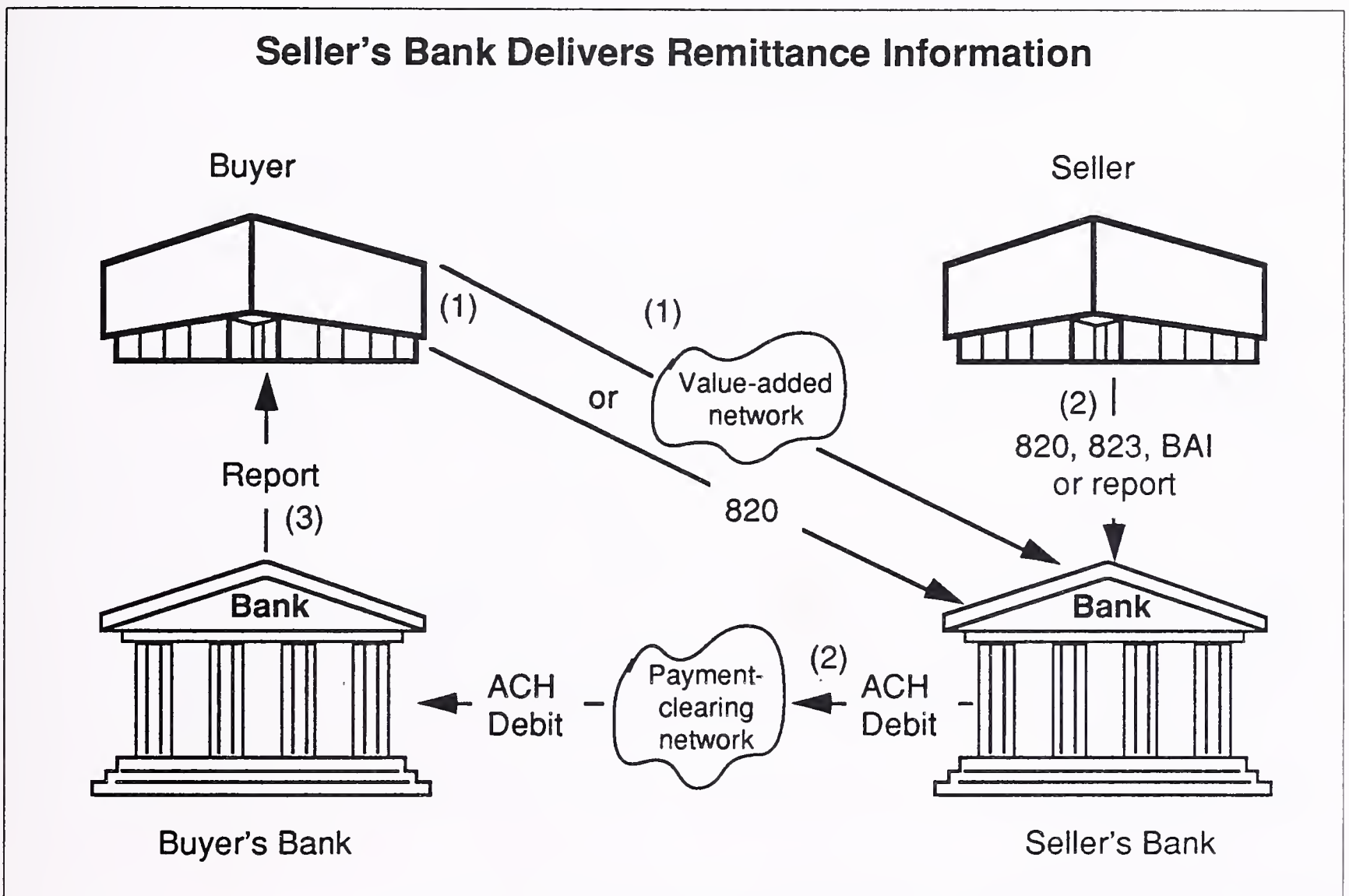
(2) The seller's bank forwards the debit information to the seller either directly or via a VAN.

(3) The seller's bank sends an ACH debit to the buyer's bank via the ACH.

(4) The buyer's bank reports the debit to the buyer.

Exhibit III-5 depicts the debit payment where the seller bank delivers the remittance information.

EXHIBIT III-5

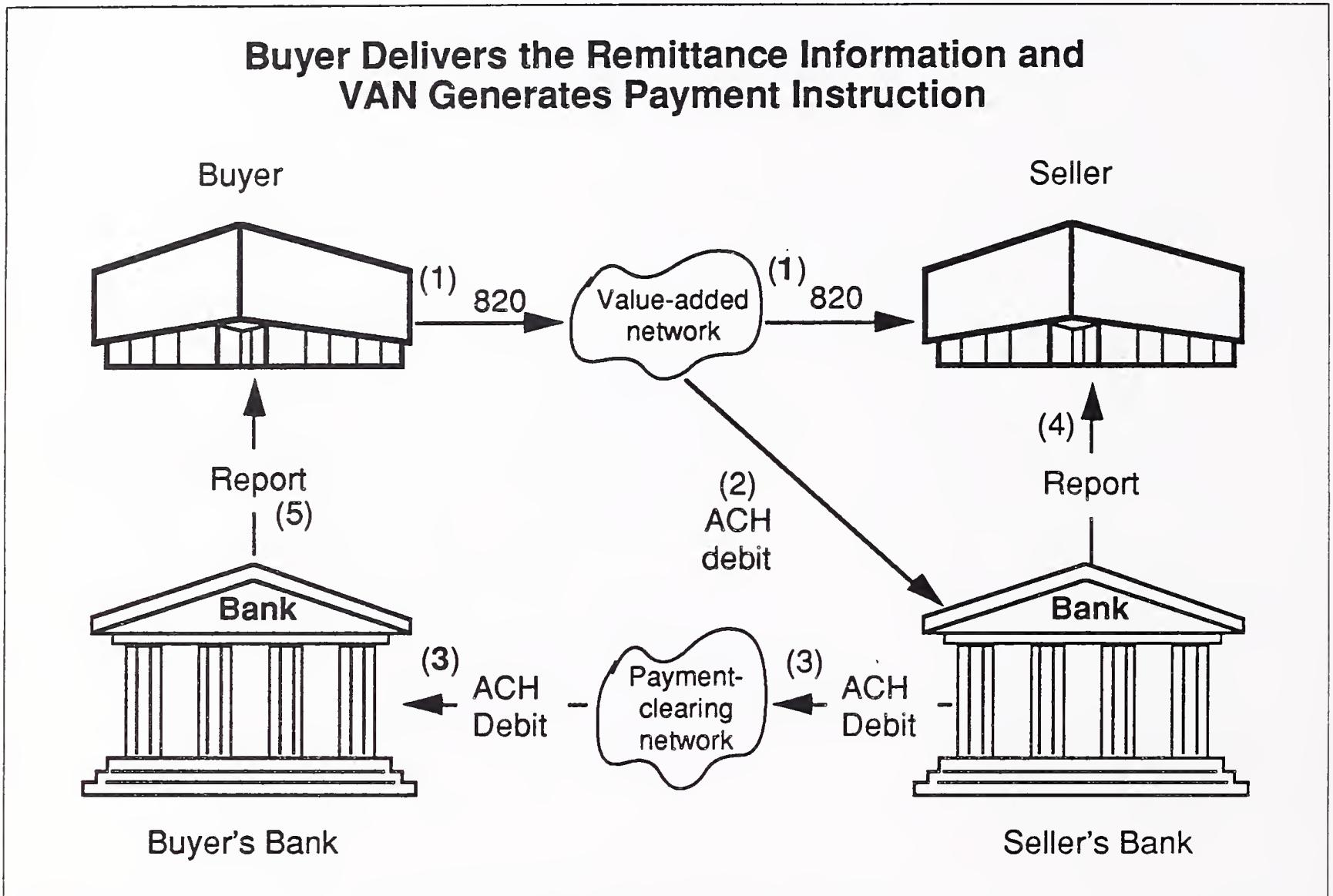


d. The Buyer Delivers the Remittance Data and the VAN Generates the Payment Instruction

- (1) The buyer sends an 820 to the seller via a VAN.
- (2) The VAN sends an ACH debit to the seller's bank.
- (3) The seller's bank sends an ACH debit to the buyer's bank via the ACH.
- (4) The seller's bank reports payment to the seller.
- (5) The buyer's bank reports the debit to the buyer.

Exhibit III-6 depicts the use of a VAN in a debit payment relationship.

EXHIBIT III-6

**B****Data Format
Standards**

A critical element in electronic payments is the data which is transmitted from one party to another and the format for that data. The data transmitted must be sufficient to identify all relevant aspects of the transaction and ensure that the correct parties are credited and debited appropriately. The data must also be formatted in a particular fashion so that the receiving party can understand the meaning of the various data elements. Standardization of data formats is essential if a particular method of payment is to be used widely across a broad range of parties.

Not counting Fedwire transfers (which have no standardized format anyway), ACH transactions are the standardized formats for transfer of funds for trade payments. The formats are developed and maintained by the National Automated Clearing House Association (NACHA), which is an umbrella organization composed of regional ACH Associations. NACHA is responsible for establishing rules and policies governing the use and operation of the national ACH system.

There are several different types of data formats that can be used to make ACH credit or debit transactions. Basically, the formats differ in the amount of payment-related information they carry and the degree of flexibility they afford a user. The data formats are:

1. Cash Concentration or Disbursement (CCD)

CCD format is the most basic form of ACH payment. It is widely used in the corporate community for moving cash from various accounts into a single cash management account. The CCD format contains only a limited amount of space for including data about the payment. The length and content of each data element is specified in NACHA rules and is standard among all applications using the CCD format. CCD formats can be processed by all ACH member banks, but the limited amount of information that may be transmitted in a CCD format limits its utility for a wide variety of business payments.

2. CCD Plus Addenda (CCD+)

The CCD+ format combines the widely used CCD format with a single addenda record that can carry 80 characters of payment-related data. CCD+ formats can be processed by most ACH member financial institutions, and the single addenda record can carry a significant amount of ancillary payment information.

3. Corporate Trade Payments (CTP)

The CTP format was designed to overcome the data limitations of the CCD format by allowing each payment to be accompanied by up to 4,990 addenda records, each of which could carry 80 characters of additional information. The CTP format has received relatively limited use because few banks process CTP transactions, and corporations have begun moving toward transactions using standards developed by the American National Standards Institute (ANSI).

4. Corporate Trade Exchange (CTX)

The CTX format combines the desirable features of the CTP format (multiple addenda records) with the standards and approaches developed by the American National Standards Institute (ANSI) to govern the data transmitted among corporations in the general electronic data interchange (EDI) world. The CTX format consists of the standard ACH payment formats with up to 4,990 addenda records per payment transaction. Each addenda record is formatted in a manner consistent with the ANSI-approved Payment Order/Remittance Advice (ANSI X12 820).

5. American National Standards Institute (ANSI) X12 820: Payment Instruction/Remittance Advice

The X12 820 is a data format that is generated by corporations (not necessarily banks). The format specifies the amount of payment, the recipient corporation, the recipient bank, and the account to be credited. It includes variable-length space for remittance details. Corporations will generate this format and send it to their banks. The banks in turn will either insert it into a NACHA CTX format (and send everything through the ACH) or translate it (breaking apart the remittance advice from the payment portion, formatting the payment data into one of the other NACHA formats, and sending the remittance advice via mail or VAN).

