



The Global Language of Business

EDI New User Guidance

Everything you need to know if you're new to EDI
(Electronic Data Interchange)

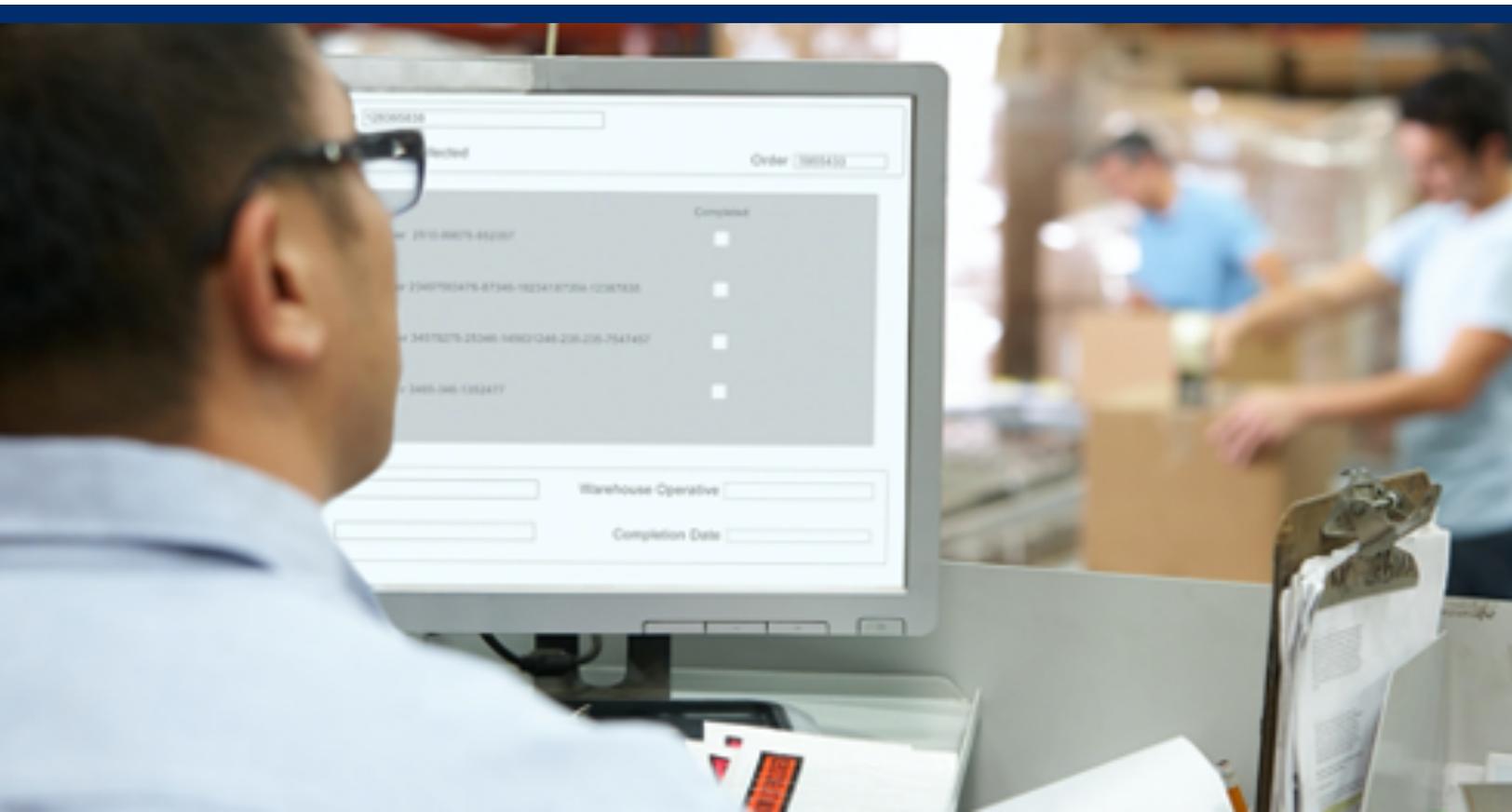


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Acknowledgments:

Prepared in collaboration of GS1UK to provide basic information to new EDI users in the Canadian Supply Chain

1. Introduction

This introduction to Electronic Data Interchange (EDI) is designed to assist people new to the subject to gain an understanding of what it is about and how it can help in communicating with your customers and suppliers.

