

# EDI 101 The Basics

Primer

**To be involved in EDI is to be  
*passionately* in love with  
change.**

**-- Edward A. Guilbert**

EDI (*electronic data interchange*) is the computer to computer transfer of business information using a standard, publicly published file transfer format.

Eliminate paper

Speed transaction cycles

Reduce error rate

Control staff levels

*“If you’re not doing [EDI]... there’s some question as to whether you’re going to be doing business.”*

-- Bill Lane - EDI Program Manager - J.C.Penny

## EDI Usage:

Handles fully 80% of all business information exchange world-wide.

Still viable among the *Fortune 1000* and other large companies.

Used in some form virtually everywhere around the world today.

Forms the basis of the business rules to be kept as we move to newer technologies.

## Where does electronic commerce begin?

EDI is at the core of electronic commerce.

EDI was EC before there was an EC!

The Berlin Airlift: the task of coordinating air freighted consignments was addressed by devising a standard manifest

Railroads: In 1968 the United States Transportation Data Coordinating Committee (TDCC) was formed, to coordinate the development of translation rules among four existing sets of industry-specific standards

## Where does electronic commerce begin?

1975: EDI is launched as the 1<sup>st</sup> attempt to create a standard way for businesses to communicate over a network

ebXML: Pathway to the Future

Standards are the key to EDI. They provide a simple and concise means of communicating business information to trading partners.

## Proprietary standards

Standards used in a single system

## National and industry standards

Standards used in a single country or industry

## International standards

Standards used world-wide

## Proprietary standards:

US Customs Service ACS

US Bureau of the Census SED Autofile System

US Federal Maritime Commission ATFI System

## National and industry standards:

US:	ANSI ASC X12
British:	Tradacoms
French:	AFNOR
German:	DIN
Auto:	ODETTE
Medical:	HL7 and NCPDP
Air:	CargoIMP

## International standards:

### **EDIFACT (ISO9735)**

[International Standards Organization]

### **UN/EDIFACT (UN/ECE/CEFACT)**

[UN Centre for EDI for Administration, Commerce, and Transport]

### **EAN**

[Article Numbering Association]

