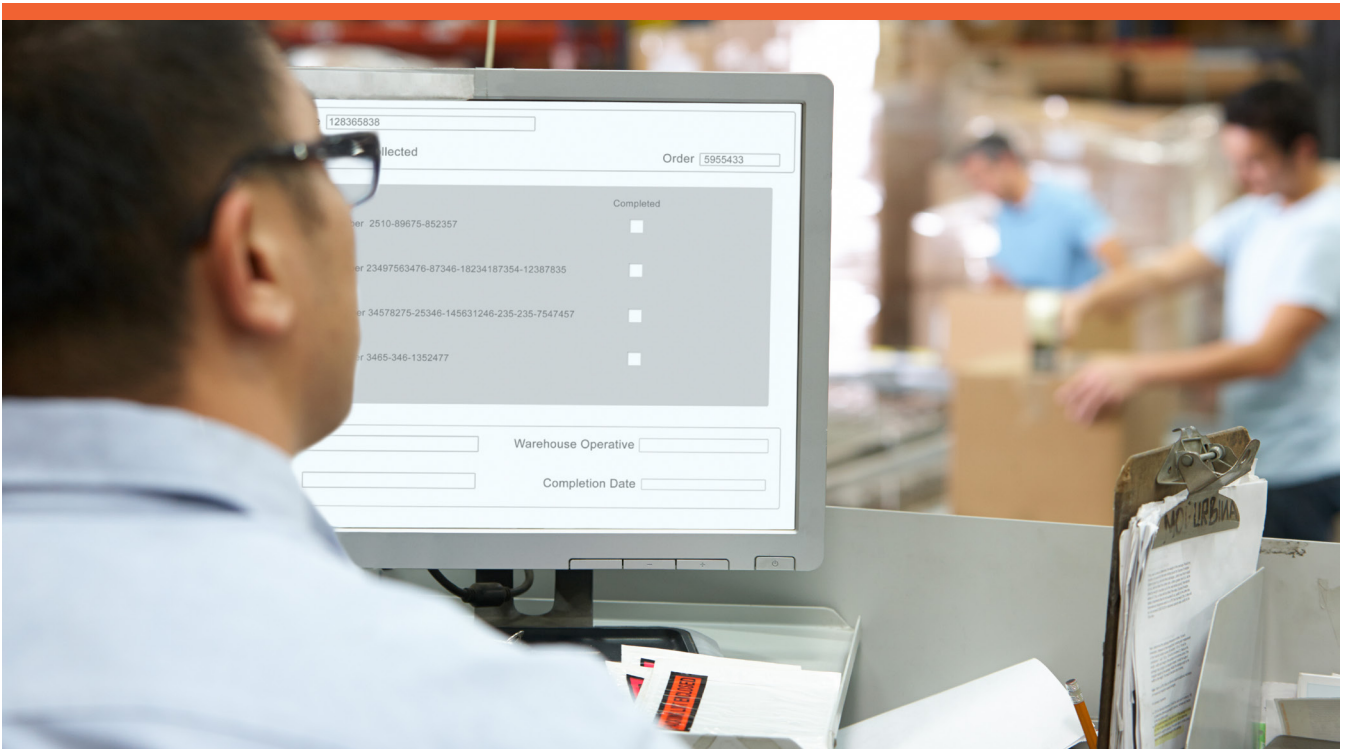




The Global Language of Business

EDI guidance for new users

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



Contents

1. Introduction	3
2. What is EDI?	4
3. What isn't EDI?	6
4. Relevance to my business	7
4.1 Who in my business needs to know about EDI?	7
4.2 What it means to my business	7
5. Benefits	8
6. Technical stuff	8
6.1 EDI standards	8
6.2 Messages to support your business processes	9
6.3 Mechanisms for transmitting structured information between trading partners	9
7. Getting started	10
7.1 Steps on the road to full EDI implementation and things to think about	10
Appendix 1 – EDI standards	12
Appendix 2 – GS1 Identification Keys	13
Glossary	14

Acknowledgements:

This document has been created by the GS1 UK ESIG (eCom Special Interest Group) for anyone thinking about implementing EDI.

