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Business and Information Model Guideline
Self-Billing

Issue 2

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Abstract:	This document defines and describes the scope of the self-billing business area and its processes. It is the basis for implementation guidelines developed within this area. The information within this document represents the outputs of boxes 1, 2, 3 and 4 as described in the 'Guide to Business and Information Modelling for the development of EDIFICE implementation kits'.
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Comparison to previous issue

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Section 3.3 Self-billing correction procedures – added and related changes in chapter 2.

Grammar and style improvements

Section 3.2 and Chapter 4 reference to 'Consumption Reference' added

Section 3.2 refers to EDIFICE Forecast and Inventory Management Guideline

Chapter 4 Entity relationship diagrams replaced by UML Class models.

Additional Appendix (now Appendix B) with example business process

Additions to glossary

Reference is now to Issue EDSB03 of the EDIFICE Implementation Guide to the Self-Billing Invoice

1   Purpose
This document gives a general description of the self-billing process. The purpose is to describe the business process and information flows that are required by supplier and customer to successfully implement self-billing using EDI. The goal is to provide a reference document that allows for consistent implementation of the process within the electronics industry. The main focus is on the EDI aspects of the process, other issues which arise in the self-billing, such as the legal and fiscal constraints, are not covered in detail.

The self-billing process does not operate independently of other processes. It depends on functions of ordering, physical distribution and it prompts the payment process. Parts of these processes are also shown in order to clarify the relationships between them.

The specifications of business functions and information flows form part of the EDIFICE EDI Implementation Kit for self-billing. They describe the context in which the EDIFICE Self-billing Invoice message is intended to be used.

The description is complete for domestic use and gives a recommendation for cross border trade. Due to the difficulties associated with Value Added Tax (VAT), Intrastat reports, customs, government regulations etc., associated with international trade, agreements for cross border self-billing trade should be made between trading partners dealing with their specific legal and fiscal circumstances.

2 Background

The self-billing process is a re-engineering effort, based on the traditional invoice process, associated with liability settlements arising from supply of goods between customer and supplier. Self-billing is the procedure for authorising payment for received goods based on received or used quantities of goods. Prices must be pre-negotiated and maintained by both the customer and the supplier in their respective applications in order for the process to operate smoothly.

This document describes two distinct business scenarios where self-billing is used:

- Evaluated Receipt Settlement (ERS) (section 3.1)

- Consignment stock (section 3.2)

2.1 Definition of Evaluated Receipt Settlement

The self-billing procedure whereby the customer issues the self-billing invoice in respect of a shipment, after receipt of the shipment.

2.2 Definition of Self-billing on Consignment Stock

Goods on consignment are goods that are physically delivered to a customer or his agent but which remain the property of the supplier. The goods are sold to the customer when he takes them for use or resale. When self-billing on consignment is used, the customer issues the invoice for the goods used by him from the consignment stock.

When the customer has received or used the goods, the Self-billing Invoice (SBI) is created and sent to the supplier. The SBI is calculated on the basis of received or used goods and the agreed prices and it contains the payment due date.

Section 3.3 describes procedures for handling corrections when an error is found in an SBI. Trading partners are advised to agree on the specific procedures to be implemented. Types of discrepancies are:

Price - The customer and the supplier do not have the same price in their respective in-house systems.

Quantity - The received quantity is different from the shipped quantity.

Quality - Received/used goods were damaged or defective.

Product identification – The type of goods actually shipped are not those identified in the despatch documents.

3   Inter-enterprise business process analysis

This phase provides models of functions and information from which the flows to be carried by EDI may be derived. This chapter deals with the evaluated receipt settlement (ERS) business process whereby the customer issues the self-billing invoice after receipt of the shipment and goods inspection.

3.1   Business functions & Information Flows – ERS

The primary flows between customer and supplier in the ERS process are shown in *Figure 1*. The process is governed by a self-billing contract between the parties.
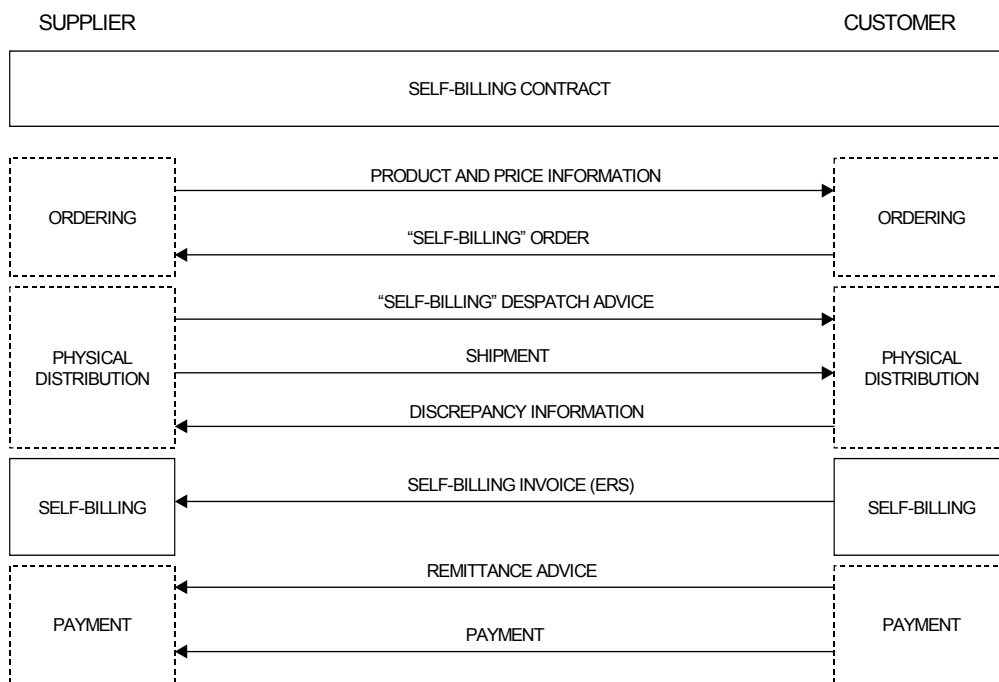
Figure 1   Primary flows in Evaluated Receipt Settlement process

It is essential that data about products and prices is kept aligned in the information systems of customer and supplier. The supplier provides the customer with product and price information on a timely basis with reference to the self-billing contract. This part of the process is essentially unchanged where self-billing is operated except that the requirements for timeliness, completeness and accuracy of information are higher in order to ensure the minimum of errors and disputes in later stages.

The customer orders goods. This may be by means of a traditional order process or some other procedure for communication of customer requirements to the supplier. The operation of self-billing does not change this process except that it must be specifically indicated that the order is to be processed under self-billing procedures. In the Purchase Order message the reference to the self-billing contract may be used. It may be that not all goods traded between two partners will be handled by self-billing procedures. It is probable that partners will agree that the main goods flows are handled by self-billing procedures while orders for other items are handled in the normal way.

Figure 1 shows a "self-billing" despatch advice message related to a shipment of goods from the supplier to the customer. A unique identifier must be agreed upon and should

be provided in the message to ensure proper receipt of the goods. The customer responds with a self-billing invoice within the period specified by the self-billing contract. The customer also provides information about any discrepancies that he has identified. In the ERS process there should be a one to one relationship between the despatch advice line and the self-billing invoice line.

In due course, in accordance with the terms of payment, the customer sends a remittance advice and makes the payment. The remittance advice may include many self-billing invoices, traditional invoices as well as credit notes and other items that have arisen on the trading account between the parties.

Part of this business area is shown in more detail in Figure 2, which gives a comprehensive picture showing the parties and functions, which may be involved in all circumstances. The processes directly involved in self-billing are specified in more detail in the following sections.

3.1.1.   Processes on the supplier side

The supplier executes an outgoing shipment process. Instead of the traditional invoice process the supplier carries out an ERS despatch evaluation. The results of this process are registered in the ERS reconciliation process. At this point turnover is accounted for and the evaluated despatch is accounted for as provisional accounts receivable.

