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**SIMPL-EDI SUMMARY DOCUMENT**

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Submitted by the delegation of the  
United Kingdom of Great Britain and Northern Ireland \*

The Centre for the Facilitation of Procedures and Practices for  
Administration, Commerce and Transport (CEFACT) is expected to approve  
this document for inclusion in the work programme. The full report may be  
obtained from the CEFACT secretariat.

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## **Introduction**

*The UK Delegation of the United Kingdom of Great Britain and Northern Ireland has outlined the work being done to provide more simplified and standardized electronic data interchange (EDI) directly related to the principles and practices of value chain management. This approach is based on and consistent with UN/EDIFACT methodologies and message principles.*

*To successfully manage a value chain, commercial, administrative and governmental partners must be willing to run their individual processes as part of this integrated chain. By sharing plans and performance data, by synchronising trading data, and by communicating transactions in a simple, standard and structured manner, they can achieve better results and service at a lower total cost*

*Progressively, value chain processes and procedures, electronic communications including EDI, and information technology (IT) applications can be developed to become more mutually consistent, and thereby achieve major synergies. The stronger the relationship between processes, communications standards and applications software, the greater the common benefits.*

*The present summary paper explains the basis of the SIMPL-EDI messages, and notably includes the key role of standard (usually EAN) numbers and cross-referencing to master data.*

*The full report may be obtained from the Centre for the Facilitation of Procedures and Practices for Administration, Commerce and Transport secretariat on diskette and copies can be obtained directly from them.*

*It is recommended that the SIMPL-EDI approach and messages be incorporated within the CEFACT work programme and tested in use nationally and internationally. It is also recommended that best business and administrative practice via value chain management be included in CEFACT guidelines for use, currently for EDI messages, and progressively for electronic commerce and for computer applications.*

*In this summary, references are made to the full SIMPL-EDI report and its appendices.*

# SIMPL-EDI

“A vision for the future, linking Value Chain Management and Electronic Communications”

## THE SIMPLEST VALUE CHAIN MESSAGES

### 1. The Potential for a New Approach

Electronic Commerce is growing rapidly with new markets and media regularly appearing. However, the costs and complexity of undertaking electronic commerce, including the use of EDI and the computer applications which it links, are substantial.

Proprietary standards abound. While no one would wish to discourage new ideas, the cost and complexity of IT in general is mushrooming. Examples include the year 2000 problem, installing the latest version of an e-mail package, coping with Euro-currency, and setting up unique and unambiguous master data files, never mind communicating securely and cost effectively with current and potential trading partners across the Internet.

There is growing evidence to suggest that business and administrative processes can be made more simple, standard and effective, and that these improvements need to be beneficially linked to simpler and more standard EDI and IT. This paper tries to define that potential. Where each business or institution can develop better and more standard processes across its Value Chain, and can share standard, structured data cost effectively with its partners, the total virtual economy performs better, and provides an improved internal and external service at a lower total resource cost. The successful application of value chain management depends on standardising all processes which are common, standardising the communication between each link in the chain, and standardising the procedures and computer applications which each part of the value chain uses internally.

This paper suggests more focused EDI messages based on simple, standard international data elements and well structured master files. It builds on the best work already done and seeks to provide a sound basis for the widest, cost effective use of electronic commerce and associated computer applications.

Many companies would accept that the trade transactions which they conduct on a daily basis are more complicated than they need to be. For example, they may be repeating information in every order or invoice that their trading partner already knows, or quoting product descriptions which no-one takes any notice of. This situation has arisen because these transactions have often developed over a period of many years, and many companies have tended to put more administration or computer power in place to process them, rather than tackle the fundamental problem.

In turn, the development of Electronic Data Interchange standards has tended to support these complex trade transactions, by allowing users to exchange electronically all the data they previously exchanged on paper. Rather than challenging the merits of a particular transaction data set, EDI standards makers have tended to accept the premise that “if a user asks for it, we should allow the EDI message to do it.” Indeed, when ANA developed the first UK EDI message standards, we started from the assumption that EDI was needed *because* companies’ internal administrative and computer systems were different and complex.

There is now growing acceptance among many companies that their trade transactions could and should be simplified and standardised. One good place to start would be with the simplest possible EDI implementations. This would enable existing users to simplify their EDI applications, and attract new users previously deterred by unwieldy standards. A subsequent benefit would be that having simplified the data sets that companies exchange with each other, users might consider changing their in-house systems and files to reflect this simplicity and standardisation. Most computer systems are unnecessarily complex, and different, and are expensive to develop, maintain and interface. It is intended that our new communication standards, proposed in this report, lead directly to equally simple and standard I.T. applications for use by all businesses and institutions, and are of special benefit to small and medium size enterprises.

These simplifications obviously entail a major review of internal supply chain systems, but the appetite for this is growing given the benefits to be gained, when associated with EDI standards which are as simple to implement as possible. Furthermore, much of the underlying work done recently on supply and value chain management leads to more simple, standard, speedy and certain systems.\* For businesses or institutions to improve the total performance of a value chain through the structured sharing of forward plans and past activity and through the synchronisation of master data, they need to have common definitions, standard messages and similarly structured computer applications. Value Chains will provide more net benefit and better service at a lower total cost if data can be shared across each Value Chain in a structured standard way with maximum speed and certainty.