The mission of ESIG is to promote the correct and consistent use of EDI through the use of GS1 eCom standards throughout the UK supply chain for the benefit of all GS1 UK members.

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 sales people 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 sit 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 retailers and there are savings to be made in every industry including Food Service, Healthcare, Apparel, DIY and Construction among others.

Although this is not a technical guide, inevitably there are technical terms used (which are explained in the Glossary at the end of the document), 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.

*Grocery Industry research conducted by Cranfield Business School

	Savings achieved through EDI
Orders	£14 per order
Invoices	£8.50 per invoice
ASNs	£12 per order

Savings are made by:

- Reduced telephone calls/fax/post/e-mails
- Reduced stock levels
- Reduced disputes
- Reduced Data errors
- Reduced administration
- Reduced compliance checks
- Increased Collaboration
- Improved Forecasting
- Faster payment

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.

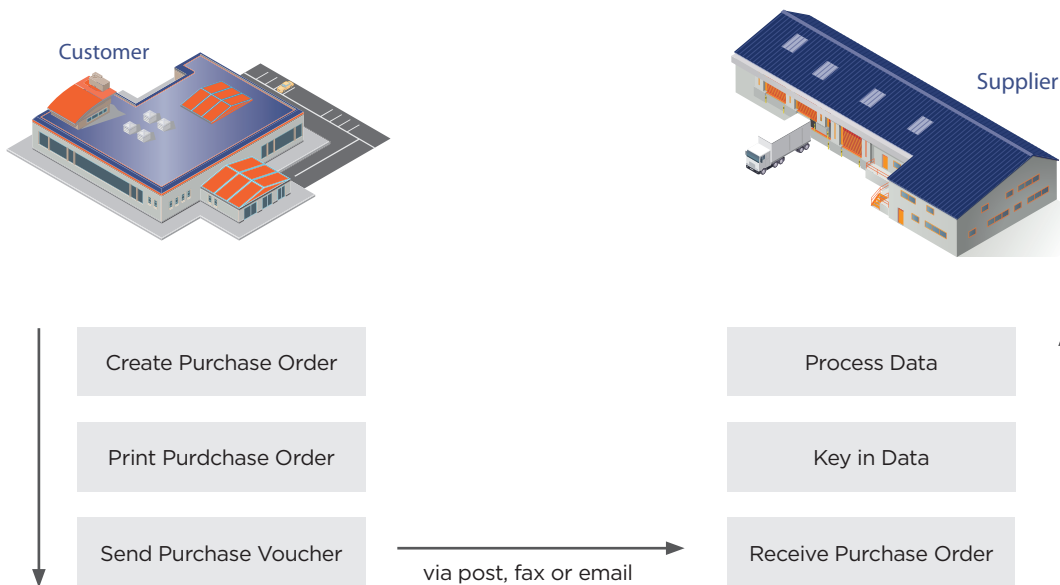
2. What is EDI?

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, forms documents, contracts, etc.

