CEN

WORKSHOP

AGREEMENT

CWA 16461

May 2012

ICS 35.240.60

English version

Electronic invoice processes in Europe and enablement of SMEs to use them efficiently

This CEN Workshop Agreement has been drafted and approved by a Workshop of representatives of interested parties, the constitution of which is indicated in the foreword of this Workshop Agreement.

The formal process followed by the Workshop in the development of this Workshop Agreement has been endorsed by the National Members of CEN but neither the National Members of CEN nor the CEN-CENELEC Management Centre can be held accountable for the technical content of this CEN Workshop Agreement or possible conflicts with standards or legislation.

This CEN Workshop Agreement can in no way be held as being an official standard developed by CEN and its Members.

This CEN Workshop Agreement is publicly available as a reference document from the CEN Members National Standard Bodies.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No.:CWA 16461:2012 E

Table of contents

Foreword

This CEN Workshop Agreement has been drafted and approved by a Workshop of representatives of interested parties on 2012-02-15, the constitution of which was supported by CEN following the public call for participation made on 2010-02-26.

A list of the individuals and organizations which supported the technical consensus represented by the CEN Workshop Agreement is available to purchasers from the CEN-CENELEC Management Centre. The following organizations endorsed this document:

- AITI, Italy
- Hilti Corporation, Liechtenstein
- Hub2Hub, Italy
- ID Cyber-Identity Ltd, Switzerland
- Legal Counsel, Stefan Engel-Flechsig, Germany
- OFS Portal LLC, USA
- Orange – France Telecom Group, France
- STS Group, Belgium
- Voxel Group, Spain
- xft GmbH, Germany

The formal process followed by the Workshop in the development of the CEN Workshop Agreement has been endorsed by the National Members of CEN but neither the National Members of CEN nor the CEN-CENELEC Management Centre can be held accountable for the technical content of the CEN Workshop Agreement or possible conflict with standards or legislation. This CEN Workshop Agreement can in no way be held as being an official standard developed by CEN and its members.

The draft CWA was presented and discussed with industry representatives during two Open meetings, the first on September 22 and the other on December 12, 2011, both held in Brussels. The public comments period run from November 23, 2011 until January 23, 2012.

The final review/endorsement round for this CWA was started on 2012-04-04 and was successfully closed on 2012-04-16. The final text of this CWA was submitted to CEN for publication on 2012-04-18.

This CWA is part of a set of CWAs that has been prepared by Phase II and Phase III of CEN/WS e-Invoicing.

This CEN Workshop Agreement is publicly available as a reference document from the National Members of CEN: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Comments or suggestions from the users of the CEN Workshop Agreement are welcome and should be addressed to the CEN-CENELEC Management Centre.

1. Introduction

The European Commission and the governments of the European Union Member States put a great emphasis on electronic invoicing. They anticipate considerable savings to be achievable through the application of this technology.

Today e-invoicing processes are established in many large companies and are a vital part of their business processes, but for small and medium sized enterprises (SME) the picture is quite different. Despite all efforts so far the uptake of e-invoicing in this environment is still very limited.

Invoicing, as such, is a key process that is common to all enterprises, large and small. Invoices have an important function in the relationship between trading partners and they are governed by several constraints such as business requirements, trade and commercial law and fiscal rules including and especially the EU Value Added Tax (VAT) Directive. In order to ensure the authenticity and integrity of electronic invoicing documents and to prevent fraud, many Member States of the EU have to date established specific national technical requirements for electronic invoices. This has not made it easier for SMEs to adopt the electronic way of invoicing.

With the VAT Directive 2010/45/EU the Commission leads the way to e-invoicing processes that are less dependent on mastering a specific technology but which introduces a freedom of choice, which for instance allows also appropriate business controls to be applied to prove the authenticity and integrity of electronic documents in a similar way to that used for paper invoices. This Directive has to be transposed into national law by all Member States by December, 31st 2012after which a harmonised legal environment across the EU covering VAT and e-invoicing will be established from 1st January 2013.

One can expect that business controls will play a more significant role in e-invoicing processes adopted by SMEs in the future. One of their purposes is to ensure VAT compliance of the invoice content. Since the necessity of VAT compliance applies to paper and e-invoices, these business controls are likely to be in place already. The following document assumes that customer and supplier are both aware of the specific requirements of their business relationship and the consequences relating to information provided for VAT purposes. All invoice business control processes should not only include the validation of the business transaction itself (e.g. order, proof of delivery etc.) but they should also include the completeness and validity of the VAT relevant information (e.g. VAT identification number, references to tax exemptions etc.).

Although this document puts a certain emphasis on business controls as means for ensuring that a reliable audit trail e.g. from the order to the final payment exists and can be used to proof the authenticity and integrity of an e-invoice during the whole period of storage, it does by no means suggest or limit the freedom of choice. There are other options, valid to be used. These options have been available already in the VAT Directive 2006/112 EC and compliance criteria are explained for instance in CWA 16047 and CWA # (replace by correct number of WG1 Phase 3). Since the business controls represent the new provision in the Directive 2010/45 EC, it seemed appropriate to give them more attention in this document,

The target audience for this section of this CWA are:

- Stakeholders of the SME communities such as trade associations and SME associations to:
    - Promote e-invoicing between SMEs and Large Trading Partners (LTP) and amongst SMEs through their memberships;
    - Establish harmonised requirements;
    - Establish quality guidelines for third party service providers based on normalised (harmonised and standardised) processes and technical solutions that service providers can adhere to, either by self-assessment or by certification. Thereby making the selection of suitable service providers by SMEs easier.
- e-invoicing service and software solution providers to assist them to prepare new solutions suitable for SMEs for e-invoicing including storage solutions.
- SMEs: whereas this CWA is targeted primarily towards SMEs, it also considers the LTPs including governments who can exert great influence on SMEs.
- The European Commission in order to use its influence to ensure that it takes SME considerations into account when it endorses e-invoicing standards throughout Europe; This is an important opportunity to give a positive example regarding cross border interoperability of e-invoicing standards suitable for all sizes of organisation.