Many businesses and administrative processes have much more in common than is often realised, and they can be made more simple and standard with considerable benefit. This applies nationally, and also for international trade, where much effort is being applied to simplify the legally required export/import administration.

We need to ask ourselves whether our standards for electronic communications support the objective of process improvement in the supply chain, or whether they are enshrining older and less-effective ways of doing things. If our standards do no more than allow businesses and institutions to do all the activities they require according to current practices, we shall not necessarily be promoting improved practices nor allowing forward thinking organisations to move forward quickly. Nor shall we be encouraging smaller enterprises, who need to keep their processes very simple and focused, to take profitable advantage of our communications standards.

Hence, even although we know that not all organisations may wish to change their practices quickly, (or even at all), and that therefore we must keep existing standards well maintained, we have an obligation to define how simple and effective standards could become. We have to recognise that the world will not change overnight. Nevertheless, we need to provide a vision of how effective it might be and give UK, European and world businesses and institutions an opportunity to choose what is most beneficial for them and for the economy as a whole.

## **2. How can simplification be achieved ?**

If we merely leave existing EDI messages as they are, and recommend that they are only used in a simple way, we have no guarantee that they will not continue to be implemented in a bi-lateral manner. Complexity in messages means that organisations have to undertake a detailed bilateral definition of what each trading partner means by each data element prior to data exchange taking place. EDI is about the automatic processing and routing of data; hence the meaning needs to be crystal clear in order for this to happen.

Therefore, we need to define what are the simplest EDI messages, through eliminating aspects which result in them being too complex, too costly, and too bi-lateral in implementation. We also need to define rigorously each data element so that it is not open to multiple interpretations, where there is not already an unambiguous international standard.

The essence of achieving simplification in EDI transaction messages is to strip out all the data, and especially more stable information, which cannot genuinely be regarded as critical to the processing of that transaction. Any data that is not specifically relevant to that particular transaction should first be examined to see if it is actually needed anywhere in the communications process, and if it is, it should be exchanged as part of a separate process ,e.g. via master files or product catalogues.

In other words, simplicity is bought in two ways:

Remove complexity from the business process - stop using unnecessary information.

Encourage businesses and institutions to use simpler and more standard processes whenever appropriate.

Move information from the transaction - where it is redundant or stable, or adds processing complexity -to the master data - where it can be separately accessed or processed

Master data transmitted in a transaction is an invitation to impose manual handling into an otherwise automatic process. If the effort spent checking master data transmitted redundantly in a transaction message were instead concentrated on getting the master data right in advance of trading, the transactions would be processed more simply, more efficiently and more accurately. Investing in effective and timely synchronisation of master data will always allow more efficient processing of routine transactions. For instance, simplifying 100,000 orders on an ongoing basis at the cost of being more precise about 2,000 product definitions should provide benefits overall.

Businesses and institutions are now encouraged to define their master data in a standard, structured way. Smaller businesses will use limited sets of master data. Larger companies can put a wealth of data in master files. They can structure this data in such a way as to share some or all of it with defined partners.

Master data can be exchanged by EDI, or via a shared file or catalogue on the joint network (e.g. the Internet) or by E-Mail, fax etc. - see below. Clearly, it will be essential to have clear standards and guidelines for the development and use of master data.

Simpler, standard EDI will help many small businesses and institutions towards the economic use of EDI, and will reduce the complexity and cost of all electronic commerce, particularly if translated into simpler, standard applications software.

### **3. Good Business Practice - Key Principles**

The prior exchange of master data is just one of the important principles fundamental to simplifying electronic commerce. There are also a number of other principles, to which users will need to subscribe if they are to be able to embrace and gain maximum benefit from the simpler standards. These are outlined below. Users who do not feel ready to accept these will probably find that their needs are better suited by one of the more elaborate EDI message standards that exist.

*There is no pretence that the Simpl-EDI message defined in this document can support complex data sets, or accommodate data values beyond those deemed appropriate for the most basic transaction model. Herein lies its attraction - unambiguous and simple communication.. However, the principles described should bring general benefit to all EDI and to all IT applications.*

#### **I) Numbering**

The simplest and most effective message is one which can be automatically processed and routed to wherever in the supply or value chain action is required to be taken. Hence, this message should not contain data which requires human interpretation prior to processing. Thus, using a number for a product, or a name, or a trading location enables automatic processing. Numbers and quantities and dates can be processed - descriptions cannot normally be processed.

Numbering for master data should be rigid enough to make the application simple and unambiguous, but flexible enough to attract a wide range of business sectors.