Paper-based order system



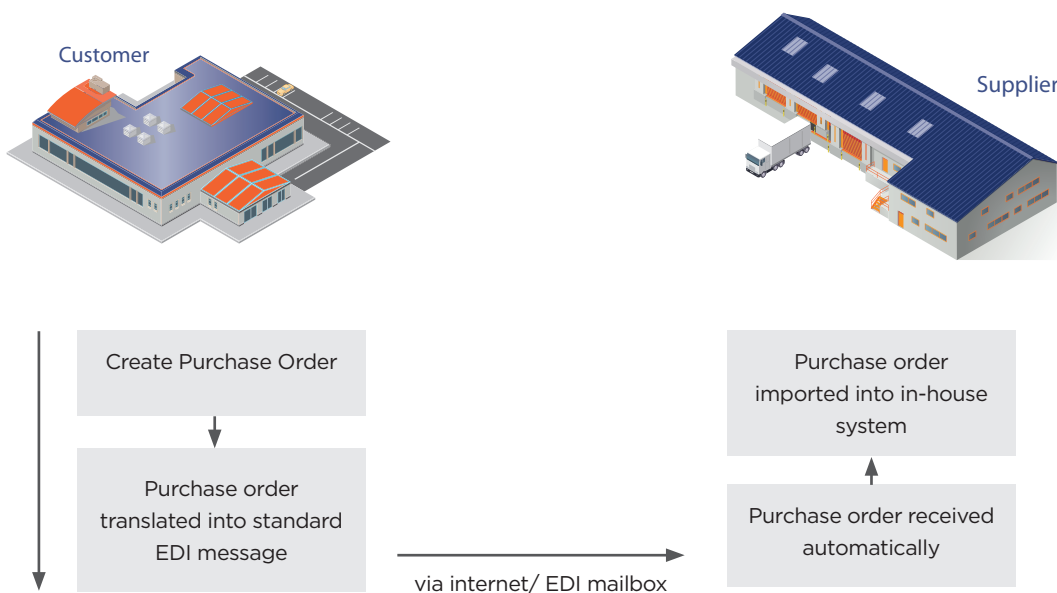
Typically this can take 1-5 days – assuming no data errors

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.

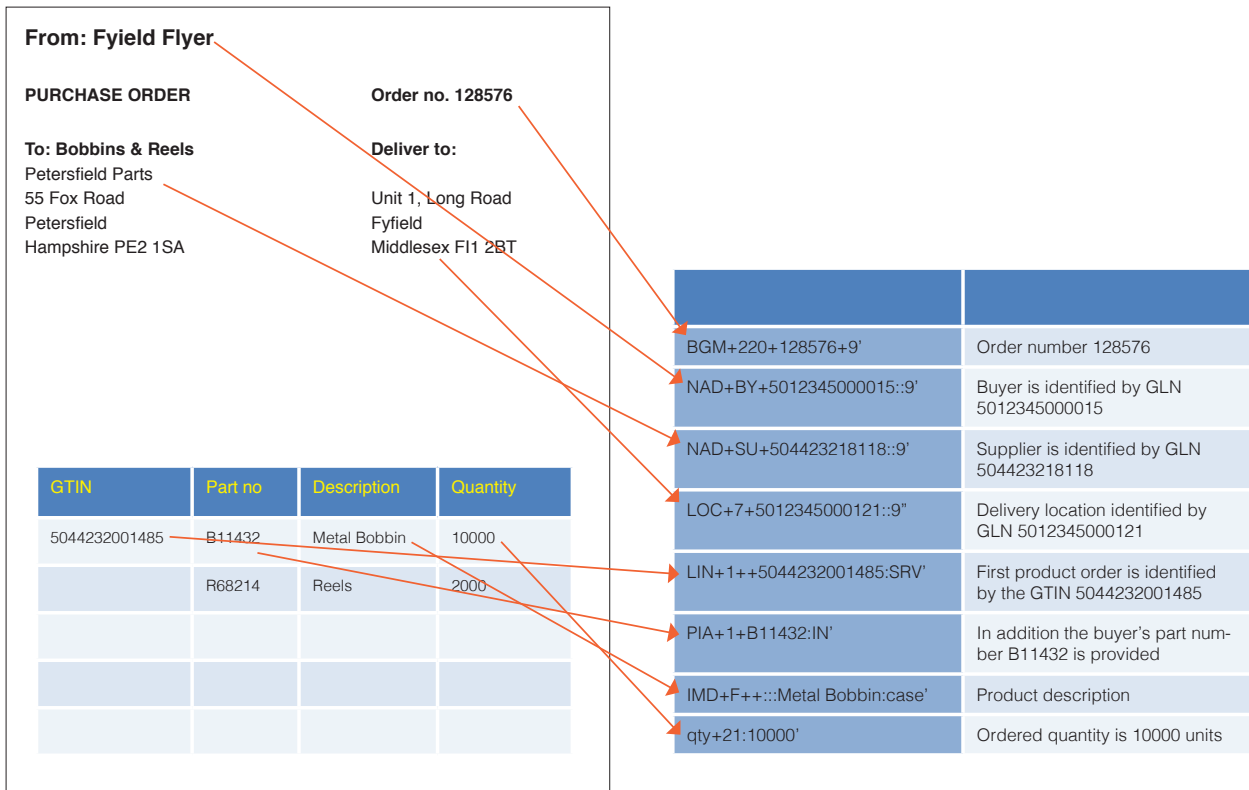
Because there are many and varied computer systems and formats of data within them, there is a need to have some standards within which to work. We may not be aware of it, but the same applies in our day-to-day speech: although