This document is for anyone in business who needs to have an overview of what EDI is and how it can impact upon the business. For commercial, accounts and salespeople it gives an insight into an alternative channel of doing business which gives opportunities for improved efficiencies and potential business benefits.

It is not a technical document but has relevance to technical people by providing that all important understanding of where technical applications sits within the overall business process.

Essentially EDI is an electronic alternative to paper based transactions such as orders and invoices. This means that instead of printing out an order or invoice and then sending it by fax or post, it is sent electronically to the supplier or customer. Not only does this reduce cost (paper, telephone, postage, time), it reduces inaccuracies and mistakes from humans' mis-keying data since EDI enables data to be fed directly into a computer system. It also means the communication time frame is considerably reduced. This can drive efficiencies within the supply chain in your business.

EDI is a normal requirement when supplying to larger trading partners and there are savings to be made in every industry including: Grocery, Foodservice, Healthcare, Apparel, DIY and Construction among others.

Although this is not a technical guide, inevitably there are technical terms used (see Appendix: Glossary) but is intended to provide the reader with an understanding of what EDI is, how it can help in business communications, and where it may be applied.

You may be reading this because you have heard it mentioned in the press, trade magazines, or within your computer application and would like some further insight into it. On the other hand, you may be reading this because your supplier or customer has asked you to consider using EDI as a means of communicating with them.

Savings achieved through EDI

Orders	Invoices	ASNs
\$50+ per order	\$14 to \$30 per invoice	\$24 to \$50 per order

Savings are made by:

- ✓ Improved accuracy
- ✓ Increased customer service
- ✓ Increased Sales
- ✓ Reduced manual data entry
- ✓ Reduced postage and handling cost
- ✓ Reduced printing cost of forms
- ✓ Reduced mail time
- ✓ Reduced labor processing cost
- ✓ Reduced order cycle time
- ✓ Reduced lead times
- ✓ Reduced filing of paperwork
- ✓ Reduced inventory carrying out

In some market sectors it may be almost obligatory to use EDI, and to get maximum benefit you may need to consider changing your processes. However, do not let this put you off, read further and more will be revealed.

This is an appropriate point to say that this “new-fangled system” is not all that new. In fact, it has been around since the 1970's particularly in the automotive and grocery market sectors. It is becoming increasingly used in many distribution and manufacturing sectors. The key drivers for its use are:

- time saving,
- cost reduction,
- efficiency savings.

Your service provider will be able to give you an indication of the length of time it will take to set up your system for a specific project.

2. What is EDI?

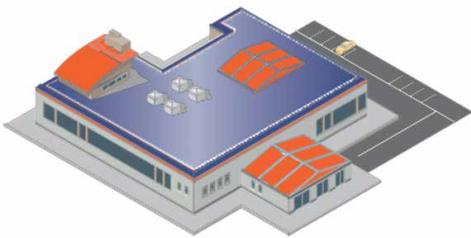
You will have gathered from the introduction that EDI is the electronic equivalent of sending a transaction by fax or post, only a lot more efficiently.

Generally, it is two computer applications talking to one another. Thus, we have two businesses which need to communicate with each other in a structured format. EDI is generally a business to business communication method but can also be employed within a business between departments and/or locations.

So, EDI is a means of communication, but what are we communicating? Well, EDI can be used for things that can be defined in a structured manner. Whilst the most common forms are commercial transactions such as invoices, orders and the like, it is also used as a means of transmitting catalogues, form documents, contracts, etc.