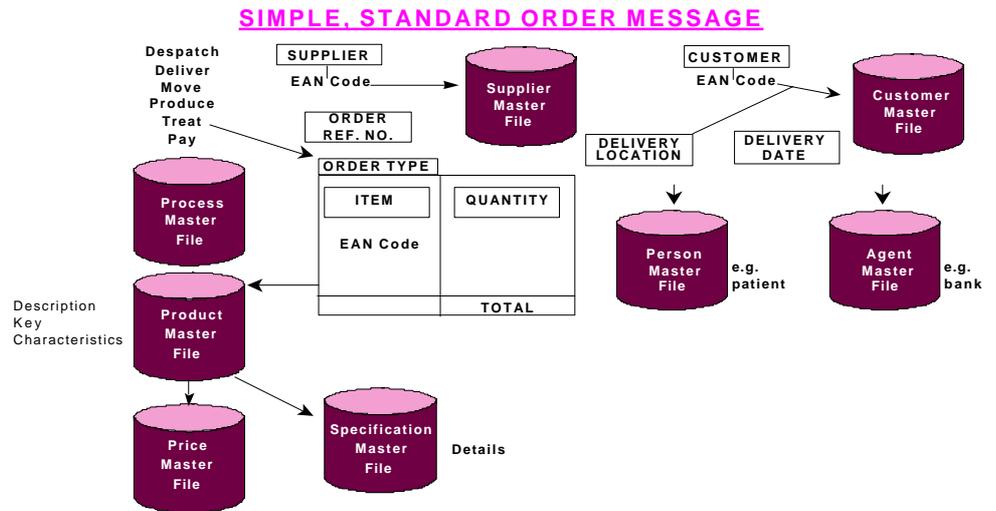
#### **ii) Product Numbering - Based on EAN Standards**

##### Products

Product numbering should be used for both electronic information flows and automatic product recognition. In their commonest forms this means EDI and Bar Coding. Information collected from the physical goods must match the references in Simpl- EDI messages.

The International Article Numbering Association (EAN International) has successfully introduced EAN article numbers as the de facto standard for product identification. It is harmonised with the USA's Uniform Code Council's UPC numbers. It is global in application, availability and uniqueness.

All products will be identified primarily by an EAN article number. Other article numbering systems should not be accepted, as this will lead to a proliferation of ambiguity and complexity in interpretation. Supplementary coding may be required, and EAN International has provided standards for supplementary applications in EAN-128 symbols, e.g.



variable measure quantities (weight, length/width/depth, area, volume)  
batch or lot number  
product variant  
serial number

Application identifiers have been published by EAN to indicate the nature of defined supplementary data types, e.g. each of the examples above has a formal AI.

### Locations

Locations should be identified by EAN location numbers. The location so identified may be:

- I. a physical address - for delivery
- II. a unit within an organisation - for responsibility and routing (an individual within the organisation unit would be better detailed as a contact within the location).

### SSCCs

Coding of goods, typically at the shipping level e.g. pallet or container, should use the Serial Shipping Container Code (SSCC). The SSCC is a unique unambiguous serial number which can be used to identify a transport unit anywhere in the world.

### Other Numbering Systems

On a pre-defined basis, some other agreed national and international numbering systems can be used in Simpl-EDI, e.g. bank account codes.

### **iii) Data Definitions**

#### Customer/Supplier

The "Customer Code" location identifies the person or organisation raising or reporting the order. The master data should therefore specify unambiguously the person responsible for the order within the organisation to be invoiced, sufficient to permit communication outside of EDI (e.g. for queries or exceptions) and to enable the invoice to be made out and addressed correctly.

The "Supplier Code" location identifies the person or organisation actioning the order. The master data should therefore contain enough information to enable the receiving organisation to route and process the order automatically without human intervention, but also specific enough to permit communication outside of EDI (e.g. for queries or exceptions).



These are illustrated in Diagram 1, and detailed in the attached definition of the Simpl-EDI supply chain message.

The structure of this message is firmly based on the principle of one or more items being delivered to one or more location at one time. In this way, physical deliveries can be matched directly against orders, and invoices directly related to receipted deliveries. Financial ledgers also relate directly to specific customer or supplier locations.

### **Other message applications**

It is believed that the order to deliver does not vary significantly from the order to despatch/move/produce. The order to deliver is also similar to the order to process (e.g. a material) and to treat (e.g. a patient). To achieve simple messages for processing and treatment, specification or process codes and related master files will be added. The simple order to deliver is also similar to the simple order to pay. For example, instructing a bank to move a certain sum of money from Account A to Account B on date X at time Y is, in general terms, the same as instructing a supplier to deliver a product from location A to Location B. A simple payment message is shown in Appendix A which defines how banking codes are used to identify payers, payees, financial institutions and types of financial transactions. The intention is to minimise the total number of both messages and data elements. Wherever practicable, even with different messages, standard data elements will be used across messages.

As well as defining the precise nature of the order, (e.g. deliver goods, provide a service), the same core message, with a few additional elements, can also be used for related transactions such as the despatch advice, and inventory report. This is because the only real difference between these transactions is the direction of data transfer and the precise meaning applied to the list of codes and quantities. The use of the core message for these other applications is described in the documentation for the specific implementations.

### **Time Parameters**

Using the core message in its Order mode, additional functionality can be accommodated by allowing users to specify the time horizon or 'tense' that applies. The four possible tenses are:

Past	A statement of a completed event, e.g. fulfilled order. We shall need to distinguish between a set of orders placed, and a set of deliveries completed against these orders.
Ongoing	An event still underway e.g. an unfulfilled or part delivered order - a record of what remains outstanding.
Future Plan	A tentative or a planned order. What is believed to be the future orders that will be placed, or future deliveries made.
Firm Action	A firm order to be actioned.

