



# EDI Overview

A practical guide to EDI and the TrueCommerce solution



This document has been provided as a courtesy to anyone who wants to learn more about EDI and how it applies to their TrueCommerce solution.

We hope you find this guide to be helpful and informative, but please note that you need not become an EDI expert to enjoy the full benefits of the TrueCommerce Solution.



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# 1. What is EDI?

## 1.1. EDI Defined

Electronic Data Interchange (EDI) is a set of standards that collectively provide a common protocol or syntax for transacting business documents electronically. In essence, EDI is to electronic commerce as grammar is to verbal communication – it is a set of rules and guidelines that are applied when developing and implementing software and services designed to transmit business documents electronically. Just as a group of individuals with diverse backgrounds can use a common language (such as English) to converse with each other, EDI provides a common “language” that enables businesses with dissimilar computer-based business systems to communicate with each other.

Although by pure definition EDI is a standard, in many respects this description is a contradiction to the reality of EDI. There are myriad variations and versions of EDI standards in use today. In this regard EDI is much like the English language with its many regional dialects and colloquialisms. The federal government and numerous trade associations have developed EDI standards for specific vertical markets, and large companies typically have additional requirements that uniquely govern how EDI standards are explicitly applied to their electronic transactions.

## 1.2. The problem addressed by EDI

Without the use of EDI or some other form of electronic commerce, companies must use a paper-based system for transacting business – meaning paper documents are mailed or faxed between companies to exchange information. In this scenario, a company typically enters data into a PC-based business application (ex. accounting software), prints a form containing the data (such as a purchase order or an invoice), and mails or faxes this document to a trading partner (customer or vendor). The trading partner, after receiving the document containing the data, must then re-key the data into their PC-based business application. Inherent in this process is the inefficiency associated with waiting for large volumes of business data to be transferred, processed and verified, and the potential for errors as the information is manually transcribed.

The costs associated with data entry errors include:

- lost revenue due to incorrect billing
- chargebacks assessed by trading partners
- added expenditures required to correct mistakes
- delays in orders being processed
- damage to reputation/client relations

## 1.3. The benefits of using EDI

Companies that are EDI enabled can send and receive business documents electronically with their trading partners. In simple terms, EDI enables the computer system of one company to “talk” to the computer system of another company and digitally exchange data. Because this digital exchange of data is facilitated using computers, most if not all of the associated business processes (such as data population and verification) can be automated so that they occur with little or no manual intervention. As such, key benefits include the reduction or elimination of data entry errors and transaction processing that is more expeditious and streamlined.

Ultimately, using EDI can save a business time and money when sending and receiving vital business documents. As an example, it is not uncommon for vendors who supply goods and services to large organizations to receive payments for invoices sent via EDI as much as 30 days sooner than those sent via fax, simply because EDI transactions are processed by their customers more quickly and efficiently. Receiving payments sooner can deliver real-world savings by improving cash flow and mitigating the need to borrow money. Other savings are realized through the reduction or elimination of costly data entry errors.

#### 1.4. History of EDI

EDI has been under development in the U.S. in one form or another since the mid-1960s. In 1968, a group of railroad companies concerned with the quality of inter-company exchanges of transportation data formed an organization to study the problem and to do something to improve it. This organization was the Transportation Data Coordinating Committee (TDCC).

At about the same time, individual companies such as General Motors, Super Valu, Sears and K-Mart were also addressing the inefficiencies of inter-corporate document movement by using their own electronic (but proprietary) systems with their major trading partners.

The problem lay in the fact that each system was specific to that company with no standard except in a proprietary sense. A hypothetical company in the late 1960s doing business with GM, Sears and K-Mart therefore needed three different systems interfaces.

Several industries in the early 1970s sponsored a shared EDI system and usually turned it over to a third party network. In some cases, the shared system was developed by the third party for a group of common companies or industry trade group. Examples of this early sharing include IBM IVANS, which the U.S. property and casualty insurance industry sponsored. Another was ORDERNET, sponsored by the pharmaceutical industry.

These industry trade group systems had the same disadvantage as the company proprietary EDI system: they were standard, but limited in scope, unable to communicate with other trade group EDI systems. (ORDERNET, for example could not communicate with the transportation carriers' EDI system.)

In 1973, the TDCC decided to develop a set of standards for EDI between companies and to invent a so-called "living standard" -- a standard that included standards on how to change the standards! This resulted in the first inter-industry EDI standard in 1975 covering air, motor, ocean, rail and some banking applications.

What evolved now includes the ANSI X12 standards first published in 1981 for general business use, the WINS standards for the warehouse industry; the UCS standards for the food and drug industry; HIPAA standards for the healthcare industry and TDCC standards for the transportation industry. European development of TRADACOMS, ODETTE and JEDI started around 1984.

In 1985, work started on EDIFACT (EDI For Administration, Commerce & Transportation), an international standard through the auspices of the United Nations.