## Setting Standards:

**TDCC** (Transportation Data Coordinating Committee)

**ANSI ASC X12** (American National Standards Institute Accredited Standards Committee X12)

**DISA** (Data Interchange Standards Association)

**UN/CEFACT** (United Nations Centre for EDI for Administration, Commerce, and Transport)

**ebXML** (Electronic Business in XML)

**HL7** (Health Level Seven)

**Others**

## Setting Implementations:

**AAR** (Association of American Railroads)

**ISA** (Information Sharing Agreement)

**UCC** (Uniform Code Council)

**PIDEX** (Petroleum Industry Data Exchange)

**CIDEX** (Chemical Industry Data Exchange)

**AIAG** (Automotive Industry Action Group)

**Others**

## EDI File Structure:

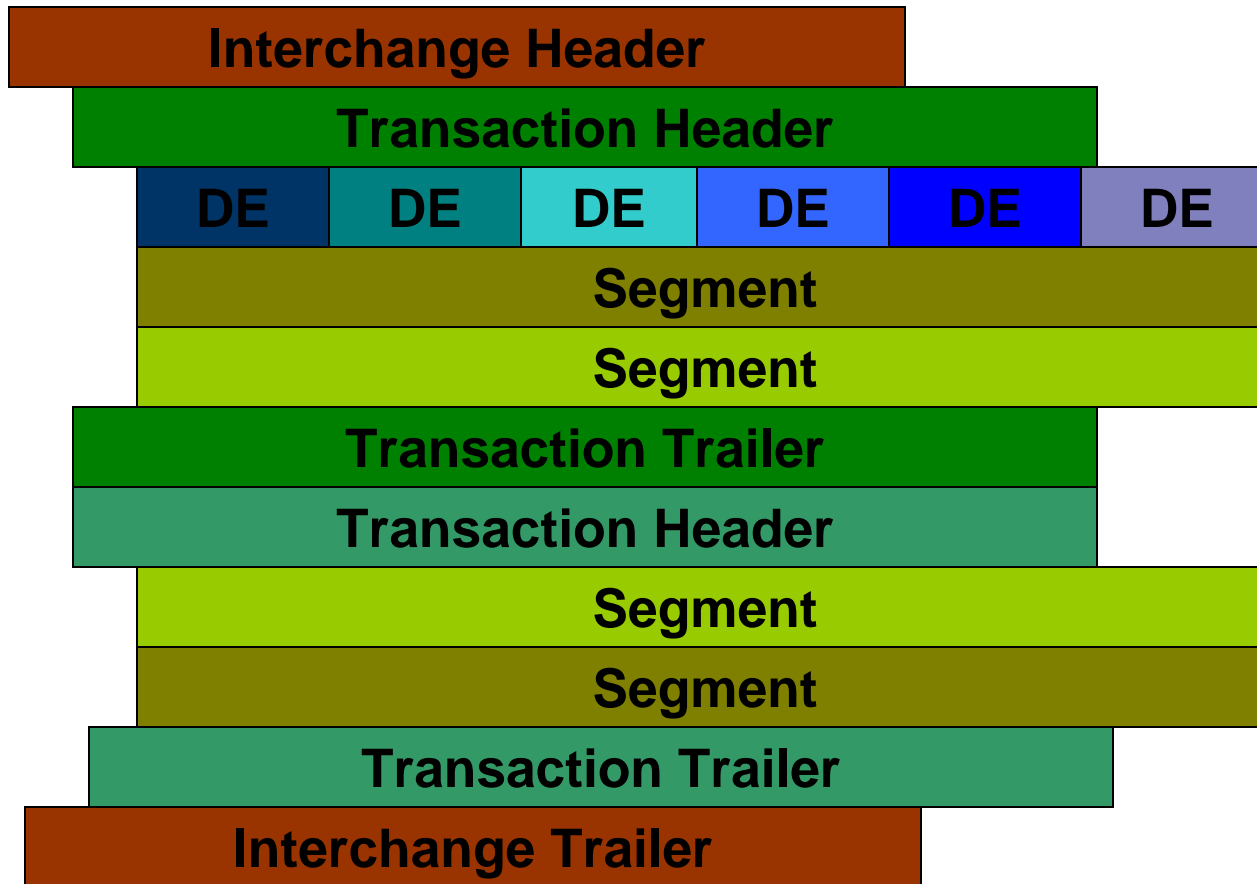
**EDI files are text files.**

**EDI files are structured to allow computers to read, parse, and understand them.**

**The most basic unit is the *Data Element*.**

**Data elements form into *Segments*.**

**Segments are used to form *Transaction Sets* or *Messages*.**



The Basic Architecture

## The Translator:

A translator is a computer program used to convert information between EDI and the application interface (API) file format most suited to the system.

## Translator Components:

Data Transformation Engine

Type Tree Directory

Implementation Guide

Map

## Data Transformation Engine:

The core program for reconfiguring files to be translated

Does nothing more than reassemble files from one structure to another

Not unique to any standard, but may not be able to handle any file type

The same engine may be in many brands of translator

## Type Tree Directory:

Listing of the standard by which the data is to be handled

Unique to a specific version/release of a given standard

Supplied by the software company as part of the package

User-definable directories are able to be created

## Implementation Guide:

Subset of the directory specifically defining the transaction

Unique to the specific interchange being performed

Created by mutual agreement between the trading partners

Can be an industry-wide agreement on a way of exchanging data

## Map:

Set of instructions used to tell the *Data Transformation Engine* how to structure the target file based upon the *Directory* being used

Unique to each transaction to be handled by the system

Can handle simple calculation and sorting functions

Written by in-house EDI coordinators or Mapper. Can also be outsourced to 3<sup>rd</sup> party solution providers.

## The Translator:

How does a translator work?