C

Enabling Software and Services

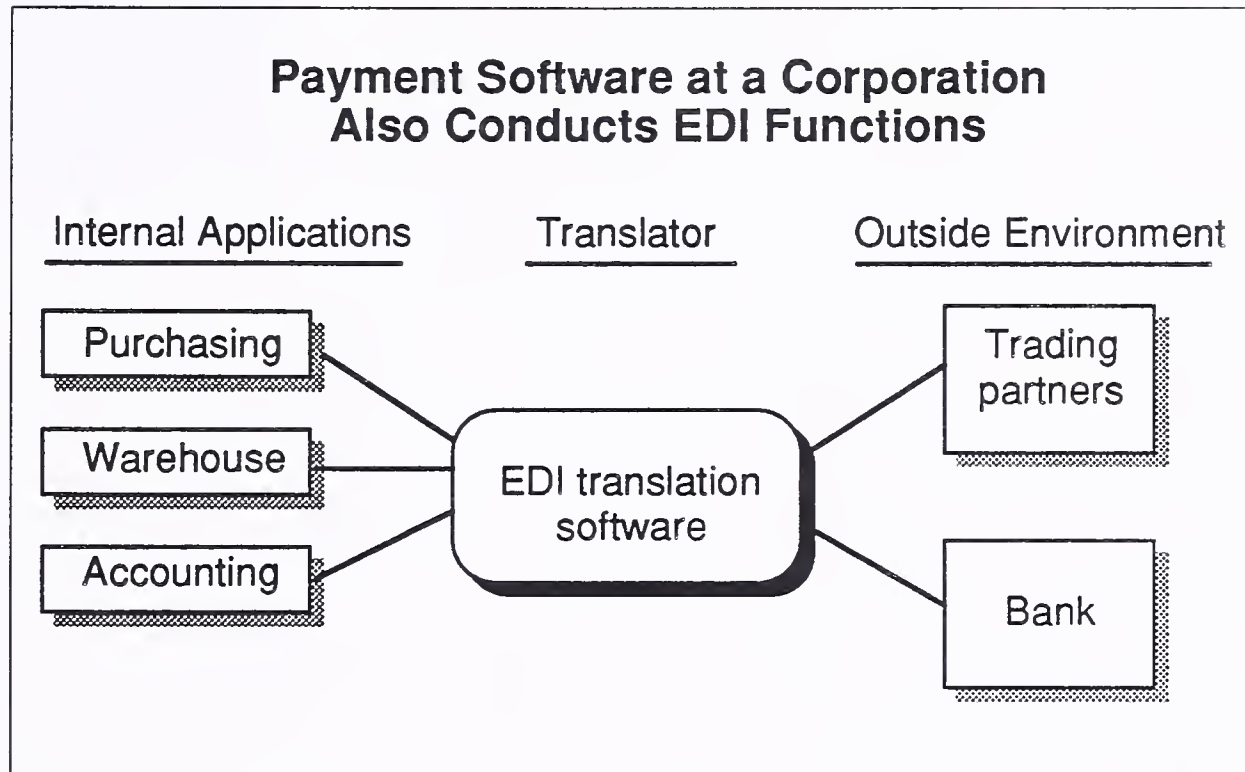
The systems that support electronic payments consist of software interfaces and network services. The interfaces are installed at corporate sites and bank sites. Corporate site software allows for the origination and receipt of payment instruction/remittance advice messages. Bank site software inversely receives/sends this information to and from corporations. In addition, bank software interfaces with the automated clearing-house network, which is where banks settle payments.

Network services consist of the banking system's automated clearing-house network, which is an interconnected collection of bank networks that only banks can access. To connect corporations with banks, third-party value-added networks as well as direct connections (over leased or dial-up telephone lines) are used.

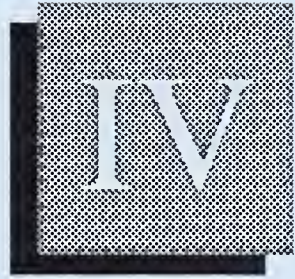
As shown in Exhibit III-7, the software at corporate sites provides interfaces for EDI messages (to and from trading partners) and EDI/EFT messages (to and from banks). Mainframe-based EDI software handles both interfaces: with trading partner and bank.

In INPUT's survey of EDI/EFT users, all users generated formatted payment instructions by the same software that generated/received other X12 EDI messages. Nevertheless, there is corporate-site software that is dedicated exclusively to communicating with the corporation's bank. The software generates ACH-formatted payment messages and may provide additional communication functions related to the individual bank's service offering (such as cash management services). Large-volume payment originators, however, use a single integrated software package that formats EDI communications with trading partners, as well as payment communications with its bank.

EXHIBIT III-7

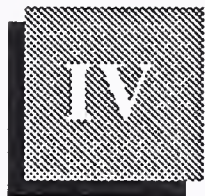


By assessing the volume of corporate electronic trade payment activity, this report provides market size indicators for software and services for these interrelated processing and communication functions. Corporate-site software, bank-site software, and network services between banks and corporations are market niches whose sizes are determined in part by the overall volume of corporate electronic payments.



Market Structure and Forecast





Market Structure and Forecast

A

Framework/ Background

1. Number of Users

INPUT's survey of 50 EDI-using companies found that 22% used some form of electronic payment facility. These companies had annual sales ranging from \$60 million to \$40 billion, and thus are representative of the Fortune 1000. INPUT estimates (by extrapolation) that approximately 20% to 25% of the Fortune 1000 pay some suppliers or are paid by some customers with a corporate electronic payment application. This figure is not counting direct deposit of payroll or other EFT applications.

2. Bank Providers

The approximately 14,000 banks belonging to the ACH can receive at least the CCD format. Fewer banks can originate a CCD format. Very few can originate payments in the more sophisticated formats, formats that have space for remittance details, the preferred formats by corporations. INPUT estimates that only 25 banks in North America are capable of originating a financial EDI payment using an 820. Nineteen of these banks are American; the remaining six are Canadian. The banks are listed in Exhibit IV-1.

EXHIBIT IV-1

**Bank Providers of Corporate
Electronic Payments**

- U.S. Banks:
 - Bank of America
 - Chase Manhattan Bank
 - Chemical Bank
 - Citibank
 - Continental Bank
 - First Interstate Bank
 - First National Bank of Chicago
 - First Wachovia
 - Harris Trust
 - Manufacturers Hanover Trust
 - Manufacturers National Bank of Detroit
 - Mellon Bank
 - National Bank of Detroit
 - Northern Trust
 - Pittsburgh National Bank
 - SeaFirst Bank
 - Security Pacific
 - Citizens and Southern/Sovran Bank
 - Wells Fargo
- Canadian Banks:
 - Bank of Montréal
 - Bank of Nova Scotia
 - Banque Nationale
 - Canadian Imperial Bank of Commerce
 - Royal Bank of Canada
 - Toronto Dominion Bank

3. Software Vendors

There are two locations where software must be installed to allow corporations to pay and be paid electronically: at the corporate site and at the bank site. Software at the corporation interfaces with the accounts payable/receivable application. Corporation software acts as the network gateway between the accounting application and the corporation's bank. The software formats and unformats outgoing and incoming files.

Software that resides at the bank site communicates with this corporate site software and, by performing format conversions, acts as the relay between the corporation, the corporation's accounts held at the bank, and other banks reachable through the Automated Clearinghouse. Consequently, there are two markets for payment software.

a. Corporate-Site Software Vendors

Software at the corporate site (that originates the payment instructions) is usually the same software that conducts EDI translation. Although separate software is sold by banks or software vendors to corporations, particularly for functions like cash management, corporate users that originate a large volume of payments generally use their EDI translation software to generate X12 820 transaction sets that it sends to the bank. The software is either developed in-house or is purchased from a third-party supplier. Third-party software is predominantly EDI translation software.

Given this situation, the market for payment software is inextricably tied to the market for EDI software in general. For an analysis of the EDI software market, please refer to INPUT's study, *The Electronic Data Interchange Market, 1990-1995: Forecast, Implementations, Trends*. Listed in Exhibit IV-2 are the primary vendors of EDI translation software. Except for a few of the vendors of software for microcomputer platforms, these packages are capable of generating ANSI X12 820 payment instruction data formats.

EXHIBIT IV-2

Leading Vendors of Corporate-Site Payment Software*

Platform	Company
Micro	Supply Tech GEIS Harbinger EDI Inc. American Business Computer Foretell Sterling Software DNS APL RMS Piedmont EDS Canada Perwill Birmingham Computer Group
Midrange	ACS Network Systems Sterling Software IBM Louis Wright
Mainframe	Sterling Software GEIS IBM EDI Solutions TSI International DEC

* Can originate ANSI X12 820 transaction set

b. Bank-Site Software Vendors

Because of the relatively few banks that offer electronic payment origination services, the effective market for bank EDI/EFT software is small. The number of software providers to this small niche are also few in number. INPUT estimates that there are seven. They are listed in Exhibit IV-3.

EXHIBIT IV-3

EDI/EFT Software Providers to Banks

- Interchange Systems Inc.
- National Systems Corporation
- Stockholder Systems Inc. (SSI) (owned by NYNEX)
- Shared Financial Systems
- Maxxus Inc.
- GE Information Systems
- EDS Payment Services (partly owned by NYNEX)

B

Market Forces

These market forces, listed in Exhibit IV-4, are discussed at length in the next chapter, Issues and Trends.

1. Inhibiting Forces

- Payee (seller) companies benefit by CETP more than payor (buyer) companies because the payee ultimately receives its money with fewer obstructions. Because the seller companies, however, must please the customer, they cannot mandate that customers pay electronically. Thus, sellers who have a natural incentive to promote CETP will not generally have the necessary clout.
- Payor (buyer) companies that, on their own accord, implement a CETP capability with their suppliers, will not generally receive a payback on the investment until high volumes are reached, which may take years.

EXHIBIT IV-4

Electronic Payment Market Forces

- Inhibiting forces
 - Sellers have incentive but not the clout
 - Payback not achieved until high volumes attained
 - The bank payment infrastructure is incomplete
 - Electronic payments implemented after EDI
 - Payment services not a money earner for banks
 - Paying companies afraid of losing float
 - Most banks cannot originate CTP or CTX formats
 - Unclear who service providers will be
 - Bank software vendors face small market
- Driving forces
 - Government programs are propelling EDI/EFT use
 - Long-term benefits are real
 - Large companies already using EDI/EFT
 - EDI growth will propel EDI/EFT growth

- The vast majority of banks have no payment origination capabilities and minimal receiving capabilities. An effective electronic payment environment requires an infrastructure where all relevant parties can play.
- A corporation usually will not implement an electronic payment capability until it has established EDI with a number of trading partners. EDI must be in place before CETP is established. Until more EDI is established on a large scale, CETP activity will not be significant.
- Payment services cannot become competitively distinctive for banks and will remain a negligibly profitable line of business if profitable at all. There is no incentive to offer electronic payment services based on the revenue generated strictly from fees.

- Many paying companies are afraid of losing float.
- Due to the fragmentation of the banking industry, CETP volume per bank is extremely low. This low volume will keep banks from investing in the appropriate systems. With only a few banks capable of originating payments, an incomplete payment infrastructure impedes the use of CETPs.
- It is unclear who—banks, service providers, telephone companies, corporate users—will be players in the electronic payment services market.
- The bank software market is too small for software vendors to devote exclusive attention to it.

2. Driving Forces

- Government programs (namely the Treasury Department's Vendor Express, state and federal tax payment initiatives, and the Department of Defense's payment systems) are mandating that EDI/EFT be used by government bodies.
- The long-term corporate benefits of CETP are real.
- Fortune 500 companies are implementing some degree of CETP with suppliers and customers. These efforts will ripple outward into the larger business community.
- EDI is growing 20% per year and will propel the implementation of CETP.

C

Market Opportunities Market opportunities include the following:

- There are vastly more receiving banks than there are origination banks for electronic payments. The 14,000 banks (less the 24 that are capable of originating payments) in the U.S. banking system could use software that allows them to originate payments. This is an opportunity for software vendors.
- Receiving bank software is more complicated than origination bank software.
- Routing payments and correctly formatting them so that they accommodate sending and receiving bank technical platforms is complicated. Software at corporate and bank sites needs to address this issue. Maintenance of such software becomes critical as, for example, the capabilities of receiving banks change, allowing them to receive new kinds of

data formats. The opportunity is to provide a service (perhaps delivered via a network) that updates the processing software. For example, as a bank became capable of receiving a new ACH format, the software's rules for delivery would be updated for all those trading partners that would send that bank a payment. The service/software would serve a somewhat directory function.