2. Scope

The scope of the working group is to propose best practices and recommendations and to use the current e-invoicing political and technical opportunities to extend the adoption of e-invoicing by SMEs.

The following recommendations are at conceptual level and it is recommended that they should be used as a basis for further elaboration by national e-invoicing fora or by sectoral associations.

The current CWA addresses primarily those SMEs that have not yet adopted e-invoicing. However, it is also addressing the needs of SMEs which have already started with e-invoicing but aim to increase their levels of benefit derived from their e-invoicing activities.

3. Normative References

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Not applicable

4. Terms, Definitions and abbreviations

4.1 Terms and Definitions

For the purposes of this document, the following terms and definitions apply:

4.1.1 Invoice portal
A web portal of an E-Invoice service provider to which trading partners can log on with a username and password (or other means of secure access) in order to manage, receive or input e-invoice data. This should be a secured environment.

4.1.2 Web EDI
Web EDI covers the techniques used to facilitate structured data exchange via the Internet which may include web forms to capture business content and to convert it into structured data. In these cases typically one trading partner is capable of exchanging structured data but the other partner is expected to type their data in manually into a web form, or, in the opposite direction, structured data are converted into human readable documents which then have to be downloaded and processed manually.

4.1.3 e-invoicing
The issuing and receipt of VAT compliant invoices in an electronic format. According to Article 217 of VAT Directive No. 2010/45/EU, an electronic invoice is ... "an invoice that contains the information required in the Directive, and which has been issued and received in any electronic format".

4.1.4 ERP
Enterprise Resource Planning (ERP) systems integrate internal and external management information across an entire organization, embracing finance/accounting, manufacturing, sales and service, customer relationship management, etc.

4.1.5 Value Added Network (VAN)
Third-party private network service provider that offers data exchange related services to their subscribers.

4.2 Abbreviations

API	Application Programming Interface
AS2	Applicability Statement 2[1]
CLL	Core Component Library
CII	Cross Industry Invoice
ERP	Enterprise Resource Planning
EU	European Union
EUMS	European Union Member State
FTP	File Transfer Protocol
ICT	Information and Communication Technology
IT	Information technology
LTP	Large Trading Partners
OFTP2	Odette File Transfer Protocol version 2[2]
OCR	Optical Character Recognition
PDF	Portable Document Format
PEPPOL	Pan-European Public Procurement Online
SME	Small and Medium-sized Enterprise
SP	Service Provider
UBL	Universal Business Language
VAN	Value Added Network
VDA	Verband der Automobilindustrie
XML	eXtensible Markup Language

5 Benefits for SMEs using e-invoicing

Like all enterprises, SMEs expect that e-invoicing will lead to maximized and VAT compliant automation of invoicing processes such as:

- issuing or receiving
- booking
- controlling
- transmission
- storage

of invoices / invoicing documents in order to increase their productivity and to save money and resources.

VAT compliance means the ongoing adherence to VAT requirements (e.g. VAT information on invoices, VAT returns etc.) and the monitoring of this conformance. The goal for all enterprises is to avoid any VAT non-conformance risks and they use the application of effective VAT management covering organisational and technical measures to reach this goal. An important way to minimize VAT risks is to identify errors or missing information on incoming / outgoing invoices. E-invoicing with structured data exchange enables IT-supported validation of incoming / outgoing invoices and thereby provides an additional means to ensure VAT compliance.

In the next section the different benefits of -e-invoicing depending whether the SME is receiving or issuing an invoice are described. It is quite obvious that entities receiving and issuing big numbers of invoices (in general large enterprises) realize a bigger profit from e-invoicing than entities (typically SMEs) with smaller numbers of invoices. Nevertheless there are many other beneficial reasons for SMEs to implement appropriate e-invoicing solutions.

Since large enterprises potentially benefit significantly from e-invoicing and since many of their trading partners can be SMEs, these large enterprises should foster in their role as a driver of these processes the deployment of appropriate e-invoicing solutions that can generate a win-win situation for themselves and all their trading partners, including SME partners.

Another example of an e-invoicing benefit for SMEs results from the VAT Directive storage requirements.

[1] http://www.ietf.org/rfc/rfc4130.txt
[2] http://forum.odette.org/OFTP/oftp2/OFTP2%20Explained-v1.pdf/view

Once an electronic storage system has been implemented for the use in the e-invoicing environment it can be easily extended to other business processes. Considering the large number of documents exchanged in the ongoing business and the number of years for which commercial and taxation law require proper storage, this new technology can improve internal processes and save time and money spent on storage activities.

5.1 Benefits for incoming invoices

Each SME can decide itself whether or not it accepts incoming e-invoices. This decision may be influenced by different incentives (one time discount) offered to SMEs by some large enterprises trying to encourage the acceptance of their e-invoices.

The quantification of the benefits of receiving e-invoices is largely determined by the e-invoicing method used. For example, as far as the processing of a hardcopy invoice (paper invoice) or a PDF invoice are concerned, there is probably not much difference for a SME. However, in the case of receiving an e-invoice in structured format there is much more potential for greater efficiencies as long as appropriate e-invoicing solutions are in place.

In order to fulfil the minimum requirement for received e-invoicing to be beneficial to SMEs it should be ensured by the supplier that the e-invoicing solution that they employ will not raise administrative costs for the SME buyer than a corresponding hardcopy solution. If this cannot be ensured then an SME is probably not willing to agree to receive electronic invoices.

