

Mapping orders from your library management system to EDI

Input by Simon Edwards, e4libraries consultant simon.edwards@dial.pipex.com, 07742988391

Most Library Management Systems (LMS) are capable of sending orders to stock suppliers using EDI (Electronic Data Interchange). This report is designed to show how the information held on your LMS is converted into the standard messages used by EDI. In the UK library sector, EDI orders are mainly sent in two different formats, Tradacoms, a UK-specific format, or EDIFACT, which is an internationally accepted format: see page 13 for more information about them. This report contains a chapter on each. The following introduction is common to both and explains about EDI orders.

Orders

Orders are used by libraries to purchase products from suppliers or to confirm products previously suggested or notified by suppliers to libraries in Quotes messages.

At the most basic level, an order could be sent electronically from a library to a library stock supplier with only a very few fields of information. These minimum fields could be:

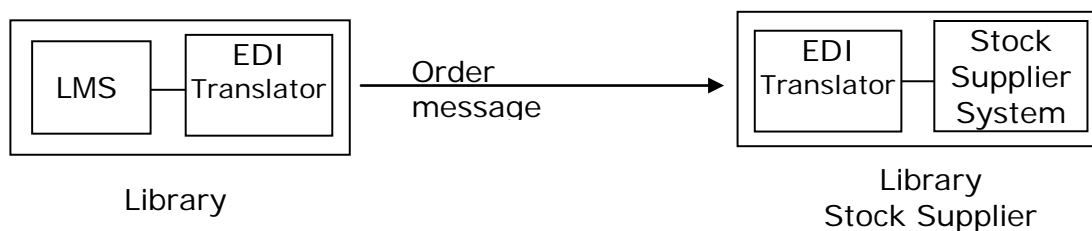
- Name of library
- Name of supplier
- Name of product to be ordered
- Quantity of the product to be ordered
- Some form of reference number to help the library recognise the supplier's acknowledgement or the delivery of the order etc.

However, library supply is a more complex business and there are several additional things that a library needs to tell a library supplier. These can include how to service a book, what classification the book should be given and what fund code should be used etc., and in all there are some 36 fields held on a typical LMS and supplied to library suppliers as part of an order. This report shows how these fields are loaded into an EDI order and where each piece of data is placed in the order message format.

This order information held in an LMS will be structured according to the database the LMS uses or according to the screens that the users see. The EDI order message will be structured differently and will have header information to identify what the message is and who it is from etc. and then there will be detail information to specify the book to be ordered and so on. There could be many products ordered and thus multiple order lines within a single order header and then after the last order line, there will be trailer information which will ensure that the receiving computer has received all the files in the transmission etc. The reason that the LMS outputs order data into a standard EDI order message is that this enables suppliers to implement a single solution to receive orders no matter from

which organisation. If each library required a different message to be developed at each supplier then this would increase costs and make electronic communication very inefficient.

The LMS will therefore output a flat file into some EDI translation software which will map this file into the appropriate EDI format. At the other end, the library stock supplier's translation software will receive the EDI order and map it back into a flat file which can be read and processed automatically by its own system. Each LMS and library stock supplier's system can thus use different flat file formats but they should all use the same EDI format. This enables a library to communicate electronically with many suppliers and a supplier to communicate electronically with many libraries.



LMS Order Data

We could structure the LMS data logically as follows:

Library, Library Supplier, Order, Order Line, Product, Copy Detail

These headings are a convenient way to group the information together from the viewpoint of the library sending the order. Most of these are straightforward. The one that is most difficult to grasp may be the "Copy Detail". This is information about this particular copy of this product on this order and deals with specific things like classification, servicing etc.

Here are some likely fields within each heading. Different Library Management Systems will describe these differently and it is important to define what each specific term means so that this information can be placed in the correct field in the EDI message.

Don't forget that this information is going to enable one computer (the LMS) to talk to another computer (the library supplier's) without any human intervention. This means that the computers need to exchange all

the information they will need to process the order correctly. Sometimes this also means that extra information is supplied which is duplicating other information within the order message. Some information is there just to be referred to by staff (programmers or librarians etc.) to work out what has gone wrong in the event of an error. Some information is included not to be processed but simply to be sent back to the library within an acknowledgement or invoice etc. e.g. an order reference number.

Library

This is information about the library (The sender of the order message). This will typically include the name of the library and an identification number such as a GLN Location Code.