Paper-based order system

Customer



Supplier



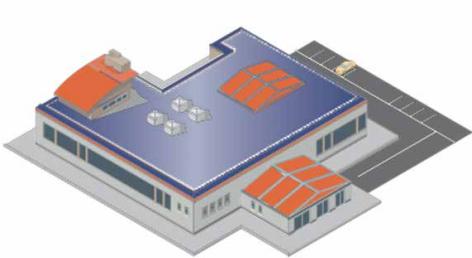
Typically, this can take 1-5 days – assuming no data errors

It is most likely that in the real world there will be a mixture of electronic and paper transactions because not all customers or suppliers will be in a position to be fully electronic, however desirable that may be.

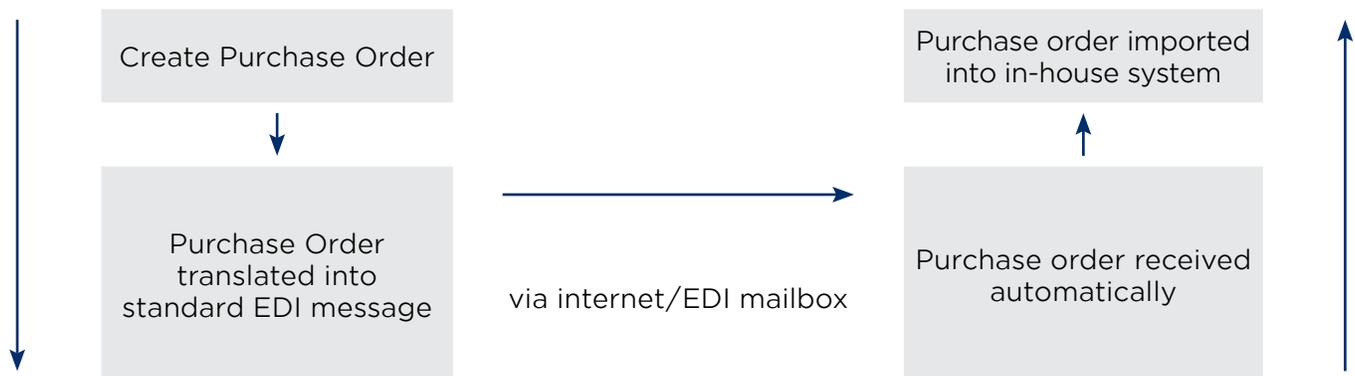
Because there are many and varied computer systems and formats of data within them, there is a need to have some standards within which to work. We may not be aware of it, but the same applies in our day-to-day speech although we speak the same business language, there are regional accents and dialects but there are grammatical rules which make it easier for us to understand one another. So, it is with electronic transactions, there are standards, and this is where GS1 Standards and EDI standards makes it much easier for everyone to communicate.

EDI order process

Customer



Supplier



What took days, now can take minutes

Example ONLY

PURCHASE ORDER

BUYER: An Awesome Retailer Name

PO DATE: January 13, 2020

PO #: 987605220432

SUPPLIER: Good Biscuits Limited

1 Shipping Road
City, Province
Postal Code
T: (000) 000-0000
F: (000) 000-0001
E: name@domain.ca

SHIP TO: Contact Name
An Awesome Retailer Name
23 Receiving Street
City, Province
Postal Code
T: (000) 000-0000

CUSTOMER #: 00010-000-0

SHIPPING METHOD	SHIPPING TERMS	DELIVERY DATE				
Supplier Truck	2% 10 Net 30	Month Day, Year				
#	GTIN*	Description	Unit of Measure	Order Quantity	Unit Price	Total
1	123456789012	Good Biscuits Chocolate	EA	200	\$10.00	\$2,000.00
2	123456789029	Good Biscuits Vanilla	EA	300	\$10.00	\$3,000.00
3	123456789036	Good Biscuits Raspberry	EA	150	\$10.00	\$1,500.00
4	123456789043	Good Biscuits Blueberry	EA	20	\$10.00	\$200.00

