

TW METALS

TUBESALES – WILLIAMS

ELECTRONIC DATA INTERCHANGE (EDI)

Definition of EDI

Electronic data interchange (EDI) is commonly defined as the application-to-application transfer of business documents between computers. Many businesses choose EDI as a fast, inexpensive, and safe method of sending purchase orders, invoices, shipping notices, and other frequently used business documents.

EDI is quite different from sending electronic mail messages or sharing files through a network, a modem, or a bulletin board. The straight transfer of computer files requires that the computer applications of both the sender and receiver (referred to as “trading partners”) agree upon the format of the document. The sender must use an application that creates a file format identical to your computer application.

When you use EDI, it’s not necessary for you and your trading partner to have identical document processing systems. When your trading partner sends a document, the EDI translation software converts the propriety format into a agreed upon standard. When you receive the document, your EDI translation software automatically changes the standard format into the propriety format of your document processing software.

Benefits

There is no doubt that EDI can bring significant benefits to organizations.

These can generally be classified into strategic, operational and opportunity benefits and will vary in emphasis across different organizations, depending on why and how EDI has been implemented. Initial EDI applications have concentrated on corporate efficiency by improving data flow and error reduction. In these instances the business case for EDI was based primarily on direct cost savings.

With EDI business can eliminate the need to re-enter data from paper documents and thus prevent clerical errors. Estimates suggest that 70% of all computer input has previously been output from another computer. Each re-entry of data is a potential source of error. It has also been estimated that cost of processing an electronic requisition can be one tenth the cost of handling its paper equivalent. In addition EDI can reduce the need for personnel involved in orders and accounts processing.

EDI systems can shorten the lead time between receipt and fulfillment of orders. When scheduling information is transmitted with ordering data, companies can plan production more accurately and thus reduce stock inventories. Reduction in inventory can result in major savings.

Use of EDI to transmit invoice data and payments can improve a company's cash flow and may increase the amount of working capital as accounts can be dealt with more efficiently.

Trading information obtained from historical data built up from EDI transactions is an invaluable source of market research and strategic planning information. The process of working with trading partners to implement EDI can also result in the benefit of closer working relationships with the trading partners.

It has now become apparent that the greatest value of EDI will emerge in strategic areas such as the provision of better levels of customer service and improved marketing competitiveness.

Strategic benefits include:

Faster trading cycle

Ability to adopt new business processes such as Just-in-Time manufacturing techniques.

Ability to win new business or retain customers leading to improvements in business efficiency.

Ability to respond to highly competitive new market entrants.

Operational benefits include:

Reduced costs - paper and postage bills cut - reduction in money tied up in stock - manual processing costs(e.g. associated with verification, keying and re-keying of documents and the cost of manual filing systems).

Security and error reduction
Acknowledged receipt

Opportunity benefits include:

Enhanced image
Competitive edge
Improved corporate trading relationships

How EDI works

Your company's computer system may already serve as a repository for data related to business functions such as purchasing, marketing, inventory management, logistics, and accounting. EDI extends the value of the investment you've made in business application software. Creating, sending, receiving, and processing EDI business documents can be automated and integrated with your existing internal computer applications.

EDI extracts information from your applications and transmits paperless, computer-readable business documents via telephone lines and other telecommunications devices. At the receiving end, the data can be fed directly into the trading partner's computer system, where it can be automatically processed and interfaced with the receiver's internal applications. All of this is accomplished in minutes, without the re-keying and paper shuffling of manual document process.

Standards

An EDI standard is the series of uniform message formats used to create electronic that is, computer-readable-versions of traditional paper documents. Many of the earliest standard message formats were first created and adopted by specific industries for the exchange of documents within that particular industry, or by specific companies for the exchange of documents with their many suppliers. As EDI has evolved, the use of industry-specific or company-specific standards has lessened in favor of public standards. A few of the public standards you may be familiar with are EDIFACT, ANSI X12, UCS, TDCC, VICS, EDX, ODETTE, and TRADACOMS.

EDI relies on the use of standards for the structure and interpretation of electronic business transactions. All trading partners must use a common standard. Which reduces, errors and ensures accurate transmission of data, regardless of the computer system involved.