#### 1.5. ANSI ASC X12 Standards

The most common EDI standard in use in the United States is known as ANSI ASC X12, or simply as X12. ANSI is an abbreviation for the American National Standards Institute. The institute has been coordinating standards in the United States since 1918 and maintains a

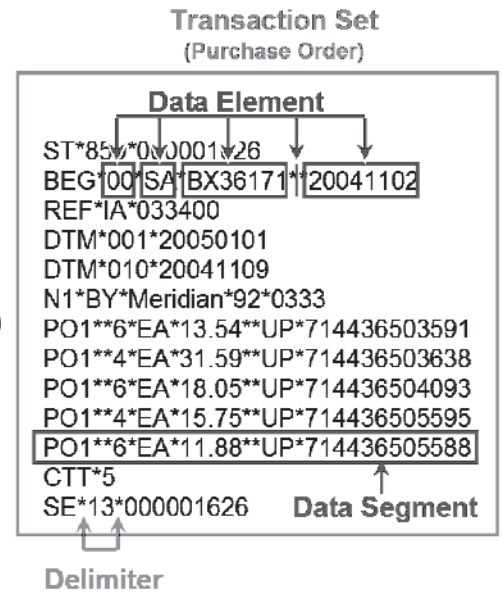
number of voluntary committees including the ANSI Accredited Standards Committee X12. This committee is comprised of members from both the private and public sectors representing a broad range of industries. Subcommittees, using a consensus process, propose new standards or modifications to existing standards.

## 1.6. EDI Message Dissected

An EDI message contains a string of data elements, each of which represents a singular fact, such as a price, product model number, and so forth, separated by a delimiter. A delimiter is a character that identifies the beginning or the end of a character string (a contiguous sequence of characters). The delimiting character is not part of the character string. In EDI transactions, asterisks (\*) are commonly used as delimiters.

The entire string is called a **data segment**.

One or more data segments framed by a header and trailer form a transaction set, which is the EDI unit of transmission (equivalent to a message). A transaction set often consists of what would usually be contained in a typical business document or form, such as an invoice or purchase order.



### Examples of commonly used EDI transaction sets

X12ID Code	Transaction Set	Document Usage
850	Purchase Order (PO)	A trading partner sends a PO to order products from a vendor.
810	Invoice	The vendor sends an invoice back to their trading partner as a bill for the products ordered.
997	Acknowledgement	An acknowledgement is sent as a receipt to the sender upon the retrieval of a document.
856	Advanced Ship Notice (ASN)	The vendor sends an ASN to their trading partner specifying to a mutually agreed level of detail the dates and contents of a shipment. Many businesses require the receipt of an ASN from a supplier before the shipment reaches their receiving docks.
820	Remittance Advice	Remittance advice informs the vendor that their trading partner has made a deposit into their bank account.
852	Product Activity Data	The Product Activity Data is used by trading partners to advise vendors of inventory, sales and other product activity information.

All transaction sets begin with the Transaction Set Header (ST) segment and end with the Transaction Set Trailer (SE) segment, and typically other specific types of segments are required to be used in a particular sequence within a transaction set. As an example, the following shows some of the segments that may be used within a purchase order and the required sequence in which they must appear:

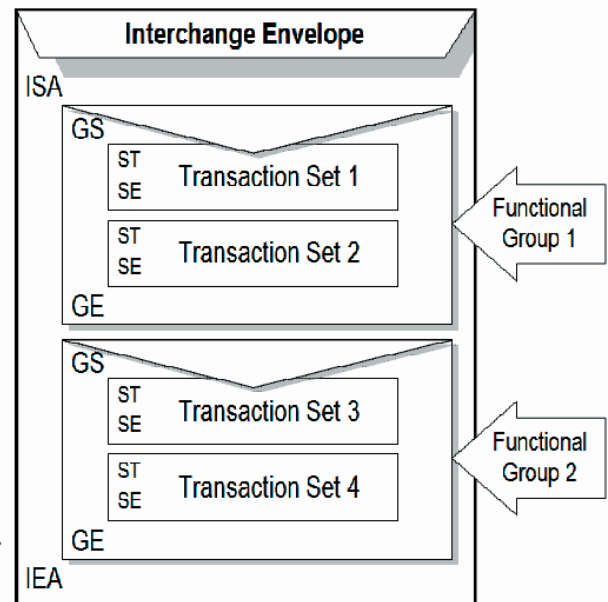
ID	Title
ST	Transaction Set Header
BEG	Beginning Segment for Purchase Order
CUR	Currency
REF	Reference Identification
PER	Administrative Communications Contract
TAX	Tax Reference
FOB	F.O.B. Related Information
CTP	Pricing Information
PAM	Period Amount
CSH	Sales Requirements
TC2	Commodity
List Continues...	

Many Transaction Sets have a unique beginning segment that immediately follows the ST segment, such as the 850 BEG Segment used for purchase orders or the 856 BSN Segment used for advance ship notices. The ANSI ASC X12 standard designates every available segment as either "mandatory," "optional" or "conditional," and in some instances there are limits as to the number of times a particular segment may be repeated at its location within a Transaction Set.

A Loop refers to when a group of segments (two or more segments) are repeated in a Transaction Set, such as a Purchase Order requesting multiple items. A Nested Loop refers to when a loop exists within another loop, such as when multiple allowances are applied to an item being ordered along with other items.