The financial benefits of using e-invoicing for receiving invoices have been analysed by the expert group on e-invoicing appointed by the European Commission which came to the following conclusion[3]:

“An employee in the accounts payable department can typically process 5 000 – 15 000 paper invoices per year. The adoption of e-invoicing could result in staff cost savings alone of EUR 5 – 15 per invoice. Considering all the immediate cost/benefit components in replacing manual and paper based processes, the following order of magnitude of savings should be achievable through electronic and automated invoice processing:

Table 1 - Savings of e-invoicing - size and industry and number of invoices

No. of employees	Industry	No. of annually issued invoices	Potential savings (²R)
5	Consulting	100	1500
5	Manufacturing	1000	8000
50	Engineering	1000	8000
50	Electronic	20 000	180 000
200	Pharmaceuticals	40 000	320 000
200	MRO Goods15	280 000	1 680 000

On the **inbound side**, the saving potential per invoice is generally a little higher than on the outbound side. But that is not all. Further costs can be identified in the paper-based workflow and storage processes such as manual entry and coding. Taking this into account the full costs for processing traditional paper-based invoices can quite often be as high as EUR 20 per invoice.”

5.2 Benefits for outgoing invoices

A necessary pre-condition for sending e-invoices is the acceptance of the e-invoice by the recipient, which includes mutual agreement on the format and – if structured data are used - the structure of the e-invoices. Consequently, SMEs cannot decide on their own on the use of e-invoices. If the customer of the SME is a large enterprise and requires the use of a specific way of e-invoicing (in terms of structure, transmission protocol, etc.) then the SME is probably forced to accept this in order to maintain the existing or to establish a new business relationship with the customer.

[3] Final report of the expert group on e-Invoicing - page 76. Accessible at http://ec.europa.eu/enterprise/sectors/ict/files/finalreport_en.pdf

There are three types of benefits, which an SME can realise by introduction of outgoing e-invoicing. Depending on the business scenario and industry different benefits can apply:

- cost and time savings (an outgoing e-invoice system – once implemented – costs less to operate than a paper invoice system);
- Improved trading relationship with the customer - increased reaction to customer e-invoicing receipt requests in order to secure existing business relationships (e.g. relevant for small suppliers in certain supply chains) and reduction of DSO – days sales outstanding – i.e. shorter payment cycles;
- A key step towards achieving efficiency improvements in the SME's own business processes.

Although gains through improved customer relationships and improved internal business processes will need to be individually assessed by SMEs, there are more general studies[4] available for quantifying immediate cost savings through e-invoicing that can be taken into account during the assessment process.

Implementing outgoing e-invoicing will potentially affect the relationship with trading partners. For example, e-invoicing may enable accelerated payments since the processing of invoices is more efficient on the e-invoice recipient side.

6 Factors influencing deployment of e-invoicing at SMEs

The deployment of e-invoicing is influenced by external factors and internal factors. Currently it seems that external factors – especially pressure from LTPs – are having a stronger impact than internal factors on the decision-making process of an SME.

6.1 External factors

6.1.1 Industry sector and business processes

In some industry sectors with established and stable supply chains / distribution chains between suppliers and their customers, e-invoicing scenarios are well established and part of a complete orchestration of electronic business transactions. Industry standards are available and widely accepted. This is true, for example, in the retail business and in the automotive industry. For any enterprise trading mainly in such an industry sector there is a strong imperative to comply with these established processes in order to ensure that their competitive position does not suffer.

Common to such industry sectors is a value chain that includes large and small business partners. In these business relationships the large partners hold strong positions and are able to highly influence the method for exchanging invoices.

In other business areas the majority of customers and suppliers belong to the SME category and in these cases external pressure is less developed.

6.1.2 Legal environment

In recent history it appeared that there is a correlation between, on the one hand, the compliance options a country allows and, on the other, the level of adoption of e-invoicing.-. For example, countries that have a strong focus on business controls have achieved better adoption of e-invoicing than countries that are focussing on technical means to ensure authenticity and integrity of e-invoices.

The European Commission has recognised the strong impact of the legal environment. In 2010 the VAT Directive 2006/112/EC has been amended by the VAT Directive 2010/45/EU with the aim of harmonizing the legal environments regarding VAT throughout the EU Member States for national and international business transactions.

[4] Final report of the expert group on e-Invoicing, E-Invoicing / E-Billing in Europe and abroad From evolution to revolution Bruno Koch Billentis March 21, 2011, Electronic Invoicing as a 'keystone' in the collaboration between companies, banks and PA report 2008 Observatory on Electronic Invoicing and Dematerialisation.

6.2 Internal factors

6.2.1 Size of SME

Following the Commission Recommendation 2003/361/EC[5], a definition of SMEs has been used in the European Union since 2005. This definition establishes three different types of companies:

- Micro;
- Small;
- Medium-sized.

The type of SME is defined by two criteria: the number of employees and the annual turnover or the annual balance sheet total of the company.

The following table applies:

Figure 2 - Thresholds to define SMEs and SMEs types according to Commission Recommendation 2003/361/EC

Enterprise category	Headcount	Annual turnover	Annual balance sheet
Medium-sized	<250	= € 50 million	= € 43 million
Small	<50	= € 10 million	= € 10 million
Micro	<10	= € 2 million	= € 2 million

According to EU-statistics [6] 58% of the value added in the European Union is created by SMEs. Their productivity, compared with the average, is 86%. Both figures indicate that for SMEs there are important opportunities for adopting e-invoicing and improving their existing invoicing business processes.

Also SMEs represent 99% of all companies within the EU. This huge market potential should be incentive enough for all companies representing the information and communication technology sector to strive for harmonized e-invoicing solutions that meet the needs of the SMEs in particular.