* These examples are fictitious GTINs

PO Field	EDI Mapping
Transaction Type	ST*850 850 is the Transaction Set Identifier Code for Purchase Order
PO Date	BEG****20200113 20200113 is the Purchase Order Date (January 13, 2020)
PO #	BEG***987605220432~ 987605220432 is the Purchase Order Number
Buyer Name	N1*BY*An Awesome Retailer Name BY identifies the Buying Party (Purchaser) An Awesome Retailer Name
Supplier Name	N1*SU*Good Biscuits Limited SU identifies the Supplier Good Biscuits Limited is the supplier
Ship To	N1*ST**UL*5012345000015 ST Identifies the Ship To location UL Identifies use of a Global Location Number (GLN) 5012345000015 is the GLN populating the ship to address
Customer #	N1*BY*91*00010-000-0 BY identifies the Buying Party (Purchaser) 91 identifies what follows is Assigned by Seller 00010-000-0 is the Customer Number

Line Item Details	PO1**200*EA***UP*123456789012~
<ul style="list-style-type: none"> • Qty, • UOM • GTIN 	200 is the Quantity Ordered EA is the Unit Measurement Code for "Each" UP is the qualifier identifying the GTIN 123456789012 is the GTIN number

Above is an example of a paper order and how the information appears in the structured format of an EDI purchase order. Although, at first glance this may look complicated, the format of every order will look the same. The content of an order is placed in a uniform structure which can be recognised across any industry.

Once set up, not a lot of maintenance is required. EDI is very robust, more reliable than email and fax.

Before leaving we need to mention one vital point. We have said the whole idea of EDI is once everything is mapped and set, automation takes over no human intervention is needed and thus there is no need for human interpretation, strictly machine to machine communication.

The old adage of GIGO (garbage in, garbage out) is particularly apt with EDI. You need to be on top of your application with clean, correct and accurate data. As an example, if the buyer writes the wrong code but the right description on a manual purchase order, there is a good chance the supplier will "interpret" the order correctly and deliver the right product. Not so with electronic ordering where the code counts rather than the description (if at all present). Therefore, everyone within your organisation needs to buy into the concept and understand the ramifications.

3. What isn't EDI?

It has to be said that there are some misconceptions about what electronic communications (and by default EDI) are. The most common misconception is that sending any type of transaction by email, fax, PDF (Portable Document Format), spread sheets, Word or CSV (comma-separated values) files is EDI. Whilst it may well be electronic in as much as it is carried by electric signal pulses, it is not electronic data interchange.

Why is this? - Because these don't conform to a standard structure. Someone has to read it and manually enter the information into the system. This manual intervention is always open to mis-keying or misinterpretation. Although the human eyes, brain and fingers combination is quick to enter the information required, it is very slow compared with electronic speed and open to inaccuracies of "interpretation".

4. Relevance to my Business

4.1 Who in my Business Needs to Know About EDI?

EDI is not an IT (information technology) only function. Whilst a business's IT department may provide the infrastructure, application and technical support, the operation of EDI impacts on many areas of the business: accounts, commercial, production, sales, etc. It is relevant to everyone who has any interaction with whatever transactions are being handled electronically, in the same way as they interact with paper versions.

Whatever the original reason for adopting EDI (be it a supplier that wants orders, or a customer that wants invoices), it needs to be implemented with business objectives and processes in mind and not simply left "as a technical implementation" where all the people who should be involved are not brought into the project.

4.2 What it Means to my Business

Implementing EDI within a business will have different impacts depending on what transactions are being handled and how the arrangements are set up with customers or suppliers.

The implementation of EDI between organisations works best where there is understanding, trust and a genuine partnership between them.

All orders can be sent electronically without intervention, making them available to action at an earlier stage and to everyone in the organisation who needs the information. Once a business review is undertaken and the process of implementing EDI is complete, benefits will accrue e.g. order assembly is faster, errors are reduced, and staff freed up for other activities.