- Banks could offer tax payment services. State governments and the federal government are offering large corporations the option of paying taxes electronically. Yet each tax authority has its own formatting and submission requirements. Banks could provide value by keeping track of the payment requirements of each authority. Corporations could simply submit taxes in a single data format and the banks would provide the conversion/translation services.
- Banks or VAN providers could take over accounts receivable, accounts payable, and billing functions of companies. Corporations could outsource these functions to third parties.
- NACHA and ANSI groups should define new data formats and conventions for the use of addenda records such as the Federation of Tax Administrators' TXP for electronic payment of state taxes. This will help proliferate electronic payments in a controlled manner.

D

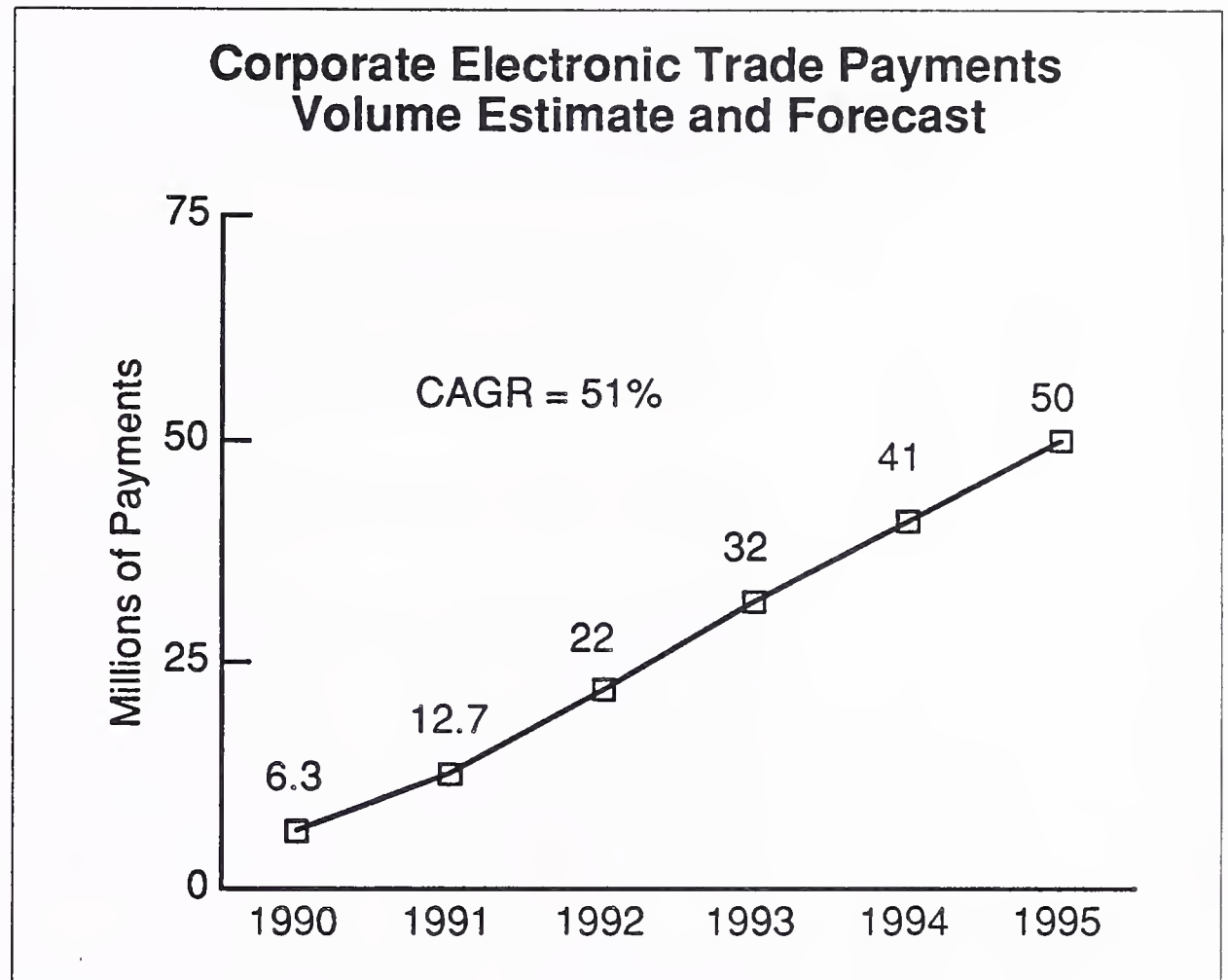
Activity Levels and Forecast

1. General Forecast

Based on data from 11 CETP-capable banks and the National Automated Clearinghouse Association (NACHA), INPUT estimates the volume of corporate electronic trade payments to be approximately 6 million in 1990. This does not count "on us" electronic payments, where the payor and payee are patrons of the same bank, or corporate electronic tax payments.

Based on the expectations of bank managers and actual growth experienced in 1990, INPUT expects electronic corporate payment volume to increase at a compound annual growth rate of 50% through 1995. Although this is a high growth rate, it starts from a low base. Exhibit IV-5 shows the volume and expected increase in volume over the next five years.

EXHIBIT IV-5



2. Assumptions of the Forecast

In analyzing the NACHA data, INPUT assumes that 4% (500,000) of the 13 million CCD transmissions on the ACH per month represent corporate-to-corporate payments. (The remaining 12.5 million are for intracorporate cash concentrations and lockbox functions.) INPUT deduces this percentage for the following reasons:

- It corresponded to the number of addenda that were attached to the CCD transmissions (i.e., 500,000 addenda per month are sent with the 13 million CCDs)
- When added to the CTX and CTP volume totals, the 4% proportion makes the total NACHA corporate payment volume equal the payment volume reported by the originating banks.

The CTP and CTX formats account for approximately 37,000 payments per month. Thus, the CCD format accounts for 93% of all corporate electronic payments on the ACH. The more advanced payment formats are used for only 7% of payment activity.

INPUT counts only bank-to-bank transmissions over the ACH, as opposed to the number of payment-related transmissions originated by corporations, as payments.

- Consumer payments (e.g., direct deposit of payroll) are not counted.
- Not all X12 820 transmissions are for corporate payments. Some are used to send remittance data relating travel and entertainment expense reimbursements for electronic deposits of payroll.
- Many payments that are electronically originated at the corporation are turned into paper checks and sent to the receiving company by the corporation's bank. These electronic-to-paper payments are not counted as electronic payments.
- Payment processing services—for example, freight payment services—are not counted if funds are not transferred over the ACH.

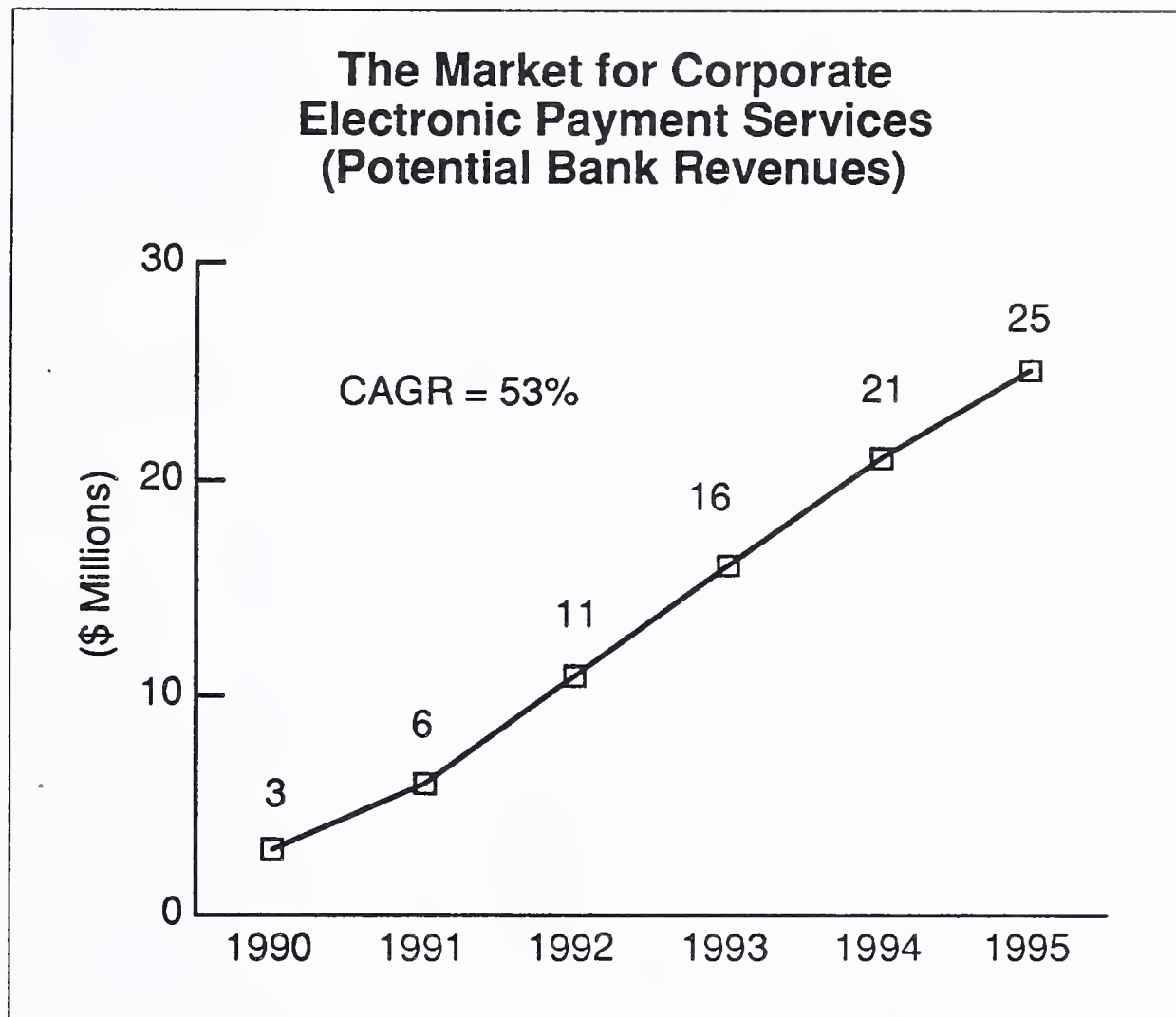
INPUT also assumes a decreasing year-to-year growth rate as the total CETP volume increases. The growth rate from 1990 to 1991 is estimated to be 100%; from 1991 to 1992, 75%; from 1992 to 1993, 45%; from 1993 to 1994, 30%; and from 1994 to 1995, 20%. INPUT assumes the year-to-year growth will decrease because decreasing growth rates are typical for new technologies that start from small bases. The compound annual growth rate from 1990 to 1995 is 51%.

3. Potential Bank Revenues for Corporate Electronic Trade Payment Services

At this early stage of corporate use of electronic payments, service fee schedules, business revenues and profits are still nonuniform and tentative. Many fees are worked out on a per-client basis, determined by anticipated volumes, the corporation's average cash balances maintained at the bank, and nonquantitative factors such as the relationship between the bank and the corporation. Standard market pricing for services has not yet been determined. Nonetheless, to enact an ACH transmitted electronic payment (as opposed to a Fedwire moneywire or a CHIPS payment), a corporation can expect to pay anywhere from \$.25 to \$1.50 per payment.

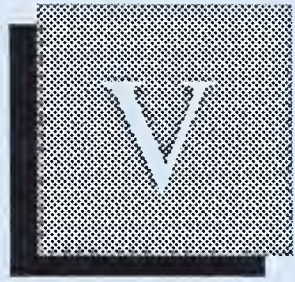
INPUT has forecast the total revenues — market size — that banks could realistically expect to receive over the next five years. These revenues are based on the volume levels forecast in the above activity forecast. INPUT assumes a constant per-payment fee of \$.50 and multiplies this by the total volumes forecast above for each year. The revenue forecast is shown in Exhibit IV-6.

