BISAC

BOOK INDUSTRY STANDARDS AND COMMUNICATIONS COMMITTEE

X12 IMPLEMENTATION GUIDELINES FOR

ELECTRONIC DATA INTERCHANGE

3060 VERSION 3 - REVISED MARCH, 2007

Based on ANSI X12 version 3.6

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The Book Industry Study Group, Inc. is a not-for-profit trade association working to create a more informed, empowered, and efficient book industry supply chain.

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1.0 INTRODUCTION

1.1 Responsible Entity

This implementation guide was developed by BISAC to serve as the guideline manual for Electronic Data Interchange (EDI) for the book industry. BISAC is responsible for future development of an enhancement of the X12 formats included herein.

Any comments or questions concerning this guide, or any requests for future changes or enhancements of this document should be submitted to BASIC; Tel. 646/336-7141; Fax: 646/336-6214; Email: info@bisg.org (In Canada you can contact BookNet Canada, 215 Spadina Avenue**,** Suite 310**,** Toronto, Ontario, Canada M5T 2C7; Tel. 416/362-5057; Fax: 416/362-5392**.**)

1.2 Introduction to EDI

EDI is a partnership. It takes at least two organizations to do EDI. EDI is also a way of conducting business that involves several individuals or functional groups within each organization. For EDI to be successful, all who are involved must work together in an open and informed environment.

There are specific functional groups within your organization that will need to be involved in the exchanging of EDI. The organization needs to have one individual assigned as the EDI Coordinator. Each functional group needs a contact person from its personnel to assist in the implementation process and the ongoing operations.

Some areas of accountability are:

- Accounts Payable
- Information Services (MIS or IS or IT)
- Accounts Receivable
- Sales Organization
- Purchasing Group
- Financial Group

There may be other functional groups within a company and they should be included in the above list.

EDI is defined as the electronic transmission of business documents in a standard format between two entities. This definition can be expanded further to include the electronic transmission of business documents from the application program of one computer to the application program of another computer within the framework of a standard format. The key elements in the definition are business documents and standard format. EDI is a technique that reduces costs and errors associated with a paper document environment. EDI replaces the mail delivery and reentry of documents with the electronic mailbox and the delivery of your business document directly to your computer application program.

1.3 How to Use Implementation Guidelines

Chapters 1 through 8 of this Implementation Guideline should be reviewed prior to working through the detail of the transaction sets. This review of Chapters 1 through 8 will provide insight into the various issues of requirements (i.e., business considerations, translation software, formats, legal issues, terminology, communications considerations) which are not covered in the detail of the transaction sets.

Any areas of disagreement or misunderstanding should be resolved to the mutual satisfaction of all trading partners involved. Any data contained in this guideline which is felt to be incorrect from a book industry viewpoint or which should be changed or updated based upon implementation experience should be brought to the attention of BISAC or BookNet Canada. Any such changes will be handled by BISAC as noted in Chapter 4.0 MAINTENANCE.

2.0 BUSINESS ISSUES

2.1 EDI IMPLEMENTATION CHECKLIST

INTRODUCTION

The purpose of this section is to provide a guideline for the successful implementation of electronic data interchange in your organization.

EDI is a major system in that it impacts many areas of a company's structure. The management of the company, therefore, must be involved in the approval phases of the project to ensure adequate support, both from a financial perspective (the commitment of needed personnel and resources) and from the position of ensuring the support and assistance from the areas impacted.

While the requirements for the implementation may vary from one business or organization to another, this checklist is intended to, at a minimum, remind the reader of the steps necessary in most businesses to implement a major system.

The most common problems that should be avoided when undertaking the implementation of EDI are:

- **Deviating from the published standards.**
  You should avoid any deviations from the published standards or transmission standards. Deviations will only cause you to have to customize your system when adding new trading partners and increase time and cost.

- **Too much too soon.**
  Do not start the use of your EDI system in a production mode prematurely. When you have completed all the steps necessary for the implementation and had some experience, then embark on expansion.

- **Be certain that the systems interfacing with EDI are working properly.**
  EDI is not a cure for the problems you have in your existing systems. If anything, they may be accentuated by this method of transmitting and receiving data for these systems

SUMMARY

1. Obtain commitment from key management
2. Establish a plan
3. Establish project team and define each person's responsibility
4. Designate EDI business contacts
5. Designate EDI technical contacts
6. Review internal systems and business procedures
7. Secure the appropriate reference materials
8. Conduct a trading partner survey
9. Conduct a communication/equipment survey

10. Review data contained in the documents to be exchanged
11. Determine what optional information will be employed
12. Confirm trading partner Standard Address Number (SANs)
13. Develop an overall design
14. Code and test the interface to in-house system(s)
15. Decide on translation software configuration
16. Decide on a network provider/direct connect options
17. Finalize any optional services that you may wish to use from network provider
18. Implement the translation software
19. Implement the network connection
20. Conduct system test with translation and network
21. Conduct system test with your trading partner
22. Decide on production cut-over date
23. Implement
24. Re-evaluate checklist for future implementations
25. Review legal considerations
26. Establish continuing education procedures

1. OBTAIN COMMITMENT FROM MANAGEMENT

Identify the Key Management.

Involve all the departments that will be impacted by the implementation, i.e. accounts payable, merchandising processing, accounts receivable, shipping, order processing, data processing, sales and marketing. Each department should be included in the analysis, testing, and implementation to insure the accuracy of the test results and promote the support of these groups.

2. ESTABLISH A PLAN

Develop a work plan.

Identify as many of the tasks as possible.
Provide cursory estimates to each task.
Establish an overall direction regarding what business documents you wish to trade.

Identify the potential savings for each document.

The use of a PERT, a project management technique which stands for Program Evaluation and Review Technique, or other critical path chart may be useful to insure that the project proceeds in an orderly and efficient manner.

3. ESTABLISH PROJECT TEAM AND DEFINE EACH PERSON'S RESPONSIBILITY

Construct a responsibility matrix.

List the tasks to be performed across the page and the team members down the page. This will help determine if you have enough people to accomplish the implementation. You will also see if certain tasks will require someone not previously identified. You should be specific about the deliverable expected from each task. Establishing a formalized list will help reduce the potential for friction, particularly in the early stages of testing and system implementation.

4. DESIGNATE EDI BUSINESS CONTACTS

The core of these people should be from within your company, but you can supplement your available resource by contacting other people who have accomplished an EDI implementation.

Identify people who will be primary and secondary contacts in the event of problems. This list should have telephone numbers and major responsibilities defined.

5. DESIGNATE EDI TECHNICAL CONTACTS

As with business contacts this group should include trading partners as well as your own internal staff. A contact list with names, telephone numbers, major responsibilities and a distinction of first and second line should be constructed.

Industry groups (e.g., BISAC), network providers and other retailers and vendors are a good source to provide education and direction to your in-house staff.

6. REVIEW INTERNAL SYSTEMS AND BUSINESS PROCEDURES

A thorough current system analysis should be undertaken. The present process that creates the business documents and the flow of the documents should be recorded. Rules or procedures that affect its life as a document need to be included.

Determine how EDI should be integrated into existing systems.

Develop a preliminary scope of the effort to achieve integration

7. SECURE THE APPROPRIATE REFERENCE MATERIALS

Your list should include:

ASC X12 publications available in hardcopy form only from the DISA (Data Interchange Standards Association) at http://www.disa.org.

Book Industry subset of ANSI ASC X12 available online at http://www.bisg.org/documents/edi_docs.html.

Network supplier software manuals for sending and receiving, also for any related products or services you are using.

(In Canada you can contact BookNet Canada, 215 Spadina Avenue**,** Suite 310**,** Toronto, Ontario, Canada M5T 2C7; Tel. 416/362-5057; Fax: **416/362-5392**.)

8. CONDUCT A TRADING PARTNER SURVEY

This will serve to initially establish:

The members within each organization who will be participating, what their responsibilities will be and how they may be contacted.

Questions regarding:

The use of ISBNs and SANs can be confirmed. Tables, files, facility locations, or specific optional fields that will be used by trading partners can be clarified in this initial inquiry.

9. CONDUCT A COMMUNICATION/EQUIPMENT SURVEY WITH TRADING PARTNERS

Answers to the following can be established:

- Contact names
- Use of commercial network or direct connection
- Communication protocols
- Computer type - brand, model, operating system.

10. REVIEW DATA CONTAINED IN THE DOCUMENTS TO BE EXCHANGED

A thorough review or mapping of each business document against the book industry subset of ANSI ASC X12 should be performed. Through this process you will be able to determine whether your internal system documents contain all of the required/mandatory data elements. Optional data elements can be identified and discussed with each trading partner to determine applicability.

11. DETERMINE WHAT OPTIONAL PRODUCT INFORMATION WILL BE EMPLOYED

The International Standard Book Number (ISBN) is the industry convention. You should not vary from this standard.

12. DETERMINE WHAT PARTNERSHIP IDENTIFICATION SCHEME WILL BE USED

The Book Industry recommends the use of the Standard Address Number or SAN. This is detailed in the data mapping sections of the BISAC guidelines.