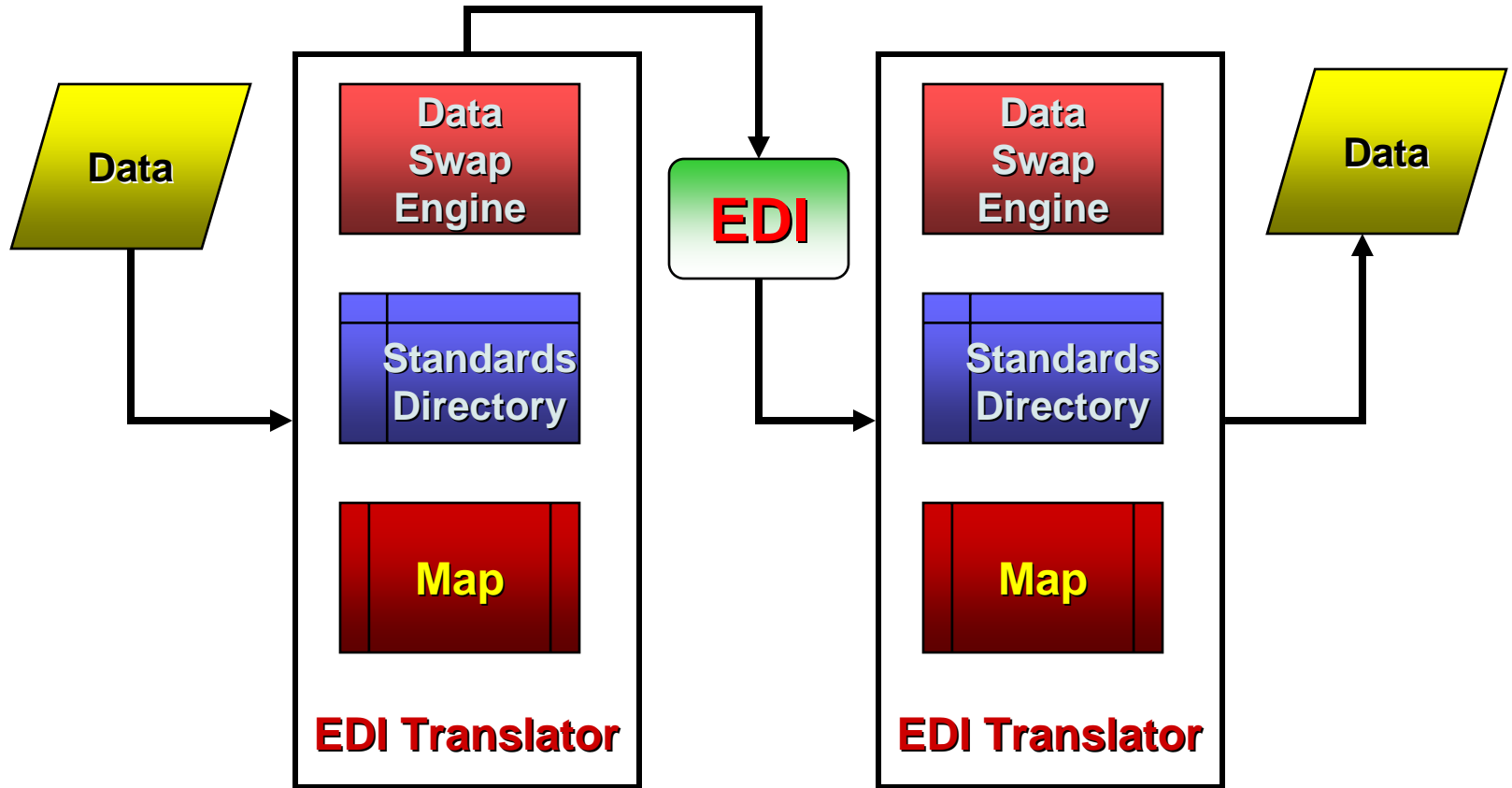
Data is created at the source

Data is translated from the source to EDI

Data is communicated between trading partners

Data is translated from EDI to the target

Data is deposited at the target



## Types of Communication:

Media Transfer

Electronic Mail (email)

Dial-Up Connections

Direct Connections

Value Added Network (VAN)

The Internet

## EDI and the Internet:

The Internet is the most pervasive force in our society.