EXHIBIT IV-6

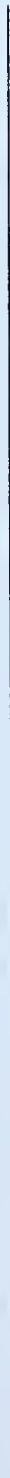


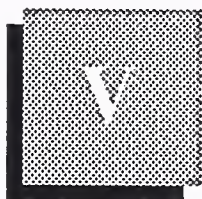
4. Potential Software Revenues for Bank Payment Software

There are too many variables for a forecast for this market to be valid. The effective market at this time is extremely small and growing slowly. Potentially, the market is huge: the U.S. banking system has 14,000 banks, and currently less than 30 have software enabling them to offer payment services. The banking industry, however, is undergoing fundamental consolidation and restructuring. By 1995, there may well be substantially fewer banks than today. The six vendors of bank payment software will continue to sell their products, but probably no more than 10 units each per year. INPUT advises them to diversify into other products and services, offering payment software only as a way to round out a larger suite of products and services.



Issues and Trends





Issues and Trends

The efficiency inherent in electronic payment results in consolidations in not only corporate treasury and accounting departments, but in the industry of payment banks and vendors. Corporations that adopt electronic payment mechanisms typically reduce the number of payment transactions made in a given period as well as the number of disbursement banks that they use. This consolidation of activity portends a consolidation within the service-provider industry. Although the means for electronic payments are available to corporations today, user experimentation and vendor competition over the next five years will cultivate a corporate electronic payment environment different from today's. Debit mechanisms, the elimination of remittance data, and the rise of bartering systems, for example, are real possibilities for tomorrow's corporate settlement methods.

The following are the key issues and trends users and vendors reported to INPUT in telephone interviews. Exhibit V-1 shows the four main categories of these key issues and trends.

EXHIBIT V-1

Areas of Financial EDI Trends

- Current user practices
- Bank industry issues
- Market drivers
- Emerging payment practices

A

Current User Practices 1. Float Neutrality/Change in Payment Terms

Because electronic payments are typically settled the day after a payment instruction is received by the originating bank and all mail delay is eliminated, trading partners will change the terms of payment by extending the payment due date by three days. This extension to the payor compensates for the lack of float making electronic payment a "float neutral" proposition.

RJ Reynolds tobacco receives electronic payments from its distributors. Reynolds offers a schedule of prices where discounts increase the sooner payment is made. This tactic is needed when a corporation is asking its customers to use financial EDI and not when it is asking its suppliers to receive electronic payments.

2. Reducing Payment Transactions, Increasing Dollar Value

With electronic systems, paying companies are consolidating to make fewer payments of larger dollar amounts. Denver retailer KG, for example, formerly paid Levi Strauss four times per month with checks. With CETP, it makes two payments per month. A single payment may cover 5,000 to 10,000 invoices and may amount to \$7 million. Check-based payments were smaller in dollar amount.

This trend lessens the overall volume of transactions (even though the number of kilocharacters itemizing payment details may remain the same). Smaller transaction volume hurts banks. Bank systems for payment processing risk being underutilized and not achieving the economies of scale of which they are capable.

3. Reduction in the Number of Disbursement Banks

Some financial EDI users have stated that they will reduce the number of banks they use to disburse funds electronically. The use of a minimum of two banks is prudent (for backup reasons), said one executive. But more than two banks begins to add redundant costs.

This trend also threatens banks. It demonstrates that the banking industry is generally in excess capacity. The more companies that switch to electronic payment systems the fewer banks overall are needed for processing.

4. Tying EDI/EFT to EDI and Using the Same Translation Platform

All corporations INPUT surveyed that originated electronic payments also received EDI invoices or ship notices from some of the vendors they paid electronically. Also, the same translation software that conducted EDI was used to prepare and send the financial EDI message (an X12

820, except in two cases where a proprietary format was used). Some companies, although they made all payments to corporations electronically, conducted EDI with only a few of these corporations.

5. Banks Convert Electronically Originated Payments into Paper Checks

Not all the electronic payment instructions that a bank receives from its corporate clients are passed onto the receiving banks electronically. In fact, one leading bank sends most of its electronically originated payments to the receiving companies by way of paper checks delivered in the mail.

6. Corporate Payment Instruction Formats Are Used in Conjunction with Consumer Electronic Payments

In addition to corporate-to-corporate payments, some corporations are using the ANSI X12 820 payment instruction/remittance advice data format to itemize travel and entertainment expenses owed to employees. The electronic remittance advice is attached to a NACHA PPD format (for direct deposit of payroll).

7. Corporations Targeting High-Volume Trading Partners That Are Both Customer and Supplier

As in EDI, corporations that are implementing EDI/EFT are targeting trading partners that account for the highest volume of billings/payments. Within this high-volume group, trading partners that are both supplier and customer are especially attractive. Alcoa, for example, now sends and receives payments to and from both GM and National Can Corporation and is planning to bring up more companies that are supplier/customer. This strategy, if widely pursued, could lead to the reduction of payment activity overall. Trading companies would simply net out their differences every month — possibly maintaining a running credit/debit record of how much one owed the other. Settlement could be confined to a single funds transfer once every month, quarter, or year.

8. Minimal Use of VANs

Many corporations directly dial their bank computers to leave and pick up payment messages. Third-party VANs are used as well, but in big installations direct connects are often the rule. Concerns about security of VANs are unresolved. The lack of encryption and authentication routines for VAN transmissions has some users worried about their transmissions being intercepted by an unauthorized user who would in turn initiate counterfeit payment instructions to his/her own bank account.

Banks surveyed for this report indicated that they forwarded the remittance advice data to the payee company either through the ACH or by mail. There was no use of third-party VANs to transmit the remittance advice.

9. Security

The security of sending payment instructions between banks and corporations is an issue. (Security between banks, on the ACH, has been established over many years.) Most VANs do not support encryption or authentication services. Users are advised to encrypt their payment-related transmissions when sending them over any kind of public telecommunication lines. These transmissions contain the corporation's bank account numbers. Unauthorized use of this data could result in a corporation's account being pillaged.

Related to security is the concern over liability: who is responsible when a payment is not executed as promised in a contract? In 1991, the UCC4A goes into effect. This law deals with the ACH credit transfers between corporations and between corporations and banks. (Other electronic transfers, including ones involving consumers, are not covered under UCC4A but rather under the Electronic Funds Transfer Act.) The importance of UCC4A lies in its statement of liability and how liability is allocated when transfers are delayed or when they reach the wrong recipient.

Section 4A says the liability depends largely on the security agreement drawn up between the two parties to the transfer. Such security agreements may address passwords, message authentication, callbacks, encryption and proper authorization. This is a significant legal requirement because in the past, many corporations have neglected such agreements.

Section 4A requires that the agreement must be commercially reasonable. As a result, banks and VANs are required to supply security measures for their services using commercially available security systems. VANs and banks will be liable if a breakdown occurs where it can be demonstrated that a lack of commercially available technology was the cause or a contributing factor.

10. Difficulty in Building EDI/EFT Systems

As is the case with nonfinancial EDI, users report slow progress in interfacing existing applications with EDI software and systems. A survey by First Interstate found that EDI/EFT users were experiencing complications in intertwining back-office applications with translation and communications software. Operational procedures as well as systems were difficult to synchronize.

B**Bank Industry Issues****1. U.S. Banking Industry Is Undergoing Fundamental Restructuring**

The banking industry is facing increasing competition from nonbank providers of bank-like services (Merrill Lynch money market accounts, AT&T's credit card, auto company finance services, etc.) as well as declining profits due to a number of circumstances (bad loans, high costs, regulation that disallows the realization of economies of scale, etc.). Furthermore, as a recent book by McKinsey consultants (*Technology in Banking*) argues, the banking industry has an overcapacity of information systems and processing capability, which dampens banks' enthusiasm to invest further in payment systems and services. There is little or no return on investment.

2. CETP Is Similar to Earlier Banking Technologies

A number of banks surveyed expressed that the phenomenon of CETP is similar to the phenomena of the ACH and treasury workstation and will probably be adopted in like manner — that is, very slowly. Both the ACH and treasury workstation were hyped as the wave of the future, but both took many years before they reached a significant level of volume/business. The ACH would never have really gotten off the ground if not for the government's use of it for disbursing social security, veteran's benefits and payroll. Not until 1984 — 11 years after the ACH was established — did private-sector volumes on the ACH exceed those for the public sector.

NACHA and the Bankers EDI Council are taking a proactive stance toward bank involvement in EDI—even recommending that banks offer nonpayment financial EDI applications (account analysis, balance reporting, various acknowledgment transactions, and invoicing).

3. International Settlement Networks Are Growing

In Canada, the U.K. and Australia, banks are offering electronic payment services and do not face the impediments of a fragmented, highly regulated environment that U.S. banks face. As payment services extend internationally, these banks may be in a better position than U.S. banks.

National clearinghouses are talking about interconnecting. According to NACHA, an interconnected ACH for corporate payments would not be a reality until late 1992 at the earliest. However, direct deposit of (American) Social Security is available in many countries outside the U.S. Further expansion and interconnection of ACHs worldwide will happen in the 1990s. Also, transborder electronic payments are happening between U.S. and Canadian trading partners (Harris Bank and the Royal Bank of Canada offer this service, for example).

The international network for payment-related messages, SWIFT, is adopting EDIFACT payment message formats. SWIFT already plays the critical role in delivering payment instructions among banks for international settlements (the actual settlements are not conducted on SWIFT). With EDIFACT compatibility, SWIFT may become the international value-added network for delivering payment instructions and remittance advices among banks and among banks and corporations.

C

Market Drivers

1. Electronic Tax Payments May Be Fastest Growing Payment Activity

As of July 1990, 14,470 corporations were paying state taxes electronically, according to the Federation of Tax Administrators. State tax authorities have aggressively pursued this, making available a standardized remittance data format that is now a NACHA and ANSI standard. Also, the Federation of Tax Administrators is providing educational services to corporations and is making policy/program recommendations to state tax boards. States are making the electronic payment of taxes highly attractive to corporations by giving the state more responsibility in initiating the payment and thus reducing the corporation's liability and clerical work. Adoption of electronic taxes payments is growing rapidly.

2. The Government Is the Single Largest Originator of Payments

The Treasury Department's Vendor Express program made approximately 3 million electronic payments to federal government vendors in 1990. This represents approximately 50% of all corporate payments. Government use of electronic payments helps establish electronic payments as a standard business practice as no other single user can.

3. Other EFT Is Growing

Consumer use of the electronic funds transfers (over the ACH) is increasing. Growth in consumer payments (payments by consumers to corporations/government agencies and payments by corporations/government agencies to consumers) may create an impetus within corporations to implement corporate-to-corporate electronic payment systems. ACH payment volume in private sector payments grew 25% from 1989 to 1990, according to NACHA.

Direct Deposit of Payroll, after a directed advertising program by NACHA, has increased substantially since 1989. As of second quarter 1990, approximately 15% of the private sector workforce was paid by direct deposit of payroll — up three percentage points from the same period a year earlier.

Automatic bill payment systems are being adopted by companies, enabling their consumer customers to pay electronically. Insurance companies are the predominant type offering automatic bill payment, but new companies are adopting it, including utilities (power and telephone companies) and service providers such as cable television operators, fitness and health clubs, sanitation companies, newspapers, political parties and charities, and private schools.

Electronic benefits transfer (EBT) programs are proliferating. Over 200 programs are using the ACH to distribute social security and welfare payments from federal and state governments to citizens.

4. Financial EDI Will Potentially Be Stimulated by EDI Applications in Other Financial Services

EDI activities in health care, insurance, equipment leasing, mortgage banking, and securities trading help proliferate the use of EDI in the banking and financial services industries. The EDI proficiency gained by management from one application may spill over to help other applications get off the ground.

D

Emerging Payment Practices

1. Potential Elimination of Remittance Data

Remittance data could potentially become unnecessary and therefore may be discontinued. When all transactions are maintained electronically by both the buying and selling companies, all relevant payment information is contained at the company sites. Additional transmission of such information is redundant. (This is similar to the elimination of the invoice. See INPUT's report, *EDI Business Integration Issues*.)