13. DEVELOP AN OVERALL DESIGN

Some of the elements that are likely to be included:

- General systems narrative
- System data flow diagram
- Functional analysis
- Inputs/outputs
- Processing
- Controls
- Backup/restart specifications
- Program descriptions
- Impact on facilities
- Detailed specifications of the computer programs
- Specifications of the data formats
- Specifications of the communications mechanisms
- Specifications of billing procedures and any back-up statistical reports
- Details of security procedures
- Operational procedures

14. CODE AND TEST THE INTERFACE TO IN-HOUSE SYSTEMS

The execution of the programs that will be necessary to develop the file(s) for transmission or process the incoming file(s) from transmission.

Verify that programming and modifications to interface with your internal systems is functioning properly.

15. DECIDE ON TRANSLATION SOFTWARE CONFIGURATION

The three major types are:

- In-house developed
- Purchase for computer equipment
- Network based translation

Factors that should be used to determine which selection best suits your needs:

- Configuration of the existing systems
- Resource availability
- Participation in PUBNET
- Implementation timetable

16. DECIDE ON A NETWORK PROVIDER/DIRECT CONNECT OPTIONS

Discuss this decision with your projected trading partners. If necessary, survey active EDI traders. Suppliers of these services have standard cost contracts and commercial price lists, all of which should be reviewed before making your decision. The timing of this decision should be made very early as it will influence many of the future decisions you will have to make.

The alternative to using commercial networks is to establish direct connections with your trading partner. This requires the trading partners to accept the responsibility of maintaining the connection, coordinating the polling schedule, providing audit reports, and generating invoices if the costs are to be shared.

17. FINALIZE OPTIONAL SERVICES DECISIONS FROM YOUR NETWORK PROVIDER

Compliance checking is one of many types of services that are offered. Various reports that could be useful to determine the status of transmissions can be made available. Be sure to establish the cost of the optional services - they are not always offered for free.

18. IMPLEMENT THE TRANSLATION SOFTWARE

The amount of time will vary according to your earlier selection. If a vendor has supplied you with this software, be certain support is available.

19. IMPLEMENT THE NETWORK/DIRECT CONNECTION

Having contracted with a network service provider, the installation of software products will require that you load them. Follow the installation checklist that has been provided.

You will find that many of the networks offer a facility by which you can send an EDI transmission into the network and have the network send it back to you for validation.

Some networks also have a facility for data validation on transmissions on an on-request basis; this can be particularly useful in initial testing for your pilot and subsequent trading partners.

20. CONDUCT SYSTEM TEST WITH TRANSLATION AND NETWORK

The purpose of this will be to verify the following capabilities:

Sending Documents:

- Generate a document from the internal system
- Translate document into ANSI X12 format

- Send transmission to the network
- If applicable, receive acknowledgment

Receiving documents:

- Receive transmission from the network
- Translate the document to the internal system format (from ANSI ASC X12)

If applicable, generate and send an acknowledgment

Determine if it will cost you to do this testing and who will pay.

21. CONDUCT SYSTEM TEST WITH YOUR TRADING PARTNER

The purpose of this test is to be able to verify the following capabilities:

Send and receive transmission to and from your trading partner through the network

- Translate documents from ANSl ASC X12 format
- Successfully process output from the translation
- If applicable, generate an acknowledgment

Extensive system testing should be done prior to implementation. Send paper documents to be used in validating the transmission. (You may wish to extend this practice for some predetermined period following implementation.)

22. DECIDE ON PRODUCTION CUT-OVER DATE

Develop a sign-off document that includes all the participants in the project.

Following the test and an appropriate amount of time allocated to resolve any outstanding problems, you can then determine the earliest possible date.

Make sure all contracts and agreements have been signed.

23. IMPLEMENTATION

One document transmitted successfully will be more rewarding than hundreds with problems.

It is recommended that you collect data during the first few months to use to assess what savings/costs your company is experiencing.

This information will be useful for your management and new or potential trading partners.

24. REEVALUATE THE CHECKLIST FOR FUTURE IMPLEMENTATIONS

Eliminate unnecessary tasks and simplify the process of establishing new trading relationships.

This is also a good time to review whether assumptions about the benefits have been realized (e.g., reductions in data entry/data validation/data corrections; improved inventory turns).

25. REVIEW LEGAL ISSUES

The EDI Suppliers - take the time to understand the contractual arrangements. Be clear on what responsibilities and what liability is being accepted by each partner.

You can expect the network suppler to be responsible for:

- Proper transmission
- Maintaining security and integrity of the information
- Providing a reliable service for agreed upon hours

Trading Partners - letters of agreement and terms and conditions that exist on business documents or other arrangements should be discussed with each trading partner and whatever arrangement that is deemed necessary be worked out on an individual basis. These issues are discussed in section 3.0.

26. ESTABLISH CONTINUING EDUCATION PROCEDURES

Take the time to learn what other companies are doing with EDI. This may help you to avoid the pitfalls that other companies have experienced. Your education efforts should include: software, communication topics, and the adjustments to business practices by similar companies. The currently offered education programs should improve as more experience is gained by our industry. One of the best opportunities to refine a basic understanding of EDI is to participate in the user groups and BISG/BISAC.

2.2 Timing of Transactions

Determine when the business transaction is made available to the trading partner, i.e., purchase order requires an acknowledgment within 24 hours of purchase order receipt. There are three areas to be considered within timing of transmissions: legal, business, and technical issues.

Mailbox concerns to evaluate:

- Consideration for using "timestamp"
- Consideration of utilizing VAN document, NOT mail message
- Utilizing “recall” message time-frame
- Timing of transaction acknowledgment
- Timing of mail forwarding to recipient
- Timing of Functional Acknowledgments by receiver system (Within 24 hours)

Business Issues - Determine when the business transaction will be made available to the trading partner. This involves decisions on warehousing, release, cancellations and return, dependent on the type of business transaction.

Technical Issues - Determine the ability of the existing computer systems to respond within some time definition. System changes might be necessary to accommodate the identified business needs.

2.3 Modes of Operation

Basically, most transmissions would be in a production mode. However, some provision must be made for a testing mode as new version/releases are implemented. This may require the use of an independent communications line, separate from production transmissions, or an interpreting mechanism to sort data when processed. As partner relationships continue to grow, and version release migration continues to occur, you will find that the testing module of your system is equally as important to your day to day operations as your production system.

2.4 Security

The EDI standard is designed to provide at least as high a degree of security as today's mail or telephone service. The standard prevents the co-mingling of data types and makes it extremely difficult to obtain unauthorized data. Even with this assurance, users should take steps to assure confidentiality of transactions as they do with current mail and telephone systems.

The security needs to be reviewed on three levels: internal, trading partner, third party carriers.

Review your internal security requirements for: data communications; software; and data. Review with trading partner(s) their security requirement in the above areas. Review the security and access requirements of the carrier.

Depending on the type of data and its impact to your operations, security should be as strong as necessary to protect you and your trading partner. These arrangements should be spelled out in contract, trading partner agreements, and documentation. There are many approaches to securing a system. The six (6) typical approaches here

can be used singularly or as a package, i.e., for financial or pricing data it may be desirable to have all six (6) in place.

The six approaches are:

- **Data Encryption**
  Data is encoded by a software source encoder into unreadable scrambled text. The receiving party would unscramble it to plain text.

- **Call Back Modem**
  This method has the receiving party call the sender back at a predetermined phone number before transmission occurs.

- **Passwords**
  Sender protects data with password that must be supplied to the system before the receiving party obtains access to the data.

- **Access Codes**
  Similar to passwords, the receiving party must enter certain codes to access the data.

- **Terminal Source Security**
  This is a software coding that prohibits data from being sent or received except from a specific logical or physical device. If the device is not used, then the software erases the screen. In addition, this can be set up with a time slot. If transactions are attempted outside of the specified time slot, the software will cease operating.

- **Electronic Authorization**
  This area is a growing field. Such elements as voice recognition, palm print identification, hand geometry, etc. are becoming more commonplace.

Each of these elements plus physical security, when used, can provide an effective deterrent to unauthorized entry to systems.

2.5 Recovery Procedures

- Establish backup procedures to provide for retransmitting EDI messages.

- Establish backup and recovery procedures if computer systems or transmission fails.

- Establish a maximum number of attempts of retransmission following a text transmission error, to minimize communication costs for bad connections.

- For ALL EDI transactions transmitted, a 1 to 2 week immediate access backup should be maintained at all times.

- Beyond your first 1 to 2 weeks, some type of archival storage should be maintained where the data is backed up and stored on a more permanent basis. The permanent archives and supporting system should provide for recovering a specific EDI message from the archives and retransmitting it.

- The backup and recovery system must be thoroughly documented to allow anyone with the proper authority to access the system to retransmit data.

USE OF THE FUNCTIONAL ACKNOWLEDGMENT

- The Functional Acknowledgment (997) transaction set can be used to provide a level of automation in the backup and recovery area. If the EDI system expects to receive a Functional Acknowledgment for every transaction that it sends, then the

EDI message should be available for retransmission until a Functional Acknowledgment corresponding to a specific EDI message is received. Once the Functional Acknowledgment is received the original EDI message can be archived regardless of the normal archive timing.