Retail Industry Experience Example

- The retail grocery sector has been at the forefront of implementing supply chain technology for many years and has led EDI for over 30 years.
- In order to maintain a lean and a more efficient supply chain, both retailers and manufacturers embarked upon replacing manual, paper-based processes with EDI based documents.
- The results are that the sector enjoys one of the most efficient supply chains whilst massively reducing costs and eliminating paper - based and manual processes.
- Through the analysis of the costs of implementation and the benefits derived it has identified even more savings that can be made through extending the use of EDI.



5. Benefits

- **It's faster:** significantly increasing transaction speeds and reducing lead-times. It also improves accounting processes
- **Data is more accurate:** minimising rekeying and human intervention and enabling better traceability
- **Improved process efficiencies:** the early availability of information means processes can start earlier in the day's cycle; with greater visibility and accuracy you can improve planning and reduce waste
- **Cost savings:** time can be saved in the ordering/delivery processes, eliminating errors and freeing up resource to concentrate on other things. It reduces paper and can be used in the goal to eliminate paper altogether. It can also form part of your ROI (Return on Investment)

Other benefits include:

- Greater visibility of the journey of a product
- Improved traceability process
- Forms part of any 'Green' activity and helps with CSR (Corporate Social Responsibility) credentials

And EDI:

- Aids standardisation and can be applied globally and assists complexity management
- Assists communication in different languages through the use of common codes
- Provides a secure way of sending information and tracing a message between trading partners

6. Technical Stuff

Nothing too detailed but things you ought to know if you're thinking of implementing EDI

6.1 EDI standards

What makes EDI so efficient is that it is a structured format, with transactions created to a pre-defined format, using codes rather than words, to give the context of the data being transmitted. Just as there are many languages in the world, so there are several EDI standards. For everyone to be able to communicate together it is easier to use one business language that many people understand e.g. many global companies make English the language for official business documents and international meetings. In Canada and the United States, the most well-known and used EDI standard is X12. Transaction sets are created to address very diverse business needs from Grocery Retail to Healthcare to Automotive to Aviation. GS1 Canada and GS1 US create industry specific implementation guidelines using the X12 EDI Standards.

It is recommended in Canada and United States, that the X12 standard be implemented when starting out with EDI. Within the use of EDI, it is strongly recommended that the GS1 Identification Standards be fully adopted for all products, locations and logistics units as this would establish a direct link between physical and information flows. For some additional GS1 Identification Keys, see Appendix 1: GS1 Identification Keys.

When choosing a standard, check that it is appropriate and compatible with your trading partners – for more information on this consult with Industry experts, your service provider or GS1 Canada.

6.2 Transactions to support your business processes

There are many transactions available to support your processes but the most common ones to start with are Purchase Orders (also referenced as 850) and Invoices (810) and followed by an Advanced Ship Notice/Manifest (856) ASNs, which allows a supplier to notify their buyer that the goods are on the way, and just how many of each product will be delivered.

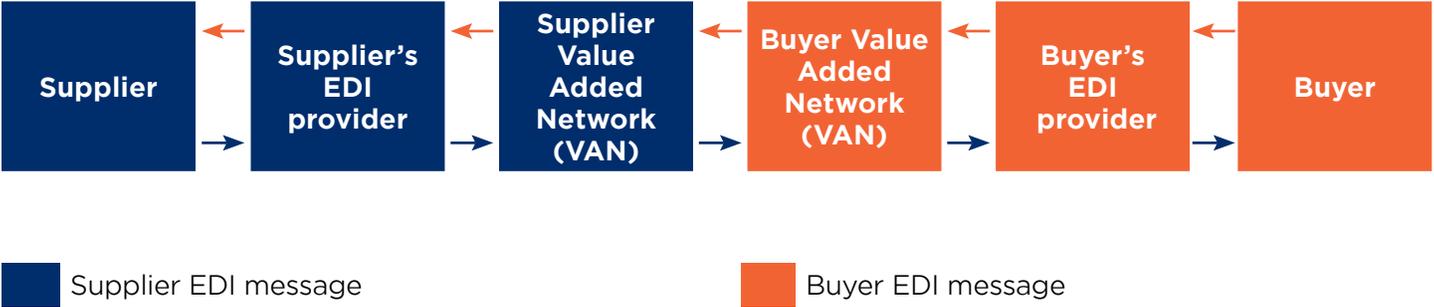
6.3 Mechanisms for transmitting structured information between trading partners