Library Supplier

This will be information about the library supplier (The receiver of the order message) e.g. name, ID number etc.

Order

An order will contain a number of order lines. Information which is common to all the order lines can be held at the order level.

Order Line

Within each order there will be one or more order lines. These will have different order numbers, possibly funds used etc.

Product

Orders must contain information about the products to be purchased. This will include identifiers such as ISBN13 and extra information such as title, author, price etc.

Copy Detail

This information is about this particular product on this particular order. Each individual book copy might need to be treated differently e.g. they might have different loan types i.e. be loaned for different periods.

In EDI it is important to understand how certain information in your LMS may be treated by your supplier. This may require in-depth discussion with your supplier followed by rigorous testing. Think about your products (e.g. books, CDs, DVDs), how they will be classified and shelved, how they will be received and processed, how they should be serviced, and don't forget to consider RFID tags, security tags etc. How this information is actually processed by the library stock supplier will depend on preliminary discussions between the library and the library stock supplier

about how the account is to be set up etc. Once set up, all the necessary information to inform the supplier and enable them to deliver your products as required can be included or referred to in your EDI order message.

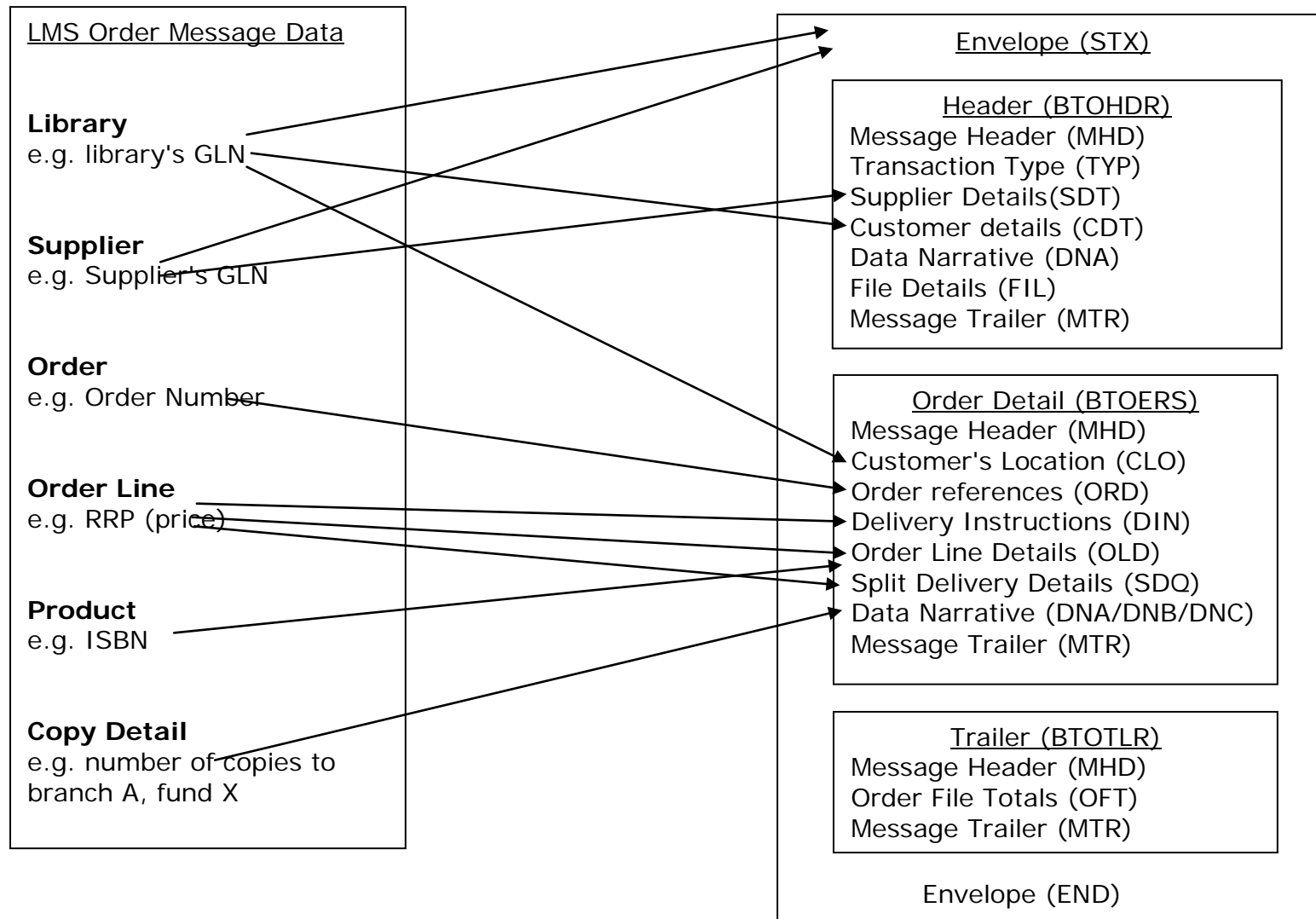
The following is a list of data items with simple definitions for each. Your LMS may be different and may use different names for certain pieces of information. The key is to be able to link each item with the appropriate field in the EDI message. If you have any doubts about what a data item is for, please ask your LMS, Library Stock Supplier or EDI Network for help.