When the self-billing invoice is received from the customer it is registered in the ERS reconciliation process. The self-billing invoice is matched with the evaluated despatch. If the self-billing invoice differs from the evaluated despatch, turnover is adjusted to the amount of the self-billing invoice. The self-billing invoice is provided to the accounts receivable process. The ERS reconciliation process provides invoice information from the evaluated despatch and the self-billing invoice to the VAT and statistics declarant for reporting to fiscal and statistical authorities.

3.1.2.   Processes on the customer side

The corresponding processes on the customer's side are the incoming shipment process, self-billing invoice process and accounts payable process.

The incoming shipment process receives the "self-billing" despatch advice, ordering information and the shipment. Capturing accurate shipment information and receipt of product into the receiver system is essential to ensure an efficient ERS process. The use of bar code label is recommended to facilitate the receiving process. On the basis of these, ERS goods arrival information is provided to the self-billing invoice process. The self-billing invoicing process sends a self-billing invoice (ERS) to the supplier for each shipment received under self-billing procedures. This information is provided to the VAT and statistics declarant for reporting to the fiscal and statistics authorities. The self-billing invoice is provided to the accounts payable process.
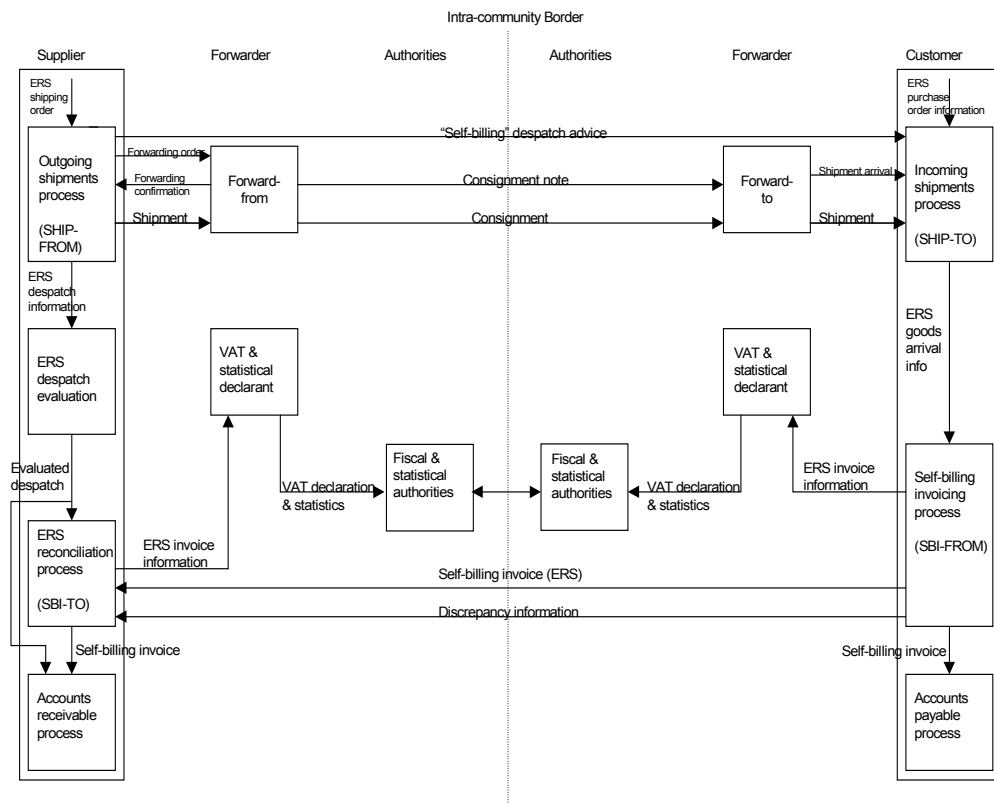
Figure 2 Functions and flows in the Evaluated Receipt Settlement process

3.1.3.   Definitions of parties and functions

The parties and functions involved in the goods and information flows are as follows.

Accounts payable	The function administering the accounts with suppliers arising from the receipt of goods and services.
Accounts receivable	The function administering the accounts with customers arising from the delivery of goods and services.
Authority	Government organisations to whom VAT declarations and statistical reports of goods movements must be made.
Customer	A party which acquires, by way of trade, goods and/or services. Also known as: buyer, purchaser.
Forwarder	The party responsible for performing the forward-from and forward-to functions. Forward-from: the function responsible for the combining of shipments into consignments and having those consignments transported. Forward-to: the function which ensures that each shipment in a consignment is received and is either re-forwarded or is handed over to the final delivery party or his agent.
Self-billing invoice-from	The function in a customer organisation responsible for creating self-billing invoices and sending them to the

suppliers.

Self-billing invoice-to	The function in a supplier organisation responsible for receiving self-billing invoices from customers.
Ship-from	The function in a supplier organisation responsible for combining goods items into shipments and having those shipments transported.
Ship-to	The function in a customer organisation responsible for receiving each goods item in a shipment for which it is the consignee and for further handling of those goods items up to and including booking.
Supplier	A party which provides by way of trade, goods and/or services. May also act as the shipper. May also known as: seller, vendor.
VAT and statistics declarant	The function, which maintains an administration of all imports and exports and which makes periodic import and export VAT declarations and statistical declarations.

3.1.4. Information flow definition

The following information flows relate to the processes defined in the previous section. See Figure 2 for the positioning of the flows.

3.1.5. Information flows between the parties

"Self-billing" order	A request from a customer to a supplier to deliver specified quantities of goods or services to a specified place on a specified date under specified terms and conditions forming part of a self-billing contract.
"Self-billing" despatch advice	Information provided by a supplier to his customer about a shipment to be handled under a self-billing (ERS) contract. (This includes some information which, under traditional invoicing, is communicated in the invoice such as country of origin, strategic goods indicator and supplier VAT identification.)
Self-billing invoice (ERS)	Information provided by a customer to his supplier informing him of the amount to be paid for goods received under a self-billing (ERS) contract.
Discrepancy information	Information provided by a customer to his supplier informing him of differences between goods actually received and the information in the related "self-billing" despatch advice.

3.1.6. Information flows between functions of the supplier

ERS shipping order	An instruction from the sales order processing function to the outgoing shipments process giving instructions for a shipment to be made under a self-billing (ERS) contract.
ERS despatch information	A report from the outgoing shipments process about a shipment that has been despatched under a self-billing (ERS) contract.
Evaluated despatch	Shipment information (about a shipment under a self-billing (ERS) contract) enriched with normal invoice information.
ERS invoice info	Report of a self-billing invoice (ERS) required by authorities, which is provided to the VAT and statistics declarant.

3.1.7. Information flows between functions of the customer

ERS purchase order info	Information about a purchase order for goods expected to be received under a self-billing (ERS) contract.
ERS goods arrival info	Information about the goods received in a shipment under a self-billing (ERS) contract.
ERS invoice info	Report of a self-billing invoice (ERS) required by authorities, which is provided to the VAT and statistics declarant.

3.1.8. Process definitions on the supplier side

The processes directly involved in self-billing on the supplier side in Figure 2 are described.

3.1.9. Outgoing shipments process

In the outgoing shipments process the ship-from function is responsible for handling outgoing goods. This involves the physical goods as well as the information related to these goods. The activities of the ship-from function, when creating a shipment, are:

a. receive the ERS shipping order from the ordering process,
b. pick the goods from the warehouse/factory and pack the goods;,
c. group goods into one shipment and identify shipment with a unique shipment reference number,
d. inform the ship-to about the goods to be shipped using the "self-billing" despatch advice,
e. inform the ERS despatch evaluation process about the goods (to be) shipped (ERS despatch information),
f. inform the forward-from about the goods (forwarding order),
g. send the goods to the forward-from and register the despatch,
h. receive and process forwarding confirmation from forward-from.

3.1.10. ERS despatch evaluation

This process can be implemented using most of the functions of the normal invoicing module. In the ERS despatch evaluation process the supplier calculates the invoice value of the goods shipped as a basis for:

- accounting for sales turnover and cost of goods sold,
- accounting for stock,
- provisional accounts receivable,
- verification of the self-billing invoice.