- The system could be designed to provide a degree of flexibility. The use of Functional Acknowledgments could then vary based on business requirements. It may be appropriate to send/receive Functional Acknowledgments by trading partner, transaction, some combination of the two, or some other variable unique to your EDI requirements.

- Whenever the trading partner relationship requires the use of the Functional Acknowledgment, the industry convention is to return the Functional Acknowledgment within 24 hours of its acknowledging transmission receipt.

- Your level of risk must be known when considering whether the additional costs of including a flexible Functional Acknowledgment component in your EDI system and sending/receiving Functional Acknowledgments are justified.

ESTABLISH RECOVERY PROCEDURES TO ALLOW FOR CONTROLLED MANAGEMENT OF UNUSUAL TELECOMMUNICATIONS PROBLEMS.

Some potential problems that should be managed by the EDI system:

- A trading partner's computer that won't answer when your computer calls to pick up or deliver EDI messages

- A bad connection that causes continuous or an excessive number of retrans-missions.

Develop a way for the EDI system to notify someone when a predetermined threshold number of errors are encountered.

DISASTER RECOVERY CONSIDERATIONS

Disaster recovery becomes correspondingly critical to the amount of business that is conducted through the EDI channels. Consider the consequences to you and your trading partners if you were suddenly unable to telecommunicate for a week.

It would be unwise to assume that you could fall back on a paper based system. Your trading partners may not be able to quickly switch from EDI messages to mailing their business transactions to you. You may not have immediate access to the resources within your organization that are needed to process paper transactions when many departments all require the same resources and with the same urgency.

Have a plan in place to deal with extreme problems such as:

- Total loss of a Data Center or computer system

- Loss of a phone company switch station servicing your area

2.6 Audit Considerations

Introduction

Audit trails need to be established in any endeavor that transmits business information between two or more separate entities.

These trails need to provide a means to reconstruct total transaction sets in the event of failure somewhere in the process.

Audit Trails

Audit considerations should provide for:

- Ensuring all records and/or documents are sent and received
- All errors and causes are documented and reported
- Time recording of communication start and stop for both parties
- User report for record and document counts introduced into any software package

Areas of Concern

Most third party EDI ASC X12 software packages provide printouts of transaction sets and communication session statistics.

Some typical areas are:

- Communication Log (Connection Log) record times for:
  - Connection to VAN
  - Log on time to VAN
  - Sending or receiving times
  - Completion
  - Log off
  - Interpreter log
  - List of records
  - List of transaction sets
  - Errors found during the interpretation phase
    (Records in error should be highlighted in some fashion)
- Generator log
  - List of functional group transmitted and generated
  - Errors found in generation of the EDI formatted record

User reports should highlight:

- Expected record counts of files to be introduced into EDI System
- Document counts to compare to Transaction Sets being transmitted

2.7 Y2K Compliance

Although the official X12 Version 3060 shows the century as optional in data element DTM05, BISAC/BASIC has made its 3060 Implementation Guidelines Y2K compatible by indicating, on the right-hand side of each occurrence of the DTM05, that the element is “Required” for use in the Book Industry.

Using this BISAC/BASIC annotation, rather than the attributes of “M/O/X” (mandatory, optional, conditional) coding for the USAGE of the data element description, will generate a Y2K compatible message for the DTM segment.

For conversion of six digit dates to eight digit dates for all other occurrences in the BISAC guidelines, BISAC/BASIC recommends a sliding window approach. Listed below are two examples.

Year 75 to 99 = 19 (First two characters of year)
Year 00 to 74 = 20 (First two characters of year)

Year 50 to 99 = 19 (First two characters of year)
Year 00 to 49 = 20 (First two characters of year)

The choice of what starting year to use for the sliding window approach is an individual corporate decision.

The primary difference between version 3020 and 3060 is the required use of the DTM05 data element in the Date/Time Reference segment. Transactions created in version 3020 can be made Y2K compatible by using data element DTM05 in all DTM segments and following the BISAC/BASIC recommended guidelines for six digit dates. Each company should assure that there is a procedure in place concerning the Year 2000.

3.0 LEGAL CONSIDERATIONS

3.1 General Introduction

Electronic Messaging Systems (EMS) and applications such as EDI affect business practices. Because the law does not address the complexities of this technology, doing business via EMS may involve legal uncertainties. EMS complexity can only increase as more sophisticated hybrid and enhanced service offerings become available. The law has not kept pace with the complexity of EMS.

Businesses require control over their contractual correspondence. Such control includes determination of when correspondence is transmitted, to whom it is transmitted, when it reaches the recipient, and an appraisal of the accuracy, integrity and risks of the communication. Some of the legal issues include, e.g., various offer and acceptance rules, the propriety of paperless communications, EMS and electronic mailbox control, ownership and liability, and various risks of transmission. Further study is required to identify problem areas and to propose flexible and adaptive rules fostering greater legal certainty.

Most commercial law has been developed without consideration of electronic messaging systems such as EDI. The precise legal status of EDI transmissions is therefore unclear in many cases. It may be appropriate for commercial law to be modified to delineate the rights and duties of EDI users with greater certainty.

EDI has been used successfully for a considerable number of years. For a large and impressive list of companies, legal uncertainties have not posed a substantial obstacle to the adoption of EDI. In many instances the legal risks of using EDI when compared to the risks associated with traditional paper-based trading systems have been considered manageable. Certain legal risks have been addressed with special agreements between trading partners and the adoption of appropriate in-house policies.

It is important that new users consult with counsel throughout the EDI implementation process. This chapter provides a very brief introduction to some of the issues counsel should consider addressing when a new user implements EDI. The full range of issues that must be dealt with, and the importance of any particular issue, will vary from one user to the next.

This section attempts to review some of these legal issues. The comments below are intended to be utilized as a guide and are not intended as legal advice.

3.2 Record Keeping

Internal control systems should be reevaluated in the context of EDI to assure responsibility for data maintenance, including audit trail, transaction reconciliation, and back-up capability.

When business transactions are recorded on paper documents, businesses can store those documents as evidence of what took place. EDI does away with the paper documents, of course. Internal record keeping systems should therefore be re-evaluated in the context of EDI. Among the issues to be addressed are these:

- Retention of both standardized formats and translated data for both in-coming and out-going transactions.

- Retention of translation routines/software by version release in electronic or hard copy format. This may be necessary to provide the basis for translation of standardized messages/transactions for prior versions and releases of standards no longer supported by the company.
- Retention of translation files/tables used to convert external codes to internal codes.
- Keying record retention/destruction policies to existing regulatory requirements covering various transactions or business requirements, i.e., retention requirements for data related to tax reports, statute of limitations relating to legal action such as lawsuits and bankruptcy proceedings and retention requirements associated with various business documents relating to operating agreements/contracts.

3.3 Authentication

Assuring that data integrity remains unaltered throughout the trading process is critical. Company procedures as well as network access requirements vary widely. What degree and strength of authentication systems and procedures is commercially reasonable is unclear.

Traditionally, paper documents and signatures have been used to authenticate the data that constitutes the majority of commercial transactions. Authentication of EDI transmissions relies on different methods. With the implementation of any particular EDI system, users and their counsel should consider these issues in the context of the users' particular needs:

- Will the integrity and completeness of data transferred between trading partners be adequately confirmed before it is relied upon?
- Will the source of a message, and the legal authority of that source, be satisfactorily verified before the message is relied upon?
- Will adequate records be kept to show the authenticity of messages were tested to the degree appropriate?

There are bills pending by many states concerning Electronic Authentication. There is also a Uniform Computer Transaction Act that may be considered by state legislatures.

3.4 Trading Partner Agreements

Given the inadequate treatment of EDI in the law, users should exercise care in developing and entering into trading partner and third party agreements. Comprehensive trading partner and third party agreements should be executed prior to commencing EDI trading. In addition to conventional "standard terms and conditions" which (with some variability) are used to define conventional trading relationships on purchase orders, users should consider what impact data communications and computer systems have on their business correspondence and trading relationships and thus appropriate provisions for EDI trading.

Many EDI users enter into a special agreement with each of their trading partners to govern their EDI. The provisions that should be included in such an agreement will vary from user to user. Among the issues that might be addressed in a trading partner agreement are these.

- In a recitals clause, state the parties intention to contract electronically.
- Identify the specific standards, transaction sets, and versions which may be sent via EDI.

