

Technical Note 104

Introduction to E.D.I.

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Scope

This document provides an introduction to Electronic Data Interchange (EDI). A basic overview of its elements, benefits, management issues and general implementation strategy are detailed.

Introduction

The formal definition of Electronic Data Interchange (EDI) is the electronic exchange of business documentation and information in a standardised format between computers, usually of different organisations. It is also commonly known as electronic trading.

As such, EDI is a concept or system comprising of at least two trading partners, computer system and communication network. In this system, business documents such as purchase orders and invoices are exchanged (EDI messages), not by the postal service, but electronically via the public telephone network (PTN).

It is believed that within a few years EDI will become the preferred method of performing business transactions and by the year 2000 it will become a mandatory requirement.

Elements of EDI

Typical EDI Documents.

There is very little technical restriction in the type of business documents that can be exchanged by EDI. The most popular type of EDI messages used in Australia are:

- purchase orders

- invoices

Other EDI messages currently used in Australia are:

- Advanced shipping notice - details of items to be despatched and when.
- Contract award Order status report
- Payment order - used to instruct the bank to pay supplier
- Price sales catalogue - notice of new or changed prices
- Product transfer and resale - forecast to enable manufacturers to plan production schedules
- Purchase order acknowledgment
- Purchase order change - details of changes to purchase orders
- Receipt of goods notice - details of damaged goods or discrepancies (under development)
- Remittance advice - details of payment made to supplier
- Report of test results
- Request for quote

EDI Standards

An essential element of EDI is that there be a standard format of data. The two most common standards promoted in Australia are:

- ANSI ASC X12 - USA ANSI Accredited Standards Committee X12
- EDIFACT- Electronic Data Interchange for Administration, Commerce and Transport

As both standards are similar, there is cooperation between the two to facilitate their convergence. The EDI Council of Australia (EDICA) has set a directive for all EDI messages to adopted the EDIFACT standard by January 1994. However, in the meantime organisations may need to use both standards.

EDI Software

EDI software can be divided into four components:

Main Application:

The organisation's inventory, purchasing and order processing programs. These may be existing applications and may require some modification to maintain trading partners reference files detailing EDI capability and audit trails of EDI messages.

Application Interface:

This interface provides the link between the main application program (ie Purchasing/Order Entry Application) and the EDI software. It provides the necessary input/output translation into standard EDI message formats from a *flat file*. The application interface is specific to the organisation's main application and will need to be developed

Flat File

Flat files contain EDI messages in standard formats and can be considered a common file between the Application and EDI software.

EDI Software

This program takes the standard EDI message in the flat file and performs the following functions:

- Translation (from flat file data format to EDI standard format)
- Control & Auditing
- Administration & Reporting
- Communications

EDI Mailbox

The EDI Mailbox is also commonly referred to as:

- EDI clearing house
- third party network
- value added network (VAN)

- EDI network

Its main function is to:

- provide temporary storage of EDI messages until they are collected by a recipient subscriber
- provide a single reference point for operational difficulties with EDI communications
- acts as a security wall or buffer between trading partners
- provide independent message authentication, security and auditing
- provide support for multiple trading partners with incompatible computer systems.

Some EDI Mailboxes/networks in Australia:

- Telecom Plus
- General Electric Information Services (GEIS)
- National Electronic Information Services (NEIS)
- OTC Electronics Trading
- Paxus Services

Benefits of EDI

EDI is not about information technology, it is about business and the benefits it can bring to a business. Many of the problems associated with paper based information systems can be resolved using EDI. Just some of these benefits are summarised below:

- reduced order transit time delays
- reduced labour cost associated with re-keying data
- reduced or eliminate data errors
- improved customer service
- reduced inefficiencies associated with paper handling (filing, copying archiving)

- reduced working capital and inventory
- improved trading relationships
- faster response time from suppliers
- reduced recurrent expenditure
- improved organisational effectiveness
- reduced supplier cost through improved tendering process

Management Issues

While EDI does involve technical issues, the major considerations are strategic business issues that arise from the adoption of EDI technologies and practices. To implement EDI both a structural change is required and the organisation's business plan needs to be re-visited.

The three major considerations are:

- Strategic implications of EDI (why get into EDI)
- Implementation strategy (how one resolves the structural change in implementing EDI)
- Competitive advantage (how one can take some competitive advantage in implementing EDI)

Strategic Implications of EDI

- Customers demand EDI as a requirement of trading with a supplier
- Customers demand data quality and timeliness as well as product quality and timeliness
- Wish to exploit EDI opportunities with suppliers and other trading partners
- Internal adoption of EDI to take advantage of improved business practises
- To become a market leader and innovator with customers
- To establish a true partnership with your trading partners

Implementation strategy

Business function:

EDI should bring about an innovative change to the business process as managers and staff understand that data and information are no longer constrained to paper documents. Thus the function of management and staff will also change as a result of the changing role and structure of the department or organisation.

Human resource issues:

EDI will have a major impact on personnel. This impact should be positive as EDI should enrich the function of management and staff in the purchasing and or sales order processes. It will provide an opportunity to:

- eliminate mundane tasks such as re-keying, error checking and filing
- manage by exception (eg automatic reporting by irregular transactions)
- improve customer/supplier service
- increase and/or improve research and analysis through automatic database maintenance
- review job function and redefine roles to better utilise human skills

Though personnel changes are positive, management should be aware and monitor staff attitudes.

Organisational Relationships

The other trading partner relationship will need to be considered as an effective communication with trading partners will be important. Experience has shown that a natural outcome of implementing EDI has been the development of closer working relationships between trading partners.