we speak the same 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 messages, there are standards and this is where GS1 comes in by providing those standards and codes which makes it much easier for everyone to communicate.

EDI order process



What took days can now take minutes



Above is an example of a paper order and how the information appears in the structured format of an EDI 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 needed. 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 that no human intervention is needed and therefore there is no need for

human interpretation. 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 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

- The UK 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 messages 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 language that many people understand e.g. many global companies make English the language for official documents and international meetings. In the same way, the most well-known EDI standard, used throughout the world, is EDIFACT which is ratified by the United Nations. Industry specific subsets are created from this global standard. GS1 provides a subset of this called EANCOM which is used globally and is the most used subset of EDIFACT.

In the UK TRADACOMS is a commonly used standard, but was only designed for the UK market and has not been developed and only minimally supported since the 1990's. The industry is slowly moving away from this

standard to EANCOM. GS1 UK recommends that any new implementations should use a modern, globally supported standard such as EANCOM or GS1 XML.

See **appendix 1** for some commonly used EDI standards showing their coverage.

There are different versions available for a lot of these standards. This is to incorporate any updates e.g. new codes, new messages.

It is recommended that a modern, globally used standard should be implemented when starting out with EDI. For members of GS1 it is recommended to use EANCOM or GS1 XML which use the same identifiers as bar codes, establishing a direct link between physical distribution and information flow. Choosing a modern standard like EANCOM will allow you to do Cross-Border Invoicing without difficulty (unlike TRADACOMS)

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

6.2 Messages to support your business processes

There are many messages available to support your processes but the most common ones to start with are ORDERS and INVOICES followed by ASNs which allows a supplier to notify his 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

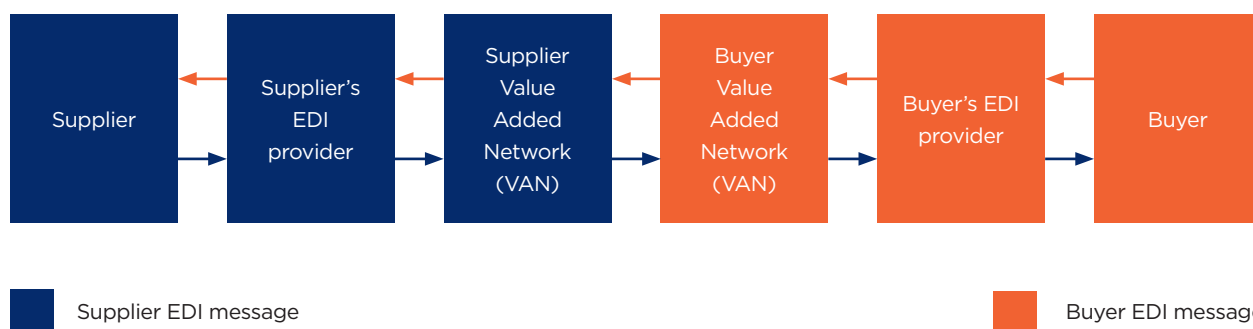
Full seamless end-to-end EDI means that effectively two computer applications can talk to one another without human intervention. This communication is undertaken by sending and receiving files which contain EDI messages. The file will often be sent via several different organisations.