6.2.2 Maturity of SMEs in terms of Information and Communication Technology (ICT)

The capacities of the SMEs in terms of information and communication technology have significant influence on the adoption rates of e-invoicing. It can be assumed that the use of ICT, computer systems and Internet can improve business processes for all enterprises and that these benefits are therefore available to all SMEs.

To assess the opportunities for e-invoicing the following factors have to be considered:

Availability of IT in SMEs:

- Spreadsheet/word processing an SME company may use a spreadsheet or word processing software to create its invoices.
- Off-the-shelf (standard) software or Software As A Service (SAAS) invoicing software – an SME company may use a standard software package to create its invoices. This type of software is often not customisable and pre-defined parameters apply.
- Off-the-shelf / SAAS accounting software – an SME company may use a standard software solution for their accounting processes after its invoices are created or received and to manage VAT processes. This type of software is often not customisable and pre-defined parameters apply.
- Enterprise Resource Planning (ERP) – an SME company may use an ERP system in which all the IT functions of all departments across the company are integrated. Invoices created by the ERP system are available to the accounting processes by the sharing of common databases. See definition in section 4.1.

[5] The new SME definition – User guide and model declaration - Enterprise and Industry Publications EN NB-60-04-773-EN-C ISBN 92-894-7909-4. Available at http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/index_en.htm

[6] Key indicators for enterprises in the non-financial business economy, EU-27, 2005 (1) Source: Eurostat (SBS size class)

Availability of communication technology at SMEs:

- Email – an SME company may use email to send or receive business data such as invoices as attachments. Some countries offer specific email systems which provide higher security and reliability than the widely-used standard Internet email applications.
- Web EDI / Portal – an SME company may use a web EDI or portal application to send and to receive business data such as invoices. In this case Internet must be available to support access to the portal.
- Information exchange using outsourced IT services (e.g. cloud computing) – an SME company may use outsourced IT Services to transfer invoice data. This requires that Internet is available to support access to the cloud.
- Value Added Network (VAN) – an SME company may have subscribed to a Value Added Network to use its services to send and receive business data such as invoices.[7] See definition of "VAN" in section 4.1.
- Dedicated file transfer protocols such as FTP, AS2, OFTP2 etc. – an SME company may use the Internet to transfer files of business data such as invoices. These protocols enable value-added functionalities such as data and transmission security and acknowledgement of receipt etc.

These days the Internet should be readily available to any SME. This means that Internet-based communication (see the first four bullets in the section above) could be used without additional effort or cost to the SME. In contrast, only a small number of SMEs have access to VANs or dedicated file transfer protocols. Since these technologies are likely to incur additional costs a wide acceptance of these communication methods for SMEs might be hard to achieve.

Different conditions regarding available ICT in SMEs will be considered in chapter 8 with respect to recommended e-invoicing scenarios.

The communication factors listed above are applicable to all industry sectors.

7 Success criteria for e-invoicing implementation by SMEs

As noted in 6.3.2 computer technology and Internet access are nowadays readily available to any SME in Europe and most of them can be assumed to be already using these technologies. Thus, from a purely technical point of view, the introduction of e-invoicing is possible.

If, due to their position in the supply chain and the variety of their business partners, a SME has to face a more complex situation regarding e-invoicing implementation, the use of specialised service providers is an available option. CWA 16464-3 Conformance Criteria for Interoperability between Electronic Invoicing Services describes how service providers achieve interoperability across e-business networks and offer their customers the ability to extend the reach of e-invoicing solutions.

In all cases the implementation of e-invoicing is connected with changes in internal routines and will require organisational adjustments which will also usually include changes to the routine processes of affected employees.

This chapter explains how a company – once the decision has been made to start e-invoicing - can prepare itself for this task.

7.1 Definition of realistic goals

The goals (with regard to expected numbers of electronic invoices, saved time etc.) for incoming and outgoing e-invoices should be realistic. If the start of e-invoicing is driven by external factors then e-invoicing might be seen as an opportunity for keeping and extending business relationships and, in these cases, an appropriate return on investment (ROI) may not be the main incentive. However, if savings and streamlining of business processes are the main drivers then an achievable ROI will be one of the goals to be defined.

Only on this basis can an e-invoicing project be supported by the management and the involved staff and

[7] If a company uses a VAN then it can be considered that this company is already involved in some kind of EDI or engineering data exchange.

only then will they be equipped with the necessary resources.

The SMEs need a clear understanding regarding:

- benefits of e-invoicing;
- legal requirements of e-invoicing;
- technological aspects of e-invoicing;
- impacts of e-invoicing on all their business processes and procedures.

7.2 Setting up a competent project team for e-invoicing

E-invoicing solutions may require coordination and collaboration between different departments or experts (tax, legal, material management, accounting, IT). The leader of the e-invoicing project has to form a competent team representing IT / trade partner management (sales, purchase), finance and tax that is able to comply with the task.

7.3 Selecting suppliers / customers committed to e-invoicing

If the SME starts its e-invoicing activities with committed suppliers / customers the stipulated goals can be reached much easier and quicker. With trading partners not being convinced of e-invoicing, the target results cannot be achieved and this will probably lead to frustration on both sides.

7.4 Selecting the right e-invoicing solution provider

If the company decides to use a specialised service provider instead of dealing itself with what may be complex requirements, then the choice of the right e-invoicing provider is the key to the success of the project. Before a service provider is chosen the different candidates should be asked to demonstrate comprehensive expertise and a proven track record specifically in the e-invoicing area, which is relevant for the respective SME.

It is important to remember that it is the SME and not the e-invoicing service provider who remains responsible for the VAT compliant processing of e-invoices. This is very often not mentioned in the marketing documents of service providers.