- Alternatively, permit a party to transmit any transaction set, binding the recipient to any of them upon which the organization reasonably relied.
- Mention industry guidelines -- either incorporated by reference, or specifically excluded from the agreement.
- Identify Value Added Network (VAN) service providers and apportion VAN's costs between the trading partners.
- Hold each trading party liable for the acts of their respective VAN. Where both parties use the same VAN, the sender of an EDI transaction shall be liable.
- Require successful system/transaction set testing before commencing EDI trading.
- Use security procedures sufficient to ensure that transactions are reliable and that they are sufficient to be authenticated.
- State the time of receipt, e.g., is receipt completed when a transaction is placed in a VAN mailbox, or after a functional acknowledgment is communicated to the sender.
- Notify the sender of a garbled transmission, where practical. Otherwise, the sending party's records of the document shall govern.
- Resolve whether the trading partner agreement is a free standing agreement or an appendix to a pre-existing set of terms and conditions.
- State the precedence of the trading partner agreement (vis-a-vis existing business terms and conditions) to avoid conflicts.
- Include clauses attempting to satisfy the statute of frauds.
- Include a comprehensive appendix (intended to reduce confusion).
- Consider including an arbitration clause.

3.5 Third Party Agreements

If user employs a Third-Party Network (TPN), the TPN will probably require that the user enter into a data communications agreement with it. Among the issues the users should consider addressing in such an agreement are the following:

- A description of the services to be provided.
- The warranty by the TPN of its services.
- The liability of the TPN for a breach of the agreement or any damages resulting from the mistakes of the TPN or its employees.
- The security, confidentiality and integrity of messages handled by the TPN.
- The responsibility of the TPN in the event of a system failure or disaster.
- The disposal of data stored by the TPN in the event of a disagreement or an interruption or termination of services.
- A description of the applicable pricing structure.
- The termination of the agreement.

3.6 Laws, Rules and Regulations

There is no adequate or comprehensive source of "EDI law," thus no attempt is made to list them all. The following are a few sources of laws, rules and regulations (clearly not inclusive) which users may wish to consult. Other sources may be applicable for transactions within specific markets, industries or jurisdictions.

When implementing EDI, users and their counsel should consider whether any special laws, rules or regulations apply to the users. It is not uncommon, for example, for government regulations to be written to require (or at least be construable to require) documents written on paper or ink signatures.

Users should also be aware that the International Chamber of Commerce has adopted Uniform Rules of Conduct For Interchange of Trade Data by Teletransmission (UNCID). UNCID purports to set forth voluntary rules of communication by EDI users. A copy of the UNCID rules may be obtained from the International Chamber of Commerce Publishing Corporation at http://www.iccwbo.org/policy/id3237/index.html. It should be noted that ASC X12 neither endorses nor opposes UNCID.

4.0 MAINTENANCE

4.1 Maintaining Guidelines

The Book Industry Guidelines are reviewed and approved by the Book Industry Standards and Communications Committee (BISAC). The review and update of the published implementation guidelines is the responsibility of BISAC. Updated guidelines will be prepared as new versions or releases dictate, as experience with the standard dictates or at intervals adopted by BISAC. To request changes, contact BISAC at info@bisg.org or 646/336-7141. (In Canada you can contact BookNet Canada, 215 Spadina Avenue**,** Suite 310**,** Toronto, Ontario, Canada M5T 2C7; Tel. 416/362-5057; Fax: 416/362-5392**.**)

4.2 Maintaining X12 Standards

ANSI ASC X12 is the domestic standard recommended by BISAC.

The maintenance of X12 standards is the responsibility of the American National Standards Institute (ANSI) Accredited Standards Committee (ASC) X12. ASC X12 Committee is the committee established by ANSI to develop national standards for Electronic Data Interchange (EDI). Changes, modifications, additions and new standards required by the Book Industry are submitted to ANSI ASC X12 as the result of requirements developed by BISAC. (In Canada you can contact BookNet Canada, 215 Spadina Avenue**,** Suite 310**,** Toronto, Ontario, Canada M5T 2C7; Tel. 416/362-5057; Fax: 416/362-5392**.**)

4.3 Version/Release Timing

The Book Industry convention for version release dictates that a sender/receiver support the current release, as well as the previous release. This recommended format was developed to comply with other industry groups such as, grocery, general retail, etc. The following is the development schedule:

September 1991:	Publish 003010BISAC.
April 1992	Publish 003020BISAC.
January 1995:	Implement 003020BISAC2. Drop Ver. 003010BISAC.
February 1996:	Publish 003020BISG3.
January 1998:	Publish 003060.
May 1999:	Publish 003060 version 2.
April 2001:	Publish 003060 version 3.
September 2005:	Publish 004010 version 1.

It is important to ALL partner relationships that this version release be followed. Your business needs and trading partners will dictate successful migration.

5.0 COMMUNICATION

5.1 General Introduction

Electronic Data Interchange depends on communications between two companies. As of the printing of this publication, no predominate method of communications has been adopted. The user community already has many forms of methodology in place, and until such time as a common protocol can be established, this will remain a trading partner established agreement. (In Canada, contact BookNet Canada, 215 Spadina Avenue**,** Suite 310**,** Toronto, Ontario, Canada M5T 2C7; Tel. 416/362-5057; Fax: 416/362-5392**.**)

5.2 Protocols

A word derived from 'programmed transmission control' which relates to the characteristics of a communication transmission such as line timing (asynchronous, bisynchronous), line speed, error detection, retransmission procedures, and message control. To establish a telecommunications connection, computers have to be able to speak to each other, requiring agreed-upon protocols and transmission parameters.

5.3 Point-to-Point

Direct computer-to-computer communications with a trading partner requires that both firms (1) use similar communication protocols, (2) have the same transmission speed, (3) have dial-up lines available at the same time or leased lines, and have compatible computer hardware. Depending on transaction volumes being exchanged and available hardware, direct computer-to-computer links with selected partners may be appropriate. *Point-to-point communications can also be accomplished through use of the Internet.*

5.4 Internet

For some firms, the use of either point-to-point communication or traditional third party services may not be practical and/or desirable. The Internet or Internet based service solutions may be a source of consideration. The Internet [itself] offers an open network for communications with trading partners. Issues of methodology & security need to be addressed. Internet technologies applied to a private network are referred to as an extranet. Again, methodology needs to be addressed.

5.5 Third Party Service

For many firms, the use of Third-Party Networks may be most appropriate. The concerns mentioned in Point-to-Point can be solved with electronic mailboxing provided by such a service. Mailboxing permits one trading partner to send Transactions Sets to another's mailbox for storage.

When the other partner is ready, it will retrieve the Transaction Sets without concern as to a partner's transmission modes, protocols, and transmission speeds which were dealt with by a third party service. This enables establishing trading partnerships with many firms with varied computer equipment and only being required to have compatible telecommunication equipment with a third party service.

Other beneficial services may be provided, but the primary role of a third party service is to accept data and maintain its integrity throughout the mailboxing process. Once

the decision to use a third party service is made, there are critical issues to consider.

- Determine that the provider has the commitment, stability, and financial resources to stay in business for the long term. If your business becomes dependent on EDI and outside services, it is critical that the service provide continuous service while maintaining an ongoing system enhancement program.
- The third-party provider must have “gateway” capability with other third parties, (See section 5.5) because not all companies use the same service.
- It is important that the third-party service be able to do business internationally if your firm's business dictates.
- The third-party should be active in furthering development and acceptance of inter-industry standards such as ASC X12. Further development and refinement of these standards is extremely important to EDI and to fostering electronic communications.
- Be sure the service has incorporated sufficient security measures.
- The third-party should be working with all industries to increase the likelihood of maximum trading partner exploitation.

5.6 Network Interconnects

Since all parties do not use the same third-party service and the EDI networking market is very much customer driven, "gateways" were established by networking vendors to meet customer needs for interfacing with trading partners. A "gateway" is a route of entry to a computer not owned by the accessing party. Gateway capabilities exist between all major third-party network vendors. In order to execute this capability, an agreement must be established between two networking vendors. A third-party network's existing gateway alliances should be a consideration in selecting a service along with their future plans for developing these relationships.

6.0 MISCELLANEOUS

6.1 Related Industry Topics and Contacts

Organization	Contact Information
Book Industry Study Group (BISG) also Book Industry Standards and Communications Committee (BISAC)	Michael Healy Executive Director Ph: 646-336-7141 Fax: 646-336-6214 http://www.bisg.org
BookNet Canada	215 Spadina Avenue, Suite 310 Toronto, Ontario Canada M5T 2C7 Ph:. 416-362-5057 Fax: 416-362-5392
Data Interchange Standards Association (DISA)	Jerry C. Connors President 7600 Leesburg Pike, Suite 430 Falls Church, VA 22043 Ph: 703-970-4480 Fax: 703-970-4488 http://www.disa.org
EDItEUR	c/o Book Industry Communications 39-41 North Road London, ENGLAND N7 9DP Ph: +44 (0)20 7607 0021 Fax: +44 (0)20 7607 0415 http://www.editeur.org/
IDEAlliance	1421 Price St., Suite 230 Alexandria, VA 22314-2805 Ph: 703-837-1070 Fax: 703-837-1072 http://www.idealliance.org/
ISBN/SAN Agency	c/o R. R. Bowker Company 630 Central Avenue New Providence, NJ 07974 Ph: 908-219-0188 http://www.isbn.org/standards/home/index.asp
	GS1 US 1009 Lenox Drive, Suite 202 Lawrenceville, NJ 08648 Ph: 609-620-0200 Fax: 609-620-1200 http://www.gs1.org/

7.0 GLOSSARY

7.1 X12 Glossary for the Book Industry

ANSI
American National Standards Institute

ANSI Standard
A document approved by ANSI because it has been approved through the consensus process of public announcement and review. Each of these standards must be reviewed every five years for update, reaffirmation or withdrawal. See Draft Standard For Trial Use.