ERS despatch evaluation is comprised of the following activities:

a. receive and validate ERS despatch information from the ship-from,
b. complete invoice data, produce and send the evaluated despatch to the ERS reconciliation process,
c. account for the evaluated despatch as provisional accounts receivable (self-billing invoices not yet received).

3.1.11. ERS reconciliation process

In the ERS reconciliation process the supplier matches the evaluated despatch with the self-billing invoice (ERS) received from the customer. The self-billing invoice is the primary basis for accounts receivable and for the VAT and statistics declarant. The following are the main activities in the process:

a. provide the self-billing invoice to accounts receivable,
b. provide the self-billing invoice to the VAT and statistics declarant together with additional required information from the evaluated despatch,
c. match the self-billing invoice with the evaluated despatch for the following:
  - invoiced product identification,
  - invoiced quantity,
  - price,
  - line item amount,
  - VAT rates,
  - VAT amounts,
  - invoice total,
  - terms of payment,
d. investigate differences and agree adjustments with the customer, until adjustments are agreed the self-billing invoice is the primary basis for subsequent processes,
e. allow input of corrections to shipment weight and quantity data arising from reconciliation of the evaluated despatch and the self-billing invoice.

Process definitions on the customer side

The processes directly involved in self-billing on the customer side in Figure 2 are described.

3.1.12. Incoming shipments process

In the incoming shipments process the SHIP-TO function is responsible for handling incoming goods. This involves the physical goods as well as the information related to the goods. The SHIP-TO function of a customer organisation accepts shipments by:

    a.   receiving the ERS purchase order information from the ordering process (order-from),
    b.   receiving the "self-billing" despatch advice from the outgoing shipments process (ship-from),
    c.   checking the incoming shipment (see details below),
    d.   unpacking, inspecting, and storing the received goods,
    f.   informing the self-billing invoice process and the order-from about the arrival of the goods.

Checking incoming shipments on the correctness of received shipment is done by comparing the information flows for:

    a)   the purchase order,
    b)   the "self-billing" despatch advice,
    c)   the goods actually delivered.

Some possible results of comparing the shipment status are:

    everything is correct,
    too many goods have been received,
    too few goods have been received,
    the incorrect goods have been received,
    the goods are damaged,
    documents or information are incorrect or missing.

Self-billing invoicing process

The customer creates the self-billing invoice for a shipment by:

    a.   receiving the ERS purchase order information from the order-from,
    b.   receiving ERS goods arrival information from the ship-to,
    c.   obtaining prices of received goods from master data,
    d.   comparing identification and quantity of ordered goods with identification and quantity of received goods and informing the SBI-to of any discrepancies,
    e.   calculating the self-billing invoice (ERS) based on the identification, quantity and price of goods received,
    f.   sending the self-billing invoice (ERS) to the SBI-to,
    g.   providing ERS invoice information to the VAT and statistics declarant,
    h.   informing accounts payable about the self-billing invoice, (amount, currency, payment due date, means of payment, location of payment).

3.2 Business functions & Information flows – Consignment Stock

This section continues the business process analysis phase and deals with the process of self-billing of usage from consignment stock whereby the customer issues the self-billing invoice on usage of consignment stock made available to him by the supplier.

There are a number of consignment stock scenarios which could precede the self-billing on consignment scenario. Descriptions of these are published in the EDIFICE Forecast

and Inventory Management Business and Information Model Guide. Their operation is independent of the use of self-billing or traditional invoicing procedures.

The primary flows between customer and supplier in the self-billing from consignment stock process are shown in Figure 3. The process is governed by a self-billing on consignment stock contract between the parties.
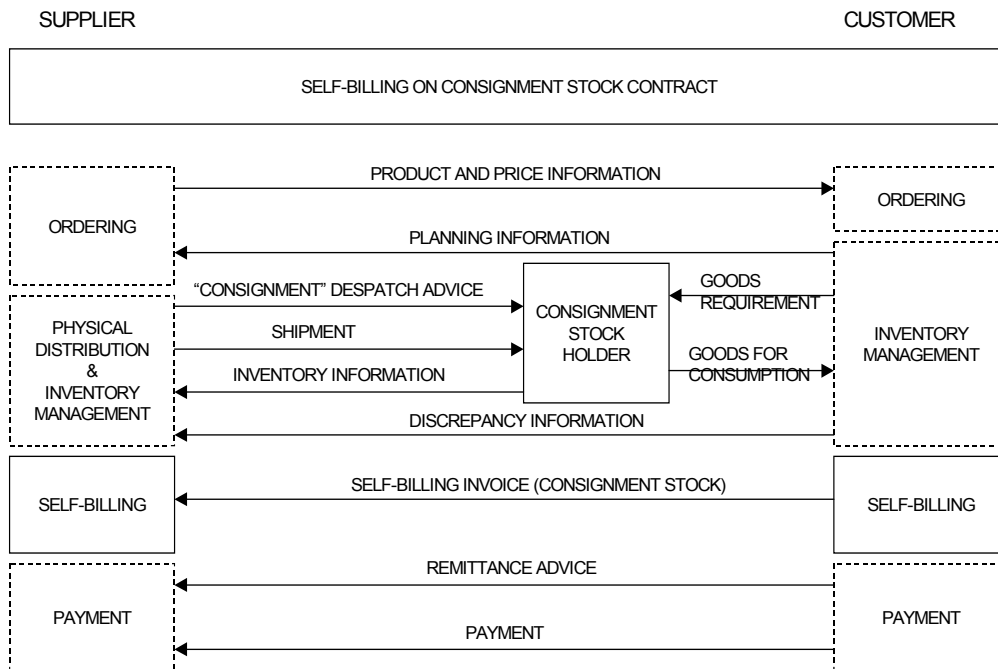
Figure 3 Primary flows in self-billing from consignment stock processes

The consignment stock remains the property of the supplier until the customer uses it. The consignment stock is physically held by the consignment stock holder on behalf of the supplier. The consignment stock holder makes the goods available to the customer according to the terms of the contract. The consignment stock holder may be a third party (e.g. logistics services provider) or a function carried out by the customer.

The product and price information flows are the same as in the ERS process.

The supplier has three possible sources of information from the customer on which to

base the decision to replenish the consignment stock:

- planning information from the customer,
- inventory information about the consignment stock,
- self-billing invoice (consignment).

Which combination of these is used will depend on the requirements for stock availability, the nature of the business and the terms of the contract.

The supplier ships the goods to the consignment stock holder. Information about the shipment is provided in a consignment despatch advice.

When the customer requires goods from the consignment stock he informs the consignment stock holder who provides the goods. The stockholder or the customer acting as stockholder should take care that normal stockholder procedures are in place

relevant for that type of product.

The customer prepares a self-billing invoice (consignment) for the goods he has used. This may take place following usage (one invoice for each usage) or usage may be accumulated over a short period (e.g. daily or weekly) so that a self-billing invoice is prepared for usage in the period.

The self-billing invoice (consignment) should include a line item for each issue of goods from the consignment stock including the unique consumption reference number identifying the issue.

The remittance advice and payment procedures are unchanged.

Additional considerations

In this section, items are identified that companies may want to consider when implementing Consignment.

A. Additional charges

The preferred method of the Consignment process is to have additional charges billed separately by a traditional invoice message. Other arrangements need to be pre-determined to handle additional charges.

B. Resolution of discrepancies

When exceptions occur, procedures must ensure a timely and accurate resolution. These procedures should address resolution of problems at the earliest point of detection. This will help alleviate costly delays in completing the Consignment process.

There are two distinct types of reconciliation that occur within Consignment. The first type is the reconciliation of the payment. If the payment matches the open obligation, the account is reconciled. If the payment does not match the open account receivable obligation, then further reconciliation occurs. At this point the supplier's accounts receivable or credit department will contact the appropriate personnel at the customer and begin the process of resolving the discrepancy. If sufficient payment detail has been sent on the remittance advice, identification of the discrepancy will be easier and the resolution process will be enhanced.