7.5 Securing the organizational setup for e-invoicing

E-invoicing will change the way invoices are processed. This is likely to have an impact on the human resources involved in these processes. The manual processes which are the core activity of an employee for paper invoicing should disappear and, in order to ensure a successful organisational alteration, an appropriate change management process is required. This should include all necessary communication within the company.

8 e-invoicing scenarios applicable to SMEs and related business controls

8.1 Introduction

Many options are available to an SME considering e-invoicing. The choice depends on a number of factors as explained in section 6.

In the past, many countries put an emphasis on specific technical means to ensure authenticity and integrity of electronic invoices. Initiated by the VAT Directive 2010/45/EU (see section 9.1) a shift of paradigm towards a freedom of choice regarding the means has been made. Consequently, also business controls can be used for ensuring authenticity and integrity of e-invoices. These business controls should be appropriate to the size and type of business. If used, they must be applied by the invoice issuer and the invoice recipient to ensure the completeness and correctness of invoice content.
However, to employ specific technical means in addition to sufficiently robust business controls remains a valid option for the business partners. For business reasons a company may decide to use specific, secure transfer protocols and / or digital certificates in order to further ensure authenticity and integrity as well as for keeping data private and protected from un-authorised access by third parties. Also, where the applied set of business controls, are not enough to ensure authenticity and integrity of an e-invoice, the company should consider the advantages of other choices.

8.2 ICT Solutions - overview

To enable the exchange of electronic invoices, many different solutions are available on the market. Their complexity, sophistication and price cover a wide span allowing more or less integrated implementations.

The scanning of paper invoices by the recipient thereby transforming the paper form into ICT processable data is not considered to be electronic invoicing according to the VAT Directive 2010/45/EU. Although this action can be useful for the recipient since it enables automation of invoice processing, this application is not documented in the CWA.

The descriptions of the common solutions are provided below together with indicators specific to each solution. The general advantages of e-invoicing are detailed in section 5.

The following descriptions of the various scenarios assume that an SME company moves from paper-based invoicing to e-invoicing.

Disclaimer: tax payers, intending to start e-invoicing, are strongly encouraged to verify compliance of the intended solution with their national legislations before implementing any of the solutions described below. Some specific requirements may exist at national level due to local legislation.

To describe and rate the solutions in a coherent way, two sets of indicators have been selected:

- The first set of indicators are inspired by the Price Waterhouse Coopers report called “e-invoicing and e-Archiving taking the next step*[8]”. In this report increased efficiency and cost reduction together with faster customer payments are described as the main benefits of e-invoicing and this is the reason why the current CWA uses the same indicators.

- The second set of five indicators are defined as follows:

  Easy to setup: indicates how easy or difficult the solution is to setup. Setup is used here to mean “to make the company’s system ready to exchange e-invoicing with the first trading partner”. In this step, the SME company needs to select a solution (if not imposed by a LTP) from a technological and financial point of view and measure the impact on its processes especially if audit trails (and related business controls) are selected as the way to provide authenticity and integrity.

  - Cheap to setup: identifies how cheap or expensive the setup solution will be.
  - Easy to use: identifies how easy or difficult the setup solution is to use for daily routine tasks.
  - Easy to deploy: identifies how easy or difficult it will be when the company needs to extend the use of e-invoicing to other trading partners beyond the first partner.
  - Cheap to deploy: identifies how cheap or expensive the setup solution will be to extend the use of e-invoicing to new trading partners.

The scale used in the indicator table is: - - / - / 0 / + / + + where

+ +	Strongly applies, the indicator is absolutely valid for this solution
+	Applies, the indicator is valid for this solution
0	No effect, the indicator is neutral.
-	Does not always apply, the indicator is not valid for this solution except in specific cases,
- -	Does not apply at all, the indicator is not valid for this solution

8.3 Plain unstructured PDF invoice end-to-end

The sender generates invoices as plain PDF files and sends them to the recipient, using electronic data transfer often as email attachments. There might be an existing national requirement to digitally sign the files according to the current VAT Directive. After 1st January 2013 the implementation of the Directive 2010/45/EU into national law will remove this requirement. However business partners can continue to choose to employ digital signatures to ensure integrity and authenticity.

Advantages for sender	• Easy to do

[8] Can be downloaded from http://www.pwc.fr/fr/pwc_pdf/pwc_e-invoicing.pdf

	• PDF generation tools are easily available ranging from freeware to professional solutions • Result in limited changes in paper-based invoicing processes since only the printing is replaced by the generation and sending of files. • In many countries, accepted without signature.
Disadvantages for sender	• When electronic storage is required by national legislation it can incur extra cost. The balance between the cost of the storage solution and the limited benefits offered by this PDF solution might not favour this solution. • Trading partners that are looking for structured electronic invoice data are likely to not accept this form of electronic invoice since integration of unstructured PDF is difficult.
Advantages for recipient	• This is a simple, inexpensive solution to start to receive e-invoices. • For recipient companies who already have scanning solutions in place for paper invoices the usage of PDF increases the quality of data recognition due to the fact that there is no “background noise” (spots, shadows, etc.)
Disadvantages for recipient	• No automatic processing is possible unless additional extraction solutions, that might be complex and expensive, are implemented. • Limited integration options reduce the benefits for trading partners.

Indicators

	For sender	For recipient
Increased efficiency	++	+
Cost reduction	++	+
Easy to setup	++ [9]	- [10] / ++ [11]
Cheap to setup	++ [9]	- [10] / ++ [11]
Easy to use	++ [9]	- [10] / ++ [11]
Easy to deploy	++ [9]	- [10] /++ [11]
Cheap to deploy	++ [9]	- [10] /++ [11]

Conclusion:
This solution is more beneficial for the invoice sender than for the invoice recipient. For the recipient there is little change required apart from the necessity to store invoices electronically, where required by the applicable legislation. However, it is likely that LTPs will not accept this solution since they are more interested in integrated solutions via structured data exchange.