Application Acknowledgment
A transaction set whose purpose is to return a response to a transaction set which has been received and processed in an application program. The Purchase Order Acknowledgment Transaction Set (855) is an example of an application acknowledgment, used to respond to the Purchase Order Transaction Set (850) indicating whether the receiver can fulfill the order on a timely basis.

Area, Transaction Set
Identifies a predefined area within a transaction set (header, detail, summary) containing segments and their various attributes.

ASC X12
ANSI Accredited Standards Committee X12 comprised of industry members for the purpose of creating EDI standards for submission to ANSI for subsequent approval and dissemination.

Authentication
A mechanism which allows the receiver of an electronic transmission to verify the sender and the integrity of the content of the transmission through the use of an electronic "key" or algorithm which is shared by the trading partners. This is sometimes referred to as an electronic signature.

Compliance Checking
A process that is used to ensure that a transmission complies with ANSI ASC X12 syntax rules.

Conditional (C)
A data element requirement designator which indicates that the presence of a specified data element is dependent on the value or presence of other data elements in the segment. The condition must be stated and must be computer processable.

Control Segment
A control segment has the same structure as a data segment but is used for transferring control information for grouping data segments. Control Segments are Loop Control Segments (LS/LE), Transaction Set Control Segments (ST/SE), and Functional Group Control Segments (GS/GE), defined in X12.6, and Interchange Control Segments (ISA/IEA,TA1) defined in X12.5.

Control Validation
Confirmation that information within the control segments is correct.

Data Element
The basic units of information in the EDI standards containing a set of values that represent a singular fact. They may be single character codes, literal descriptions or numeric values.

Data Element Length
This is the range, minimum to maximum, or the number of character positions available to represent the value of a data element. A data element may be of variable length with range from minimum to maximum, or it may be of fixed length in which the minimum is equal to the maximum.

Data Element Reference Number
Reference number assigned to each data element as a unique identifier.

Data Element Requirement Designator
A code defining the need for a data element value to appear in the segment if the segment is transmitted. The codes are mandatory (M), optional (O), or conditional (X).

Data Element Separator
A unique character preceding each data element that is used to delimit data elements within a segment.

Data Element Type
A data element may be one of six types: numeric, decimal, identifier, string, date, or time.

Delimiters
The delimiters consist of two levels of separators and a terminator. The delimiters are an integral part of the transferred data stream. Delimiters are specified in the interchange header and may not be used in a data element value elsewhere in the interchange. From highest to lowest level, the separators, and terminator are segment terminator and data element separator.

DISA
Data Interchange Standards Association. A not-for-profit organization funded by ASC X12 which serves as the Secretariat for ASC X12.

Direct Transmission
The exchange of data from the computer of the sending party directly to the computer of the receiving party. A third party value added service is not used in a direct transmission.

Draft Standard for Trial Use (DSTU)
Represents a document approved for publication by the full X12 committee following membership consensus and subsequent resolution of negative votes. The Draft EDI Standard for Trial Use document represents an ASC X12-approved standard for use prior to approval by ANSI. See ANSI Standard.

EDI
See Electronic Data Interchange.

EDI Translation
The conversion of application data to and from the X12 standard format.

EDI Translator
Computer software used to perform the conversion of application data to and from the X12 standard format.

Electronic Data Interchange (EDI)
The computer application to computer application exchange of business information in a standard format.

Electronic Envelope
Electronic information which groups a set of transmitted documents being sent from one sender to one receiver.

Element Delimiter
Single character delimiter follows the segment identifier and each data element in a segment except the last.

Electronic Mailbox
A term used to refer to the place where an EDI transmission is stored for pickup or delivery within a third party service provider's system. Trading partners can also maintain mailboxes within their own domain.

Encryption
A process of transforming clear text (data in its original, unencrypted form) into ciphertext (encrypted output of a cryptographic algorithm) for security or privacy.

Functional Acknowledgment
A Transaction Set (997) transmitted by the receiver of an EDI transmission to the sender, indicating receipt and syntactical acceptability of data transmitted according to the ASC X12 standards. The functional acknowledgment allows the receiving party to report back to the sending party problems encountered by the syntax analyzer as the data is interpreted. It is not intended to serve as an acknowledgment of data content.

Functional Group
A group of one or more transaction sets bounded by a functional group header segment and a functional group trailer segment.

Functional Group Segments
GS/GE segments identify a specific functional group of documents such as purchase orders.

Industry Conventions
Defines how the ASC X12 standards are used by the book industry.

Industry Guideline
Defines the EDI environment for using conventions within the book industry. It provides assistance on how to implement the X12 standard.

Interchange Control Segments
ISA/IEA segments identify a unique interchange being sent from one sender to one receiver (see electronic envelopes).

Interchange Control Structure
The interchange header and trailer segments envelope one or more functional groups or interchange related control segments and perform the following functions: 1) defines the data element separators and the data segment terminators, 2) identifies the sender and receiver, 3) provides control information for the interchange, and 4) allows for authorization and security information.

Loop
A group of semantically related segments; these segments may be either bounded or unbounded. The N1 loop, which includes segments N1 to PER for name and address information, is an example of a loop.

Mandatory (M)
A data element/segment requirement designator which indicates the presence of a specified data segment or element is required.

Mapping
The process of identifying the standards' data elements' relationship to application data elements.

Max Use
Specifies the maximum number of times a segment can be used at the location in a transaction set.

Message
Entire data stream including the outer envelope.

Optional (O)
A data element/segment requirement designator which indicates the presence of a specified data element/segment is at the option of the sending party which can be based on the mutual agreement of the interchange parties.

Proprietary Format
A data format specific to a company, industry, or other limited group. Proprietary formats do not comply with the ASC X12 series of standards.

Qualifier
A data element which identifies or defines a related element, set of elements, or a segment. The qualifier contains a code taken from a list of approved codes.

Repeating Segment
A segment that may be used more than once at a given location in a transaction set. See Max Use.

Security
System screening which denies access to unauthorized users and protects data from unauthorized uses.

Segment
Segments consist of logically related data elements in a defined sequence. A data segment consists of a segment identifier, one or more data elements each preceded by an element separator, and ending with a segment terminator.

Segment Directory
Provides the purposes and formats of the segments used in the construction of transaction sets. The directory lists each segment by name, purpose, identifier, the contained data elements in the specified order, and the required designator for each data element.

Segment Identifier
A unique identifier for a segment composed of a combination of two or three uppercase letters and digits. The segment identifier occupies the first character positions of the segment. The segment identifier is not a data element.

Segment Terminator
A unique character appearing at the end of a segment to indicate the termination of the segment.

Syntax
The grammar or rules which define the structure of the EDI standards (e.g., the use of loops, qualifier, etc.). Syntax rules are published in ANSI X12.6.

Trading partner
The sending and/or receiving party involved in the exchange of electronic data interchange transmissions.

Transaction Set
The transaction set unambiguously defines, in the standard syntax, information of business or strategic significance and consists of a transaction set header segment, one or more data segments in a specified order, and a transaction set trailer segment.

Transaction Set ID
An identifier that uniquely identifies the transaction set. This identifier is the first data element of the transaction set header segment.

Translation
The act of accepting documents in other than X12 standard format and translating them to the X12 standard format.

VAN
Value Added Network. Third party service organization.

Version/Release
Identifies the publication of the standard being used for the generation or the interpretation of data in the X12 standard format. May be found in the Functional Group Header Segment (GS) and in the Interchange Control Header Segment (ISA). See Control Segment.

X12
The ANSI accredited committee responsible for the development and maintenance of standards for Electronic Data Interchange.

7.2 Book Industry Glossary

BIC
Book Industry Communications in UK

BISAC
Book Industry Standards and Communications Committee

BISG
Book Industry Study Group, Inc. parent organization of BASIC.

BookNet Canada
A book industry trade association dedicated to innovation in the Canadian book industry supply chain

EDItEUR International
Electronic Data Interchange for Europe and North America

ISBN
International Standard Book Number. Unique 13-digit number used to identify title edition, binding and packaging. An ISO International Standard (ISO 2108).

ONIX International
ONIX International is the international standard for representing and communicating book industry product information in electronic form, incorporating the core content which has been specified in national initiatives by BIC, BISG, and the AAP.

SAN
Standard Address Number. Identification system which provides a discrete code for each address within or served by the publishing industry. An American National Standard (ANSI/NISO Z39.43)

8.0 INDUSTRY CONVENTIONS FOR ASC X12 TRANSACTION SETS

8.1 Introduction

Understanding Standards, Conventions and Guidelines
The BISAC Implementation Guide uses the terms, standards, conventions, and guidelines and the following definitions to assist the reader in understanding the difference between the terms:

- **Standards0**
  Standards are the technical documentation approved by ASC X12, specifically Transaction Sets, Segments, Data Elements, Code sets and interchange Control Structure. Standards define what is included in each ASC X12 standard.