The Internet allows universal connectivity between people and enterprises.

The Internet is the present and future of data sharing.

## Interoperability:

Interoperability is that property of systems to interact in a seamless manner.

Interoperability allows systems to operate in a non-linear way.

Interoperability is the goal for new systems with Internet links.

## XML - The New Wave:

EDI is a technique; not a standard.

There are many ways to conduct EDI.

New systems are ever in the future.

The current *HOT* topic is XML.

## Why use XML for EDI?:

XML bridges the gap between traditional EDI and Web-based applications.

Most of high-tech industry has espoused XML:

- **Virtually all software from Microsoft, Netscape, IBM, and others are going to be enabled to use XML.**
- **Microsoft has made the largest cash investment in XML technology it has made since OLE and ODBC.**

XML could make EC/EDI more available to the SME and other non-traditional EDI users.

## What is XML?:

XML is eXtensible Markup Language.

XML is a derivative of SGML (Standard Generalized Markup Language) like HTML.

XML allows dynamic tagging of data to be shared.

XML provides a document definition structure.

XML provides multiple presentation options.

Example of an XML tag:

```
<name>John Doe</name>
```

## Who Is Doing XML/EDI?:

**ANSI ASC X12:** The US national EDI standards body has approved for publication their Content Inspired Component Architecture (CICA) as their syntax for XML business messages. ([www.x12.org](http://www.x12.org))

**UN/CEFACT:** Working in conjunction with OASIS on an international syntax for XML business messages similar to X12-CICA. ([www.unece.org/cefact](http://www.unece.org/cefact))

**ebXML Group:** Originally founded by UN/CEFACT and OASIS to develop an international architecture for XML messaging, the group has completed its work, and had it accepted worldwide. ([www.ebxml.org](http://www.ebxml.org))

## Who Is Doing XML/EDI?:

**RosettaNet:** Developed supply-chain B2B process-based XML messaging standards for the electronics industry. ([www.rosettanet.org](http://www.rosettanet.org))

**CommerceNet:** Group encourages the use of the Net for commerce of all types, and as such, has a direct interest in the use of XML for conducting EDI. ([www.commerce.net](http://www.commerce.net))

**BizTalk™:** An exchange system from *Microsoft®* to allow the use of XML to communicate between business applications. ([www.microsoft.com](http://www.microsoft.com))

## Who Sets the XML Standard?:

**W3C:** The World Wide Web Consortium (*Further information: [www.w3c.org](http://www.w3c.org)*)

W3C is the *de facto* standards body for the Internet and the World Wide Web.

It is made up of those companies with a large stake in business via the Web, including IBM, Microsoft, Netscape, and others.

This group developed and sets the standards for the XML language.

Message standards will be set by other standards bodies.

## Being Radical:

The use of EDI message standards for XML represents probably 15% of the real benefit of XML.

Using the old message methodologies for XML is like going from the horse and buggy to the automobile by keeping the buggy and motorizing the horse!

The true benefit of XML lies in its ability to make dissimilar databases and systems interoperable.

## What's in a name?:

**Westport Systems (DUNS 2736541) is making a shipment from one division of the company to another.**

**Therefore, they need to be shown as the "*shipper*" in the transaction set or message.**

## The X12 EDI Version:

### The N1 Segment

N1\*SH\*Westport Systems\*1\*2736541\*07\*SH

## The Basis of XML EDI:

<N1-Name>

<EntityIDCode>SH</EntityIDCode>

<Name>Westport Systems</Name>

<IDCodeQual>1</IDCodeQual>

<IDCode>2736541</IDCode>

<EntityRelationCode>07</EntityRelationCode>

<EntityIDCode>SH</EntityIDCode>

</N1-Name>

## The Future of EDI:

The use of EDI continues to expand around the world.

EDI using object-oriented techniques is now being done.