Full seamless end-to-end EDI means that effectively two computer applications can talk to one another without human intervention. This communication is undertaken by sending and receiving files which contain EDI transactions.

See below for a diagram that provides an overview.

- A successful file transmission hinges on the capability of every party involved in the chain being able to send and receive transactions between themselves.
- A VAN (Value Added Network) will process and transmit transaction sets for their customers and the customers' trading partners. VANs usually provide monitoring and logging of the file traffic and often offer additional services e.g. translation between standards.
- In practise the Buyer VAN and the Supplier VAN may be provided by the same organisation, although this doesn't necessarily have to be the same.
- Direct connectivity between a Supplier and Buyer can sometimes be arranged using FTP (file transfer protocol), SFTP (secure file transfer protocol) or AS2 (Applicability Statement 2) protocols which can mean that a VAN connection is not required.

- In order for EDI transactions to be successful it is necessary for the messages from both Supplier and Buyer to be in an agreed format that supports the business practises of both parties. Obtaining the transaction format that supports the business requirements of both parties is usually more challenging than the actual physical connectivity because no two businesses are the same. For this reason, it is usually advisable to use an EDI solution provider who will be able to arrange the most appropriate connectivity method for each Supplier-Buyer trading relationship and will also be able to undertake set up and testing of the message formats.
- In a fully integrated EDI system, the back office ERP (Enterprise Resource Planning) systems of both Buyer and Supplier will interface directly to the EDI system. However, where full automation is not possible, there are still benefits to be gained in implementing EDI (as outlined in previous sections).
- For smaller businesses the move to implementing EDI may not be possible in a single step. One option is to start by using EDI via a web portal. This allows you to fulfil your trading partner requirements: a supplier can receive orders, notify their customer when the goods are despatched and send out invoices. Although this requires some manual input on the suppliers' part, the data sent to the customer is converted into a standard EDI format and is processed automatically at their end.
- This type of portal is often provided by larger companies to enable all their Suppliers to trade via EDI. The disadvantage with using such a dedicated portal is that different web portals must be accessed for each Supplier-Customer trading relationship. This can be overcome through the use of a Supplier portal offered by most service providers where EDI for all of a Supplier's customers is processed.



7. Getting Started

7.1 Steps to Full EDI Implementation and Things to Think About

You are most likely considering implementing EDI because you need to use it with one of your trading partners. Below are some of the things that will help you achieve this (these steps are not a definitive list but a guide to what is needed to implement EDI).