EDI messages

There are comprehensive guidelines on the BIC website (available to BIC members and associate members) describing the Tradacoms Book Trade Order message as used by UK libraries. In addition there is information about and hyperlinks to the appropriate international EDIFACT message standard. But in order to understand how the LMS order data maps to the EDI order message it is necessary to understand the structure of the order message.

Orders are sent in an "envelope". Within the envelope there is an order message. Messages have a header and a trailer these say something like: Header: This is an order message from A to B. End of Header. Then there is the order detail which has a header and a trailer saying 'This is the start of the order detail', Order Detail, 'This is the end of the order detail'. Finally at the end of the message there is a file trailer which has a header and a trailer and gives details about the order file so that the computer knows that everything that was sent has been received correctly. EDI orders have to be able to deal with multiple books, multiple copies and different servicing for individual copies so within the order detail there are some repeated elements which enable the order to have many lines, and many copies of a book with different characteristics for each if necessary.

Tradacoms EDI Order



The following list of data items shows the items typically stored on the LMS together with a description. Then each element's location in the EDI order message. The right hand column describes the way in which this data is contained in a Tradacoms EDI order message. The next chapter will show the equivalent for the EDIFACT EDI order message.

TRADACOMS Orders

<u>List of Data Items</u>	<u>Description</u>	<u>EDI Message Format</u>	
Library	Description	Message Location	Tradacoms Segment/Element
Sender's Reference	Reference number of the library sending the order	Envelope	STX/SNRF
Customer Details	GLN of library sending the order	BTOHDR	CDT/CIDN
Supplier	Description	Message Location	Tradacoms Segment/Element
Supplier Name	Name of the library supplier receiving the order	Envelope	STX/UNTO
Supplier ANA	Unique number identifying Supplier in EDI	Envelope	STX/UNTO
Library Supplier Details	Details of the library supplier receiving order	Envelope	STX/FROM
Supplier Details	Details of the library supplier receiving order	BTOHDR	SDT/SIDN
Receiver's Reference	Reference number of the supplier receiving the order	Envelope	STX/RCRF
Supplier's Reference	Reference number of the supplier receiving the order Also known as "suppliers order number" this number may have been sent by the supplier in a Quotes message and this will be used by the library to confirm the order suggested by the supplier in the Quotes message.	BTOERS	ORD/ORNO
Order	Description	Message Location	Tradacoms Segment/Element
File Details	Name of the file and when transmitted etc.	BTOHDR	FIL/FLGN-FLVN-FLDT
Transmission Date/Time	Date and time that the EDI order was transmitted	Envelope	STX/TRDT
Application Reference	(The application reference is used by EDI networks to check that both sender and recipient have agreed to exchange this message type)	Envelope	STX/APRF

Official Order Number	Library's order number or customer's order number	BTOERS	ORD/ORNO
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Order Line	Description	Message Location	Tradacoms Segment/Element
Order Number	Order line number	BTOERS	DNB/RTEX
Order Type	Order type e.g. normal or urgent priority (Can also be at order level ie applies to whole order)	BTOERS	DNB/DNAC
Fund	Library fund against which this order is made	BTOERS	DNC or DNB/RTEX