The second type of reconciliation is associated with the product. There are two categories for the product reconciliation process. First there is the reconciliation at the point in which the product is physically received. This process verifies that the quantities of goods shipped were received at the consignment stock holder. Discrepancies that are determined in this process can be handled manually or electronically with the Receiving Advice message.

The second product reconciliation process is verification, which normally occurs with an audit or at the point of use, and discrepancies at this point are related to incorrect piece count, wrong product or faulty product. Often these type of discrepancies result in product being returned. If returning the product is chosen, the return should reference the unique identifier to aid in accounting reconciliation.

3.3   Business functions & Information flows – Self-billing correction procedure

3.3.1.   Overview

This section continues the business process analysis phase and deals with the process of communication of corrections after an error has been found in one or more self-billing invoice items. Two alternative procedures are described, an invoice withdrawal and

replacement procedure, whereby an incorrect invoice is withdrawn and replaced by a correct invoice, and a net financial correction procedure, whereby a debit or credit note is sent for the net financial amount of the correction. Both procedures can be applied in the ERS scenario and in the consignment stock scenario.

It should be noted here that it is more effective to spend effort in ensuring that errors do not occur, rather than putting effort into automating a correction procedure. Some companies will therefore prefer not to automate this procedure with EDI messages. See the remarks in sections 6.2.2 and 6.2.3.

Parties should agree which correction procedure will be applied when first implementing SBI and not wait till errors occur before considering the correction procedure.

3.3.2. Self-billing invoice withdrawal and replacement procedure

It is recognised that the procedure described here may not yet be fully supported by current ERP systems.
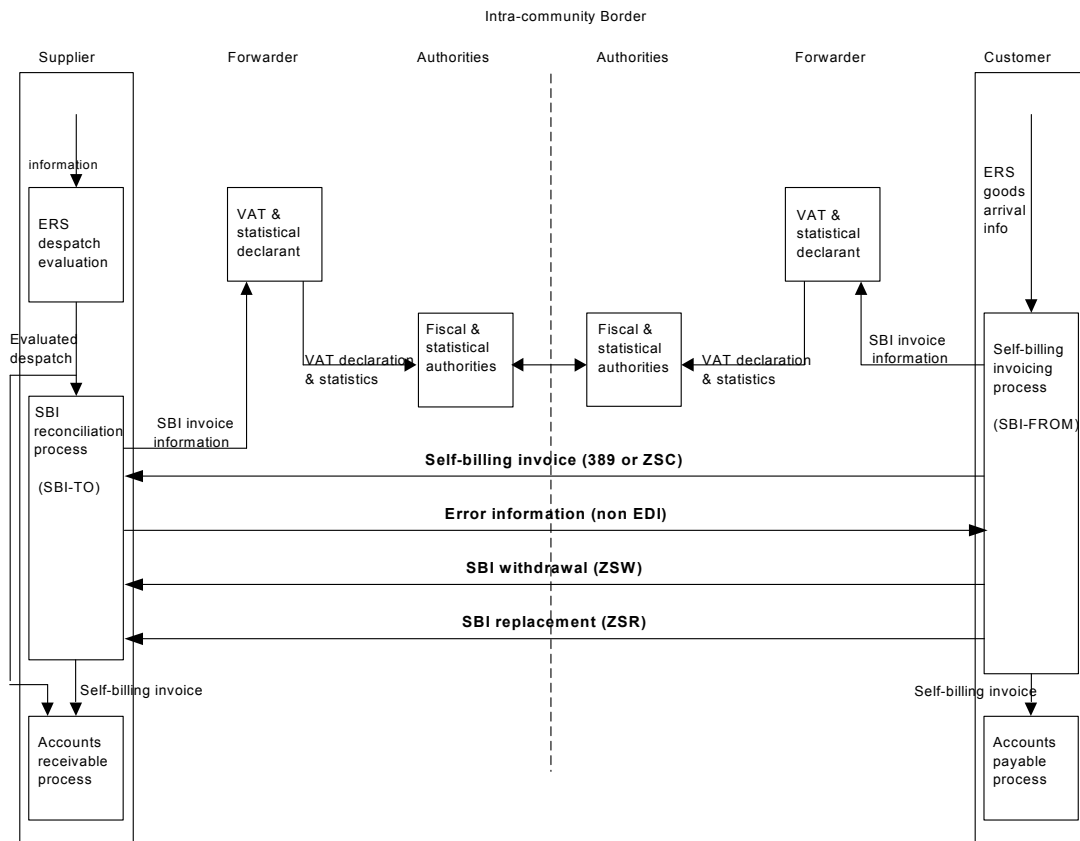
Figure 4 Primary flows in self-billing invoice withdrawal and replacement procedure

The procedure can be applied to correct errors in SBIs in both the ERS scenario and the Consignment Stock scenario.

The procedure calls for two distinct types of correction invoice message:

- an SBI withdrawal message which withdraws or cancels line items in previously sent SBIs (qualified 'ZSW' in BGM C002 1001).
- an SBI replacement message which communicates the corrected line items withdrawn by a previously sent withdrawal message (qualified 'ZSR' in BGM C002 1001).

3.3.2.1. The procedure

When the supplier identifies an error in an SBI he makes contact with the customer and reaches agreement on the nature of the error and the need for correction. This requires non-EDI communication. This step should be taken as soon as possible by the supplier

and it requires prompt reaction by the customer so that timely action can be taken to correct errors and minimise their effects in systems of both parties.

To implement the agreed correction the customer sends an SBI withdrawal message referencing the original SBI. The invoice withdrawal message has the effect of a credit note for goods and services. It must match the original incorrect invoice including all line items in terms of product type, quantity, price, amount and currency.

The withdrawal message enables the supplier to reverse all the effects of the original incorrect invoice in his system in terms of accounts receivable, inventory and taxes.

The customer also sends an SBI replacement message referencing the original SBI and the withdrawal message and comprising all the invoice line items corrected where necessary. The replacement message has the effect of a normal invoice for goods and services, except that it can be identified as a correction on an earlier invoice.

The replacement message enables the supplier to correctly book all the effects of the invoice as originally intended.

The original invoice transaction (with the erroneous data) remains in the systems of both sender and receiver. The withdrawal message reverses the effect of this invoice. The replacement message provides the complete correct effect. Both of these transactions also remain in the systems. The references between withdrawal and the replacement messages and the original message are required both in the EDI messages and in the systems. In this way a complete audit trail of the correction process is created.

3.3.2.2. Types of errors corrected

This procedure can be used to correct errors in the following areas:
- product identification,
- pricing,
- quantities,
- supplier identifier.

3.3.2.3. Identification of the messages

Separate messages for withdrawal and replacement are required.

The message types are identified by the qualifier element in BGM C002 1001. The SBI Withdrawal message is identified invoice by the qualifier code 'ZSW'. The SBI Replacement message is identified by the qualifier code 'ZSR'.

Note that all amounts and quantities in all message types should normally be positive. This includes the amounts and quantities in the SBI Withdrawal message.

3.3.2.4. Non-goods related charges and corrections

The withdrawal and replacement messages should not be used for non-goods related corrections and charges. The Customer Issued Credit Note message (qualifier 'ZCR') and Customer Issued Debit Note message (qualifier 'ZDR') are available for these functions.