The onset of XML shall enhance our ability to share data.

The core and future of eCommerce is EDI!

For more information...

DISA

(Data Interchange Standards Association)

[WWW.DISA.ORG](http://WWW.DISA.ORG)

## Why EDI?


Many implement EDI only after a major customer or key supplier requires usage as a part of a business relationship.

Implementing EDI is an expense. There must be management support for the project.

To be successful, EDI documents should be integrated into a company's business software.

**Data synchronization** is the process of establishing consistency among data on remote sources and the continuous harmonization of the data over time. It is fundamental to a wide variety of applications.

Wikipedia



Clean data is essential to a successful relationship with an EDI Trading Partner.

Bad EDI data results in frustration, lack of confidence (both at your company and at the partner company) and added expense.

## Benefits and gains for EDI users:

Improved quality of data

Efficiency – decrease in manual efforts

Savings – tangible and intangible

Reduction in errors

Standard documents enhance partner understanding

# Pains:

Bad Data

Trading Partner Inconsistencies

Negative Attitudes and Skepticism

Need to change & expand capabilities

Overhead costs - software and staff

# Commonly Traded EDI Documents:

850 - Purchase Order

855 - Purchase Order Acknowledgement

856 - Ship Notice / Manifest

810 - Invoice

## 850 – Purchase Order - Benefits

Eliminates 'most' faxing, emailing, mailing to Suppliers who are EDI capable

Significantly reduces errors that occur from data keying

Increased speed of document delivery into partner's application system.

Electronic acknowledgement verifies receipt

## 850 Pains

Transmission of bad data results in delay and/or misunderstanding (Why did they ship me an elephant?)

Adding notes, additional instructions, item specifications in an electronic document can be difficult

Partner changes – software, schedules, mapping

Overcoming buyer doubts

## 855 – Purchase Order Acknowledgement

Sent by the supplier for a specific purchase order. Data includes expected ship dates, costs and units of measure and may possibly identify data inconsistencies. This is the unsung hero!!

Cost variances are identified early in the purchase order cycle and can be resolved before invoicing. Result is reduced A/P handing and more on time payments.

Expected ship dates can be posted to the distributor purchase order. Time spent on expediting is reduced. Distributor wins by having up to date information available for customer.

Some product identification errors can be detected and resolved before incorrect product is shipped.

## Pain

Not all suppliers send the same data elements.

## 856 – Ship Notice / Manifest

Supplier transmits document to distributor with packing slip, purchase order and product information at time of shipment.

If the distributor application system is designed to utilize the 856, receiving time at the distributor receiving dock can be greatly reduced.

The 856 must reach the distributor prior to shipment arriving at dock.

## 810 – Invoice

A/P Tasks eliminated when invoice is received via EDI

Receiving and sorting mail, fax, email

Distribution of invoices to A/P personnel

Entry of data into Accounts Payable System

Scanning of documents into archive system

Approximately 60% of our inventory invoices are received via EDI.

Approximately 2/3 of EDI invoices we receive monthly are a match to Purchase Order receiving. The result is over 5000 inventory invoices that move from the supplier creation of the electronic document to the distributor payment process with absolutely no manual involvement.

At an estimated cost of \$1 to 1.25 per invoice received thru the mail, the benefit is substantial.

# Gains are the result of continuing efforts to improve EDI.

Improving data

Cooperation and communication with Trading Partners

Software updates to further utilize electronic documents

Standards settings group such as IDEA and NAED

Expanding business uses for EDI documents

Much has been accomplished to assure the quality of communications. Suppliers and distributors are working together (IDEA,NAED) to further standardize and enhance the usefulness of EDI. Application software companies have improved both distributor and supplier ability to use (and gain) from EDI.

## Additional EDI Documents

844 – Product Transfer Account Adjustment (Request for Rebate)

849 – Response to Product Transfer Account Adjustment (844 Response)

845 – Price Authorization acknowledgement

852 – Product Activity Data (VMI)



Many other documents exist.

EDI is not going away.