If the invoice recipient has an Optical Character Recognition (OCR) process in place, the difficulty to adapt the OCR reading to recognise each different invoice layout could be diminished if a standard layout would be used. Trade facilitation standards developed in the 1990s can be re-used to develop such a common standard layout. Dissemination activities to make these layouts known to solution and software providers will be needed.

8.4 Structured data exchange

8.4.1 Web-EDI

The sender connects via the Internet to a website (invoice portal) where the invoice data is entered manually into a web form. The web EDI application then generates a structured data file that is forwarded to the recipient. Thereby recipient can automate the processing of the received invoices. The web EDI services can be provided by a third party or developed and operated by the invoice recipient. The web EDI service sometimes provides functionality to upload a structured file instead of keying in data manually but the tables below does not document this functionality. The service provider usually also provides storage functionalities.

[9] The indicator value will vary depending on the level of acceptance of the solution by the recipient.
[10] If structured data is required.
[11] if structured data not required

Advantages for sender	• Fulfil the customer requirements for structured invoicing data without setup cost • Accelerated payment (in some industries accelerated payment instructions are used as an incentive for their suppliers to participate in web EDI) • The status of the invoice (accepted or rejected) is available shortly after sending.
Disadvantages for sender	• When too many invoice portals are in use, they require learning effort to adapt to different interfaces and processes. • If different services are used then invoices are stored in different services. • Manual keying and risk of errors • Duplication of effort (keying the invoice data into the web portal and into the internal accounting system) • Where the invoice issuer does not keep an invoice copy for itself, it should ascertain its service partner's capability to implement legally compliant invoice storage and that the archive is kept for the required period of time.
Advantages for recipient	• Enables senders with a limited number of invoices (small companies or companies with limited volume of trade) to be part of the e-invoicing sender community. This allows critical mass to be reached for recipients. • Enables easy on-boarding of trading partners
Disadvantages for recipient	• If the website is owned and developed in-house by the recipient and the recipient has to bear the cost and effort to operate and maintain the portal.

Indicators

	For sender	For recipient
Increased efficiency	--	++
Cost reduction	-	++
Easy to setup	++	+
Cheap to setup	+	+
Easy to use	+	++
Easy to deploy	+	++
Cheap to deploy	- -	++

Conclusion:
This solution is appropriate for a very limited number of invoice transactions and if a company needs to find an e-invoicing solution that is easy and quick to implement.
Ease of deployment is seen as the benefit of the use of web EDI as a technology, requiring a browser and capturing information in a web form. However, a specific portal application is usually related to a specific customer or a small group of customers and cannot be easily extended to other potential e-invoicing partners.
The use of web EDI requires extra controls to be performed by the sender because the data has been typed in manually and therefore the data quality may be low. There is also a risk that the invoice stored in the internal system differs from the invoice typed in the web EDI.

This is an intermediate solution leading towards more fully integrated structured data exchanges.

8.4.2 Structured data exchange

The invoice sender system generates a structured data file that is sent to the recipient. The latter can integrate the data with limited or no required human interaction. With this solution, automation of the exchange is feasible.

Advantages for sender	• Better value-add regarding communication functions.

	• Sending is integrated into the invoicing process • Fiscal requirements might be covered by the network which would mean that only one solution is required for communication and fiscal requirements
Disadvantages for sender	• More expensive to setup • More difficult to setup
Advantages for recipient	• Enables fully automated receiving and processing of invoices. • Network might include compliance checking functionalities
Disadvantages for recipient	• More difficult to setup internally. • More difficult to setup with partners • More expensive, requires mass deployment to reach an acceptable ROI

Indicators

	For sender	For recipient
Increased efficiency	++	++
Cost reduction	++	++
Easy to setup	- -	- -
Cheap to setup	- -	- -
Easy to use	++	++
Easy to deploy	+	+
Cheap to deploy	++	++

The indicator values will depend on the maturity of the partner experience with regard to the exchange of electronic data and whether or not the partner companies share the same “structured data”.

Conclusion:
Structured data exchange is the most integrated and automated solution and therefore the one that should be aimed at. Additionally, the ability to generate and exchange structured data provides benefit beyond electronic invoicing. However, required investments are higher and critical mass is more difficult to reach.

The decision to implement structured data exchange is more difficult to make and in taking a pragmatic view these can be seen as the ultimate solution when less automated solutions have to be dropped because of their inadequacy.

Providing decision-making help and tools would help SMEs to define the well-adapted solution.

8.5 Service Provider

As long as plain PDF data exchange is sufficient for both business partners, there is not much need for an external service provider to create the PDF file.

However, as soon as an SME has to create structured invoice data to send it to their customers, the complexity of the implementation task rises. Sometimes an SME is obliged to create different formats for different customers. If the company does not have the necessary skills or resources available to comply with these requirements, the use of an external service provider is a useful option. Over the years a number of companies have established services in the B2B data exchange arena. They provide clearing centre functions (translation from one format to another), storage services and more. Some of these service providers are highly specialised in e-invoicing services and provide on top of the above mentioned functions signature services and have created a network that allows the transfer of e-invoicing data from one provider (e.g. the provider of the sender) to another (the provider of the recipient). For more information refer to Part 3 of the CWA.

When using a service provider for creating outbound structured invoice data different options are available:

- The invoice issuer sends structured data (usually proprietary structures such as CSV or an XML structure format that is specific to an ERP system) to the service provider. The service provider converts the data into the necessary target format that has to be exchanged with the customer i.e. the invoice recipient.
- The invoice issuer creates an invoice document (paper, PDF) and sends it to the service provider. The service provider will scan the document and through optical character recognition (OCR)

technology a conversion into structured data will be realised. The data will be translated into the target format as in case a.