2. Debit Mechanism Potentially More Effective Than Credit Mechanism

The debit mechanism may become the most desirable among corporations for electronic payment because it places the cost and effort of consummating an electronic payment on the shoulders of the seller (payee) — the entity who receives the payment. Although buying companies (payors) are generally leary of their suppliers initiating a transfer of funds out of their bank accounts, it is much simpler for them to allow the supplier to do so. Furthermore, the buying company does not have to lose control of its account. The seller can still send a notice that it will move funds on a given date. The buyer can have the option of stopping payment if it disagrees with the amount or other details of the payment. The seller then sends a debit instruction to its bank or directly to the buyer's bank. All charges (and processing activities) for the funds transfer are absorbed by the seller. In the case where the buyer initiates a credit (payment instruction to its bank), the buyer must pay for its bank's service and related telecommunication charges between it and the bank.

Reynolds Tobacco uses this mechanism with its distributors, and governmental taxing authorities are also using it with corporations.

3. New Capabilities Stemming from IT Put Banks at Risk of Losing Payment Franchise

Companies that adopt CETP programs generally target trading partners that account for a high volume of business. In some cases, companies will target trading partners that are simultaneously customers and suppliers (e.g. Motorola is both a customer and supplier to Digital Equipment Corporation, and vice versa). This latter trend is occurring among oil companies, utilities, steel companies, and large diversified manufacturers.

When two companies are both customer and supplier to each other, the settlement of commercial transactions between them amounts to periodically netting out the difference of market value of goods and services received and offered. Funds transfers can be kept to a minimum or eliminated entirely. The two trading companies can either make a single consolidated payment for a given period or simply keep rolling over the IOUs from period to period. Furthermore, such a system, if widely adopted, can result in an electronic barter system, with firms exchanging products and services and merely keeping electronic tabs on relative values and who owes whom (all still denominated in currency units). Funds transfers and the banking system are entirely circumvented.

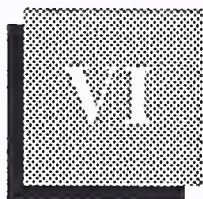
Electronic barter coupled with the marketplaces created electronically (such as airline reservation systems or some securities trading systems) make opportunities for non-banks to offer electronic trading systems. For example, some exchanges on Baxter Healthcare's ASAP system could be barter. Frequent buyer programs at grocery stores could also become areas where buyers and sellers keep track of debits and credits but minimize/eliminate funds transfers through the banking system.

Credit card and debit card issuers, and other non-banks such as leasing companies, factors, and credit companies are creating not only quasi-money but also settlement systems independent of the banking system. Non-bank firms are getting into financial services, which include payment mechanisms. Auto makers have established finance companies, such as General Motors Acceptance Corporation (GMAC), Ford Motor Credit, and Chrysler Financial. There are non-bank consumer finance companies: American Express, Sears Roebuck, J.C. Penney, Household International, Beneficial, Avco Financial Services, Commercial Credit, and ITT Financial. There are also non-bank commercial finance companies, such as General Electric Financial Services, IBM Credit, Westinghouse Credit, Weyerhaeuser Financial Services, Heller International, and Transamerica.



Competitive Environment





Competitive Environment

A

Introduction

The competitive environment for providing CETP services includes banks, large corporate users, network service providers, and software vendors. All four are potential rivals for the business of electronic payments.

Banks and network providers are the most clearly competitive. Whether the VAN should be used to communicate between users and the bank and to send remittance data so that the ACH is not overtaxed are issues that have yet to be settled. Some VANs (AT&T) have started their own banks. Many banks have established networks (Bank of America, Citicorp, and Security Pacific).

Other competitors may come from unexpected places. Some large corporations have established their own banks (such as Sears and General Motors) and/or financial corporations. These large corporations could eliminate a third-party bank and simply have their internal bank deal directly with the banks of their trading partners. They could even offer CETP services as an independent line of business.

Starting in 1985 with the General Motors program (where a consortium of banks helped GM pay all GM suppliers electronically), the top 200 U.S. banks have voiced interest in offering electronic payment services to corporate clients. However, the original enthusiasm has waned with the onset of more pressing problems and increasing uncertainty in the industry. Only 24 banks actually offer electronic payment services (despite the fact that all 14,000 banks can receive a very unsophisticated electronic payment message from another bank).

INPUT believes that the fragmentation of the banking industry caused by governmental regulation has impeded the proliferation of payment services by banks. With so many banks potentially offering the same service, the volume of corporate payments per bank would be small and therefore would not justify the investment in overhead needed to support the offering.

Furthermore, because the banking industry as a whole does not offer a uniform corporate electronic payment infrastructure, those banks and corporations that want to conduct electronic payments face a difficult technical challenge. They must work out, on a case-by-case basis with each trading partner, the data formats and methods for delivery of remittance data.

Fragmentation, and the consequent inability of banks to attain a scale of operations that would justify a commercial payment service, are not factors in Canada, the United Kingdom and Australia. In these countries, the banking industry is dominated by a handful of large banks, and electronic payment services from banks appear to be moving much faster than in the U.S.

The essential service EDI/EFT-focused banks offer to customers is the means to originate and receive funds payments electronically. This involves the customer having the capability to send an ANSI X12 or NACHA-formatted message from its premises using a PC or mainframe. The messages are sent directly to the service-providing bank via dial-up modem communications. In addition to NACHA's CCD, CCD+, CTX formats and ANSI's 820 payment order/remittance advice, these banks also convert incoming payments to a company and place them in the 823 lockbox format if the customer desires.

Complementing this window to the ACH, the EDI/EFT banks typically also provide:

- Format conversion services (For example, if the receiving company cannot receive an 820 but only a CCD, then the bank will separate the 820 portion and send it under separate cover.)
- Media conversion (from ACH electronic delivery to mail, fax, mag tape or other VAN)
- Electronic transmission of corporate account statements (statements that itemize the changes to a company's cash account)
- Interfaces with lockbox services (As mentioned above, customers can receive an 820 corporate payment in an 823 lockbox format along with its other lockbox receipts.)

B

Selected Banks

The following U.S. banks are actively marketing EDI/EFT services as outlined above. Particularities of their services as well as services related to EDI/EFT are noted.

1. Chase Manhattan Bank

a. Background

Chase's presence in electronic trade EFT is stronger than its EDI/EFT presence. Although it provides the basic EDI/EFT services outlined above, it has been aggressively pursuing EDI in international trade applications.

Chase has its own data network (the Chase Data Network) that is a combination of direct dial and General Electric Information Service's international value-added network.

b. Related Services

Chase provides an Electronic Letter of Credit software package to customers to allow them to create the LOC on a microcomputer and transmit it to Chase.

Letter of Credit Advisor is the electronic notification of the LOC by the bank, speeding document delivery time.

Its Trade Reporter product tracks trade transactions conducted through the bank, covering various international credit and document instruments.

Chase Electronic Bill of Lading (CEBOL) supports the creation and transmission of BOLs and export declaration documents by exporters to freight forwarder and carriers.

Chase's software can be used in conjunction with GEIS's Trade*Express workstation. The document formats conform to Transportation Data Coordinating Committee (TDCC) and ANSI X12 standards.

2. Chemical Bank

a. Background

Chemical Bank is one of the eight banks participating in the General Motors EDI/EFT network with suppliers.

The bank provides PC software to customers to originate payment orders in the CCD+1 format, which is used in the federal government's Vendor Express program.

b. Related Services

It offers a full-service electronic cash management service called Chemlink. This monitors and controls corporate funds by providing a

number of reporting mechanisms for the collection and disbursement of funds. Reports are available on-line, by electronic mail, or in monthly statements. Chemlink also provides other international trade-related functions, such as the electronic filing of commercial letters of credit, airway releases, and steamship guarantees.

3. CNS, First Bank, and Marine Midland

This consortium has allied with Harbinger Computer Systems, an Atlanta-based EDI VAN, to provide EDI/EFT services to customers.

4. Continental Bank

Name of Service: CONFIRM

Description of Service

Continental offers electronic originating, receiving, and reporting of EDI/EFT information through its terminal-based information service, CONFIRM. CONFIRM allows customers to monitor received and originated ACH transactions. The service retains a 60-calendar-day history of the customer's transactions.

Continental Bank can accept the ANSI X12 820, NACHA (CTX, CTP, CCD, and PPD), and proprietary formats from originating customers, and can receive the same formats plus BAI, X12 823, and paper reports from originating banks. For receiving banks that cannot electronically accept remittance detail, Continental can split it out and send it via a VAN or the mail.

CONFIRM Receipts Manager Service reports payor information for all payment types the customer receives — ACH transactions, wire transfers, and lockbox remittances — in one consolidated format. The information can be sent in a machine-readable format so that the customer can automatically apply the information to its accounts receivable system and automate the cash application.

5. CoreStates Financial Corp.

a. Background

This is a consortium of three Eastern U.S. banks: Philadelphia National Bank, Hamilton Bank, and New Jersey National Bank.

Name of Service: CorePay

Description of Service

The CoreStates banks offer a family of EDI/EFT services collectively known as CorePay.

They provide PC software, called ACH Initiator, which permits companies to originate electronic payments in a range of NACHA formats.

The banks can convert payment formats to fit recipient capabilities. They can convert electronic transmissions into paper printouts for the mail, magnetic tape, facsimile, and other media.

The banks also can electronically transmit account statements and lockbox payment details.

6. First Interstate Bank

Name of Service: ACTION EDI

Description of Service

First Interstate's ACTION EDI system allows companies to send and receive files from their accounts payable and receivable systems. ACTION supports the following data formats: ANSI X12 (820, 823, 822, 997, and 824), NACHA (CCD, CCD+, CTP, CTX, PPD, and PPD+), BAI (lockbox and balance reporting), EDIFACT (as standards are implemented), and custom formats. First Interstate offers consulting and project management to clients.

a. Alliances

First Interstate is one of the more aggressive endorsers of EDI/EFT. It formed the first bank-VAN relationships in 1988 with GE Information Services. It currently uses the GEIS BPS*Central electronic payments software as its platform for processing customer payments. This was the first commercial installation of GEIS' BPS software. First Interstate is seeking alliances with other vendors in or related to the electronic payments market, including accounting software vendors, EDI translation software vendors, and other applications layers of software that link back-office applications with the translation and communications software. It believes that banks, as full participants in applications development, can uncover valuable insights from the other providers in the EDI value-added chain. It wants to be able to offer clients off-the-shelf EDI solutions. Its relationship with GEIS is not exclusive. Customers on other networks can access First Interstate.

b. Related Services

In 1990, First Interstate began a nationwide EDI business broker program to bring together companies that are seeking trading relationships to take advantage of financial EDI. It sees its company data base as a future source of additional value-added products. First Interstate views banks as a central player in providing the electronic infrastructure for business.

7. First National Bank of Chicago (First Chicago)

a. Background

First Chicago is the lead bank in an eight-bank network serving General Motors in its electronic payments program. First Chicago has demonstrated a willingness to experiment with EDI services, often through alliances. However, several of these experiments were short-lived.

- Using GE's international network, First Chicago earlier offered the Accelerated Trade Payments (ATP) service, designed to speed the process by which international trading partners receive payment. ATP, which shortened the time needed for trade documentation, has since been discontinued.
- First Chicago, working with Sterling Software's Ordernet division, formerly operated a media conversion center for data entry, converting paper to EDI formats for trading partners and creating paper documents from EDI data. The joint venture has been dissolved, although Sterling Software continues hard-copy delivery options through other means.
- For several years, First Chicago's subsidiary Comtrac provided EDI, freight payment, and other services to the transportation industry. Comtrac was divested by the bank, and is now a wholly owned subsidiary of CASS Information Systems (St. Louis, MO).

First Chicago has had a development relationship with a subsidiary of software vendor Interchange Systems, Inc. of Lexington (MA).