- **Conventions**
  Conventions are the common practices and/or interpretations of the use of ASC X12 standards, complying with the standards as agreed upon by two or more trading partners. Conventions define what is included in a specific implementation of an ASC X12 standard.

- **Guidelines**
  Guidelines are instructions on the use of EDI and additional information to conduct EDI. Guidelines are intended to provide assistance on how to implement EDI.

8.2 Format

Transaction Sets
Each transaction set begins with an introduction which contains any information or conditions applicable only to that transaction set. After the introduction the ASC X12 segment hierarchy is listed.

The ASC X12 segment hierarchy lists all segments used by BISAC members. Following the segment hierarchy is a detailed description of each segment listed with the segment ID and name, level (header, detail, or summary), loop (if the segment is contained within a loop), loop repeat (for the first segment in the loop), requirement within the transaction set, maximum use, purpose (as defined by ASC X12), ASC X12 syntax notes, ASC X12 comments for segment usage, and notes that explain the BISAC convention for the segment within the transaction set. It is important to note, all shaded text is either a BISAC convention or BISAC terminology. Code lists are selected from the entire ASC X12 data element code list. The code definitions immediately following the code are from the ASC X12 standard. The additional descriptions are from BISAC. To specify whether a data element is used, mandatory, or not used you should refer to the text printed to the right of each data element for each segment. See the following sample.

The data element summary lists each data element, in order, for the segment. For each data element there is one line to identify the reference designator, data element number, data element name, and attributes.

Sample of an X12 Segment.

Descriptive comments are provided in red text.

REF Reference Identification

Pos: 050	Max: >1
Heading - Optional	
Loop: N/A	Elements: 4

ASC X12 Data

To specify identifying information

Syntax:

R0203 -- At least one of REF02 or REF03 is required. **Conditions for data elements with C attribute**

Semantics:

1. REF04 contains data relating to the value cited in REF02.

Element Summary:

BISAC data element usage

Ref	Id	Element Name	Req	Type	Min/Max	Usage
REF01	**128**	**Reference Identification Qualifier** **Description:** Code Qualifying the Reference Identification **BISAC recommended code values** **Code** **Name** AE Authorization for Expense (AFE) Number CT Contract Number FU Fund Code **BISAC terminology** **Description:** Defense Fuel Supply Center to bill back fuel purchases to the appropriate service or agency account fund IT Internal Customer Number MR Merchandise Type Code **Description:** The merchandise type code may be used to indicate a new or used, test or reference type condition against the entire order. Code selection may be referenced under the 'GC' definitions in the appendix. Note: Use of the 'GC' in the PO1 segment at detail level overrides any condition set by this reference. PD Promotion/Deal Number PR Price Quote Number SB Sales Region Number	**M**	**ID**	**2/3**	**Required**
REF02	**127**	**Reference Identification** **Description:** Reference information as defined for a particular Transaction Set or as specified by the Reference Identification Qualifier	**C**	**AN**	**1/30**	**Rec'd**

End of sample X12 segment

The data element summary includes the following types of information:

- **Reference Designator**
  This is the segment identifier with the data element sequence number within the segment.

- **Data Element Number**
  This is the number assigned to the data element by ASC X12. This number may be used for direct reference into the ASC X12 Data Element Dictionary.

- **Data Element Name**
  This is the name assigned to the data element by ASC X12, in the ASC X12 Data Element Dictionary.

- **Attributes**
  Each data element has three attributes: Element Usage, Element Type, and Minimum/Maximum Length.

  - **Element Usage**

    M Mandatory
    The data element must be used if the segment is used.

    O Optional
    The data element may be used if the segment is used.

    C Conditional

    The data element may be used - its presence is dependent on the presence or absence of other data elements in the same segment.

    The particular condition/relation will be stated in the Data Element Summary for the segment when used. For more information, refer to the Application Control Structure section of the ASC X12 Standards Manual.

  - **Element Type**

    ID Identifier
    Values for the identifier-type data elements are taken from a predefined list in the ASC X12 Data Element Dictionary.

    AN String
    Values for the string-type data element are a sequence of any printable characters.

    DT Date
    Values for the date-type data element are in the format YYMMDD.

    TM Time
    Values for a time-type data element are in the format HHMM expressed in 24 hour clock.

    Nx Numeric
    Values for a numeric data element are in an implied decimal format, where "x" indicates the number of places to the right of the decimal point. For negative values the leading minus sign (-) is used. Absence of a minus sign indicates a positive number. The decimal

point is not transmitted in the character stream.

e.g.,

N0 is a whole number (999.)
To send the number 999 the field contains “999”

N2 is 999.99
To send the number 999.99 the field contains “99999”

R Decimal
This is a numeric field in character format, with a decimal point included. It is treated as alpha/numeric. The decimal point is not sent for whole numbers. The decimal point is not included in the calculation of data element field length. For negative values the leading minus sign(-) is used. Absence of a minus sign indicates a positive number.

e.g.,

to send the number 0128.734 the field contains "128.734"

to send the number 0789.00 the field contains "789"

In accordance with the standards established by EDItEUR, the following shall be industry practice for the maximum number of decimal places to be used:

	MAXIMUM DECIMAL PLACES
Dimensions and general quantities	3
Prices , percentages, tax rates	4
Currency rates	6

- **Minimum/Maximum**
  This is the minimum and maximum length the field can be.
- **Data Element Description**
  This is the description of the data element found in the ASC X12 Data Element Dictionary.
- **Industry Usage note**
  The term **Not Used** may appear to indicate the BISAC use convention for an optional data element.
- **Industry Code Values**
  Represented as shaded text, these code lists represent BISAC industry recommendations from the entire ASC X12 data element code list.

  Industry-specific terminology may appear as shaded text below a selected code to further define it.

8.3 Control Segments

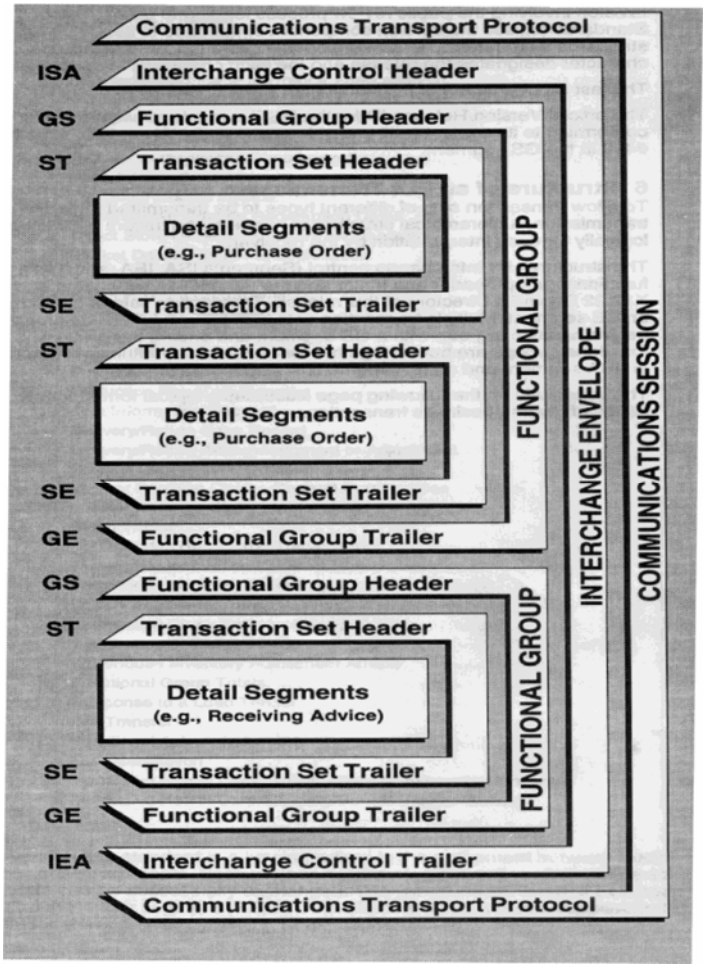
To allow transaction sets of different types to be transmitted from one party to another in the same transmission, a hierarchical structure of headers and trailers allows the data to be segregated logically for easy interpretation by the receiver.

Transaction sets begin with an "ST" header and end with an "SE" trailer. Several transaction sets of the same type may be "functionally grouped" together by beginning such a group with a "GS" header and ending the group with a "GE" trailer. One or more functional groups are bound together for transmission within an interchange "envelope" made up of an "ISA" header and an "IEA" trailer.

The structures of the transaction set and functional group headers and trailers are found in the Segment Directory.

The structures of the interchange control header and trailer are found in the Interchange Control Structure standard (ANSI X12.5 - 1997).

The following schematic illustrates a typical format for electronically transmitting a series of diverse business transactions.



Segment: ISA Interchange Control Header

Purpose: To start and identify an interchange of one or more functional groups and interchange-related control segments.

Notes: The ISA segment is fixed length (min/max are equal for each element), however, data element separators are used between data elements to be consistent with the basic syntax of segment structure.