- The invoice issuer installs a specific printer driver and simply “prints” the invoices. The printer driver transmits the data stream (which can be seen as a mixture of structured and non-structured data) to the service provider where the data will be converted into a structured format.

For inbound processes mainly two options apply:

- The recipient company’s IT system is capable of processing structured invoice data. In this case the service provider translates received invoice data into the format that the recipient can process and forwards it to the recipient.
- The recipient cannot process structured data. In this case the service provider creates form-based printouts of the received invoice data (e.g. creates a PDF file) and sends it to the invoice recipient.

It is also possible to outsource the whole invoice generation process to a service provider. The provider will generate electronic or paper invoices – depending on the recipient’s needs – and may also integrate all incoming formats of invoices including paper which is scanned and converted into electronic format for reasons of productivity and storage.

Typically, the service provider is also used to maintain the electronic invoice archives. The service user should bear in mind the following considerations, when using such a service:

- Does the service provider ensure compliance with the storage rules specified in the applicable legislation as per Directive 2006/112/EC, art. 219a?
- Is an immediate and direct access to the archive during the legally required storage period available to the service user and/or the tax auditor available?
- Are exit strategies available in case the service user wants to change the service provider or the service provider ceases its business operations?

Also, it must be remembered that the service user remains responsible for meeting all legal requirements that apply to e-invoicing.

8.6 Communications protocols

Beside the choice of the invoice format (unstructured data such as PDF or structured data), the choice for the transport of the e-invoice through a suitable communication channel is an important decision.

These days the public Internet is widely accepted as a suitable communication channel which provides a sufficient level of reliability. However, the Internet itself is not secure. Data transmissions can be intercepted, can be hacked, deliberately read or changed by unauthorised third parties.

An alternative to the public Internet is the use of Value Added Networks (VAN) or Virtual Private Networks (VPN). They provide more security than the public Internet, but this service is not free. It is important for a company to consider that these networks have limited connections and – in comparison to the public Internet – it might not be possible to connect to all of their business partners through such a network.

The most widely used communication protocols over the Internet for general information exchange are probably email protocols such as simple mail transfer protocol SMTP. However, business and security experts in various industries do not accept the lack of confidentiality and reliability of the commonly available email systems. Some service providers offer secure email systems, but also here, their reach may be limited.

It is to be taken into account, however, that in some EUMS Registered E-Mail systems exist or are under development that provide, at a low cost, reliable and legally binding mailing systems providing evidence of what and when was sent from which mailbox and delivered when to which mailbox.

A general alternative to common email exchange is a direct file transfer from partner A to partner B. In this situation the sending and receiving computer establish a communication channel over the Internet and they use a dedicated file transfer protocol for data exchange. Various protocols are in use: from the general purpose ftp (unprotected), via its more secure siblings ftps or sftp to sophisticated transfer protocols like AS2 (Applicability Statement 2), OFTP2 (Odette File Transfer Protocol Version 2) and the like, which also provide error detection, end-to-end receipts, communication channel encryption etc.

As an alternative, web portals often also provide the ability to up - or download files manually through an

https connection. However, they can only be applied if one of the business partners or a service provider is able to provide the portal and the reach of these portals may be limited too.

More recently Web Services are more and more used for data communication. They allow automated communication between applications over the Internet and typically use the HTTP / HTTPS protocol. The original intention of Web Services was to provide direct communications between applications (similar to remote function calls). However, they can, and are, used increasingly for the more simple purpose of file transfer. Web Services are likely to include acknowledgement of receipt, initiation of a re-send in case of transmission errors etc.

8.7 Best practices and related business controls

As indicated earlier in this document**,** business controls which ensure the correctness of an invoice are a requirement applying to both paper and electronic invoices. They are an important means of proving the authenticity and integrity of an electronic (as well as paper) invoice. Business controls are used to ensure that a reliable audit trail from the order / delivery to the invoice is available. Additional technical means may be, and are, used to ensure the authenticity and integrity of invoicing data, but they can never replace the process of validation and verification of invoice content by using business controls. Therefore the following chapter describes how business controls can be applied to the main e-invoicing scenarios.

According to chapter 8.3 there are two main e-invoicing scenarios to be considered:

- Non-structured e-invoices: the PDF format is probably the most widely used format. Advantages compared with plain text or text processor generated files are that the document cannot be changed easily and that free-of-charge generation and reader packages are available. Non-structured invoices are generated in a human readable format.

- Structured data exchange: For structured data exchange the XML syntax is the state-of-the-art technology. It is easy to handle by modern programming languages and tools. In addition, XML is supported by a wide range of free-of-charge and commercial tools for converting the structured data into human readable visualisation (legible) formats such as html or PDF. The feature to easily produce a readable format is important since the legibility of invoices is explicitly required by Article 233(1) of the VAT Directive:

> *The authenticity of the origin, the integrity of the content and the **legibility** of an invoice, whether on paper or in electronic form, shall be ensured from the point in time of issue until the end of the period for storage of the invoice.*
>
> *Each taxable person shall determine the way to ensure the authenticity of the origin, the integrity of the content and the **legibility** of the invoice. This may be achieved by any business controls which create a reliable audit trail between an invoice and a supply of goods or services.*

Based on the above considerations the following best practices are recommended:

- Plain PDF (free PDF tools available) – authenticity and integrity via business controls
- XML (in a standardised exchange structure) and visualisation in a human readable form through stylesheets.
- External service provider (data transferred through printer stream or in any proprietary format to the service provider and then converted in the required target format)
- Data communication via Internet by using secure connections (e.g. SSL/TLS security).

Figure 3 shows the best practice recommendations.