3.3.2.5. Self-billing net financial correction procedure
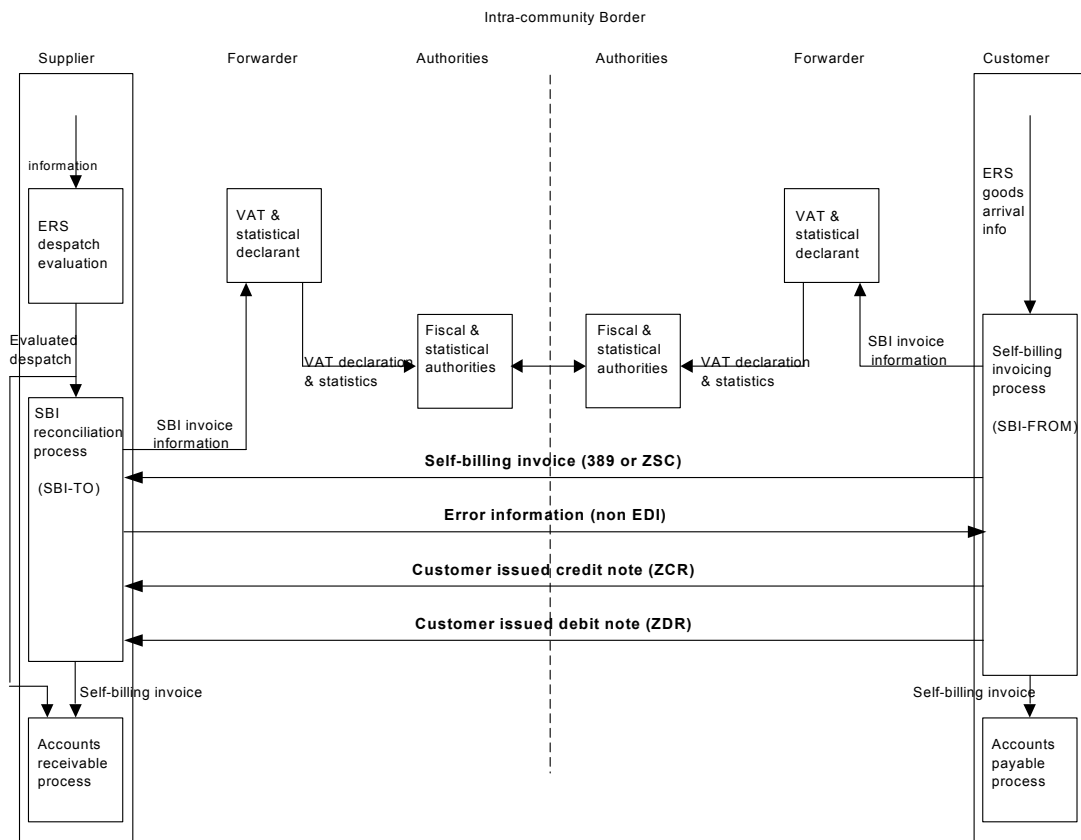
Figure 5 Primary flows in the self-billing net financial correction procedure

This procedure is implemented with simpler messages than the withdrawal and replacement procedure. It does not attempt to communicate, and enable processing of, corrections of quantities or other information at line item level. It simply allows for communication of the net amount of an agreed financial correction by means of an EDI debit note or credit note. So it ensures alignment of accounts receivable and accounts payable but does not attempt to correct stock quantities or goods consumption information.

3.3.2.6. The procedure

When the supplier identifies an error in an SBI he makes contact with the customer and reaches agreement on the nature of the error and the need for correction. This requires non-EDI communication. This step should be taken as soon as possible by the supplier and it requires prompt reaction by the customer so that timely action can be taken to correct errors and minimise their effects in systems of both parties.

To implement the financial effects of the agreed correction the customer sends either a Customer Issued Credit Note message (qualifier 'ZCR' in BGM C002 1001) or a Customer Issued Debit Note message (qualifier 'ZDR' in BGM C002 1001) referencing the original incorrect SBI.

The Credit Note or Debit Note must be in the same currency as the original incorrect SBI.

3.3.2.7. Types of errors corrected

This procedure can be used to correct the financial effect of errors in the following areas:
- pricing,
- quantities.

4 Information models

This chapter covers the information analysis for the self-billing ERS process. The main entities and their principal associations and attributes are modelled and defined. They are defined in terms of data structure and mapped into message components.

Information models for the consignment stock process are part of that business process analysis and are therefore not provided here.

4.1 The entities in ordering, shipping and billing - ERS

4.1.1. Outline of entities and their relationships
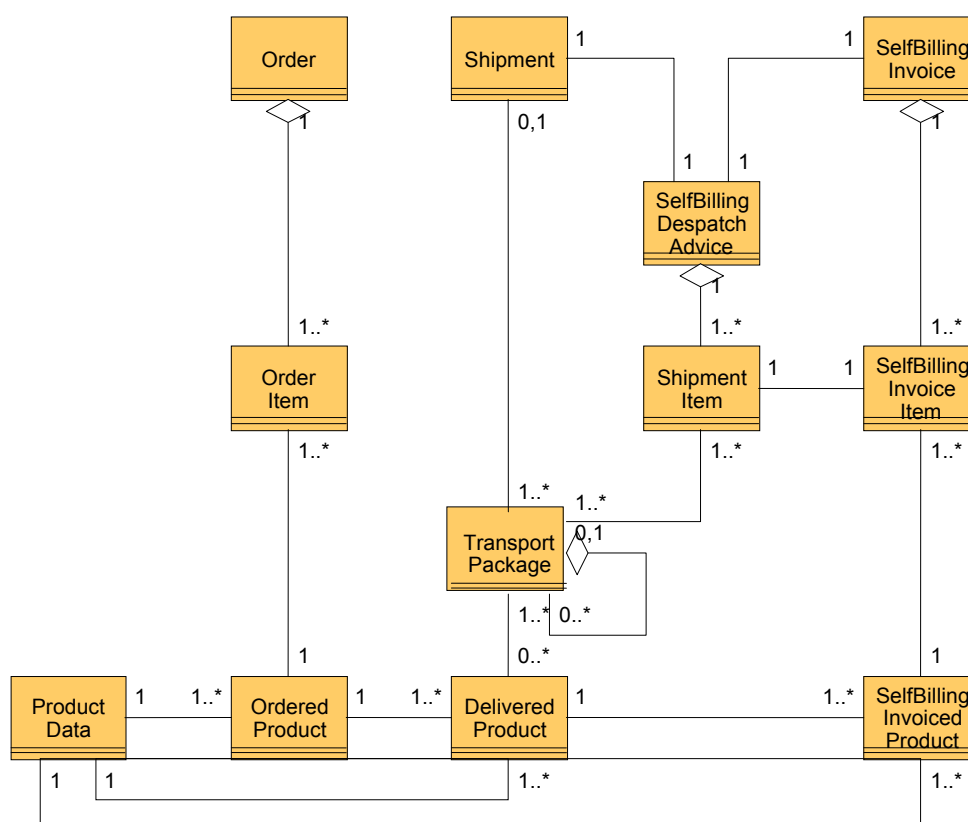
Figure 6 Outline of related entities in ordering, shipping and billing

In Figure 6 a rough outline is shown of the relationships between the principal entities referred to in the processes from ordering to billing.

In this model the conventions of a Class Diagram according to the UML (Unified Modelling Language) are used.

4.1.2. Entity definitions

Delivered product	An item of goods or services which are delivered to a customer in response to an order.
Order	A request from a customer to a supplier to deliver

specified quantities of goods or services to a specified place on a specified date under specified terms and conditions.

Order item	A separate line item on an order.
Ordered product	An item of goods or services which is requested to be delivered.
Transport package	The output of the packing operation consisting of the packing and its contents.
Product data	Information about good or services which may be traded.
"Self-billing" despatch advice	Information provided by the supplier to his customer about a shipment despatched under a self-billing contract
Self-billing invoice	A document sent by the customer to the supplier specifying the value to be paid for goods delivered or services rendered.
Self-billing invoice item	A separate line item on a self-billing invoice.
Self-billing invoiced product	A traded item of goods or services which is accepted by a party as being received.
Shipment	A separately identifiable collection of one or more goods items (available to be) transported together from one ship-from to one ship-to.
Shipment item	A separate line item on a despatch advice.