Getting started

Obtain internal commitments.

Apart from these technical considerations, what is equally important is that EDI implementation is a managerial activity requiring commitment at the management level. The technical aspects of EDI are relatively straightforward and easy to implement. Successful implementation depends on the business analysis and how EDI can be implemented to change the way the organization does business.

Getting the right people involved in EDI implementation is an important task. Many believe that the Management Information Systems (MIS) Department should be the main driver, but EDI is too important a business management issue to leave solely to the programmers. Both the top management and users must be committed to its implementation. The management understands business needs and is the one who authorizes the budget and resources, while end users are the ones who will eventually be the beneficiaries of the EDI system.

Hardware

Most computers made over the past several years are able to support EDI transmissions, as long as you select the software that will communicate with your VAN (Value Added Network). Depending on the computer hardware already available in your company, you may choose to conduct EDI using a:

- Desktop PC or work station
- Local area network (LAN)
- Mini-computer
- Mid-range computer
- Main frame computer

Whenever computer system you are using or decide to use should have a configuration which is capable of exchanging information electronically over a modem, in accordance with EDI standards. If you have not already installed hardware that you intend to use for EDI, you have more flexibility in selecting it. If you are selecting a computer and other hardware specifically for EDI, it may be helpful to consider your EDI strategy or the EDI strategy of your firm.

MODEM

Like the speed of computers, modem speeds have increased significantly over the past several years. It is recommended that you obtain a modem that is as fast as you can afford because there may be large amounts of data to transmit and because the speed of the modem determines how quickly you can send and receive transactions sets. The recommended modems for both Windows and MS-DOS-based EDI systems are 28,800 or 14,400 bps.

Software

EDI management software extracts outgoing data from, and inserts incoming data into your internal computer applications. Translation software enables your computer to “speak the language of EDI.” When coupled with the appropriate communications software, EDI translation software allows sending and receiving computers to communicate EDI transactions accurately and efficiently.

The best EDI translation software accommodates many EDI standards and includes features and functions that help manage your company’s overall EDI activity. Some companies choose to develop their own EDI translation software, but many find their needs are best met with a software package provided by a company that specializes in EDI.

EDI SOFTWARE FEATURES

You may already have some hardware, such as a computer and modem, which can be configured to transmit and receive EDI, but you should select the software carefully. However, before settling on a software package, determine which software features you will need most, and then research the software that delivers those features.

EDITING FEATURE

A key advantage of most EDI software is that it edits the incoming and outgoing data to ensure accuracy and eliminates many common errors, such as parts numbers not matching, or lot numbers not agreeing or even invoice and payment dollar totals not matching. If original data, such as a parts number, is accurately entered, the correct number is then transferred by the software to all other EDI documents. This type of feature can save you considerable time and trouble.

OTHER SUGGESTED FEATURES

The features that you consider most important to your operation may depend on factors like the size of your company, the number of persons you wish to have access to EDI data, any security restrictions, and the hardware configuration (desktop, LAN, mini, mid-range or main frame). You may also want certain features like the ability to customize the operation routines to fit you operation.

Several levels of software are used in the EDI networks:

The communications software connects the sender and receiver computer systems to the transmission network. It works together with the transmission network to provide proper protocols and speeds for transmission.

The translation software, which converts data into an appropriate format to facilitate the exchange. For example, the sender may use an internal proprietary format whereas the receiver, an X.12 format. The translation software handles the conversion between the two.

The application software performs transaction processing activities such as preparing purchase orders and acknowledgment receipts. It also interacts with the translation software and uses the agreed data formatting guidelines.

Software Function

1. Communication transmits and receives data
2. translation Converts data into appropriate format
3. Application Performs transaction processing

Communication - VANs

Many businesses choose to use an EDI network or VAN (value-added network) the third party in the trading partner relationship because a network can make EDI easier and more convenient for both sender and receiver. A network service makes it possible to complete all of your company's communications in a single transmission. In this sense, the network acts as a clearinghouse to free you from transmitting documents one-by-one to each of your trading partners a process that could prove far too costly if done in-house. For the receiver, a network can post documents to an EDI mailbox for retrieval at convenient times.