Name of Service: PayStream

Description of Service

With PayStream, First Chicago manages a client's entire check and electronic disbursing activity. The client sends all payments and remittance information in one transmission to First Chicago. From the single transmission, First Chicago makes check or electronic payments, depending on the capabilities of the receiving company and its bank. The transmission from the corporation to First Chicago is done in an ANSI X12 820 data format. Direct transmissions to the bank, or indirect transmissions via a value-added network, are possible. First Chicago has a nonexclusive alliance with IBM Information Network. Data encryption and authentication procedures are required for both direct and VAN connects. First Chicago provides software for this if the client does not already have it.

First Chicago will combine multiple payments — including debit and credit memos — for a single payee. The client pays for fewer transactions. Electronic payments are routed in the most efficient format pos-

sible, including ANSI 820, CTX, CTP, CCD+ and PPD as determined by the receiving banks' capabilities. In addition, Fedwire payments can be invoked.

Remittance detail accompanies the payment whenever possible or is mailed separately to the payee. First Chicago guarantees that payees are sent all remittance information regardless of the payment format used.

First Chicago's Laser Check service offers customers a check printing service. Authorized signatures and check formats are digitized and stored at First Chicago.

First Chicago offers technical and implementation support, including an accounts payable review, cost-benefit analysis, accounts payable translation support, pilot program support, and educational seminars.

In addition to PayStream (a service to corporations that seek payment origination support), First Chicago offers its Electronic Payment Advising Services for corporations seeking consulting on how to build systems to receive electronic payments.

b. Alliances

Customers can use any VAN to communicate with First Chicago. However, First Chicago requires authentication and encryption of transmissions between it and its customers. Many VANs are incapable of this. First Chicago has an alliance with IBM Information Network.

8. Harris Trust and Savings Bank

Name of Service: EDI/EFT Disbursement Service

Description of Service

Payment-originating customers can send payment data to Harris in any format: ANSI X12 820, CTX, CCD+, CTP, the Canadian National Standard, or proprietary standard. Harris reformats the data and sends it through the ACH. If a receiving bank cannot deliver the remittance detail to the trading partner, Harris will separate it and send it by computer transmission, facsimile transmission, or paper advice through the mail. Harris will issue paper checks to the trading partner, thus allowing a corporate customer to convert its entire payables to an electronic system. Receiving companies can choose to have their electronic payments consolidated with lockbox receipts and have a single consolidated remittance report. Payment instructions to Harris can be warehoused—submitted and stored—up to one month in advance. Harris will then send payment on the due date specified.

a. Related Services

Harris offers cross-border electronic payment services that links the Canadian and U.S. banking systems. Through its Canadian partner bank, the Bank of Montreal, Canada-U.S. trading partners can settle commercial transactions electronically. Harris has at least three corporate customers using its cross-border payment service.

Harris offers an Electronic Account Analysis Service, a system that delivers an electronic statement of services used by the bank service. The statement is delivered in the ANSI X12 822 format.

Harris also offers State Tax Payment Service, which allows corporations to electronically pay state taxes. The product is an ACH credit product that incorporates the formats required for paying every tax in every state that accepts or requires electronic payments. When a state changes its formatting requirements, Harris updates the system. The menu-driven system prompts the payor for information such as the tax being paid, the state, the amount, the payor's tax identification number, and the Harris account from which the tax is to be paid. The system then creates an ACH credit and a tax payment detail record that is properly formatted according to the collecting state's specific requirements for that particular tax. The credit is transmitted to the state's collecting bank via the ACH network to arrive on the payment due date. Quaker Oats was the original State Tax Payment Service customer.

9. Irving Trust

Description of Service

The bank allows customers with PCs to initiate CCD and CCD+ transactions. Mainframe customers can initiate transactions using these and the CTP and CTX formats (this latter one containing the ANSI X12 820 format).

a. Related Services

Irving Trust also provides an electronic letter of credit service that conforms to the X12 format. The service is supported by the Sprint/Telenet network and uses three processing centers, including one in Hong Kong.

10. Manufacturers Hanover Trust

Description of Service

Manufacturers offers a basic EDI/EFT service. Customers can send payment messages in NACHA, ANSI, and proprietary formats. MHT

provides customers with a PC package that originates and receives payment/remittance data. Most current EDI/EFT customers use main-frame software.

11. Mellon Bank

Mellon Bank supplies basic EDI/EFT services to its customers using ANSI X12 and NACHA formats. Mellon has an alliance with Control Data Corporation's VAN, REDINET.

12. PNC Financial Corporation

PNC is the holding company of Pittsburgh National Bank. The bank makes general EDI/EFT services available to customers including the ability to merge electronic payments into lockbox reporting procedures.

13. Security Pacific

a. Background

Security Pacific entered the electronic payment services business in 1968 with its SecurPay, an electronic alternative to the payroll check. In 1987, it created the computer processing subsidiary, Sequor. Sequor provides a variety of financial and information services including:

- Fixed-income securities clearing, settlement, and financing
- Information and transaction processing software for securities and financial markets
- Treasury management services and software;
- International money market and documentary credit processing, trade finance, global custody, and securities lending
- Fiduciary services

Name of Service: EPIC EDI Payment and Collection Services

Description of Service

EPIC EDI is the corporate electronic payment component of Security's EPIC (Electronic Payment Information and Control) offering, which also includes corporate-to-consumer electronic payments (such as direct deposit of payroll and other prearranged payments and deposits — PPDs). EPIC is part of Security's treasury management service.

EPIC provides electronic disbursement and collection of payments for customers. Customers communicate with EPIC using ANSI X12 820, NACHA, BAI, or proprietary formats. For customers that originate payments, Security can move payment and remittance data through either the ACH, value-added networks, facsimile transmission, or mail (depending on the capabilities of the receiving bank). It will cut paper checks if

the customer prefers. For receiving payments, Security will merge check payments and EDI payments in a consolidated lockbox collection service.

Customers of both disbursing and collection services have a variety of reporting services to choose from. Using the customer's computer, Security will provide reports on funds movement activity in ANXI X12 and BAI formats. Security handles direct connects (to all sizes of computer platforms) as well as connections via third-party VANs. Customers can also receive reports via mail or fax and also via an on-line terminal directly connected to Security's SPACIFICS international communications network. SPACIFICS is an information service providing real-time information on financial markets and cash management functions.

b. Alliances

The Sequor Group is in an alliance with value-added network provider BT Tymnet. The two companies offer a Customized Program Implementation (CPI) service that supports a customer's transition into EDI including planning, coordination, and maintenance of trading partner relationships.

The program includes:

- Certified Vendor Program, verifying network compatibility of EDI translation software
- Consolidated Billing, providing a choice of two billing methods through Security Pacific: monthly account analysis or invoice
- EDI Education, trading partner education programs and seminars explaining EDI

14. Wells Fargo

This San Francisco-based bank is evaluating the merits and customer demand of EDI/EFT services. It has a number of other EFT products available to customers, but has not made a definite commitment to EDI. Its PC Wires service allows corporate treasury managers to use a PC to move funds among accounts and to send funds to other institutions. These are strictly money transfers that originate with money management functions, not accounts payable functions. For example, a company may want to send a portion of its cash surplus to a brokerage house to be invested.

15. Canadian Banks

Six of Canada's largest banks have informally banded together and adopted guidelines for EDI/EFT services for corporate customers. Calling it the Canadian Banking Initiative, the group has adopted an electronic message format and interbank rules of operation that enable a corporation to pay and be paid electronically.

These six banks are Bank of Montreal, Bank of Nova Scotia, Banque Nationale, Canadian Imperial Bank of Commerce, Royal Bank of Canada, and Toronto Dominion Bank.

The group has adopted the ANSI 820 transaction set. It sends the remittance data along with the funds transfer on the network. Also, it allows for the sending of negative or zero amounts on the 820. A negative transaction may be sent when a buyer wants money refunded (because the merchandise received was faulty or incorrect). A negative amount will not trigger a reverse flow of funds. It is regarded as a credit and deducted from the next payment transmission of the buying company.

Canada has no central backbone EFT network such as the United States' ACH (which is a combination of the Federal Reserve, Visa International, and the New York Clearinghouse networks). The clearing of electronic payments is done nationwide every day so that there is no float in Canada's banking system. The Canadian Payment Authority and Bank Canada act as the governing body for payment rules and regulations.

Although not widely used, intercorporate payments in Canada have been using a transaction set called the CPA005. This is similar to the CCD+ in the United States. Its shortcoming is that it has limited space for addenda. The CPA005 will continue to be honored on the Canadian system.

The Royal Bank of Canada is the pioneer bank in EDI/EFT services in Canada.

Currently it has a handful of customers using its EDI/EFT payment services. Also, the bank itself uses EDI and EDI/EFT with four of its suppliers.

Its largest EDI/EFT customer is Provigo Distribution Inc., Canada's largest food wholesaler. The company is paying two large food manufacturers, Johnson and Johnson and another unnamed company, with the 820 transaction set.

The Royal Bank is using the IBM Information Network to send and receive 820s among clients and banks.

The bank is part of General Motors' vendor payment network of banks.

C

Service Providers

1. GE Information Services

GE Information Services (Rockville, MD) offers software products (see below) and network services to support electronic payments. Of all the networks, it is the only one that has developed specific network products for payments and offers them independently of any single bank or consortium of banks.

After prototype development within its parent company's many divisions, General Electric Information Services (GEIS) has established three basic offerings for financial EDI services:

- EPS*Express, a network service that allows companies to pay suppliers electronically
- BPS*Central, a mainframe software system that allows banks to offer payment services to their customers (for further details see Software Vendors section below)
- COEP (Customer Originated Electronic Payments), a network service that allows a corporation to collect payments from its customers

In 1989, GEIS offered a smorgasboard of network services, alliance opportunities, and custom software for banks and large corporate customers under the Leveraged EDI And Payments Program (LEAPP). This involved customizing software to meet corporations' needs in payment. In the first half of 1990, GEIS distilled the LEAPP program into three basic offerings.

a. Payment Origination Network Services

The EPS*Express service allows a payor to send an ANSI 820 transaction to the GEIS EDI network. The transaction is delivered to the vendor's network mailbox so that the vendor gets the remittance information for its receivables application. In addition, the EPS*Express service generates an ACH CCD transaction from the ANSI 820 data and delivers it to the mailbox of the payor's bank. The CCD instructs the payor's bank to transfer funds to the vendor on the date specified.

The EPS*Express service option uses the standard EDI*Express system document pricing: 20 cents for a 300-character transaction transmitted during peak hours; 25% less during off-peak hours.

b. Payment Collection Network Services

For corporations wanting to have their customers pay them electronically, GEIS offers its Customer Originated Electronic Payments (COEP) network service. COEP's purpose is to link a supplier's accounts receivable application with a customer's accounts payable system.

The few electronic payment systems in existence today have the buyer/payor initiate the funds transfer. The payor, in these cases, already has the requisite software that creates standardized payment transactions, the ANSI X12 820. It sends the payment instruction part to its bank (which in turn moves funds on the specified due date to the supplier's bank) and the remittance detail to the supplier (via a value-added network).

This is but one method of electronic payment, however. GEIS supports the VAN service portion of this method with its EDI*Express offering.

But many companies have no software for sending payment data in standardized formats. This is COEP's niche.

With COEP, payors have the following options for paying electronically:

- They can pay interactively via a PC or a dumb terminal using COEP menu prompts.
- They can send PC file formats created in Lotus 1-2-3 and Microsoft Word, whose formats are prespecified by GEIS.
- They can send batch mainframe files whose formats are prespecified by GEIS.
- They can send an ANSI X12 820 (payment instruction), if they already have the translation software that creates this format.

COEP acts like a payment membrane between two companies and their respective banks. COEP funnels incoming payment data into the seller/payee's accounts-receivable application (in whatever file formats required). It also sends payment instruction data to the banks, which will ultimately transfer the funds among themselves.

COEP "sits out there" on GEIS' network. Payors, payees, and banks pick up and drop off data from it. In the case where a paying company fills in a menu, the data transfer is done interactively.

