ELECTRONIC DATA INTERCHANGE & FINANCIAL EDI

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Electronic Commerce: A Quick Overview

- What’s wrong with paper?
- How does EDI/FEDI work?
- How are they changing business?
- What does this mean for you?
The Paper-based Transaction

Request for Quote → Mail
Quote → Mail
Purchase Order → Mail
Invoice → Mail
Carrier

Check and Remittance Advice → Mail
Bill of Lading → Mail
Banking System

Check → Carrier

Seller

Buyer
Keying in the Paper World

Seller’s Computer System

Postal System

Buyer’s Computer System
What’s Wrong with Paper?

- Labor intensive
- Slow
- Error prone
- Uncertain
- Excessive inventory (and cash)
- Bottom Line: IT’S EXPENSIVE
- Time consuming
What Can We Do?

- Option 1: Make paper work harder
- Option 2: Get rid of the paper altogether
By moving from a paper-based exchange of business document to one that is electronic, businesses enjoy major benefits

1. Reduced cost
2. Increased processing speed
3. Reduced errors and
4. Improved relationships with business partners
What is EDI?

EDI is the use of computers and telecommunications to exchange data between computer applications in a structured format that does not require manual intervention.
What is EDI?
Electronic Data Interchange (EDI) is the computer-to-computer exchange of business documents in a standard electronic format between business partners.
EDI replaces postal mail, fax and email. While email is also an electronic approach, the documents exchanged via email must still be handled by people rather than computers. Having people involved slows down the processing of the documents and also introduces errors.
Instead, EDI documents can flow straight through to the appropriate application on the receiver’s computer (e.g., the Order Management System) and processing can begin immediately. A typical manual process looks like this, with lots of paper and people involvement:
Buyer generates Purchase Order

Supplier enters Order into Internal systems and prints an Invoice

Buyer enters Invoice Into internal system for processing

Faxes or Mails

Invoice
1) Prepare the Documents to be sent.

2) Translate the documents into EDI format.

3) Connect and transmit your documents to your business partner.

EDI Network Service Provider

Direct, Point-to-Point Communications
BUSINESS DOCUMENTS

These are any of the documents that are typically exchanged between businesses. The most common documents exchanged via EDI are purchase orders, invoices and advance ship notices. But there are many, many others such as bill of lading, customs documents, inventory documents, shipping status documents and payment documents.
Standard Format

Because EDI documents must be processed by computers rather than humans, a standard format must be used so that the computer will be able to read and understand the documents. A standard format describes what each piece of information is and in what format (e.g., integer, decimal, mm dd yy).
Without a standard format, each company would send documents using its company-specific format and, much as an English-speaking person probably doesn’t understand Japanese, the receiver’s computer system doesn’t understand the company-specific format of the sender’s format.
There are several EDI standards in use today, including ANSI, EDIFACT, TRADACOMS and eb XML. And, for each standard there are many different versions, e.g., ANSI 5010 or EDIFACT version D12, Release A. When two businesses decide to exchange EDI documents, they must agree on the specific EDI standard and version.
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What EDI Is and Isn’t

In addition: EDI is not electronic order entry
An EDI-based Transaction

Request for Quote → Quote → Purchase Order → Invoice → Goods → Bill of Lading → Payment and Remittance Advice → Carrier

Seller

Banking System

Buyer
Keying in an EDI World

Seller’s Computer System

Value Added Network
(GEIS, Advantis, ATT, Internet)

Buyer’s Computer System
Benefits of EDI

- Lower personnel costs
- Reduced error rates
- Faster cycle time
- Improved customer service
- Reduced inventory
- Fewer stock-outs
- Reduced paper handling costs
- Faster payments
- Better control over information
Why EDI now?

- Labor costs
- Paper costs
- Computer costs
- Telecommunication costs
- Competitive pressures
Faster and Faster!