4.1.3. Entities in the self-billing invoice

Figure 7 provides a more detailed view of the entities relating to the self-billing invoice. The main attributes of these entities are listed in the following section.
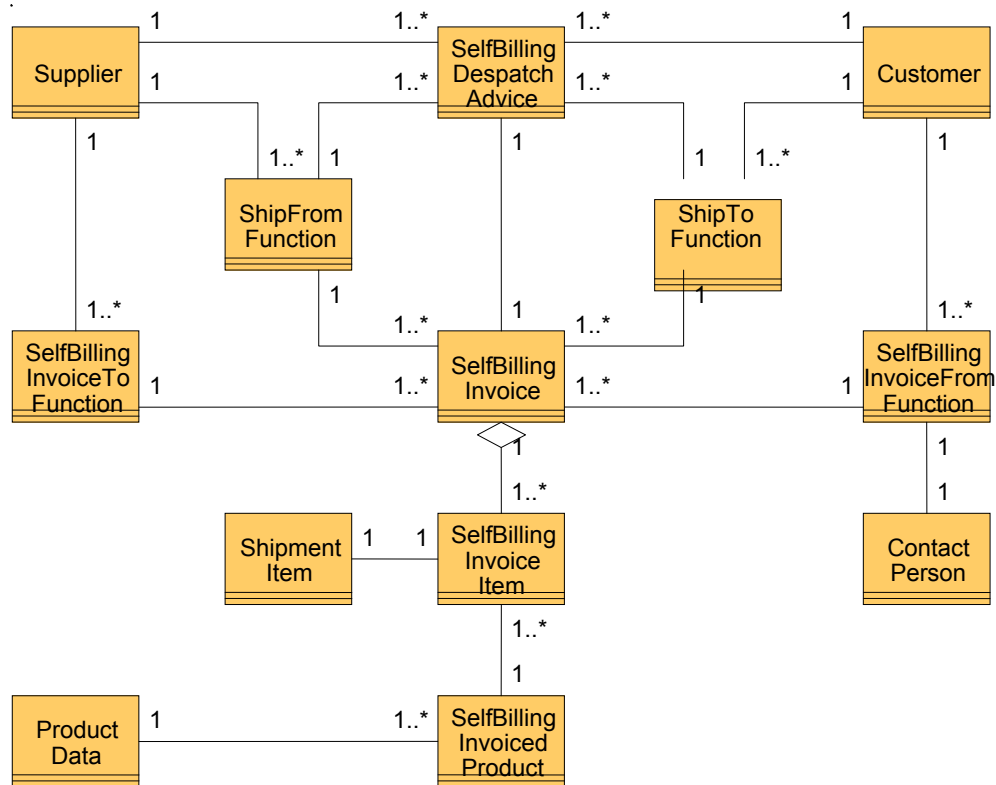
Figure 7 More detailed view of the entities relating to the self-billing invoice

4.1.4. Attributes of entities in the self-billing invoice

In the following table the main attributes of the entities in Figure 7 are listed. The list is not complete. Some attributes are in fact sub-entities with their own attributes, but this level of detail has not been worked out here. The indication 'r' in the third column indicates that the attribute may have repeating occurrences.

Entity	Attributes	
Contact person	Name	
	Communication number	r
Customer	Party identification	
	Legal name	
	VAT number	
	Legal address	

Entity	Attributes	
Product data	Product identification	r
	Description	
	Status	r
	Country of origin	
	Strategic goods indicator	
	Embargo status	
	Reference	r
Self-billing invoice	SB invoice number	
	SB despatch advice	
	Date	
	Currency	
	Allowance / charge	r
	Payment terms	
	Total amount	
	Total line items amount	
	Tax summary	
Self-billing invoice-from function	Location identification	
	Organisation name	
	Address	
Self-billing invoice-to function	Location identification	
	Organisation name	
	Address	
Self-billing invoiced item	Line number	
	Invoice amount	
	Shipment item	
	Consignment stock consumption reference	
	Tax	r
	Reference	r
	Allowance / charge	r
Self-billing invoiced product	Primary product id	
	Quantity	
	Price	
	Reference	r
Ship-from function	Location identification	
	Organisation name	
	Address	
Ship-to function	Location identification	
	Organisation name	
	Address	
Supplier	Party identification	
	Legal name	
	Legal address	
	VAT number	

Definitions of these entities and attributes are included in the Glossary in
APPENDIX A   GLOSSARY AND ABBREVIATIONS

5 Data structures and message mapping

In the following table the entities from Figure 7 are organised in data groups as a basis for mapping onto the Self-billing Invoice message, issue EDSB03. The notes following the table provide some guidance in its interpretation.

Data group	O	Attributes	R	Mapping to DE	Qualifier value
Message Header / Summary					
SB invoice	1,1	SB invoice number		BGM 1004	
		Date		DTM C507 2380	2005 '137'
		Currency		SG7 CUX C504 6345	6347 '2'
		Payment terms		SG8	
		Allowance / charge	r	SG15	
		SB despatch advice		SG29 RFF C506 1154	1153 'AAK'
		Total amount		SG49 MOA C516 5004	5025 '86'
		Total line items amount		SG45 MOA C516 5004	5025 '79'
		Tax summary		SG51	
Customer	1,1	Party identification		SG2 NAD C082 3039	3035 'BY'
		Legal name		SG2 NAD C080 3036	3035 'BY'
		VAT number		SG3 RFF C506 1154	1153 'VA'
SB invoice-from function	0,1	Location identification		SG2 NAD C082 3039	3035 'II'
		Organisation name		SG2 NAD C080 3036	3035 'II'
		Address		SG2 NAD C059 3164, 3251,3207	
Ship-to function	0,1	Location identification		SG2 NAD C082 3039	3035 'DP'
		Organisation name		SG2 NAD C080 3036	3035 'DP'
		Address		SG2 NAD C059 3164, 3251,3207	
Contact person	0,1	Name		SG5 CTA C056 3412	
		Communication number	r	SG5 COM C076 3148	
Supplier	1,1	Party identification		SG2 NAD C082 3039	3035 'SE'
		Legal name		SG2 NAD C080 3036	3035 'SE'
		VAT number		SG3 RFF C506 1154	1153 'VA'

Data group	O	Attributes	R	Mapping to DE	Qualifier value
SB invoice-to function	0,1	Location identification		SG2 NAD C082 3039	3035 'IV'
		Organisation name		SG2 NAD C080 3036	3035 'IV'
		Address		SG2 NAD C059 3164, 3251,3207	
Ship-from function	0,1	Location identification		SG2 NAD C082 3039	3035 'SF'
		Organisation name		SG2 NAD C080 3036	3035 'SF'
		Address		SG2 NAD C059 3164, 3251,3207	

Message Detail

Data group	O	Attributes	R	Mapping to DE	Qualifier value
SB invoiced item	1,1	Line number		SG25 LIN 1082	
		Invoice amount		SG26 MOA 5004	5025 '203'
		Shipment item		SG29 RFF C506 1156	1153 'AAK'
		Consignment stock consumption reference		SG29 RFF C506 1156	1153 'ZUC'
		Tax	r	SG33	
		Reference	r	SG29	
		Allowance / charge	r	SG38	
SB invoiced product	1,1	Primary product id		SG25 LIN C212 7140	
		Quantity		SG25 QTY C186 6060	6063 '47'
		Price		SG28 PRI C509 5118	
		Reference	r	SG29	
Product data	0,1	Product identification	r	SG25 PIA C212 7140	4347 '1'
		Description		SG25 IMD C273 7008	
		Status	r	SG25 ALI 4183	
		Country of origin		SG25 ALI 3239	
		Strategic goods indicator		SG25 ALI 4183	
		Embargo status		SG25 ALI 4183	
		Reference	r	SG29	

Notes

1. There is one data group specified for each entity.

2. The data groups are classified in the table as message header or message detail data groups.

3. The second column, headed O, indicates the minimum and maximum occurrences of the data group. For the header data groups this is by reference to the message. The message detail must occur at least once per message. For the detail data group the indication is by reference to each occurrence of the detail section.

4. The fourth column, headed R, indicates attributes which may have repeated occurrences.

5. Certain entities and attributes are not shown in detail in the model and their mapping is not worked out in detail (e.g. allowances and charges).

6 Implementation issues

6.1 Legal and fiscal status

Surveys of the legal and fiscal status for the use of the Self-billing Invoice in the main countries in Europe have shown that it is possible to use this process. However, it is advisable to consult your local fiscal and legal authorities before you implement the Self-billing Invoicing process especially in a cross border environment. Experience has shown that at least the following factors that need to be considered include:

- the terms of trade agreed between the trading partners,
- the fiscal status of the partners or their representatives in the countries where the goods movements take place,
- the status of a party within a duty free trade zone,
- the use of bonded warehouses.