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 messages between themselves.
- A VAN (Value Added Network) will process and transmit messages 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 message 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 on the road 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	Form a project team with members from the areas that will be affected by any EDI implementation	EDI is not just an IT activity <ul style="list-style-type: none"> the business needs to give input since it is them that will be impacted
	Scope project: what messages/with whom/possible rate of expansion/volume of messages	
	The initial task of the project team should be to guarantee that the company board has a basic understanding of the principles and benefits of EDI	Buy in at the top is crucial since budget and resources will be required to implement EDI
2	Contact EDI solution providers to understand potential costs e.g. software, implementation, running costs	A list of GS1 UK accredited EDI solution providers are available on the GS1 UK website
	Check EDI solution providers' capability to provide web portals	Sometimes it is helpful to use EDI initially via a web portal before making the transition to using it in an integrated manner
	Select an EDI solution provider to work with.	
3	Determine the rules for exchanging EDI with your trading partners	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 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
	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>Are there any time limits?</p> <ul style="list-style-type: none"> when orders have to be received by? receiving times [examples; 09:00, 12:00 and 16:00, orders 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 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 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 	
4	Once you have defined your EDI requirements and created your message format, pilot your EDI messages with one of your trading partners	Involving an EDI knowledgeable trading partner in the testing phase will make sure your messages and transmission process work before you begin a full scale implementation
	Create communication to send trading partners explaining why you are implementing EDI; what is required of them and timescales	

7.2 Implementation checklist

✓ Technical considerations	✓ Operational considerations
Check which version of the message your trading partner uses	Look at your business process and information flow to see where EDI can improve manual activities
Establish with your Trading Partner what standards and rules are in force with the messages. Think about 'future-proofing' since, once established, EDI is rarely revisited	Agree a Service Level Agreement (SLA) with your Solution Provider and determine your backup plan in case the system is not working:
Determine what you have to do to enable your system to generate/process the required message types	e.g. a Way of Working document with cut off points for order processing etc.
Plan the work involved (any application changes / timescales / procedural changes with internal processing / test message processing / agreed go live date)	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 introduction

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 in the messages and procedures that are to be used, things can still go wrong.

An example of this is in the instance where an Order needs to be 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 amendment to orders are handled and to either ensure that the manual processes are aligned with the EDI messages that are to be used - or indeed agree with Trading Partners to use additional message types within EDI to facilitate order amendments electronically. EDI Vendors can advise and assist in this process

Appendix 1: EDI Standards

EDI Standard	Description	Usage
ANSI X12	Created by the American National Standards Institute to support different industries across North America	Regional: North America
EANCOM	Subset of EDIFACT	Global - optimised for the Retail sector but also several other sectors
EDIFACT	Electronic Data Interchange for Administration, Commerce and Transport	Global - contains a large amount of detail for multiple sectors.
EDIFICE	Subset of EDIFACT	Global - used by High Tech Industries
Edig@s	EDI standard for commerce, transport and storage of Gas	Global and sectoral
GENCOD	Used across industries	National - France
GS1 XML	Fully compatible with UN/CEFACT methodology	Global - designed for information exchange over the internet
HL7	Set of XML EDI messages which comes under the ANSI umbrella	Global - designed for information exchange between healthcare providers
ODETTE	The Organisation for Data Exchange by Tele Transmission in Europe	Regional -for the Automotive industry
TRADACOMS	Used across industries	National - UK widely used standard but no longer developed or supported and not suitable for cross border messaging
VDA	Automotive standard	National - mainly used in Germany

This list is not comprehensive.

Appendix 2: GS1 Identification Keys

The use of GS1 keys plays a foundational part in the use of GS1 EDI messages.

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

- **GLNs:** The use of the Global Location Numbers (GLN) offers a possibility of globally unique identification of the business partners. 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. The identification of all the parties within eCom standard messages is based on the GLN, thus their use is necessary for the implementation of this standard.
- **GTINs:** GTIN stands for Global Trade Item Number. GTINs are often known as bar code numbers. They are used to uniquely identify any trade item (product or service) upon which there is a need to retrieve pre-defined information and that 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 eCom standard messages so their use is necessary for the implementation of this standard

- **SSCCs:** The Serial Shipping Container Code (SSCC) is used to identify individual logistic units and is used in the ASN message and is the same as the SSCC bar coded on the logistics unit.