Product	Description	Message Location	Tradacoms Segment/Element
Identifier Type	ISBN or similar identifier to uniquely identify the product	BTOERS	OLD/SPRO
Retail Price	Normal retail price of the product	BTOERS	OLD/OUCT
Author	Primary author or contributor/creator of the product	BTOERS	BIB/ATHR
Title	Title of the product	BTOERS	BIB/TITL
Volume	Volume number of the product	BTOERS	MUL/VOLN-VOLT
Edition	Edition of the product	BTOERS	BIB/EDIT
Publisher	Publisher of the product	BTOERS	PUB/PNAM
Format	Format of the product e.g. hardback, paperback or ebook	BTOERS	BIB/FORM

Copy detail	Description	Message Location	Tradacoms Segment/Element
Copy Location	Site or branch for this copy	BTOERS	SDQ/CLOC OR CLO/CLOC
Number of copies	Number of copies ordered	BTOERS	OLD/OQTY
Part-Order Quantity	How quantities may be split across different locations Or for different servicing within same location	BTOERS	SDQ/OQTY
Instructions	Instructions to supplier	BTOERS	DNB/GNAR
Item Type/Stock Category	Stock category	BTOERS	DNB/RTEX
Unique Item ID	An identifier given by the LMS to every product ordered	BTOERS	DNC OR DNB/RTEX
Replacement Value	Replacement value of the product	BTOERS	DNC OR DNB/RTEX
Classification	Classification of the ordered product e.g. Fiction	BTOERS	DNC OR DNB/RTEX

Shelfmark/Spine Label	Contents on the spine label to be put on the book	BTOERS	DNC OR DNB/RTEX
Feature Heading	Information for the shelfmark label on the copy	BTOERS	DNC OR DNB/RTEX
Suffix	Information for the shelfmark label on the copy	BTOERS	DNC OR DNB/RTEX
Sequence	Information for the shelfmark label on the copy	BTOERS	DNC OR DNB/RTEX
Size	Size of the product	BTOERS	DNC OR DNB/RTEX

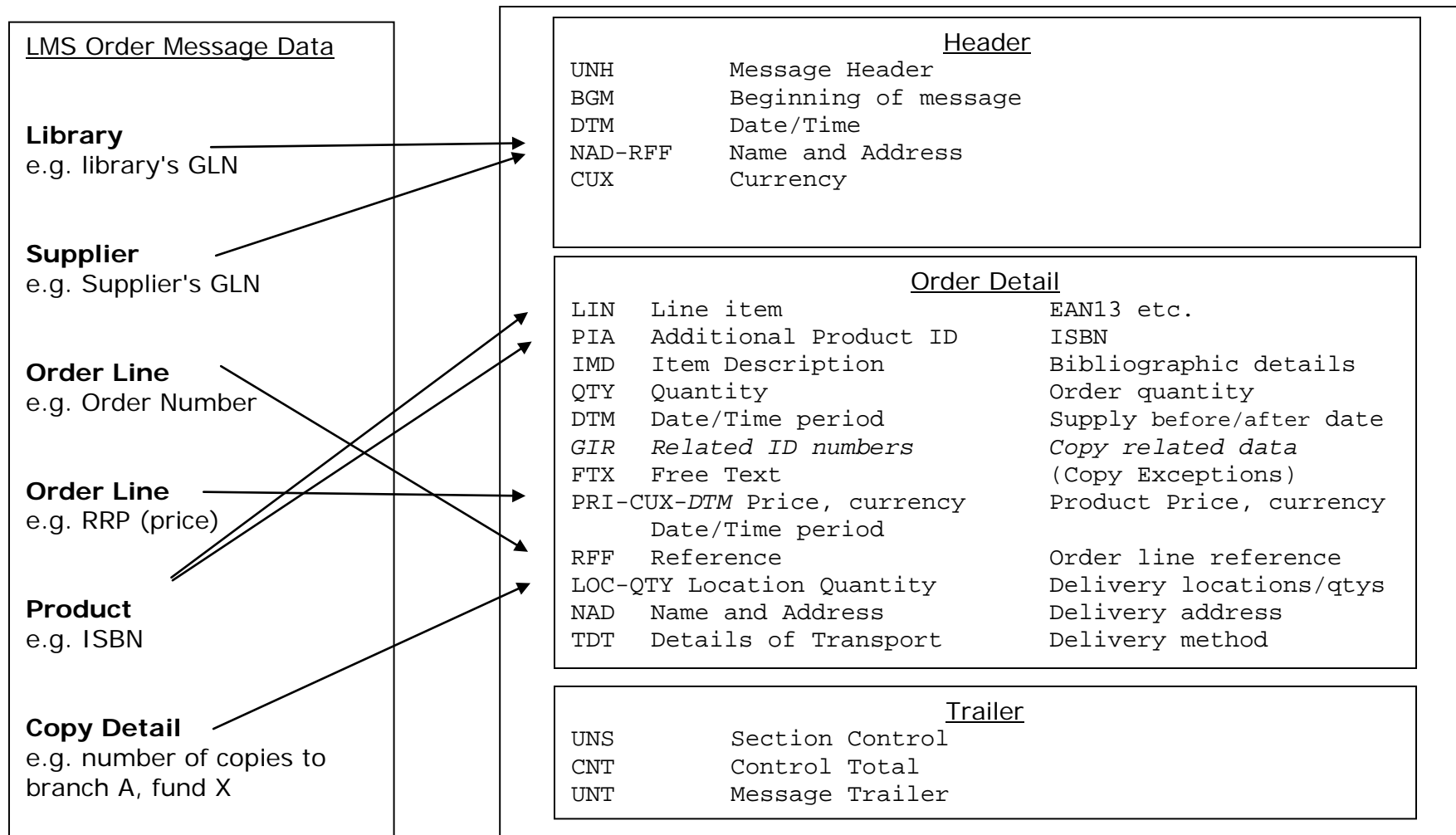
In addition to the above fields which map from the LMS to the Tradacoms EDI order message there are a number of elements which are populated by the LMS into the EDI message which are there to enable the message to be read and processed correctly.