Of course, for European Union countries VAT regulations require differences in treatment of invoices which are between partners within a country, or across country boundaries within the Union or are for exports or imports across the Union boundary.

It is also advisable to make an agreement with your self-billing trading partner which among other items, should stipulate the following conditions for the purposes of VAT:

- the goods delivery procedure (regular delivery, consignment delivery, call off stocks),
- the time of delivery,
- the time the self-billing invoice should be prepared and issued. (For example certain countries have a requirement that an invoice must be issued within a specified period after the date of supply. A supply for VAT purposes is considered to have taken place once the ownership of the goods has transferred.),
- the supplies of goods/services which must be included on the invoice,
- the invoice numbers which are to be used,
- the other requirements which the self-billing invoice must meet,
- who is liable for the VAT, administrative fines and penalty interest arising from the failure to comply with the contract.

6.2 Critical success factors

6.2.1. Partnership relations

Self-billing procedures require a high degree of trust between trading parties. The procedure can only be adopted between parties who have a good financial standing, reliable information systems and between whom a significant volume of business is done.

6.2.2. Alignment of master data on products and prices

To minimise differences and disputes about products shipped and received and the pricing of products supplied under self-billing procedures it is essential that the master data about products and prices as recorded by both supplier and customer is accurately aligned on a timely basis. This requires particular attention where there are frequent changes in the product range covered by a self-billing contract (e.g. due to short product life cycles) and where prices (or the basis for price calculations) are subject to frequent change (e.g. due to currency fluctuations and market conditions).

Where price calculations are complex (e.g. due to volume price breaks) it is essential to ensure that the calculation basis is clearly understood and properly implemented in information systems by both parties. Simplification of the pricing arrangements should be

considered as a precondition to implementation of self-billing systems to minimise disputes and extra workload.

To minimise the number of price corrections, trading partners must define in a formal agreement the frequency of the price information exchange between the supplier and the customer, and agree on the way to exchange this information.

Automated procedures should be implemented to enable communication of master data about products and prices from the supplier to the customer in order to maintain alignment of the master data on a timely basis. This may be implemented by standard EDI messages or other appropriate means. The relevant EDIFICE or UN/EDIFACT messages are:

- PRICAT   Price/Sales Catalogue message
- PRODAT   Product Data message

The Price/Sales Catalogue message should be used for commercial information related to products which are subject to frequent changes, such as price, discount and availability. More stable information, such as the technical description of products, should be communicated using the Product Data message.

6.2.3.   Reliability of information systems

The information systems of both parties dealing with master data, ordering, shipping, billing and payment must be adequately prepared for self-billing.

When self-billing is implemented the information flows between the parties should, as far as possible, be implemented by EDI or other appropriate automated communication. This applies to the exchange of master data about products and prices, the despatch advice, the self-billing invoice and the remittance advice. This will minimise the operational burden and maximise the efficiency benefits.

APPENDIX A   GLOSSARY AND ABBREVIATIONS

Term	Definition
Accounts receivable	The function administering the accounts with customers arising from the delivery of goods and services.
Address	Designation of a location.
Allowance	Reduction in the amount charged to the customer.
Charge	Additional costs recovered from the customer.
COI	Customer owned inventory: stock in the hands of the consignment stock holder which is owned by the customer. (See SOI).
Communication number	Designation of a location in a network or communication channel.
Consignment	The self-billing procedure whereby the customer issues the self-billing invoice in respect of usage of goods or goods have been moved from the store.
Consignment stock	The stock of goods physically delivered to a customer but which remains the property of the supplier. The goods are sold to the customer when he takes them for use or resale.
Consignment stock consumption	An issue of a quantity of a type of product from consignment stock for consumption by the customer,
Consignment stock consumption reference	A reference to a consumption of consignment stock that is unique at least within the relationship between two trading partners.
Consignment stock holder	The function responsible for physical control of consignment stock. Also known as logistics service provider (LSP).
Contact person	Functionary who is responsible for a business function on behalf of a party.
Country of origin	Country of origin of a product according to the certificate of origin issued by the legal authority.
Credit note	A document or message for crediting a party in respect of commissions etc. or for correcting an invoice.
Currency	A medium of exchange of financial value (e.g. money) defined by reference to the geographical location of the authorities responsible for it.
Customer	A party which acquires, by way of trade, goods and/or services. Also known as: buyer, purchaser.
Date	A particular day of a calendar year.
Description	A textual specification of distinguishing features of an entity.
Despatch advice	Information provided by a supplier to his customer about a shipment.

Term	Definition
EDI (electronic data interchange)	Syntax and message standards for the automatic exchange of structured information between application systems of separate organisations.
Embargo status	An indication of the status of a product as to embargoes implemented by national and international authorities.
ERS (evaluated receipt settlement)	The self-billing procedure whereby the customer issues the self-billing invoice in respect of a shipment, after receipt of the shipment.
Evaluated despatch	Shipment information (about a shipment under a self-billing (ERS) contract) enriched with normal invoice information.
Exporter	A party that facilitates goods movement through customs and handles the necessary documentation that must accompany international shipments. This may be carried out by the forwarder, supplier, customer, or any agent acting on behalf of the importer i.e. customs broker.
Forwarder	A party responsible for providing co-ordination and assistance in all phases of freight movement from the exporter's location to final destination. Also known as freight forwarder.
Function	An activity proper to an organisation.
Goods and services	All material and non-material things which can be used to satisfy needs and which can be traded.
INCOTERMS	A set of international rules, issued by the ICC (International Chamber of Commerce) for the interpretation of the chief terms of delivery used in foreign trade contracts.
Invoice	A document charging the value of goods (to be) delivered or services (to be) rendered.
Invoice amount	Amount for goods and/or services charged in an invoice item.
Legal address	The registered address of a legal entity.
Legal name	The registered name of a legal entity.
Line number	Reference number of an item in a document or message.
Location	Address at which a business function is carried out on behalf of a party.
Location identification	An identification in a code system that identifies a location.
Master data	The data which are normally present in master files, which is used by all or most of the subsystems of an information system.
Name	A linguistic construct which corresponds to an object in some universe of discourse. A name is unambiguous within a given scope when it identifies one and only one object within that scope.
Organisation name	Name of an organisation or part of an organisation.

Term	Definition
Organisation	An identifiable social unit with a particular responsibility which endeavours to achieve multiple goals by co-ordinated activities and relationships between members and objects.
Party	Organisation or person acting as responsible body on one of the two sides in legal action or in establishing a contract or agreement.
Party identification	An identification in a code system that identifies a party.
Payment terms	The part of a contract specifying the conditions for and methods of payment for goods or services agreed upon between a supplier and a customer (including determination of the due date, means of payment, currency, location of payment, etc.).
Payment terms	The conditions as to timing and amount of payment for delivered goods and services, as agreed between a supplier and a customer.
Price	Amount of money or money's worth for which a thing is bought or sold.
Principal product id	Principle, main or key identification of a type of product.
Product	A result of labour or of a natural or industrial process.
Product data	The collection of data identifying, describing and classifying a type of product.
Product identification	A character or string of characters or symbol unambiguously identifying a type of product.
Quantity	A measure used to indicate a number of units.
Reference	A pointer to a related document, transaction or agreement.
Remittance advice	A notice giving information about (partial) settlement of given account items and related settlement discount, by means of payments to be effected on a certain date.
Role	The part played by a party in a trade process.
Self-billing	Business procedures whereby the invoice document or message is raised by the customer, instead of by the supplier.
Self-billing contract	A contract that sets out the respective commitments and liabilities of the two parties and the mutually agreed Terms and Conditions of trading.
Self-billing invoice	A document sent by the customer to the supplier specifying the value to be paid for goods delivered or services rendered.
Self-billing invoice-from function	The function in a customer organisation responsible for creating self-billing invoices and sending them to the suppliers.
Self-billing invoice-to function	The function in a supplier organisation responsible for receiving self-billing invoices from customers.
Self-billing invoice item	A separate line item on a self-billing invoice.