Generally, data shown in this way would relate to particular transactions on particular days - past, current or planned.

Diagram 2

### **Order Time Parameters**

Customer Number                      Supplier Number  
Deliver to Location number      Deliver from Location number

	Order Type						
	Order Ref	Order Ref	Order Ref	Order Ref			
	Status <u>Past</u>	Status <u>On going</u>	Status <u>Action</u>	Status <u>Plan</u>			
	Date	Date	Date	Date			
Item No	Qty	Qty	Qty	Qty			

*The same structure and set of data element definitions would be incorporated into past records of orders (production, deliveries, etc.) or forward plans. Past (complete) orders/actuals would provide a basis for planning or for measuring performance. Forward plans of orders would aid joint management of the Supply Chain. Individual Transaction Orders would drive the chain. Incomplete orders await fulfilment. Where value chain partners are communicating past data on performance or data on plans related to time periods, such as a week or a month, rather than to particular transactions, the reporting message for value chain planning and performance should be used.*

**5.      Master Data Bases**

For large companies most files can be exchanged prior to exchanging EDI transactions, so that data is synchronised for both partners prior to trading, e.g. product and price files. For smaller companies, the master data can be held on a shared file at a defined location on a network, e.g. a catalogue file on the Internet. For very small companies beginning EDI, master data can be exchanged by fax or e-mail or even via printed lists. Whatever the means, complexity has to be kept out of the transaction message.

Proposed master data elements, messages and usage are described in Appendix B.

**6.      Conclusion**

As the electronic revolution gathers pace, and business, administration and government become more sophisticated, it is both essential and practicable to simplify and standardise EDI messages and IT applications. We need to apply the same principles of simplification and standardisation to these that we can now apply to business and administrative procedures via supply and value chain management.

We have rigorously excluded complexity from our draft Simpl-EDI messages. We start from the belief that we can meet 80% of needs with 20% of the elements drawn from existing EDI messages, all clearly defined in a standard international format. Those wishing to add the 80% of extra complexity to meet a further 20% of users needs should not look to Simpl-EDI for their salvation.

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Tom McGuffog  
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**\*See: "Managing the Supply Chain with Speed and Certainty" by Tom McGuffog, published by ANA 1996**

**THE SIMPLEST TRANSACTION MESSAGES**

In the brochure 'Managing the Supply Chain with Speed and Certainty', a table is given on page 17 which identifies three categories of messages for Supply Chain Management. These can be summarised as transaction messages, master file messages and forecasting/reporting messages. It is apparent that there is a core set of segments that are common to all three categories.

### **Supply Chain Messages**

The following table shows some of the TRADACOMS and EANCOM messages that fit into the three categories:

<b>SUPPLY CHAIN CATEGORIES</b>	<b>TRADACOMS MESSAGES</b>	<b>EDIFACT/EANCOM MESSAGES</b>
Transactions	Order, Invoice, Delivery Notification, Delivery Confirmation, Uplift Instruction	Purchase Order, Purchase Order Response, Invoice, Request for Quote, Quote, Transport Instructions, Despatch Advice, Receiving Advice, Remittance Advice
Financial Transactions	Statement, Remittance, Payment Order, Debit Advice, Credit Advice	Payment, Debit Advice, Credit Advice
Master Files	Product Information, Price Information, Customer / Supplier Information	Product Data, Price Catalogue, Party Information
Plans/Forecasts/Reporting/ Supply Chain Performance	Snap Shot Report, Stock Adjustments, Availability, Product Planning Report, Location Planning Report	Delivery Schedule, Sales Data Report, Sales Forecast Report, Inventory Report

### **Development of the Simplest Transaction Message**

It has been decided to base all of the initial work on EDIFACT. It has been chosen as the syntax because its generic nature helps to increase the possible functionalities of the messages. While similar functionality could be built into TRADACOMS, the need for explicit nesting makes it harder to build one message that can support variable code driven functionality. The use of TRADACOMS may be looked at as development of the work. We intend our standard data definitions and messages to be used as a basis for new standard computer applications. Hence the principles we propose are independent of syntax.

The main message functions proposed to be included in the development of the simplest messages are:-

- Orders to purchase, to deliver, to despatch, to move, to receive, to produce, to process and to treat.
- Invoices, credit. (Note that in order to process and to treat, reference not only has to be made to the product the customer and the supplier, but also to the specification of the process or treatment).
- Reports on past, present and planned orders, deliveries, despatches, receipts, production, sales, inventory, etc.
- Payments, a message similar to the simple order has been developed, and references are made to the payor, payee and the financial agent.

The focus is to keep the message simple and use master files wherever possible. While there is no absolute mandate to base the message on existing standards, there are many benefits in ensuring the messages are of International validity and are not unnecessarily at odds with established subsets, e.g. UNSM's. The work is being proven in the UK and is being submitted to the EDIFACT process via UN-ECE CEFACT.