Time Required to Transmit the 32 Volume
New Encyclopedia Britannica

- 1200 bps modem.......................... 28 days
- 9600 bps modem.......................... 3.5 days
- 28.8 Kb modem............................ 28 hours
- Basic Rate ISDN........................... 6.3 hours
- T-1 line................................... 31 minutes
- T-3 line................................... 1 minute
- ATM-SONET (OC-3)......................... 17 seconds
- ATM-SONET (OC-12)....................... 4.7 seconds
Potential is Enormous

- Over 65 billion paper checks per year
- 25% are corporate-to-corporate
- Each cheque is preceded by at least 5 other transactions
- 100 billion corporate-to-corporate transactions
- Most can be handled by EDI
THREE PILLARS OF EDI

- Generic Format Standards
- Value Added Networks
- Translation Software
- Micro Computers
I. Generic Format Standards

American National Standards Institute

- About 300 documents standardized
- Many industries represented
- Many financial transactions

EDIFACT to eventually become world-wide EDI standard
Sample ANSI X12 Transactions

- 104 Air Shipment Information
- 204 Motor Carrier Shipment Information
- 300 Booking Request
- 417 Rail Carrier Waybill Interchange
- 814 Residential Mortgage Loan Application
- 832 Price/Sales Catalog
- 846 Inventory Inquiry/Advice
- 850 Purchase Order
- 855 Purchase Order Acknowledgment
- 856 Advanced Ship Notice
- 860 Purchase Order Change
- 997 Functional Acknowledgment
Sample X12 Finance-Related Transactions

- 810 Invoice
- 811 Consolidated Service Invoice (Telephone bill)
- 812 Credit/Debit Adjustment
- 813 Electronic Filing of Tax Return Data
- 820 Payment Order/Remittance Advice
- 821 Financial Information Reporting
- 822 Customer Account Analysis
- 823 Lockbox
- 824 Application Advice
- 826 Tax Information Reporting
- 827 Tax Return Notice
- 828 Debit Authorization
- 829 Payment Cancellation Request
II. Value Added Networks

- Overcome technical communication barriers
- Internet would give universal access
- Security problems must be overcome
Value Added Networks

Who are they?

- GEIS
- IBM
- MCI
- AT&T
- Ordernet (Sterling Software)
- Harbinger

What services do they provide?

- Protocol matching - Implementation assistance
- 24-hour service - Standards conversion
- Closed system security - Interface assistance
- Audit trail - Compliance checking
III. Translation Software

- Off-the-shelf
- Low cost
- Seventy firms produce it

Seller’s Unique Format

7cnt/000567/ $25.64/qlz

ANSI X12 Generic Format

IT1*1*7*EA*25.6
**VC*0567

Buyer’s Unique Format

Part3554@ 25.60@007@
Translation Software

Who provides it?
- Sterling Commerce (Gentran)
- GEIS
- Harbinger
- Supply Tech
- Prememos
- TSI International

What does it do?
- Maps into/out of data bases
- Translates into/out of EDI standard
- Handles communication with VAN/Internet
- Provides security and audit functions
What is Needed to Move EDI Forward?

- Low-cost, user-friendly translation software
- Availability of EDI on the Internet
- Removal of security concerns
- EDI that works automatically with other business applications
What are the Barriers to EC?

- People!
- Organizational structures
- Legacy systems
- Compensation structures
- Conversion cost barriers
- Lack of understanding
B2C e-commerce sales worldwide from 2012 to 2018 (in billion U.S. dollars)

This statistic provides information on B2C e-commerce sales worldwide in 2012 and 2013 including a forecast until 2018. In 2016, global B2C e-commerce sales are expected to reach 1.92 trillion U.S. dollars.
<table>
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<tr>
<th>Year</th>
<th>2014</th>
<th>2015 (F)</th>
<th>2016 (F)</th>
<th>2017 (F)</th>
<th>2018 (F)</th>
<th>2019 (F)</th>
<th>2020 (F)</th>
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<tr>
<td>Value</td>
<td>$692</td>
<td>$780</td>
<td>$855</td>
<td>$928</td>
<td>$999</td>
<td>$1,066</td>
<td>$1,132</td>
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<tr>
<td>Growth</td>
<td>9.3%</td>
<td>8.8%</td>
<td>9.1%</td>
<td>9.2%</td>
<td>9.3%</td>
<td>9.4%</td>
<td>9.4%</td>
</tr>
<tr>
<td>Share</td>
<td>8.5%</td>
<td>9.3%</td>
<td>9.9%</td>
<td>10.5%</td>
<td>11.0%</td>
<td>11.6%</td>
<td>12.1%</td>
</tr>
</tbody>
</table>

*Note: (F) = Forecast
CONCLUSIONS

- Know something about EC!
- EC brings substantial benefits to users
- EC over the Internet will enable all firms to participate
- The cyber world will touch your family and your business--learn to use it!
Electronic Fund Transfer
Electronic funds transfer is a transfer of funds is initiated through an electronic terminal, telephone, computer (including on-line banking) for the purpose of ordering, instructing, or authorizing a financial institution to debit or credit a consumer’s account. (Section 205.3(b)).
Transfer of fund from one source to another through electronic media.