The funds transfer — from the payor's bank to the payee's — can occur under three basic types of mechanisms. (The mechanism is specified by the trading partners in a written agreement prior to the commencement of trade.)

The first mechanism is the standard "credit" payment method. The payor instructs COEP to deliver payment instructions to its bank that, in turn, will move funds to the payee's bank.

The second mechanism is the standard "preauthorized debit" payment method. The payee/seller requests (via COEP) that the buyer's bank send

funds to its bank. Although an acknowledgment is sent to the buyer letting it know that the funds were debited, the money moves independently of the payor's action. Debit payments are difficult to sell to customers. Only when payments are same-sum, repetitive propositions (such as monthly insurance premium payments) is this mechanism chosen.

The third mechanism is the hybrid mechanism as described in Chapter III. Upon receiving an invoice, the buyer sends payment instructions (via COEP) to the *seller's* bank (not its own). The seller's bank then asks the buyer's bank for funds.

This third method gives the payor control over its payments. Also, the payor incurs no bank charges (as it does in the credit payment method). And it gives the payee prenotification of what the payor is paying. Prenotification allows for early detection of discrepancies and/or reconciliation.

In addition to feeding data directly into a payee company's accounts receivable application, COEP will deliver payment reports via E-mail or fax to specific areas of the company. For example, account and sales representatives can be notified that a customer has paid or not paid for products/services rendered.

Companies that already conduct EDI using an on-site translator are still candidates for COEP, according to GEIS. COEP is aimed at bringing up trading partners (namely, customers) to pay electronically.

Fifteen divisions within GE use COEP with customers, having developed the system internally since 1987. All customers use the third, hybrid debiting payment mechanism. Outside of GE, the Contract Management Division of the U.S. Air Force (Kirtland, NM) is the only user of COEP at this time.

COEP costs \$50,000 and includes custom software development and consulting. Network charges are not included. Once a corporate customer has implemented COEP, bringing on new trading partners is a matter of signing the partner up on the GEIS network. If further custom programming is required by the trading partner, GEIS charges additional fees.

GEIS' BPS*Central software also starts at \$50,000 per license.

Both BPS*Central and COEP support the following standard data formats: ANSI X12 820, ACH CCDs, and BAI lockbox.

Unlike other network providers, GEIS is not aligned with any particular bank or group of banks to provide financial services. GEIS believes that

this approach allows customers more flexibility in what banks they choose to do business with.

2. IBM Information Network

IBM is aligned with First National of Chicago in First National's PayStream service (see First Chicago above). This service is available to customers of the IBM Information Network.

Users format accounts payable output to ANSI X12 820 formats and transmit them through the IBM Information Network to First Chicago. First Chicago stores the 820s until the day before the payment date, at which time they are forwarded to the payees' banks through the ACH or are used to cut and mail a check. Communications between users and First Chicago is entirely electronic, in that all acknowledgments, payment cancellations, payment returns, and reports are electronic.

Potential customers must contact First Chicago to review qualification and acceptance requirements. Acceptance of the PayStream operating rules and a contract with First Chicago are required.

First Chicago will consult with the customer on the required software and security hardware/software for use of the PayStream service. There is a requirement for encryption software. Messages must be authenticated and/or encrypted in a manner compatible with PayStream. The customer must establish an account at First Chicago and fund the account according to the operating rules and contract. First Chicago will assist customer throughout the implementation process and provide detailed operating procedures and rules. First Chicago is the first point of contact for all non-network-related questions.

Standard IBM Information Network charges apply to customers using First Chicago's PayStream service. These include any base charges and all charges associated with using the IBM IN mailbox. The customer incurs all network charges for both its and First Chicago's transmissions. First Chicago will bill customers directly for PayStream usage.

3. Control Data Corporation, REDINET

In April 1990, CDC aligned with Mellon Bank of Pittsburgh to deliver financial EDI services. Control Data's REDINET EDI network service works with Mellon's Global Cash Management Group. The alliance offers companies a way of originating electronic payments without making major changes to their accounts-payable systems. A company does not need to modify its accounts payable data base to include elements such as its supplier's account number, transit routing number, and payment type. No change to master files is necessary to accommodate various payment types, including CCDs, CCD+s, CTPs, CTXs, and

checks. Additionally, Mellon and REDINET offer technical assistance for planning and implementation.

4. BT Tymnet

BT Tymnet has made alliances with DISC, Inc., a NYNEX company that produces bank software, and Security Pacific Bank. BT's bank alliance involves helping BT's EDI customers establish financial EDI as well as helping Security Pacific customers establish EDI. (See the Security Pacific profile above.)

How well each alliance is producing business is not known.

5. Harbinger Computer Services

Harbinger Computer Services was founded in 1983 by C&S Bank (Atlanta, GA), First Bank System (Minneapolis, MN), and Marine Midland Bank (Buffalo, NY). Initially, Harbinger performed bank processing services for these banks. In 1987, it entered the EDI market selling turnkey EDI systems to large hub companies. It also has actively resold its EDI switching software to Bell Atlantic and U.S. Sprint.

Product offerings include InTouch Cash Manager, which provides financial services (electronic banking, cash management, electronic funds transfer, messaging, and electronic calendar) for small and medium-sized businesses. InTouch Cash Manager is licensed to major commercial banks throughout the U.S. Related products include Checkwriter (check writing integrated with financial record keeping), Account Reconciliation (data file linkages with third-party accounting programs for automated transaction reconciliation) and Payments and Transfers (customer-initiated electronic funds transfer via the ACH for direct deposits, federal tax of payroll, cash concentration, and corporate trade payments). Harbinger's network moves hundreds of millions of dollars in ACH transfers per month.

Harbinger provides an electronic mailbox service by which corporations can communicate (pick up and drop off) payment-related information with their banks. Harbinger's EDI translation software is also capable of converting X12 820s into NACHA formats. Performing this conversion allows a corporation to communicate with its bank when the bank is incapable of receiving X12 formats (all banks can receive the NACHA CCD format).

6. Sears Communications Company

Sears Communications Company (SCC) has created alliances with eight U.S. banks to provide EDI/EFT payment services. The banks and SCC support ANSI X12, BAI, and NACHA transaction formats as well as

selected proprietary formats. SCC's SNA-based data network is used in the NACHA composite of interconnected regional networks. So far, the customer to SCC's payment services is Sears itself (the Sears Merchandise Group). The eight banks in the consortium are Bank of America, Continental Bank, Corestates Financial Corp., First Wachovia, Harris Bank, Mellon Bank, National Bank of Detroit, and Northern Trust Bank.

D

Software Vendors

1. EDS Payment Services

Electronic Data Systems (Dallas, TX) has a Financial Industry Group that provides processing/network services, financial management services, and application software products to the financial services industry.

Within this group is a Payment Systems Division that specifically offers remote processing services and systems integration services to banks and bank corporate customers. EDS had formerly offered two payment software products (CIX for bank sites and TRG for corporate sites) for electronic payment origination. In 1989, EDS sold these products to ACI. EDS saw these software products competing directly with its own processing services offering.

EDS has many processing sites around the country to service its bank customers. It uses the PEP software from Stockholder Systems Inc. (see below) in these facilities. EDS is connected to the ACH. In 1990, EDS will offer a PC-based software package to banks that banks can resell to corporate clients. The package will allow corporations to originate payments.

2. GE Information Services

GE Information Services (GEIS) provides both network services (see above) and software in the electronic payments field. Its EDI*PC and EDI*T translation software packages generate and receive X12 payment data formats, and are therefore used by corporate originators and receivers of electronic payments.

BPS*Central is mainframe software that GEIS offers to banks. BPS*Central enables a bank to accept electronic payment/order remittance advices from EDI users, reformat them into an ACH payment instruction format, and forward them to a third party's bank through the ACH network for settlement. In addition, incoming ACH instructions may be reformatted to ANSI 820, 823, or BAI lockbox formats.

3. Interchange Systems Inc.

Interchange Systems Inc. (Lexington, MA) was founded when First Chicago developed the electronic payment system for General Motors. It

also started Canada's first electronic payment pilot between the Royal Bank of Canada and Provigo, Canada's largest food distributor. It now has installations of its EDI/EFT software for banks in leading banks in the U.S., Canada, and Australia.

Interchange Systems offers NetPay to banks. Versions of NetPay run on IBM PCs (and compatibles) and IBM mainframes. The PC version is priced from \$12,000 to \$35,000. The mainframe product is priced from \$50,000 to \$200,000.

NetPay has security features (authentication and encryption functions) built in. The company offers an independent security software package called Secure/EDI. NetPay supports data formats TDCC, ANSI X12, BAI, NACHA, GM and Ford formats, and Canadian Payments Association standard 005.

4. Maxxus Inc.

This privately held San Francisco-based company makes PC-based electronic payment origination and EDI software for corporations and financial institutions. Its two main products are MAXX-ACH and MAXX*EDI.

MAXX-ACH runs on any IBM-compatible PC with 640K RAM, a hard disk and a Hayes Smartmodem (or compatible). It enables a bank to originate payments on the ACH. It allows banks to offer payment and cash management services to their corporate customers. For payments, MAXX-ACH handles the ACH data formats of CTP, CCD+, and CTX. Its cash management functions include cash concentration and disbursement control. MAXX-ACH is menu-driven and includes transaction-specific help screens.

MAXX*EDI is a family of EDI and EDI/EFT products sold to corporations either directly or by banks. The products are the MAXX*EDI-MANAGER, MAXX-TRANSLATOR, and the MAXX*EDI-ENTRY. The MAXX*EDI-MANAGER and MAXX-TRANSLATOR combined provide firms with a basic EDI and EDI/EFT data format translator capability. The MAXX*EDI-ENTRY is a data entry module that does not interface directly with a corporation's applications. The MAXX*EDI-MANAGER and MAXX-TRANSLATOR perform data format translations for mainstream EDI transactions (such as purchase orders, invoices, etc.) as well as payment transactions in ACH formats. MAXX*EDI products run on IBM-compatible PC-XT, AT or PS/2 computers with 512K (or more) RAM and a hard disk.

MAXXUS claims 104 installations of its software with customers that include Merchants National of Iowa, Hibernia National Bank, C&S/SOVRAN, and Wells Fargo. MAXXUS does not specify the number of individual software products that it has sold.

5. National Systems Corporation

National Systems (New York, NY) is estimated to have sales between \$2 million and \$5 million per year. Its CONNEXION product runs on PCs, IBM mainframes, and Stratus computers. National Systems targets the product to payment-originating banks. The product costs \$42,500.

CONNEXION accepts payment instructions in the corporate originator's preferred format, including TDCC, X12, BAI, and NACHA formats. Remittance information can be forwarded with payment or separately. ACH and other electronically collected items can be consolidated for delivery in a common data stream in the corporate receiver's preferred formats. Also, paper-sourced data from existing lockbox services can be combined. CONNEXION enables banks to electronically send cash management and account analysis data to bank customers.

National Systems and Stratus Computer Inc. established a marketing agreement to help market each other's products. Stratus, maker of the XA2000 family of fault-tolerant, on-line transaction processing computers, has a large customer base in the banking industry.

6. Stockholder Systems, Inc.

Founded in 1971, SSI was wholly purchased by NYNEX in 1990. SSI designs, markets, and supports a line of financial software primarily for IBM and IBM-compatible computers. SSI has over 1,200 customers that use its software for electronic funds transfer, lease accounting, check processing, cash management, security holder record keeping, mortgage loan production and servicing, loan recovery, and safe deposit box accounting.

SSI makes EDI/EFT software that runs at bank sites (the PEP+ product) and at corporate sites (MicroACH, CAPS, and EDI/EFT). The PEP+ product has over 500 licensed sites, according to SSI officials. The MicroACH is distributed by banks to their corporate customers and has approximately 1,200 installations. CAPS (Corporate Automated Payment System) is a general-purpose payment software package that handles direct deposit of payroll transactions, lockbox, as well as corporate payments. There are approximately 40 installations of CAPS. EDI/EFT was introduced in 1990 and currently has only five installations, including Texaco, Baxter-Travenol, Sears, and USAA.