## Tenses

It is possible to include tenses in the messages to allow them to reference a past, present or future action, some messages can also operate in the unfulfilled mode, i.e the production has started, but at present the order is still unfulfilled. It is proposed to request codes in the DTM segment from EDIFACT to cater for this requirement.

With modern value chain management techniques, there is far more emphasis put on passing data along the supply chain. If the process is well integrated, messages, such as the order, will be sent as a future plan before they become a current order. The same order may also be sent as past history, to help with forecasting. It may also be important to identify when the order is unfulfilled. The tenses have been included in the Simpl-edi messages to facilitate the new requirements of an integrated supply chain.

The table on the next page lists the tenses of each message and the likely master data that would be required for the message to operate.

### The Approach, based upon the Simplest Order Message

To place an order, there is a minimum amount of information needed. This means that many segments in the full EANCOM message can be removed completely or included as master file information. The core set of segments, based on EANCOM, which will form the simplest order are :-

UNH, BGM, DTM, RFF, NAD, LIN-QTY-DTM-RFF, and UNT

This is approximately 9% of the full order message, by segment, and is similar to the TEDIS 'Migration to a better business practice' order message. These same segments can also provide the basis of the despatch advice message and receiving advice messages as well as a reporting function, for information such as the sales or inventory. Hence, we not only have much simpler, but also fewer messages. Each message has been developed with this approach. Detailed message implementation guidelines for the main Simpl-edi messages follow. The messages are:-

- |            |  |
|------------|--|
| Appendix A | 1. The Simple Order (Branching Diagram shown on final page of Summary) |
| Appendix A | 2. The Simple Invoice  |
| Appendix A | 3. The Simple Despatch Advice  |
| Appendix A | 3. The Simple Report, for value chain planning and performance         |
| Appendix A | 4. The Simple Financial Payment.                                       |

Note 1 : Appendix B details the master data requirements

Note 2: Other simple financial messages, including cross border messages, are available from APACS.

Note 3: Multiple deliveries per order are not considered to be the best simple business practice. However, recognising that some companies operate this way, Appendix C describes the simple and multiple scenarios, and how multiple scenarios can be handled by Simpl-edi.

<b>SIMPL-EDI - LIST OF MESSAGES</b>						
<u>MESSAGE TYPE</u>	<u>TENSE</u>				<u>TIME</u>	<u>MASTER DATA</u>
	<u>Past</u>	<u>Un-fulfilled</u>	<u>Action Now</u>	<u>Future / Plan</u>		
ORDER - Deliver - Despatch - Move - Produce	✓ ✓ ✓ ✓	✓ ✓ ✓ ✓	✓ ✓ ✓ ✓	✓ ✓ ✓ ✓	Period/point " " "	Customer, Supplier, Product " " "
ORDER - Process - Treat	✓ ✓	✓ ✓	✓ ✓	✓ ✓	Period/point "	Customer, Supplier, Product Spec. Customer, Supplier, Patient, Treatment.
ADVICE/ NOTIFICATION - Delivery - Despatch - Movement - Production	✓ ✓ ✓ ✓		✓ ✓ ✓ ✓	✓ ✓ ✓ ✓	Period/point " " "	Customer, Supplier, Product " " "
REPORT/SCHEDULE ACTUAL/PLAN - Delivery - Sales - Production - Inventory/Stock - Processing - Treatment	✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓		✓ ✓ ✓ ✓ ✓ ✓	Period/point Period Period P'd/P't Avrage Period Period	Customer, Supplier, Product Customer, Supplier, Product Spec. Customer, Supplier, Patient, Treatment.
PAY - Payment Order - Remittance Payment	✓ ✓	✓	✓ ✓	✓ ✓	Period/point "	Payor, Payee, Financial Agent, Payment Type Customer, Supplier, Product
OTHERS - Invoice, Credit/Debit	✓		✓	✓	Period/point	Customer, Supplier, Product

## **Master Data**

### **1. INTRODUCTION**

To get the maximum benefit from simpl-edi, it is the most frequently used messages which have been simplified.

Simplicity is brought about in two ways:

- remove complexity from the business process and stop sending unnecessary information
- move information from the transaction where it is redundant to the master data where it can be useful

Master data can therefore be defined as that information/data which is supplementary to the transaction message. The master data supports and enables the message, but is not a part of the simple transaction. It is referenced.

Master data transmitted in a transaction is an invitation to impose manual handling into an otherwise automatic process. If the effort spent checking master data transmitted redundantly in a transaction message were instead concentrated on getting the master data right in the first place, the transactions would be processed more simply, more efficiently and more accurately. Investing in effective and timely synchronisation of master data will always allow more efficient processing of routine transactions. Master data needs to be set up and checked in advance of processing electronic messages. This can be done manually, but for best benefits it is necessary to plan to do this via the automatic exchange of master data.