System fields	Description	Message Location	Tradacoms Segment/Element
Contents of this message	Describes what this message is e.g. a book trade order header	BTOHDR	MHD
A new order etc.	This describes the fact that this order is a new order and not a response to a quote etc.	BTOHDR	TYP
Which code list used	This specifies which BIC code list is being used in the message	BTOHDR	DNA
Number of segments	This is the number of segments in the message which ends with this trailer	BTOHDR	MTR
Order file totals	This is a count of the files sent to help ensure that all have been received correctly	BTOTLR	OFT

EDIFACT Orders

EDIFACT orders follow a similar methodology to Tradacoms orders. They divide into header, detail and trailer. Within the detail, there can be several order lines. The following list of data items shows the items typically stored on the LMS together with a description then each element's location in the EDIFACT EDI order message.

LMS Order Message Data to EDIFACT EDI Order



List of Data Items**Description****EDI Message Format****Library****Description****Message Location EDIFACT Segment**Sender's Reference
Customer DetailsReference number of the library sending the order
GLN of library sending the orderHeader
Header RFF
NAD**Supplier****Description****Message Location EDIFACT Segment**Supplier Name
Supplier ANA
Library Supplier Details
Supplier Details
Receiver's Reference
Supplier's ReferenceName of the library supplier receiving the order
Unique number identifying Supplier in EDI
Details of the library supplier receiving order
Details of the library supplier receiving order
Reference number of the supplier receiving the order
Reference number of the supplier receiving the order
Also known as "suppliers order number" this number may have been sent by the supplier in a Quotes message and this will be used by the library to confirm the order suggested by the supplier in the Quotes message.Header
Header
Header
Header
Header
Header NAD-SU
NAD
NAD-SU
NAD-SU
BGM
BGM**Order****Description****Message Location EDIFACT Segment**File Detail
Transmission Date/Time
Application Reference
Official Order NumberName of the file and when transmitted etc.
Date and time that the EDI order was transmitted same as Tradacoms
Library's order number or customer's order numberHeader
Header
header
Header orders in the UNH
BGM**Order Line****Description****Message Location EDIFACT Segment**Order Number
Order Typeorder line number
Order type e.g. normal or urgent priority
(Can also be at order level i.e. applies to whole order)Detail
Detail RFF
RFF