It enable transfer of fund in the following ways.

1. Transfer of fund within the city
2. Transfer of fund between the cities
3. Transfer of fund between branches
4. Transfer of fund between banks
Contents

E-banking
ECS
EFT
Bank cards
INFINET
NDS
CFMS
NEFT
RTGS
SFMS
SWIFT
Virtual money

Money started to become invisible rather than physical with the electrical transmission of funds by telegraph in the 19th century - and telegraph company Western Union pioneered payment cards in 1914. It was the first company to issue a metal plaque that could be presented at its offices instead of cash. This trend towards virtual money accelerated with automated banking, international payment cards and electronic money transfers. By the end of the 20th century, many people only saw their money when they used a card to withdraw it from a cash machine - the rest was held on a bank's computer system.
EFT introduced by Reserve bank of India to help banks offering their customer money transfer services from account to account of any bank branch in places where EFT services are offered.
The remitting bank transmits the fund transfer message to RBI so as to reach National Clearing Cell (NCC), the receiving banks account is credited by RBI at the destination centre and beneficiary gets credit on the same day.
The customer receives a written receipt when an electronic transfer is initiated and periodic statements describe each transfer.
Benefits of EFT

1. Fast and secure direct deposit of your claim payments
2. Reduced paperwork
3. E-mail notifications the day deposits are made
4. Easy reconciliation of direct deposits
5. No need to change the way you submit claims or post payments
6. Easy online access to view, search, print and download information
NATIONAL ELECTRONIC FUND TRANSFER

- Nation wide system that facilitates individuals, firms and corporate to electronically
- Transfer funds from any bank branch to any individual, firm or corporate having an account with any other bank branch in the country.
- For being a part of NEFT fund transfer network, a bank branch has to be NEFT enabled.
- Walk-in customers can also deposit cash at the NEFT enabled branch
It is necessary for the beneficiary to have an account with the NEFT enabled bank branch in the country.

NEFT system also facilitate one-way-cross-border transfer of fund from INDIA to NEPAL known as INDO –NEPAL Remittance Facility Scheme.

A remitter can transfer fund from any of the NEFT enabled branch into NEPAL.
Customer intending to remit money through NEFT has to furnish the following particulars;

a. IFSC (Indian Financial System Code) of the beneficiary bank/branch.
b. Full account number of the beneficiary.
c. Name of the beneficiary.
REAL- TIME GROSS SETTLEMENT

The Real Time Gross Settlement System is the key critical element and provides the missing link in the process of the setting up of the integrated Payment and settlement System in the country.

The world over, the Real Time Gross Settlement System is now, the preferred mode of the settlement of interbank payments, with more and more countries moving towards it.
A settlement process, RTGS minimizes settlement risks by setting individual payments in real time in the books of account, held at the Central Bank.

Under RTGS, practically instant settlement ensures fast, secure, final and irrevocable settlement of payment transactions.
The RTGS system is designed to provide large value fund transfer and settlement in an on-line real time environment to the banking industry, with settlement on a gross basis.
The system would have link with other netting systems like Clearing, Automated Clearing House transactions comprising Electronic Clearing Services, Retail Electronic Fund Transfer, all Plastic Money and Smart Card transactions.
FEDI Payments 1:

- **Payor**
- **Bank**
- **Payee**

Connections:
- Payor to Bank: 820
- Bank to Payee: 820
FEDI Payments 2:

Payor

Payor's Bank

820

CTX

Payee's Bank

Payee

Payor's Bank

820

Payee's Bank
FEDI Payments 3:

- Payor
- Payee
- Payor’s Bank
- Payee’s Bank
- CCD
- Dep. Report

820 flows between Payor, Payor’s Bank, Payee’s Bank, and Payee.
FEDI Payments 4: EDI-Enabled Outsourcing of Payables

Customer  

820’s

Value Added Bank (VAB)

Check  

ACH

Supplier 1

Supplier 2

Supplier 3
FEDI Payments 5: (Debit)