The following control characters have been identified for use in the Book Industry.

Segment Terminator
NEW LINE --- (HEX "15" in EBCDIC)
CR --- (HEX "OD" in ASCII)
~ --- (HEX "7E" in ASCII)

The segment terminator that is to be used in the transmission is defined by the first occurrence of the element separator in the ISA segment; e.g., ISA*00….

Subelement Separator
">" --- (HEX "6E" in EBCDIC)
(HEX "3E" in ASCII)

CAUTION
Any time a printable character is used to control the translation of data that control character cannot be used as data within the transmission. Some systems/network protocols may translate control characters when going from EBCDIC to ASCII and back.

Data Element Summary

Ref. Des.	Data Element	Name	Attributes		
ISA01	**I01**	**Authorization Information Qualifier**	**M**	**ID**	**2/2**
		Code to identify the type of information in the Authorization Information.			

00 No Authorization Information Present (No Meaningful Information in I02

ISA02 I02 Authorization Information M AN 10/10
Information used for additional identification or authorization of the sender or the data in the interchange. The type of information is set by the Authorization Information Qualifier.

This field is normally blank.

ISA03 I03 Security Information Qualifier M ID 2/2
Code to identify the type of information in the Security Information.

00 No security information present

ISA04 I04 Security information M AN 10/10
This is used for identifying the security information about the sender of the data in the interchange. The type of information is set by the Security Information Qualifier.

Blank filled

ISA05 I05 Interchange ID Qualifier M ID 2/2
Qualifier to designate the system/method of code structure used to designate the sender or receiver ID element being qualified.

ZZ Mutually Defined

ISA06 I06 Interchange Sender ID M ID 15/15
Identification code published by the sender for other parties to use as the receiver ID to route data to them. The sender always codes this number in the sender ID element.

This is the Standard Address Number (SAN) of the sender of the EDI transmission.

ISA07 I05 Interchange ID Qualifier M ID 2/2
Qualifier to designate the system/method of code structure used to designate the sender or receiver ID element being qualified.

ZZ Mutually Defined

ISA08 I07 Interchange Receiver ID M ID 15/15
Identification code published by the receiver of the data. When sending, it is used by the sender as their sending ID, thus other parties sending to them will use this as a receiving ID to route data to them.

This is the Standard Address Number (SAN) of the receiver of the EDI transmission.

ISA09 I08 Interchange Date M DT 6/6
Date of the interchange.

The date the data interchange transaction was created in the sender's system. Format "YYMMDD".

ISA10 I09 INTERCHANGE TIME M TM 4/4
Time of the interchange.

The time the data interchange transaction was created in the sender's system. Format "HHMM".

ISA11 I10 Interchange Control Standards Identifier M ID 1/1
Code to identify the agency responsible for the control standard used by the message that is enclosed by the interchange header and trailer.

U U.S. EDI Community of ASC X12, TDCC, and UCS

ISA12 I11 Interchange Control Version Number M ID 5/5
This version number covers the interchange control segments and the functional group control segments.

00300 Standard Issued as ANSI X12.5-1991

This version number is for the envelope only. It is not the same as version number in the "GS" segment

ISA13 I12 Interchange Control Number M N0 9/9
This number uniquely identifies the interchange data to the sender. It is assigned by the sender. Together with the sender ID it uniquely identifies the interchange data to the receiver. It is suggested that the sender, receiver, and all third parties be able to maintain an audit trail of interchanges using this number.

ISA14 I13 Acknowledgment Requested M ID 1/1
Code sent by the sender to request an interchange acknowledgment.

0 No Acknowledgment Requested (zero)

ISA15 I14 Test Indicator M ID 1/1
Code to indicate whether data enclosed by this interchange envelope is test or production.

P Production Data
T Test Data
This test indicator is valuable for start-up. The indicator applies to the entire transmission.

ISA16 I15 Subelement Separator M AN 1/1
This is a field reserved for future expansion in separating data element subgroups. (In the interest of a migration to international standards, this should be different from the data element separator).

BISAC recommends the greater than symbol. >

Segment: GS Functional Group Header

Purpose: To indicate the beginning of a functional group and to provide control information.

Syntax: **1** The data interchange control number (GS06) in this header must be identical to the same data element in the associated Functional Group Trailer (GE02).

Comments: **A** A functional group of related transaction sets, within the scope of X12 standards, consists of a collection of similar transaction sets enclosed by a functional group header and a function group trailer.

Data Element Summary

Ref. Des.	Data Element	Name	Attributes		
GS01	**479**	**Functional Identifier Code**	**M**	**ID**	**2/2**

Code identifying a group of application related Transaction Sets.

AG Application Advice (824)
BS Shipment & Billing Notice (857)
CT Application Control Totals (831)
FA Functional Acknowledgment (997)
IN Invoice (810)
NC Nonconformance Report (842)
PD Product Activity Data (852)
PO Purchase Order (850)
PR Purchase Order Acknowledgment (855)
PS Planning Schedule with Release Capability (830)
RA Payment Order/Remittance Advice (820)
RS Order Status Information (870)
SC Price/Sales Catalog (832)
SH Ship Notice/Manifest (856)
UA Retail Account Characteristics (885)

GS02	**142**	**Application Sender's Code**	**M**	**AN**	**2/15**

Code identifying party sending transmission. Codes agreed to by trading partners.

This is the Standard Address Number (SAN) or (ISAN) of the sender of the EDI transmission.

GS03	**124**	**Application Receiver's Code**	**M**	**AN**	**2/15**

Code identifying party receiving transmission. Codes agreed to by trading partners.

This is the Standard Address Number (SAN) or ISAN of the receiver of the EDI transmission.

GS04	**29**	**Group Date**	**M**	**DT**	**6/6**

Date sender generated a functional group of transaction sets.

This is the date the Functional Group was created in the sender's system. Format "YYMMDD".

GS05	**30**	**Group Time**	**M**	**TM**	**4/4**

Time (HHMM) when the sender generated a functional group of transaction sets (local time at sender's location).

This is the time the Functional Group was created in the sender's system. Format "HHMM".

GS06 28 Group Control Number M N0 1/9
Assigned number originated and maintained by the sender.

This number, assigned by the sender, must be unique by trading partner. The trading partner as defined at the group level by the Application Receiver's Code (GS03).

GS07 455 Responsible Agency Code M ID 1/2
Code used in conjunction with Data Element 480 to identify the issuer of the standard.

X Accredited Standards Committee X12

GS08 480 Version/Release/Industry ID Code M ID 1/12
Code indicating the version, release, subrelease and industry identifier of the EDI standard being used. Positions 1-3, version number; positions 4-6, release and subrelease level of version; positions 7-12, industry or trade association identifier (optionally assigned by user).

003060 Standard Issued as ANSI X12.5-1987 Draft Standards Approved by ASC X12 Procedures Review Board through October 1995. This is the version number of the transaction sets at the group level. It is not the same as the ISA header level.

Segment: GE Functional Group Trailer

Purpose: To indicate the end of a functional group and to provide control information.

Syntax: **1** The data interchange control number (GE02) in this trailer must be identical to the same data element in the associated Functional Group Header (GS06).

Comments: **A** The use of identical data interchange control numbers in the associated functional group header and trailer is designed to maximize functional group integrity. The control number is the same as that used in the corresponding header.

Data Element Summary

Ref. Des.	Data Element	Name	Attributes		
GE01	**97**	**Number of Transaction Sets Included**	**M**	**N0**	**1/6**

Total number of transaction sets included in the functional group or interchange (transmission) group terminated by the trailer containing this data element.

This is the total count of "ST" segments within the Functional Group.

GE02	**28**	**Group Control Number**	**M**	**N0**	**1/9**

Assigned number originated and maintained by the sender.

Must be the same as "GS06" for this Functional Group.

Segment: IEA Interchange Control Trailer

Purpose: To define the end of an interchange of one or more functional groups and interchange-related control segments.

Data Element Summary

Ref. Des.	Data Element	Name	Attributes		
IEA01	**I16**	**Number of Included Functional Groups**	**M**	**N0**	**1/5**

A count of the number of functional groups included in a transmission.

The total count of "GS" segments within the EDI transmission.

IEA02	**I12**	**Interchange Control Number**	**M**	**N0**	**9/9**

This number uniquely identifies the interchange data to the sender. It is assigned by the sender. Together with the sender ID it uniquely identifies the interchange data to the receiver. It is suggested that the sender, receiver, and all third parties be able to maintain an audit trail of interchanges using this number.

This must be the same number as in the "ISA13" data element of the ISA header for the EDI transmission

8.4 Code Lists Not Maintained by X12

8.4.1 BISAC Maintained Code Lists

BISAC SUBJECT HEADING LIST

The BISAC Subject Headings Listing is a standard used by many companies throughout the supply chain to categorize books based on topical content.

The Subject Heading applied to a book can determine where the work is shelved in a brick and mortar store or the genres under which it can be searched for in an internal database

The most recent BISAC Subject Heading Listing is available on the Book Industry Study Group, Inc. website at http://www.bisg.org/. For organizations who would like the versatility and capability that the BISAC Subject Headings List can lend to their internal systems, the Book Industry Study Group offers an End User's License. Email info@bisg.org for more information.