### **2. OBSTACLES TO THE USE OF MASTER DATA**

No Synchronisation of master data

When master data has not been exchanged through a formal managed procedure, preferably electronic for all but very small amounts of data, then it is highly unlikely that both the customer and supplier will share the same definition of a product. Where product numbers do not match in both the customer's and supplier's systems, there will be errors and delays in processing orders, accepting deliveries and making payments on invoices. A price difference may not be enough to stop the order or delivery, but it will lead to problems when processing the invoice. Not knowing how many cases fit on a pallet may lead to part pallets and inefficient material handling. A problem "every so often" with each supplier quickly means a problem every day for the customer.

Lack of Confidence

Many businesses play safe and insist on some master data in every transaction message. So every message is checked - usually manually - when it is received. Does the product description match our own? Does the price include the rebate agreed by the salesman? And because every transaction is checked manually, most companies do not attempt to route and process incoming EDI messages automatically.

Insufficient Master Data

Because every transaction needs manual intervention, it is not important to keep all the master data in the system. For instance, if a supplier deals with each sales order manually, he does not need to record the delivery times sent to him by each customer, because the order clerk can add that information when he schedules the despatch. Substitutions of product or despatch location can be made manually. Even if the master data is in the system, it does not matter if it is inaccurate because it will be over-ridden.

### **3. A SYSTEMATIC APPROACH TO MASTER DATA**

The main choice lies between prior bilateral exchange and open publishing on the public network, either through a central database (independent of individual suppliers and customers) or through the supplier's own network site.

Prior bilateral exchange is most likely to be chosen for bespoke products. This may occur where there is only one customer or where the supplier has a close trading relationship with his major customers, or where there is a high volume

of data, or where there is sensitive data, such as prices or key specifications. In such cases, good Supply Chain Management offers the greatest benefits when both sides are not only sharing but also synchronising relevant master data in advance of sending transactions, plans or performance data. This approach is likely to be increasingly beneficial as more companies and institutions adopt joint management of the value chain and adopt Simpl-EDI.

#### I) Open publishing

Open publishing is relevant when the supplier is making his product available for sale to a wide audience of potential customers, or where the customer is a minor customer (to the supplier), or where the material is an incidental one to the customer. In these cases the decision to purchase and the selection of the supplier is taken by the customer without any great degree of prior planning. This approach is less relevant to confidential data such as prices.

Before detailed planning or exchanging transactions can begin, the master data must be known. Only exchange the data that is relevant. For instance, it may be possible to agree a weekly delivery plan without finalising the exact price. But the price must have been agreed before a purchase order can be sent or processed with any confidence.

#### ii) Open publishing through a central database

Open publishing through a central database is a possibility when a sector exists with a high proportion of non-bespoke products. This can also be of benefit to smaller organisations. Each supplier needs to have a large number of EDI-capable customers, and each customer needs to have a large number of EDI-capable suppliers. In these circumstances, there is a real benefit to each trading party. The provider of the master data can provide it once to the central database, and enjoy the benefit as an increasing number of users of the data can read direct from the central database. Reciprocally, a user of the master data can develop the ability to read it from the central database, and then realise an increasing benefit as more master data is made available on the database.

#### iii) Open publishing through the vendor's own network site

Open publishing through the vendor's own network site (typically of his product catalogue on a WWW site) may be used by a vendor when he does not know in advance who all his customers are. He can achieve very wide availability, but typically the customer has to fill in an electronic form manually. The customer cannot make use of product master data in planning his purchase, but if he regards the items as unplanned incidentals for his business, at least he can be assured that the master data has come direct from the vendor's own system. This may not be the best way for the customer to manage supply of products bought repeatedly, but it is simple to use, can work with a restricted and simple set of data, and should allow the supplier to optimise his order fulfilment process within the constraints of a large number of small customers with irregular requirements.

## **4. SIMPLEST MASTER DATA REQUIREMENTS**

The key elements of master data required to support the simple messages - order, report, invoice, despatch advice are as follows:

#### I) Contract Number

A simple order should not normally need to refer back to a previous agreement, contract or supply arrangement. If it does, what use will the message recipient make of the field? The only possible uses are to specify pricing (if concurrent price contracts are allowed) or delivery service levels (if concurrent service levels are allowed). Neither are within the realms of Simpl-edi.

#### ii) Order Number

The order number, either buyer's number or supplier's number, is provided as a reference number for future transactions.

### iii) Location Numbers

Message from/to - These references cover authority and responsibility.

The “message from” location identifies the person or organisation requiring or reporting the order. The master data should therefore specify unambiguously the person responsible for the order within the organisation to be invoiced, sufficient to permit communication outside of EDI (e.g. for queries or exceptions) and to enable the invoice to be made out and addressed correctly.

The “message to” location identifies the person or organisation actioning the order. The master data should therefore contain enough information to enable the receiving organisation to route and process the order automatically without human intervention, but also specific enough to permit communication outside of EDI (e.g. for queries or exceptions).

Delivery from/to - These references cover geography.

The “deliver from” location is optional, as the buyer typically will not need to specify where the goods are to be sent from. It becomes relevant when the entire delivery process is fully automatic (e.g. automatic conveyor system or electronic payment). In such a case the master data must contain enough information for the “delivery” to proceed without human intervention.

The “deliver to” location is mandatory. The master data must contain enough information for delivery to be made without human intervention, although routing to a particular loading bay on arrival at a factory/depot gate might still reasonably be done locally on site, not determined in advance.