Term	Definition
Self-billing invoice number	Code, assigned by the customer, identifying a self-billing invoice.
Shipment	A separately identifiable collection of one or more goods items (available to be) transported together from one ship-from to one ship-to.
Shipper	A party that physically prepares the goods, and may load them onto transportation vehicles for delivery. Also known as the consignor. May be the same party as the supplier.
SOI	Supplier owned inventory: consignment stock in the hands of the consignment stock holder. (See COI).
Status	The position of an entity in a series of related positions.
Strategic goods indicator	An indicator of the extent to which goods are strategic.
Supplier	A party which provides, by way of trade, goods and/or services. Also known as: seller, vendor.
Tax	Contribution levied on persons, property or business, for support of national or local government.
Tax summary	A statement of the types, rates and amounts of tax applied in an invoice.
Total amount	The summation of all the amounts in an invoice which are chargeable to the customer.
Total line items amount	The summation of the line item amounts in an invoice.
Transport package	The output of the packing operation consisting of the packing and its contents.
UN/EDIFACT	International standard EDI messages and the international standard syntax UN/EDIFACT (ISO 9735).
VAT (value added tax)	Tax applied in the countries of the European Union on the amount of sales of goods and services which is collected progressively along the supply chain proportionally to the value added and ultimately charged to the consumer.
VAT number	The identifier of a party assigned by the fiscal authority for the purposes of value added tax.

INTRODUCTION

The business processes and scenarios defined in EDIFICE guidelines are of necessity rather generic and based on commonly accepted business agreements. The processes and agreements are designed to ensure that the basic controls on completeness, accuracy and authorisation of all transactions are implemented to sufficiently to cover the interests of all parties involved. In practice, enterprises can implement more efficient and effective processes, provided they are prepared to enter into the specific business agreements that create the conditions for the process to be adequately controlled.

This appendix describes an example of such a self-billing process. The example is focussing on the processes and information flows related to self-billing and in particular the controls on completeness of billing. It does not cover the set of information flows required for replenishment of the stock.

THE BUSINESS PROCESS

The business process covers the supply of components to an equipment manufacturer by a component supplier via a consignment stock holding location. A logistics service provider who is contracted by the customer manages the consignment stock. In this example, the customer keeps records of both customer owned inventory (COI) and supplier owned inventory (SOI) quantities.

The customer provides a daily self-billing invoice to the supplier with a line item for each withdrawal of goods for consumption from the consignment stock.

There are daily checks on the consignment stock quantities by comparison with the quantities as recorded by the supplier with the quantities as recorded by the logistics service provider. There are daily checks of the stock quantity data between the ERP system of the buyer and the stock quantity data of the logistics service provider.

SIGNIFICANT FEATURES OF THE BUSINESS AGREEMENT

The following features of the business agreement have a significant effect on the way the self-billing process is implemented:

- The customer takes responsibility for the transport of the goods to the consignment stock location under terms of delivery FCA Free Carrier at the supplier's location.
- A cycle count procedure verifying the physical stock
- The customer accepts the liability for any verified shortages of stock at the consignment stock location and raises a self-billing invoice for them. (Conversely, if a stock check reveals a surplus of stock at the consignment stock location, this is accounted for by the customer as his own stock and not as part of the consignment stock).

CORRECTION PROCEDURE FOR QTY IN CONSIGNMENT STOCK

The warehouse is operated by a third party logistics service provider (LSP), who is responsible for inventory accuracy. Deviations between two systems are possible and deviations between systems and the physical inventory are also possible. Deviations can be caused by people processing transactions without correctly following the procedures

or by weaknesses in IT or EDI systems. The corrective postings must be done both in buyer's and third party LSP's systems and supplier must be informed of these corrections so they can adjust their own system.

When comparisons are made between stock quantity information in separate systems and with physical stock quantities, care must be taken to take account of all movements and transactions in the pipeline. Usually it is found that apparent discrepancies are caused by differences in timing of processing of transactions. If deviations are found, the first step to start solving discrepancies is to clean open transaction between the systems. After that, the inventory counting is done for the code separately to SOI (supplier owned inventory) and COI (customer owned inventory). Then physical stock figures are compared to system figures. If deviations are found, they are corrected as later explained. If no logical reason for deviation can be found, it will be corrected by stock balance correction.

In general, the corrective transactions should be done in a way that the correction process is as easy to handle as possible and it would be fair to all parties.

In case of lost material (i.e. physical stock is smaller than system stock) the system inventories must be adjusted in the same level as physical stock. The decision has to be made to which stock will be reduced i.e. corrected. If the correction is done to SOI, then it will cause additional consumption and this consumption is visible in the next SBI. If the correction is done to COI, then the customer will do the inventory reduction in its own inventory and own cost.

Please see the example postings here:

	Physical stock		Customer ERP		3rd party system		Supplier system	
	SOI	COI	SOI	COI	SOI	COI	SOI	COI
1 Physical inventory is smaller than system inventory	90		100		100		100	
2 Make extra consumption => new SBI line			-10	+10	-10	+10		
Remaining balance	90		90	10	90	10	-10	
Make the inventory correction within customer owned stock =>								
3 No impact to SBI				-10		-10		
Remaining balance	90		90	0	90	0	90	

	Physical stock		Customer ERP		3rd party system		Supplier system	
	SOI	COI	SOI	COI	SOI	COI	SOI	COI
1 Physical inventory is smaller than system inventory	80		80	20	80	20	80	
2 If COI exists, correct the COI inventory => No SBI lines				-20		-20		
Remaining balance	80		80	0	80	0	80	

This kind of stock balance correction could be recognised in the SBI from a different movement type.

In case of found material (i.e. physical stock is bigger than system stock) the inventory correction should be done to Customer stock. This way there are no effects to the self-billing invoice. In this case, supplier must check that shipped quantities equal to ihub receipts. If they are ok, then the error is already isolated between ihub and buyer. Please see the example of the postings here:

	Physical stock SOI COI		**Customer ERP** SOI COI
Physical inventory is bigger than			
1 system inventory	100		90
2 Correct the system inventory	-10 |+10		|+10
Remaining balance	90 |10		90 |10

	3rd party system SOI COI		**Supplier system** SOI COI
Physical inventory is bigger than			
1 system inventory	90		90
2 Correct the system inventory	|+10		|
Remaining balance	90 |10		90 |

PRICE CORRECTIONS IN SBI

If self-billing is using wrong price, the price error must be corrected as soon as possible. Supplier is also responsible of checking the accuracy of the SBI invoices. When error is found, the following steps must take place:

- Find out the correct price for the period
- Correct the price with validity periods in ERP system to prevent more errors coming.
- Find out all the invoice lines with incorrect price
- Inform supplier about the additional payment (debit note) or deduction of the payments (credit note). Make references to the original SBI numbers. This is done manually with the real invoice template.

The initiative for the correction is taken by the organisation issuing the SBI which is the buyer.

Price corrections are relatively easy to correct and do not happen frequently. They should not have the highest priority to be automated in EDI.

APPENDIX C REFERENCES

EDIFICE.Forecast and Inventory Management Business and Information Model Guide
Issue: 1
Date: 2000-11-29

EDIFICE Implementation Guideline Self-billing Invoice
Issue: EDSB03
Date: 2002-05-29

EDIFICE Implementation Guideline Invoice
Issue: EDIN03
Date: 1997-09-24

EDIFICE Implementation Guideline Remittance Advice
Issue: EDRM02
Date: 1997-09-24

EDIFICE Implementation Guideline Purchase Order
Issue: EDPO04
Date: 1997-09-24

EDIFICE Implementation Guideline Despatch Advice
Issue: EDDS05
Date: 1997-09-24

EDIFICE Implementation Guideline Price/Sales Catalogue
Issue: EDPC02
Date: 1997-09-24

EDIFICE Physical Distribution EDI Implementation Kit
Issue: 1
Date: 1995-11-29

Guide to Business and Information Modelling for the Development of EDIFICE Implementation Kits
Issue: 1
Date: 1994-04-13

UN/EDIFACT Product Data Message
Message Type: PRODAT

The Unified Modeling Language (UML)
Rational's UML Resource Center http://www.rational.com/uml/