Once generated, Transaction Sets are transmitted using an electronic Envelope as defined by the ANSI ASC X12 Standard. For every message there are three levels of enveloping:

1. The innermost level is the Transaction Set, which can be identified by the ST/SE segments.
2. The middle level, defined by GS/GE segments, is the Functional Group envelope and is used to group similar types of Transaction Sets (such as Purchase Orders and Purchase Order Acknowledgements) within a transmission.
3. The outermost level is the Interchange envelope that is defined by ISA and IEA segments. The Interchange envelope encloses the data from sender to one receiver.



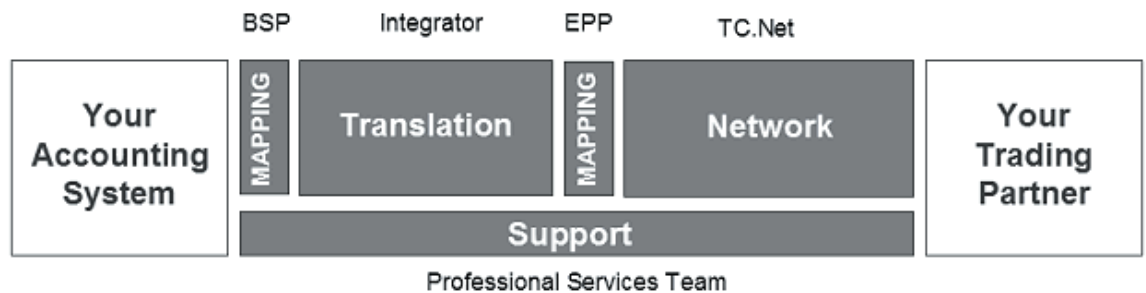
## 1.7. Four Key Components of EDI

Successfully implementing EDI requires the following four key components:

1. Connectivity with your trading partner(s) provides a means of transmitting EDI transactions, whether directly via the Internet or through a proprietary data network. Companies that provide network-only services are typically called “Value Added Networks,” or VANs.
2. Translation Software that is needed to translate the raw EDI data into a meaningful format, such as a human-readable version.
3. Data Mapping and Integration provides the ability to seamlessly import and export information from EDI-based transactions to and from your back-end business or accounting system, as well as properly format transactions being sent to your trading partners.
4. Support for all of the above that provides technical proficiency as well as expertise regarding the many protocols associated with establishing and maintaining EDI relationships is also necessary.

## 2. How does the TrueCommerce solution work?

Your patent-pending TrueCommerce solution is comprised of the following:



### 2.1. TC.Net™

TC.Net is an Internet based transactional gateway across which your EDI transactions are transmitted, providing connectivity with all your trading partners. TC.Net is compliant with virtually any connectivity protocol, including AS1/AS2, HTTP, FTP and (if required) VAN interconnects.

### 2.2. TrueCommerce Transaction Manager™

TrueCommerce Transaction Manager™ is translation software that converts business documents into the ANSI ASC X12 EDI standard, as well as converts it out of the standard into a meaningful format, such as a human-readable business form.

### 2.3. Electronic Partner Plug-Ins™

Electronic Partner Plug-Ins, or EPPs, are intelligent software modules that are programmed to format your inbound and outbound transactions so that they match your trading partner's requirements. EPPs help keep you compliant and avoid chargebacks. Each one of your trading partners may have different formats for POs, Invoices and Advance Ship Notices. You will have one EPP for each of your trading partners and as you grow and add trading partners, you simply add EPPs.

### 2.4. Business System Plug-In™

The Business System Plug-In or BSP, maps your EDI transactions so that they will seamlessly transfer to and from your business or accounting system. You will have one specific BSP for whatever business system you are operating. If you replace your business system, simply

swap out your BSP and the rest of your EDI solution remains.

## 2.5. Professional Services

Professional Services team members are available to provide unlimited phone & email assistance at no charge Monday through Friday, 8 am to 7 pm EST. They'll help you with everything from setting up and configuring your TrueCommerce system, to establishing and maintaining your EDI connection with your trading partners.

To contact the Professional Services team:  
Call 1-724-940-5520 and press 3 when prompted  
or send an e-mail to [support@truecommerce.com](mailto:support@truecommerce.com)

## 3. Typical Transaction Flow

Step 1: A buyer at your trading partner issues a purchase order (850 Transaction Set).

Step 2: A functional acknowledgement (997 Transaction Set) is automatically forwarded to your trading partner that confirms the time and date the P.O. was accepted by your EDI system.

Step 3: Using functionality built into TrueCommerce Transaction Manager, you can generate and send an Advance Shipping Notice (856 Transaction Set) to indicate to your trading partner what items will be arriving and when.

Step 4: A functional acknowledgement is automatically forwarded by your trading partner to your TrueCommerce EDI system confirming the time and date the ASN was accepted by their EDI system.

Step 5: The order is filled and an Invoice (810 Transaction Set) is submitted.

Step 6: A functional acknowledgement is automatically forwarded by your trading partner to your TrueCommerce EDI system confirming the time and date the invoice was accepted by their EDI system.