### iv) Product Number

This should accommodate both the core product, identified by EAN number, and where necessary supplementary number, e.g. the issue number for a journal, or an EAN product variant. The master data should be sufficient to:

- enable unambiguous identification - what the buyer thinks he is ordering is the what the supplier thinks he should deliver
- facilitate efficient order raising, order processing, despatch and delivery material handling - for instance, specifying palletisation (or other transport unit) data
- identify price and tax - in combination with buyer, date, delivery to location and quantity

### v) Goods Identification Numbers

Some messages will need to refer not only to the product but to a particular instance of the product, usually for traceability or so that the recipient of the goods can use the particular characteristics of that instance of the product to improve his own operation. Typically this reference will be to a serial number, or to a handling unit, or to a batch, each of which can be identified by a goods identification number.

The master data for a goods identification number is part of the information flow associated with the creation/production of the goods. The same format of information flow is required for the usage/consumption of the goods.

The master data required will depend on the nature of the industry but typically for a handling unit will include:

- date(s)
- product number(s)
- quantity(ies)
- associated batch number(s) (e.g. production order number)
- measurements of batch characteristics (e.g. strength, density, etc.)

### vi) Numbering

Numbering for master data should be rigid enough to make the application simple and unambiguous, but flexible enough to attract a wide range of business sectors. It should be based on EAN Standards, where practicable.

## Products

Product coding should be used for both electronic information flows and automatic product recognition. In their commonest forms this means EDI and Bar Coding. Information collected from the physical goods must match the references in Simpl-edi. EAN codes will be used for articles / products, serial shipping containers and locations.

## Assets

Although EAN International provides a system for numbering assets, Simpl-edi does not need to refer to individual asset identifiers. If it is needed, the EAN numbering systems for serial assets and returnable assets should be used.

## **5. MASTER DATA ELEMENTS**

Up to now the focus has been on what types of master data should be sent, and which codes should be used to reference the master data. This section takes the discussion down into individual data elements:

- proposing a minimal set of Simplest Master Data suitable for exchange prior to Simpl-edi.
- commenting on an extended set of data which might be suitable for prior bilateral exchange either in a less structured format than formal EDI, or for close trading partners using full EDI.

Scenarios for exchanging master data:

- I) prior bilateral exchange: use extended data set
- ii) open publishing - central database store extended data set; use either basic or extended
- iii) open publishing - vendor catalogue use basic data set
- iv) mail - e-mail, fax or post.

### I) Product Master Data

#### Simple Product Master

Only the most basic detail should be provided here in distinct data elements:

- EAN identification - product code
- short description
- price & applicable tax
- ordering unit
- gross weight
- catalogue entry

The last data element "catalogue entry" will be a graphical object, typically an Internet browser page (in HTML) of text and pictures. This can include any other information which the buyer may find useful. In the simplest scenario, such data is read for information by people, but not used for automatic processing by computer systems. This is especially important as it helps to make the product catalogue easy and attractive to use, and fits well with designing simple systems which need no training for users. Wherever screen based forms are used for transactions, such as ordering or paying, the underlying core data elements should be as defined in Simpl-edi. This will ensure that the transaction can be processed in a simple and standard way.

#### Extended Product Master Data

Some trading relationships may depend on achieving good Supply Chain Management practices by using more-complex automated processing. Such processing may ensure:

- order quantities optimised for handling and subsequent usage
- optimum load planning
- automatic goods reception and put-away at warehouse
- automatic reporting to customs and government agencies

In this case more complex master data will be required, especially if the transaction messages are to stay simple. Examples of such master data includes:

- EAN identification
- logistics information
- number of traded units per layer/pallet } optimal order
- number of layers per pallet } quantities
- measures, weights, best before data type
- handling instructions
- temperature constraints
- hazardous goods classification for dangerous goods
- tax/customer/price information
- code for taxes
- customs tariff number
- information on availability

## ii) Party & Location Master Data

### Simple Location Master

The basic definition of a location is:

- EAN identification
- name
- address - structured e.g. "street", "city", "postal code", etc.

In the simplest instance, no further information is needed by the computer system.

### Relationship between Locations

Different locations need to be connected. A customer automatically matching purchase orders, goods receipts and invoices will record in the master data for the supplier's location (where the order is sent) what is the location from which the invoice will be received (e.g. for orders to a branch, receiving invoices from a head office). In Simpl-edi only these connections need be recognised:

- between "order-to location" and "invoice-from location"
- between "invoice-from location" and "pay-to location"

### Extended Location Master

In many trading relationships more information may be useful, not only to be read by people, but for direct processing within a computer system:

- EAN identification
- information on addresses
- parent/child EAN-participant number

[Note that the connections can be considerably more complex than in the basic scenario:

- sender/receiver
- delivery locations
- receiver of the invoice
- payee
- financial account information
  
- contact person / communication information
- VAT number / language / railway station (in some countries)
- delivery times and delivery cycles (for automatic creation of delivery proposals)

## iii) Goods Identification Master Data

The master data associated with goods identification numbers (SSCC numbers recommended) will arise at the creation/production of the goods. The data which is relevant across trading partners is closely associated with the

Application Identifiers defined as part of the EAN-128 Bar Coding Standard.