Fund

Library fund against which this order is made

Detail RFF-BFN

Product	Description	Message Location	EDIFACT Segment
Identifier Type	ISBN13 ISBN or similar identifier to uniquely identify the product	Detail Detail	LIN PIA
Retail Price	Normal retail price of the product	Detail	PRI
Author	Primary author or contributor/creator of the product	Detail	IMD-010
Title	Title of the product	Detail	IMD-050
Volume	Volume number of the product	Detail	IMD-090
Edition	Edition of the product	Detail	IMD-100
Publisher	Publisher of the product	Detail	IMD-109
Format	Format of the product e.g. hardback, paperback or e-book	Detail	IMD-220
Copy detail	Description	Message Location	EDIFACT Segment
Copy Location	Site or branch for this copy	Detail	GIR-LLO
Number of copies	Number of copies ordered	Detail	QTY
Part-Order Quantity	How quantities may be split across different locations Or for different servicing within same location	Detail	GIR-LQT
Instructions	Instructions to supplier	Detail	GIR-LVC/LVT
Item Type/Stock Category	Stock category	Detail	GIR-LST
Unique Item ID	An identifier given by the LMS to every product ordered	Detail	GIR-LAC
Replacement Value	Replacement value of the product	Detail	GIR-LCV
Classification	Classification of the ordered product e.g. Fiction	Detail	GIR-LCL
Shelfmark/Spine Label	Contents on the spine label to be put on the book	Detail	GIR-LSM
Feature Heading	Information for the shelfmark label on the copy	Detail	GIR-LFH
Suffix	Information for the shelfmark label on the copy	Detail	GIR-LFS
Sequence	Information for the shelfmark label on the copy	Detail	GIR-LSQ
Size	Size of the product	Detail	GIR-LSZ

In addition to the above fields which map from the LMS to the EDIFACT EDI order message there are a number of elements which are there to enable the message to be read and processed correctly.

System fields	Description	Message Location	EDIFACT Segment
Contents of this message	Describes what this message is e.g. a book trade order header	Header	UNH
A new order etc.	This describes the fact that this order is a new order and not a response to a quote etc.	Header	BGM
Which code list used	This specifies which EDItEUR code list is being used in the message	Header	ORDERS:D:96A:UN:EAN008
Number of segments	This is the number of segments in the message which ends with this trailer	Trailer	UNS
Order file totals	This is a count of the files sent to help ensure that all have been received correctly	Trailer	CNT

More information about EDI formats

This report covers both EDIFACT and Tradacoms EDI formats. Both are in wide use in the library supply chain: Tradacoms is specific to the UK, whereas EDIFACT is a newer international standard and may be more appropriate if libraries wish to purchase resources from abroad. However, the question of which format to use really depends on the capability of the library's LMS and translation software and the requirements of trading partners i.e. library stock suppliers. Both standards use code lists to describe variables such as product format and it is important that the code lists contain values which accommodate the library's requirements. As these formats have both been in use for many years virtually all requirements should have been accommodated by the use of appropriate code lists and codes.

It is recommended that you find out more before starting to implement EDI and that you contact your LMS supplier and your library stock supplier to discuss your options. On the BIC website (www.bic.org.uk) is a beginners' guide to EDI and more detailed specifications, implementation guidelines and code lists.

Just as code lists develop over time to reflect the required functionality, so do Library Management Systems which have been developed over a considerable time with intermittent upgrades providing new functionality. There are some examples of how, particularly on old systems, LMS suppliers have implemented workarounds: for instance, one LMS uses a special text code to indicate the ISBN13 of the book while the ISBN13 field contains an ISBN13 truncated to 10 characters. Another LMS cannot differentiate between different copies of the book in an order and cannot apply different loan types to these individual books. Again this is accomplished using workaround text codes. You will need to ensure that your LMS offers the functionality you need and that their implementation of EDI orders conforms to the BIC standards and that your supplier can receive the contents of your order message and act appropriately on it. Workaround text codes are not ideal as they reduce standardisation and increase costs. It is worth asking LMS suppliers to ensure that their system can deliver all your requirements without resorting to workaround text codes.

The Tradacoms library supply file formats are maintained by BIC and are available to members and associate members of BIC on its web site at <http://www.bic.org.uk/14/EDI-Implementation-Guidelines/>. The EDIFACT file formats are maintained on an international basis by EDItEUR, the international book trade standards organisation, and can be found at <http://www.editeur.org/31/Library-Book-Supply/>. However, BIC also publishes recommendations on the UK implementation of the EDIFACT standards and these are available to members at <http://www.bic.org.uk/36/BIC-Action-Plan-2008---2009/#3>. For information about membership, please email peter@bic.org.uk.