Other issues to consider include:

- Legal implications
- Ability for organisations to work together
- Responsiveness of organisations
- Need for frequent contact to resolve issues
- Amount of information to be shared

Distribution:

The gains achieved through EDI tend to lead to Just In Time (JIT) approach to inventory management. This may impact on existing practices and procedures (eg increase in the number of small deliveries received or despatched, reduced warehousing space).

Financial Administration:

Accounting and financial functions and processes will need to be developed to accommodate EDI transactions. New processes and procedures will need to be developed for the following:

- accounts payable/receivable problems
- updating of ledgers and when this is to occur?
- exception reporting procedures
- monitoring systems (such as executive information systems)

Audit Issues:

As EDI is based on different concepts and procedures to traditional paper based systems, audit procedures will need to be re-vamped. As information is now stored in computer based form thorough audits can be performed and on a more regular basis. This also leads to easier internal and external audits.

Legal Issues:

Signatures in existing paper based system are used to identify responsibilities and provide authorisation. There is no special legal framework for EDI system, thus the burden of proof remains unchanged. A major legal concern with EDI is on of identifying a cost effective means of keeping commercial exposure to a minimum. Systems and procedures must be developed to meet these requirements. To overcome some of these issues EDI trading agreements should be drafted.

EDI Trading Agreements

EDI trading agreements do not set out what business is to be transacted between trading partners, but how they will be transacted. Typically EDI trading agreements will contain:

- Key definitions
- Standards to be used
- Signatures
- Receipt of transmission

- Third party service providers
- Systems operations
- Security procedures
- Records and audit procedures
- Liability and insurance
- Confidentiality
- Applicable law and dispute resolution procedures
- General terms and conditions

Competitive advantages

Many organisations view EDI as a strategic business opportunity that is fundamental to an organisation as the adoption of total quality management principles. Some even view EDI as being essential for business survival, as the adoption of electronic trading methods is fast becoming a business imperative for all organisations that wish to remain viable. However, EDI is a tool, and as a tool it should be used to meet business objectives

Marketing strategy:

How will EDI benefit you organisation and what marketing gains can be made (cheaper products, quicker delivery, better customer service etc)? Some other aspects to consider are:

- impact of providing customers with on-line catalogue service
- processes to ensure customer feedback
- processes to ensure marketing intelligence is still maintained

Manufacturing strategy:

With improved data, better inventory control and quicker supplier responses, EDI tends to lead to Just In Time practices.

Financial Strategy:

With increased gains in cash flow (through quicker processing of orders) and administration cost saving associated with EDI do these gains go to reduced pricing, increased profits, increase in marketing or other budgets etc?

Implementing EDI

The implementation of EDI needs a clear commitment from senior management as it involves a structural change.

BHP for example identified the following critical success factor in implementing EDI on time:

- Don't take anything for granted
- Set realistic objectives
- Educate your organisation
- Choose the right people
- Involve trading partners from the start
- ensure your network provider really understands your needs
- Be prepared to change and manage that change

Executive Action Plan

- Ensure EDI implementation is consistent with the long term organisation strategic direction
- Participate or establish EDI industry working group
- Ensure legal agreements are in place prior to trading (EDI Trading agreement)
- Review risks associated with each transaction type and how they are to be addressed
- Establish adequate internal and external audit systems to satisfy legal and management requirements
- Ensure sufficient time to test, analyse and enhance application software
- Ensure appropriate security measures are established including data security policy and formal data communication policy
- Ensure appropriate level of security for the transaction type being processed

- Ensure procedures are updated and reviewed and staff trained prior to implementation

References

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The Electronic Trading Directory: Australia, Technosocial Research Services, P.O. Box 21 Brunswick VIC 3056, Tel: (03) 419-3992

Trading with EDI The Legal Issues, Hans Thomsen & Bernard Wheble, IBC Financial Books, 1989

Subscriptions

Australian EDI Report, 10 issues per year published by Technosocial Research Services, GPO box 1240L, Melbourne 3001, Tel: (03) 602-1544 Fax: (03) 602-3216

Solutions, Telecom Plus quarterly newsletter, Reply paid No. 479, Telecom Plus, 1/157 Walker St, North Sydney NSW 2060

EDI Forum, (The Journal of EDI (Canada)), Published by EDI Group Ltd & distributed in Australia by Beechdale Consulting

EDI World, 2021 Coolige St, Hollywood, FL 33020-2012, USA

Electronic Trading, (The European EDI magazine), Blenheim House, 630 Chiswick High Road, London W4 5BG, Great Britain

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EDICA, The EDI Council of Australia, 2nd Floor, 854 Glenferrie Rd, Hawthorn VIC 3122, Tel: (03) 819-6860 Fax: (03) 818-3129

Ferntree Computer Corporation, 310 Ferntree Gully Road, Clayton VIC 3168, Tel (03) 541-5600 Fax: (03) 543-3671. Major service provider and consultant of EDI both locally and internationally. They have a strategic alliance with Telecom.

Standards Australia, 19-25 Raglan St, South Melbourne 3205. Tel (03) 693-3555 Fax (03) 696-1319.

Technosocial Research Services, P.O. Box 21 Brunswick VIC 3056, Tel: (03) 419-3992. Major source of EDI information, reports and consulting services .

Telecom Australia (Tradelink & Telecom Plus). 1/181-189 Victoria Parade, Collingwood VIC, Tel (03) 412-1600 Fax: (03) 412-1000 Free call 008-807-324

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