Step	Action	Consideration
1	<p>Form a project team with members from the areas that will be affected by any EDI implementation</p> <p>Scope project: what transactions/with whom/possible rate of expansion/volume of transactions</p> <p>The initial task of the project team should be to guarantee that the company's board has a basic understanding of the principles and benefits of EDI</p>	<p>EDI is not just an IT activity</p> <ul style="list-style-type: none"> the business needs to give input since it is business who will be impacted <p>Buy in at the top is crucial since budget and resources will be required to implement EDI</p>
2	<p>Contact EDI solution providers to understand potential costs e.g. software, implementation, running costs</p> <p>Check EDI solution providers' capability to provide web portals</p> <p>Select an EDI solution provider to work with.</p>	<p>A list of EDI solution providers is available on the GS1 Canada website</p> <p>Sometimes it is helpful to use EDI initially via a web portal before making the transition to using it in an integrated manner</p>
3	<p>Determine the rules for exchanging EDI with your trading partners</p> <p>Just as you have rules for handling e.g. paper orders, below are some of the things you may think about/ revisit for EDI:</p> <p>Are there any time limits?</p> <ul style="list-style-type: none"> when purchase orders have to be received by? receiving times [examples; 9:00, 12:00 and 16:00, purchase orders (PO) received after these times go into the next batch], few businesses have continuous receipt preferring to have time slots latest time a sent order can be cancelled <p>What happens if a received purchase order cannot be processed?</p> <ul style="list-style-type: none"> contact rules correction and re-submission rules/method <p>What happens if the sender wishes to change the purchase order?</p> <ul style="list-style-type: none"> are these accepted electronically what alternative means is employed (verbal, fax) <p>Are there any restrictions on products which can be ordered electronically?</p> <ul style="list-style-type: none"> for instance, made to order products may be handled separately 	<p>Generally speaking, these issues are not IT but commercial and educational (setting down the rules in an understandable manner and communicating them to all parties involved in buying). As these are or can be different for each supplier, this can create an unintended barrier to using electronic purchase orders. In commercial terms the rules may not be that different from what is actually practiced in a manual environment, where the sender is often oblivious to what goes on in the receivers' sales office</p>
4	<p>Once you have defined your EDI requirements and created your transaction format, pilot your EDI transactions with one of your trading partners</p> <p>Create communication to send trading partners explaining why you are implementing EDI; what is required of them and timelines</p>	<p>Involving an EDI knowledgeable trading partner in the testing phase will make sure your transaction set and transmission process work before you begin a full scale implementation</p>

7.2 Implementation Checklist

✓ Technical Considerations

Check which EDI version your trading partner is using

Establish with your Trading Partner what standards and rules are in force with the transaction sets

Think about 'future-proofing' since, once established, EDI is rarely revisited

Determine what you have to do to enable your system to generate/process the required transaction set types

Plan the work involved (any application changes/ timescales/procedural changes with internal processing/test transaction processing /agreed go live date)

✓ Operational Considerations

Look at your business process and information flow to see where EDI can improve manual activities

Agree to a Service Level Agreement (SLA) with your Solution Provider and determine your backup plan in case the system is not working.

e.g. a Way of Working document with cut off points or order processing etc.

Include staff education in your implementation process

Explain the changes and benefits to your staff (before processing begins) and how this will affect their working practices - an example of issues that could arise is shown below:

✓ Commercial Considerations

Cost of implementing EDI: talk to your solution provider about the software costs, implementation costs and running costs

Example of a Process Change from EDI Introductions

EDI enables trading partners to embark on more collaborative and ultimately profitable trading relationships by leveraging the benefits discussed earlier in this document. Unless Trading Partners are fully aligned with the transaction sets and procedures that are to be used, things can still go wrong.

An example of this is in the instance where a Purchase Order (PO) needs to be changed or amended after it has been placed. This can often lead to duplication of orders and all the resultant confusion (and cost) that arises as a result.

To avoid this it is important to understand the process (in this instance) of how amendments to purchase orders are handled and to either ensure that the manual processes are aligned with the EDI transactions that are to be used - or agree with Trading Partners to use additional transaction types within EDI to facilitate purchase order changes electronically.

Appendix 1: GS1 Identification Keys

The use of GS1 identification keys play a foundational part in the use of EDI transaction sets.

There are three keys in particular that are most frequently used in the EDI:

- **GLNs:** The Global Location Number (GLN) is the globally unique GS1 System identification key used to identify legal entities and physical locations within a business or organisational entity.
- **GTINs:** The Global Trade Item Number (GTIN) is often known as the bar code number. The GTIN is used to uniquely identify any trade item (product or service) upon which there is a need to retrieve pre-defined information. It may be priced, or ordered, or invoiced at any point in any supply chain.

The GTIN is used as the primary identification of any product within the transaction set.

- **SSCCs:** The Serial Shipping Container Code (SSCC) is used to identify individual logistic units and is used in different transactions sets as needed.