#### Basic Goods Identification Master

For simple use, the data elements required are:

- EAN identification - SSCC
- product code
- production date
- batch code
- quantity

For transport and goods reception, it may appear to be useful for the customer if the supplier also adds:

- customer order number

When the goods in question are allocated to a specific order, it is easier if this is done by reference in the Despatch Advice to the customer order number. It may also be appropriate to reference the SSCC number(s).

#### Extended Goods Identification Master

In practice many data fields recognised in EAN-128 could be relevant as master data. Defined once in the master data, and shared between trading partners, there is no longer any need to repeat the data in the transaction messages. EAN-128 data types include:

- goods identification - SSCC
- contents (product) identification - EAN article number(s), product variant, article components
- unit identification e.g. asset number
- dates
- batch and serial numbers
- measurements including quantities

For full details of the data in EAN-128, see the ANA Operating Manual.

#### iv) Requirement - Based on Simpl-edi Transactions

##### Simplest Order

The Simplest Order is designed to cover sending the following information:

Order to deliver, to despatch, to move, to receive, to stock or store, to produce, to process, to treat.

Planned Orders or activity, forward schedules.

Actual Activity (or where required, a record of past orders)

References to master data allowed by the Simplest Order Message are:

Header level - applying to whole document:

- Contract i.e. any previous supply agreement
- Order number (buyer)
- Message from
- Message to
- Delivery from
- Delivery to

Item level - applying to each line

- Product number
- Quantity

## **6. MESSAGE FORMATS**

The existing EANCOM messages provide far greater flexibility than is needed for the simple master data outlined above. However, the majority of segments in the master data messages are conditional, providing the end user with a choice. Master data tends to relate to attributes rather than process information, this gives the possibility of

different companies or sectors requiring slightly different information in the message. Due to the nature of Master data, there may also be a need to split fixed information from more volatile information such as prices or specification, these boundaries may change between

companies and sectors. Subsets of existing EANCOM messages can be proposed to ensure that the Master data behind the Simpl-edi messages is handled in a uniform way. The existing EANCOM messages that should be used are:-

1. The Price Catalogue message (PRICAT)
2. The Party Information message (PARTIN)
3. The Product Data message (PRODAT)

*Note - All of the following subsets should be read in conjunction with the relevant EANCOM 1997 messages.*

The Simpl-edi message master file data requirements are party information, fixed product information, volatile product information, product specification and process information. The following subsets have been defined to handle the Simpl-edi master data requirements.

#### PARTY INFORMATION

This subset is based upon the EANCOM 1997 Party Information message (PARTIN). The message is to enable the transmission of basic information regarding locations and the related operational, administrative and financial data.

The identification of the trading partners is an essential issue for Electronic Data Interchange, identification of locations precisely and unambiguously is a vital element of EDI. The Party Information message serves to maintain the trading partner's master data files, and this may be done directly, or through updating a centralised electronic catalogue. The party's address as defined in this messages is a location number. This cross refers to the transaction messages via the master file reference number. The information specified in this message may be purely a physical location or a functional locatio. A functional location may be a specific department within a company. It is recommended that one separate message is provided per message function. Branching diagram , in the full report, shows the Simpl-edi recommended segments.

#### PRICE CATALOGUE (FIXED INFORMATION/VOLATILE INFORMATION)

This is a subset of the EANCOM 1997 Price Catalogue message (PRICAT). This message enables the transmission of information regarding pricing and catalogue details for goods or services offered by a seller to a buyer. EANCOM have one message, for Simpl-edi it is recognised that many companies may wish to separate their fixed product information from their more volatile pricing information, the boundaries of which may be industry based. Therefore, a company may wish to send this message in two referenced parts. Branching diagrams 2 and 3, in this section of the full report, show the fixed and volatile information subsets respectively.

The article information transmitted with the PRICAT message is intended to be used for reference by the trading partners in the subsequent Simpl-edi interchanges. The message indicates descriptive, logistic and pricing information by individual product. Product information can be provided as a complete listing of all supplier's products or as an advanced warning of particular changes, the messages may also be used as a link to or from a central catalogue.

#### PRODUCT DATA MESSAGE

This is a subset of the EANCOM 1997 Product Data message (PRODAT). The message is provided to identify and describe products available for supply or for information purposes, and will contain technical and functional product descriptions. This information may change infrequently. The message does not include commercial terms and conditions.

The message identifies a product or products using codes, descriptive, and other information. It may include product identifications, product characteristics, technical data and handling information. This message may be used in conjunction with a centralised catalogue. No branching diagram is shown for this message.

## PROCESS INFORMATION

If the transaction message is to reference a treatment or process, a detailed textural/numerical description of the procedure is needed. There is currently no EDI message available for this purpose, although the General message (GENERAL) may be used. It is vital that the process is clearly and unambiguously defined, and has a clear reference number. Each stage of the process may be defined with codes. It is likely that this may be through a bilateral arrangement. No branching diagram is shown for this message.

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