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 UK www.gs1uk.org
- Support, how to guides and more www.gs1uk.org/support
- Find a GS1 UK accredited solution provider www.gs1uk.org/finder
- Your trading partners

Glossary

Name	Definition
ANA	Article Number Association UK created in 1976 and merged with Electronic Commerce Association in 1998 to form e-Centre was renamed as GS1 UK in 2005. GTINs (see Global Trade Item Number for definition) are still sometimes referred to as ANA numbers.
ANSI X12	EDI standard created by the American National Standards Institute to support different industries across North America
ASN	Advanced Shipping Notice used to specify details for goods despatched or ready for despatch under agreed conditions. (See DESADV)
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 supplied.
EAN	European Article Number – now known as a Global Trade Item Number (GTIN)
EDIFACT	The GS1 standard for Electronic Data Interchange (EDI) that is a detailed implementation guideline of the UN/EDIFACT standard messages using the GS1 Identification Keys.
EDI	Electronic Data Interchange can be defined as: The interchange of structured data according to agreed message standards, by electronic means
EDIFACT	United Nations ratified EDI standard (Electronic Data Interchange for Administration, Commerce and Transport) Basis for several other industry specific standards.
EDIFICE	Global EDI standard which is a subset of EDIFACT. Used in the High Tech industry
Edig@s	EDI standard for commerce, transport and storage of Gas
EDI Mailbox	An electronic mailbox that can send and receive EDI messages
EDI Provider	EDI Providers enable the connection between you and your trading partner(s) and provide message 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 over a TCP-based network, such as the Internet
GENCOD	French national standard used across several industries
GIGO	Garbage in Garbage out
Global Location Number (GLN)	Abbreviation for the Global Location Number. 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
GS1 XML	XML is designed for information exchange over the internet. Within the GS1 set of standards, XML is used for Electronic Data Interchange - GS1 eCom. GS1 XML is designed in such a way that the messaging is transport agnostic.
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 or ordered or invoiced at any point in any supply chain.
HL7	Set of EDI and XML messages designed for information exchange between healthcare providers which comes under the ANSI umbrella
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
Legal Entity	A legal entity name is a description of a business in terms of a sole trader, partnership or limited company
ODETTE	The Organisation for Data Exchange by Tele Transmission in Europe for the Automotive industry
Order	Document/message by means of which a buyer initiates a transaction with a seller involving the supply of goods or services as specified, according to conditions set out in an offer, or otherwise known to the buyer.
PDF	Portable Document Format
Serial Shipping Container Code (SSCC)	Serial Shipping Container Code. It's the international code consisting of 18 digits whose structure has been defined by GS1 and enables the unique identification of each logistic unit. When symbolised in GS1 - 128 on the logistic unit and transmitted in the despatch advice, 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 EDI requirements from Hardware and Software through to daily support
Seller	Party selling goods or services
Supplier	The party that produces, provides, or furnishes an item or service
TPA	Trading Partner Agreement is a binding agreement between TP's regarding the exchange of EDI information. Amongst other things, it should include: mailbox information, VAN details (if relevant), standard and messages to be used, governing laws, force majeure etc.
TRADACOMS	UK national standard used across several industries. This is no longer developed and only minimally supported
Value Added Network (VAN)	A VAN is used by companies to facilitate the exchange of Standards based EDI messages. A Trading Partner can send messages to the VAN and its Trading Partner(s) can then pick them up from there
VDA	Automotive standard used mainly in Germany
Web Portal	Allows EDI enabled companies to trade with smaller, non-EDI capable companies through a web portal
XML	XML is an acronym for "eXtensible Markup Language". XML is designed for information exchange over the internet.

Contact us

GS1 UK

Staple Court,
11 Staple Inn Buildings
London WC1V 7QH

T +44 (0)20 7092 3500

F +44 (0)20 7681 2290

E info@gs1uk.org

Member Support Team 0808 178 8799

www.gs1uk.org.uk