A logistic unit can be any combination of units put together in a carton, in a case, on a pallet or on a truck, where the specific unit load needs to be managed through the supply chain.

The SSCC enables a unit to be tracked individually, providing benefits for order and delivery tracking and automated goods-receiving.

Where to Go For Help

- ▶ GS1 Canada www.gs1ca.org
- ▶ Implementation Guidelines, Support and more www.gs1ca.org/EDIStandards
- ▶ Your trading partners

Appendix 2: Glossary

Name	Definition
ANSI X12	EDI standard created by the American National Standards Institute to support different industries across Canada and the United States.
ASN	Advanced Shipping Notice used to specify details for goods being shipped or ready for shipping under agreed conditions. EDI Transaction Set 856 Ship Notice/Manifest is frequently called an ASN and sent before the shipment arrives to the buyer's Distribution Centre.
AS2	AS2 (Applicability Statement 2) is a protocol that describes how to move data securely and reliably over the Internet. It provides a direct point-to-point connection to enable message exchange between trading partners
Buyer	Party to which goods or services are sold.
CSV	Comma-separated values: file stores numbers and text in a plain text format. There is no common standard for CSV
Customer	An organisation or individual to which or to whom goods and/or services are provided.
EDI	Electronic Data Interchange can be defined as the machine to machine interchange of structured data
EDI Provider	EDI Providers enable the connection between trading partners and may provide translation tools
ERP	Enterprise Resource Planning system

FTP	File Transfer Protocol is a standard network protocol used to transfer files from one host to another host, for example over the Internet.
Global Location Number (GLN)	Abbreviation for the Global Location Number is GLN. A 13- digit non-significant reference number used to identify Legal entities (e.g. registered companies), functional entities (e.g. specific department within a legal entity), or physical entities (e.g. a door of a warehouse).
GS1	GS1 is a leading global not for profit organization dedicated to the design and implementation of global standards and solutions to improve efficiency and visibility in the supply chain. A few Identification keys are GTIN, GLN or SSCC etc.
Global Trade Item Number (GTIN)	Identification of a trade item, which is defined as any item (product or service) upon which there is a need to retrieve pre-defined information and that may be priced, ordered or invoiced at any point in any supply chain.
Invoice	An invoice is a commercial document issued by a seller to a buyer indicating products or services, quantities and agreed prices the seller has provided to the buyer. EDI Transaction Set 810 Invoice.
Legal Entity	A legal entity name is a description of a business in terms of a sole trader, partnership or limited company
Order	A Purchase Order a buyer initiates a transaction with a seller involving the supply of goods or services has specified, according to a pre-set trading partner agreement. EDI Transaction Set 850 Purchase Order
PDF	Portable Document Format
Serial Shipping Container Code (SSCC)	Serial Shipping Container Code. This international code consisting of 18 digits whose structure has been defined by GS1 and enables the unique identification of each logistic unit. When encoded in GS1 - 128 on the logistic unit and transmitted in the various EDI transaction sets, it ensures the traceability of the products.
SFTP	Secure File Transfer Protocol provides secure file transfer capability.
Solution Provider	A Solution Provider is a vendor or service provider who manages your organizations' EDI requirements, and may include Hardware and Software for your daily support needs.
Seller	Party selling goods or services
Supplier	The party that produces, provides, or furnishes an item or service. May also be referred to as a Vendor.
TPA	Trading Partner Agreement is a binding agreement between TP's regarding the exchange of EDI information. Amongst other things, it includes mailbox information, VAN details (if relevant), standard and transaction sets to be used, governing laws, force majeure etc.
Value Added Network (VAN)	A VAN is used by companies to facilitate the exchange of Standards based EDI transactions. A Trading Partner can send messages to the VAN and its Trading Partner(s) can then pick them up from there.
Web Portal	Allows EDI enabled companies to trade with smaller, non-EDI capable companies through a web portal.

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