

### Definition

Electronic data interchange (EDI) is commonly defined as the application-to-application transfer of business transactions 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.

### Standards

There are two main EDI standards that are currently used in North America and Europe: the ASC X12 group of standards supported by the American National Standards Institute (ANSI) and the EDIFACT standards supported by the United Nations Economic Commission for Europe (UN/ECE). Both standards activities are managed in the US by: Data Interchange Standards Association, Inc., 1800 Diagonal Road, Suite 200 Alexandria, Virginia, 22314-28552 Voice: 703-548-7005 FAX: 703-548-5738

### ASC X12 Standards

ASC X12 is the ANSI Accredited Standards Committee charged with developing EDI standards for use in the United States. The committee develops standards to facilitate electronic interchange relating to such business transactions as order placement and processing, shipping and receiving, invoicing payment and cash application data. The work of ASC X12 is conducted primarily by a series of subcommittees and task groups whose recommendations are presented periodically to the full ASC X12 Committee for ratification (Data Interchange Standards Association, 1990).

The ASC X12 standards specify the segments used in a transaction set, the sequence in which the segments must appear, whether segments are mandatory or optional, when segments can be repeated, and how loops are structured and used.

### The X12 Series of Standards

The X12 series of standards consist of a number of interdependent standards. The transaction set standards define the grouping of data into segments and the sequence of these segments to be used in a specified business transaction such as a purchase order. There are also the 'foundation' standards which define the syntax to be used in defining X12 transaction sets as well as the data elements, data segments, and control structures to be used. The full set of foundation standards required to interpret, understand and use the X12 series of transaction set standards, consists of:

- Data element dictionary (X12.3)
- Interchange control structure (X12.5)
- Application control structure (X12.6)
- Data Segment Directory (X12.22)
- Security Structures (X12.58)

### EDIFACT

UN/EDIFACT stands for the United Nations rules for the Electronic Data Interchange for Administration, Commerce and Transport. They are a set of international standards, directories and guidelines for the electronic interchange of structured data, and, in particular, relate to trade in goods and services between independent computerized information systems (UN/EDIFACT Rapporteur's Team, 1990). The UN/EDIFACT work on EDI standardization developed from the need for a common international standard for the electronic transmission of commercial data.

In 1971, SITPRO, the Simplification of Trade Procedures Board in Great Britain began work on common EDI standards for Europe. In 1974, the UK EDI syntax called Trade Data Interchange (TDI) was published and was first used by UK customs authorities. In 1975, the UN began to develop terms of reference for international EDI standardization. In 1979, the United National Guidelines for Trade Data Interchange (UN/GTDI) syntax, based on the TDI guidelines developed by SITPRO was published.

By this time, the ANSI X12 standards were in use in North America. The value of merging the two to develop an international EDI standard was recognized and work was initiated within the United Nations/Economic Commission for Europe (UN/ECE) to develop the international EDIFACT standards.

The International Organization for Standardization (ISO) Standard which addresses EDIFACT is ISO 9735: 1988 Electronic data interchange for administration, commerce and transport (EDIFACT) -- Application level syntax rules (Amended and reprinted 1990). This standard includes:

- ISO/DIS 9735-1: Application level syntax rules -- Part 1: Syntax rules common to all parts, together with syntax service directories for each of the parts
- ISO/DIS 9735-2: Application level syntax rules -- Part 2: Syntax rules specific to batch EDI
- ISO/DIS 9735-3: Application level syntax rules -- Part 3: Syntax rules specific to interactive EDI
- ISO/DIS 9735-5: Application level syntax rules -- Part 5: Security rules for batch EDI (authenticity, integrity and non-repudiation of origin)
- ISO/DIS 9735-6: Application level syntax rules -- Part 6: Secure authentication and acknowledgement message (message type - AUTACK)
- ISO/DIS 9735-8: Application level syntax rules -- Part 8: Associated data in EDI
- ISO/DIS 9735-9: Application level syntax rules -- Part 9: Security key and certificate management message (message type- KEYMAN)

## Other Related Standards

TDCC, VICS, WINS, UCS, ODETTE, AIAG, TRADACOM, CIDX, EIDX, HIBCC, EDIFICE, GTDI, GM, Ford Kmart, Sears, CISCO, CargoIMP, SPEC2000, NACHA, EAGLE, NWDA, DoD conventions, TCIF, etc.

## Professional Association Guidelines

- **The Commercial Use of Electronic Data Interchange** -- A Report and Model Trading Partner Agreement, Science and Technology Section, American Bar Association. The Business Lawyer, (June 1990) Vol. 45 pp. 1645 1680. Model trading partner agreement with commentary and introduction for lawyers and business persons involved with electronic commerce. \* Note: A Model Electronic Commerce Trading Partner Agreement Addendum is currently in development by the ABA Science and Technology Section for use as a supplement to trading partner agreements. The Addendum will facilitate the use of secure cryptographic technologies, including digital signatures and certificates, with or without the use of certification authorities.
- **Model Electronic Payments Agreement and Commentary**, Science and Technology Section, American Bar Association. Jurimetrics Journal of Law, Science, and Technology, (Summer 1992) Vol. 32, No. 4 pp. 601 669. Model agreement with commentary and introduction for lawyers and business persons involved with electronic payments.
- **EDI Control Guide**, Prepared by the EDI Council of Australia and Information Systems Audit and Control Association, 1990. The EDI Control Guide was developed to assist management, information systems personnel and auditors to address the risks and key control issues associated with EDI.

## Best Practices

Electronic Data Interchange (EDI) is defined as the inter-process (computer application to computer application) communication of business information in a standardized electronic form. Therefore, Internet could be very useful because not only the communications are for interpersonal (person-to-person) like e-mail but also for inter-processing (process-to-process) like EDI.

For high reliability mission critical applications, redundant Internet Service Providers (ISPs) may be used (with separate backbones), and redundant mail servers at separate locations can be used. A single Internet email or server address can be used to transparently route to any of the redundant servers or network connections. If a dedicated Internet connection is used to transmit important information, the message should be delivered directly to the trading partner's system so that the delivery is assured.

The major uses of EDI are:

## Electronic Data Interchange

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- To avoid re-keying EDI orders and invoices
- To achieve error reduction
- To eliminate redundant paper-based transactions
- To reduce document storage costs
- To reduce personnel overhead
- To log all transactions sent through EDI
- To increase sales due to faster order processing

## Policies

On April 12, 1996, the Governor's Task Force on Information Resource Management issued 'Technology Policy 96-7 Electronic Data Interchange,' which states: "To facilitate the exchange of information between agencies, and from State agencies to other entities such as businesses, other governments, not-for-profit organizations, etc., the State is establishing a policy regarding Electronic Data Interchange (EDI). The first component of this policy is the State adoption of the ANSI ASC X 12 Standards and the UN/EDIFACT International Standards."

On July 19, 1996, the Governor's Task Force on Information Resource Management issued 'Technology Policy 96-16 Technology Standards,' which states: "The purpose of the technology standards is to provide general guidance to agencies for future technology acquisitions. These standards are, as a result, designed to be "forward looking" and are not intended to accommodate legacy and related systems. The attached standards represent the State's Preferred Standards for technology. The standards will be updated regularly to reflect the changing technology marketplace."