For both sender and receiver, an EDI network can also bridge time zones, connect incompatible computers, safeguard data integrity, and act as a buffer to protect systems security. The term electronic mailbox is used to refer to a uniquely identified area of information storage within the network's computer(s). In essence, it is a point of private user access and data consolidation to which EDI transmissions are sent and held until retrieved by the individual network customer.

A Value Added Network (VAN) is generally a commercial entity (similar to a long distance telephone company on-line service) that provides communications services, electronic store and forward mailboxing, and other related services for EDI transactions. VANs are necessary because it would be too expensive and impractical to establish direct point-to-point connections with all of your trading partners. VANs are also useful because they are accessible to you regardless of

of physical location, support reliable connectivity to your trading partners via varying communications speeds and protocols, provide security for your transactions including audit trails, and generally offer other value added service features and ANSI X12 EDI translation software.

You may want to consider the following factors in evaluating a VAN:

- communication speeds and protocols supported;
- fixed cost for basic services and added costs
- contingent upon other factors;
- data backup and recovery services offered;
- data security features;
- transmission status reports and usage accounting data;
- ANSI X12 standards compliance;
- additional value added services.

Most networks offer a range of service levels. These are typically referred to as “basic,” “value-added” and “optional.” Basic services are the essential mailbox and communications services that functionally define all EDI networks. However, value-added (additional service at no added cost) and optional services (additional capabilities for a fee), as well as the practical level of customer support, may vary significantly among service providers and can have a major impact on a company’s EDI effectiveness.

The VAN provides the transmission lines, manages the store-and-forward communications, and maintains the e-mail services for its subscribers. The VAN is ideal for companies with a large number of trading partners, whether as suppliers or distributors.

When the VAN receives a message such as an purchase order, it reads the addressing information contained in the EDI envelope surrounding the message and posts them to the appropriate mailbox of the recipient. This is done in seconds, ensuring that critical business documents can be received by trading partners within minutes.

All messages are treated as data files and the VAN validates the files received through the network. It also sorts the files before routing them to the designated mailboxes.

Trading Partner Agreement - Legal issues

The Trading Partner Agreement is a key document which sets out legally binding rights and obligations of the trading partners. Formulating the agreement may require legal counsel; however, if you choose not to enlist the help of an attorney or legal advisor, it is a good idea to have one look over the agreement before validating it. In addition to standard contract provisions, essential elements of a Trading Partner Agreement include:

- Data standards, including references and publications used for guidelines
- Documents – transaction sets – to be exchanged
- Communications mode
- Conditions for transactions to be legal e.g., signature/authorizing codes
- Security procedures
- Mailbox review requirements
- Allocation of risks and liability of garbled or erroneous transmissions.

EDI TRANSACTION LIST

<u>Transaction Set</u>	<u>Description</u>
805	Contract Pricing
806	Project Schedule Report
810	Invoice
819	Operating Expense Statement
820	Payment Order/Remittance Advice
822	Customer Account Analysis
823	Lockbox
827	Financial Return Notice
829	Payment Cancellation Request
830	Planning Schedule w/Release Capability
832	Price/Sales Catalog
836	Contract Award
838	Trading Partner Profile
839	Project Cost Report
840	Request for Quotation
841	Specifications/Technical Information
842	Nonconformance Report
843	Response to Request for Quotation
844	Product Transfer Account Adjustment
845	Price Authorization Acknowledgment /Status
846	Inventory Inquiry/Advice
849	Response to Product Transfer Account Adjustment
850	Purchase Order
855	Purchase Order Acknowledgment
856	Ship Notice/Manifest
858	Shipment Information
859	Freight Invoice
860	Purchase Order Change Report
861	Receiving Advice
862	Shipping Schedule
863	Report of Test Results
864	Text
865	Purchase Order Change Acknowledgment
866	Production Sequence
867	Product Transfer and Resale Report
868	Draft - Electronic Form Structure
869	Order Status Inquiry
870	Order Status Report
997	Functional Acknowledgment