8.5 Sources for Other Code Lists

The code lists provided are a complete listing of all industry code list sources associated with ASC X12. Future versions of this guide may include only those code list sources used in the BISAC implementation.

5
Countries, Currencies and Funds

DATA ELEMENTS USED IN:
26 Country Code
100 Currency Code
235 Product/Service ID Qualifier (CH)

SOURCE:
Codes for Representation of Names of Countries ISO 3166-(Latest Release)
Codes for Representation of Currencies and Funds, ISO 4217-(Latest Release)

AVAILABLE FROM:
American National Standards Institute, Inc.
25 West 43rd Street
New York, NY 10036
Tel: 212/642.4900
Email: info@ansi.org

National Technical Information Service
Springfield, VA 22100
Tel: 703/605-6000
Email: info@ntis.gov

ABSTRACT:
This international standard provides a two-letter alphabetic code for representing the names of countries, dependencies, and other areas of special geopolitical interest for purposes of international exchange and general directions for the maintenance of the code. The standard is intended for use in any application requiring expression of entities in coded form.

Most currencies are those of the geopolitical entities that are listed in ISO 3166, Codes for the Representation of Names of Countries.

The code may be a three-character alphabetic or three-digit numeric. The two leftmost characters of the alphabetic code identify the currency authority to which the code is assigned (using the two character alphabetic code from ISO 3166, if applicable). The rightmost character is a mnemonic derived from the name of the major currency unit or fund.

For currencies not associated with a single geographic entity, a specially-allocated two-character alphabetic code, in the range XA to XZ identifies the currency authority. The rightmost character is derived from the name of the geographic area concerned, and is mnemonic to the extent possible.

The numeric codes are identical to those assigned to the geographic entities listed in ISO 3166. The range 950-998 is reserved for identification of funds and currencies not associated with a single entity listed in ISO 3166.

41
Universal Product Code

DATA ELEMENTS USED IN:
66 Identification Code Qualifier.....(8)
235 Product/Service ID Qualifier.....(UA)
235 Product/Service ID Qualifier.....(UB)
235 Product/Service ID Qualifier.....(UC)
235 Product/Service ID Qualifier.....(UD)
235 Product/Service ID Qualifier.....(UE)
235 Product/Service ID Qualifier..... (UI)
235 Product/Service ID Qualifier.....(UN)
235 Product/Service ID Qualifier.....(UP)
438 UPC Case Code
559 Association Qualifier Code..... (FD)

SOURCE:
Publication series on Universal Product Code numbering system and usage.

AVAILABLE FROM:
GS1 US
1009 Lenox Drive, Suite 202
Lawrenceville, NJ 08648
http://www.gs1us.org/

ABSTRACT:
UPC is a system of coding products whereby each item/multipack/case is uniquely identified. Codes are formatted as:

- An optional digit which identifies the packing variations, one or two high order digit(s) identifying the system (grocery, drug, general merchandise, coupons), 5 digits which identify the manufacturer, 5 digits which identify the item and an optional 1 character check digit.

Reference the above data elements for correct formats.

42
Book Industry - Standard Address Number

DATA ELEMENTS USED IN:
66 Identification Code Qualifier.....(15)
559 Association Qualifier Code ..... (BI)

SOURCE:
ANSI/NISO Z39.43-1993, Identification code for the publishing industry

AVAILABLE FROM:
National Information Standards Organization
4733 Bethesda Avenue, Suite 300
Bethesda, MD 20814
Tel: 301/654-2512
Email: nisohq@niso.org

ABSTRACT:
The SAN is a seven-digit numeric code that uniquely identifies each address of an organization that is served by the publishing industry and that is engaged in repetitive transactions with other members of the book industry.

94
International Standards Organization (Date and Time)

DATA ELEMENTS USED IN:
623 Time Code

SOURCE:
ISO 8601

AVAILABLE FROM:
American National Standards Institute
25 West 43rd Street, 4th Floor
New York, NY 10036
Tel. 212/642.4900

ABSTRACT:
ISO Standards code list for representation of date and time.

102
International Standards Organization (Languages)

DATA ELEMENTS USED IN:
352 (Product) Description (LA)

SOURCE:
Code for the representation of names of languages (ISO 639)

AVAILABLE FROM:
American National Standards Institute
25 West 43rd Street, 4th Floor
New York, NY 10036
Tel. 212/642.4900

ABSTRACT:
A set of symbols used to designate languages.

8.6 Industry Conventions

The following conventions are provided to help put the mapping conventions in perspective to the business practices of the users and their trading partners.

Functional Acknowledgments (FA), Transaction Set 997, are required for each functional group transmitted. The FA must be sent by the receiver of the functional group, to the sender, by the close of the next business day after receipt, to acknowledge the receipt and the syntactical condition of the functional group. The minimum level of detail for the FA is the group, i.e. it is not required to acknowledge ~~at~~ the transaction set, nor is it required to acknowledge specific segments and data elements in error. Acknowledgment at a level lower than the group is by agreement between the trading partners.

CONTROL NUMBERS

ANSI ASC X12 standards provide three syntax control levels: Interchange, Group, and Transaction Set. Within each level there are control numbers that provide a positive match between the headers and trailers, i.e. ISA/IEA, GS/GE, and ST/SE. The BISAC conventions specify the assignment of these control numbers, at each level, to provide additional control of the transmission process between trading partners.

ISA/IEA Interchange Control Numbers (ISA13/IEA02)

This number uniquely identifies the interchange data to the sender. It is assigned by the sender. Together with the sender ID it uniquely identifies the interchange data to the receiver. It is suggested that the sender, receiver, and all third parties be able to maintain an audit trail of interchanges using this number.

GS/GE Data InterChange Control Numbers (GS06/GE01)

The number assigned by the sender must be unique within each trading partner. The trading partner at the group level is defined by the Application Receiver Code (GS03). The uniqueness must be maintained until such time that a Functional Acknowledgment is received for that group.

In a distributed EDI environment where groups may be processed at different locations from the sending/receiving point for the interchange it is impossible to maintain sequential control numbers. In this type of environment one location serves as the gateway to the other locations.

Only the group level is passed on to other locations, and, in turn, the distributed locations format the groups and send them to the gateway for transmission. In addition, the Functional Acknowledgment provides a positive means of control at the group level. The above two reasons support the convention for the group control number.

ST/SE Transaction Set Control Numbers (ST02/SEO2)

The number is sequentially assigned, by the sender, starting with "1" within each functional group. For each functional group the first transaction control number will be 0001 and incremented by one for each additional transaction set within the group.

Because of the rigorous control number structure at the interchange and group level, the transaction set control number is used to identify position within the group to ease error identification and resolution. The sequential numbering will allow easy location of a particular transaction set within the transmission if the need should arise.

SENDER/RECEIVER IDENTIFICATION

The convention for identifying trading partners within the Book Industry is currently the Standard Address Number (SAN), However, for international EDI, BISAC is recommending the use of the International location convention which precedes the SAN with a UPC or an EAN prefix. This identification will be used within the 'ISA' and 'GS' control segments to properly identify the sender and receiver of an international EDI transmission, as well as identifying ultimate senders and receivers of transaction set at the Functional Group level, if they happen to be different than the 'ISA'. Trading Partner relationships should encourage the use of this convention for better consistency within the industry. Additional information on the SAN and UPC/EAN prefixes is available from BISG.

LOCATION IDENTIFICATION

The convention for location identification within the actual transaction set is also the use of the Standard Address Number (SAN). The SAN may be used to identify the buyer, seller, and other parties involved in the transaction. When following industry convention in sending the "N1"-Name segment using the 'N103' as '15'-Book Industry, and an 'N104' as the SAN the use of the 'N3' and 'N4' segments, to define full postal address, are not required. However, when defining the physical shipment destination, or when industry convention can not be followed, the full postal address must always be transmitted making the 'N3' and 'N4' mandatory.

PRODUCT IDENTIFICATION

The convention for identifying product within the Book Industry is the use of the International Standard Book Number (ISBN). In a true EDI environment, transactions are intended to be totally machine-readable and processed. Ordering product by use of author, title, and subtitle only, is strongly discouraged.

PURCHASE ORDER CONVENTIONS

Standard Purchase Order

A standard purchase order is initiated by using the following code qualifier:

BEG01	BEG02
00	NE - New Order

In the book industry the purpose of an 850 Purchase Order transaction does not include changes to an order

CAUTION: When beginning new trading partner relationships, the recommendation is to avoid the use of changing a previously transmitted purchase order and develop temporary methods of manual intervention.

Remember that electronics and physical attributes of product movement operate on two completely different levels. As the relationship matures, and a better understanding of the trading partners systems sophistication is known, proceed to the next level of EDI communications.

REFERENCE NUMBER LENGTH

Although the X12 formats allow for greater length in reference number fields, the book industry uses a maximum of 13 digits for Purchase Order, Invoice and other reference numbers. This convention allows for the appropriate use of these numbers in printed documents.