A sister NYNEX subsidiary, DISC, sells cash management solutions to banks. DISC and SSI may regroup divisions in the future to more effectively market their overlapping product lines.

E**Bank Networks****1. The Automated Clearinghouse (ACH)**

The ACH was started in 1973 and has grown approximately 20% per year since. In 1989, it handled 1.33 billion payments. Up until the early eighties, the federal government was the primary originator of ACH payments (with Social Security payments being the primary funds transfer application). Now private sector use makes up more than half of the volume, and its share is increasing. The predominant private-sector use of the ACH is in direct deposits of payroll, cash concentrations, lockbox transfers, and various preauthorized debits (such as insurance premium and mortgage loan payments).

The ACH is a funds transfer and settlement network among banks. It is composed of a confederation of 42 local and regional clearinghouses that clear transactions in their areas. The National Automated Clearinghouse Association (Herndon, VA) sets policy (and standards). Most processing of ACH transactions is done by the Federal Reserve Bank. Three western clearinghouses use Visa as a processor; the New York Clearing House Association does its own processing; and one bank, Chase Manhattan, operates a proprietary ACH. The 14,000 banks and bank holding companies in the U.S. belong to the ACH. NACHA requires that all member banks be able at least to accept an electronic payment in the simplest payment format, the CCD.

2. The Society for Worldwide Financial Telecommunications (SWIFT)

SWIFT is a worldwide messaging network for banks. It does not enact funds transfers or make settlements. It is simply the utility that communicates payment instructions. Member banks use other means for settlement — through the CHIPS network, correspondent banks, or other clearing networks.

Approximately 1,600 banks and financial institutions belong to SWIFT and come from both developed and emerging countries. SWIFT has developed over 70 message types/data formats that are machine processable. They are used for foreign exchange transactions, collections, securities trades, documentary credits, statements, and netting. SWIFT is incorporating EDIFACT banking messages in its repertoire of message types. In addition, a SWIFT subsidiary sells terminals and software and operates a value-added network that performs services such as European Currency Unit (ECU) netting. The society also has a joint venture with software and data base vendor I.P. Sharp that markets a global risk management system. SWIFT is increasing its telecommunications capacity and may potentially become a competitor to commercial value-added networks such as GEIS, BT Tymnet, IBM Information Network, Sterling Software, etc.

3. Clearinghouse Interbank Payments System (CHIPS)

CHIPS was established by the New York Clearing House Association in 1970. It is primarily used to transfer U.S. dollars among the leading banks in the world, who are its members. Approximately 150 banks belong to CHIPS. CHIPS payments arise largely from financial transactions — including loans, foreign exchange sales, Eurodollar placements, Eurosecurities settlements, and sales of short-term funds — rather than international trade. Payments can arrive at CHIPS from all over the world directly through member banks or via correspondent banks. CHIPS exchanges funds but does not settle. All settlement is handled by the Federal Reserve Bank.

F

Large Corporate Users INPUT interviewed the following types of companies for this report:

- 2 oil companies
- 1 steel and aluminum company
- 2 electronics products manufacturers
- 1 power utility
- 1 apparel manufacturer
- 2 chain retailers
- 1 transportation conglomerate
- 1 film products manufacturer
- 1 federal agency (U.S. Treasury)

1. Steel Manufacturer

One major steel and aluminum manufacturer pays approximately 20 of its suppliers electronically (including taxes to state and federal agencies) and receives electronic payments from two of its largest customers, GM and National Can. It sends EDI purchase orders to these same suppliers. For the trading partners that pay or receive payment electronically, all payment is conducted electronically. There are no parallel electronic and paper payments for these trading partners.

2. Retailer

Sears pays approximately 25% of the dollar value of its payables electronically. However, this only accounts for 3% of all payments (the majority of its payments are made for small amounts). As of December 1990, 170 of its suppliers received payments. It intends to bring up 4,500 of its suppliers on EDI and EDI/EFT by 1992, and it originates approximately 12,000 payments per month, and it uses eight banks to originate these payments.

3. Tobacco Products Manufacturer

R.J. Reynolds Tobacco has approximately 1,800 of its distributors and food-chain customers pay electronically. This represents 65% of its dollar amount in payables as well as of its customer base. Reynolds sends an invoice to its customers (electronically and by paper) that states that it will debit the customer's account on a given date in the future. Reynolds has its bank send a debit CCD instruction to the customer's bank to initiate payment. Reynolds prices its products on a graduated pricing schedule where the earlier the customer agrees to pay, the lower the per-unit price.

4. Oil Producer

A major U.S. oil company pays 16% of its invoices electronically. It electronically pays approximately 500 of its suppliers, including drilling partners, equipment suppliers, and transportation companies. In addition, it electronically pays another 4,000 trading partners oil-property royalty payments. These payments are recurrent, same-sum amounts. The oil company does not initiate a payment instruction for these. Transfers from the oil company's accounts to the recipients are initiated using the NACHA Prearranged Payment and Disbursement format.

5. Apparel Manufacturer

Levi Strauss is paid electronically by Sears and KG, a Denver-based department chain. Every day, Levi receives 820 notices from its bank (First Chicago) of payments from Sears. KG, however, consolidates its payments to Levi and makes only two monthly payments (this is a reduction from the four payments it formerly made when it paid by check).

6. Electronics Manufacturer

A large electronics manufacturer has only two of its customers (an auto maker and the Department of Defense) paying electronically. However, the manufacturer does use lockbox services of its banks and thus receives all payment information electronically. It pulls this in through a single gateway (through which EDI and E-mail network connections also travel). Its goal is to have 85% of its invoices paid electronically (and, with lockbox, this has been achieved for some divisions) and automatically applied to its cash account. With 85% of the invoices done in this fashion, the company calculates that it can reduce 60% of its clerical workers in accounts receivable departments.

7. Power Utility

A power utility uses two kinds of electronic payment mechanisms. For its residential customers, it has established a preauthorized debit mechanism. It still sends paper statements monthly. The consumer has seven days to stop payment on the bill if he/she disagrees with it. For commercial customers, the utility is paid by these customers sending a credit instruction to their respective banks to initiate the funds transfer. The utility receives electronic payments from seven of its largest commercial customers, including a retailer, railroads, banks, and manufacturers. The utility also pays five of its suppliers with EDI/EFT. It sends a CTP to its bank. The suppliers include other power utilities, telephone companies, and transportation companies.

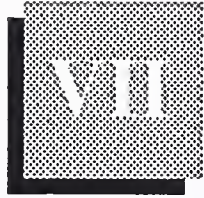
8. Railroad

A major railroad electronically pays and is paid by other railroads that interconnect with it. Also, approximately 30 railroad customers—shippers—electronically pay the railroad. The shipper sends the railroad an ANSI X12 820, which the railroad passes to its bank. The bank then sends a CCD or CTX debit instruction to the shipper's bank. Approximately 10 suppliers to the railroad (nonrailroads) receive electronic payments from this railroad. Here, too, a debit mechanism is used. Suppliers are responsible for sending a debit instruction to the railroad's bank.



Conclusions and Recommendations

Vertical line on the left side of the page.



Conclusions and Recommendations

A

General Conclusions

The development of a nationwide electronic payment infrastructure in the U.S. banking industry is impeded by the fragmentation of the industry due to regulation. Interstate banking prohibitions, and the resulting large number of banks in the country, make it impossible for the vast majority of banks to achieve the volume and scale in electronic payments for their corporate customers necessary to have the investment in systems pay for themselves. Payment services are profitable when a few large providers serve the entire market. Because the banking industry is fragmented, and the banks' electronic payment systems are not uniform throughout the industry, infrastructure for payments may take some time to develop. Given the present industry structure, there is no incentive for all banks to offer a payment service (because the volume per bank would be too small), even though for such a service to be truly effective (so that any corporation could electronically pay any other), all banks need to offer one.

The market is small, and although it is growing (in terms of volume) at 50% per year, it is still not a lucrative business for banks.

Banks are offering payment services primarily to satisfy important customers — not to make money.

The market for software and services in itself is not a money maker. Capturing market share in it, however, may prove to be strategically advantageous. Keeping existing customers and gaining new customers are the main reasons for banks to offer EDI/EFT.

Users implement EDI/EFT after they implement EDI. EDI/EFT is the last in the EDI sequence of transactions. Users of EDI/EFT implement it more slowly and less methodically than EDI systems.

Exhibit VII-1 summarizes the general conclusions of this report.

EXHIBIT VII-1

General Conclusions

- Bank electronic payment infrastructure still not uniform
- Volume of electronic payments is small but growing at 50% CAGR
- Payment services not a money earner
- The market for bank payment software is small; the market for corporate payment software is the same as the market for EDI translation software (\$25 million in 1990, \$40 million in 1995)
- EDI/EFT is the last transaction set implemented by users in their EDI program

B

Recommendations to Banks

- Don't expect EDI/EFT to be a big money maker.
- Partner with other banks to offer corporate payment services in a correspondent relationship.
- Cater to those companies and industries where EDI is already strongly in use, such as automobile, aerospace, grocery retail, mass merchandise/department store retail, pharmaceutical, oil, transportation, chemicals, office products, steel/metals. Your education and consulting efforts will be low because users are already experienced.

In addition to the above existing EDI-intensive industries, new trading communities that offer potential business for EDI/EFT are government (state and federal procurement and corporate taxation), utilities, and the various financial services industries (leasing, factoring, insurance, mortgage banking, and securities trading).

C

Recommendations to Corporations

- Initially target corporate electronic payment relationships with the following three types of trading partner: (1) those responsible for the highest dollar amount in business and/or highest volume in payment transactions, (2) those who already have EDI programs in place, especially those with whom you already conduct EDI business, (3) those who are both supplier and customer.

- Shop around to the service-provider banks to get the best price for payment services.
- Use a single EDI translation software platform/gateway to process EDI messages as well as financial EDI messages. A single platform should serve all EDI and financial EDI needs for the entire company. This eases maintenance and acts as a focus for integration of the various business functions and divisions.
- As a paying company, you need not worry about loss of float. If you want, negotiate three additional days on payment terms (this accommodates for the loss in the time delay associated with mail delivery).
- As a paying company considering electronic payments, consider the debit payment mechanism because it can be less expensive and troublesome. All that is needed is a procedure for authorizing a supplier to debit the company account. This may simply be a telephone call.

D

Recommendations to Service Providers

- Do not anticipate a large business opportunity in transporting remittance advice data. As noted in Chapter V, the remittance advice may be discontinued.
- A market may exist for directory services and data base services related to EDI/EFT. A data base, similar to the UPC catalog, could be set up in the banking sector. Banks need to know what the receiving capabilities are of other banks so that if a customer requires them to send a payment to a given bank, the sending bank will know the appropriate data formats, routing instructions, and other technical details to guarantee a smooth transmission. These details could be stored in an on-network data base. Banks would download the information periodically to update their EDI/EFT processing software.
- The SWIFT network, already the banking community's own value-added network, may become a VAN outright, offering messaging to corporations. Such a new competitor in the VAN business, which is already firmly established in the worldwide banking community, would have a great strategic advantage. Commercial VANs should watch this potential.
- Explore offering bartering programs to trading partnerships where two companies buy each other's products. Such partnerships may elect to diminish electronic payments and instead keep track of how much they have exchanged among themselves. Only periodically would they tap into the banking system to settle net differences by means of a funds transfer. Such a barter system may be more economical to the companies.

- Offer to be the central store-and-forward repository for payment instructions among two trading companies so that the companies need not have a special line to their banks. The VAN can be an all-in-one source and destination of EDI/EFT as well as EDI traffic.

E

Recommendations to Bank Software Vendors

- Provide other software products to banks in addition to payment-processing software. Do not rely on payment-processing software as a sole product offering.
- Necessary for payment processing is a directory feature to route ACH transmissions to banking institutions.