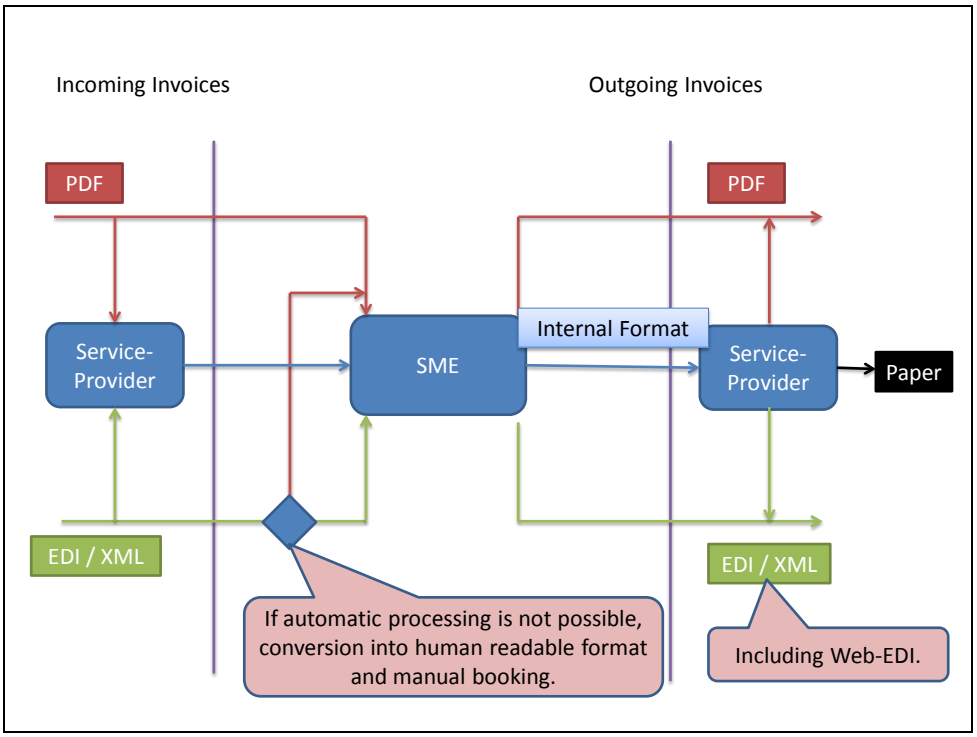


Figure 3 - Best practices recommendations

Note: Independently of any business controls applied by the receiver, some Member States require an exchange agreement that "... provides for the use of procedures guaranteeing the authenticity of the origin and integrity of the data. " as specified in Article 233 of the Directive 2010/45 EC.

8.7.1 Business controls

Business controls are an inherent part of running a commercial business. In order to work in a co-ordinated manner in a company there are standardised routines and processes in place. Business controls are the means to monitor the adherence to these processes. If necessary, corrective actions can be initiated, if deviations from the standard processes threaten to harm the performance or compliance of operations.

The invoicing process (incoming and outgoing) is part of the process chain for the purchase of goods or services and for the selling of goods or services. Business controls are put in place for business reasons and for compliance reasons.

Business reasons:
Related to incoming invoice processing the main business reasons are to ensure that only goods are paid for which were ordered and received according to the agreed terms and conditions.

Related to outgoing invoices the main business reason is to initiate the payment at customer's side within the response time and for the amount as agreed in the commercial terms and conditions of sale.

Compliance Reasons:
For both incoming and outgoing invoices, a company needs to comply with legal requirements, of which the VAT legislation is an important part. Only by ensuring full compliance with the VAT legislation will the company have the right to deduct paid VAT from its VAT payable to the financial authority.

Compliance reasons are business reasons too, otherwise the future of a business may be jeopardised.

Typically, the applied business controls rely on various documents and evidence created earlier in the business process and filed in the company's records.

Various types of document are likely to be linked to the corresponding invoices/e-invoices and these can be used to establish the reliable audit trail. In this context a business control is the process to ensure that for each VAT-relevant transaction such an audit trail is available.

The following documents are usually issued before or after the issue of the invoice:

- Purchase order issued by the buyer requesting the delivery of goods or services.
- Order confirmation issued by the supplier
- Despatch advice issued by supplier, indicating that the delivery of goods is going to take place and the details of the delivery such as date of good`s arrival, number of pallets, identification numbers etc.
- Delivery note containing all information of an invoice except prices
- Proof of delivery which confirms that the ordered goods / services have been delivered
- Payment (Remittance Advice) indicating that the payment has been accepted.
- EU transport confirmation (issued by the freight forwarder), confirming that the goods were shipped from EU-country A to EU-country B
- Payment orders, credit advices or account statements.
- Payment orders, credit advices or account statements exchanged between an SME and banks
- Import documents exchanges between a trader and customs
- Export documents exchanges between a trader and customs
- Submission of declaration by a trader to tax authorities.

These documents usually rely on master data that the company maintains - neutral and relatively stable data about the product or services and about business partners. Master data includes goods or service descriptions, goods identification numbers, price information, business partner names, addresses, party identification numbers, contact information etc.

A first and essential business control is to ensure that master data are up to date, complete and correct.

The following explanations focus on business controls to ensure the issuance and reception of a valid VAT invoice. Other controls might be necessary for specific industries or business processes, but these are not in scope for this document.

Business controls related to e-invoicing are the same controls that a company would already use for paper based invoicing processes. They have to be applied during invoice generation and when processing incoming invoices.

How are business controls used to ensure the authenticity and integrity of the content of e-invoices?

- Authenticity: by identifying the transaction business partners e.g. the supplier who received the order, made the delivery and issued the invoice
- Integrity: by matching quantities, prices, terms, etc. against the order and delivery note. The integrity check also includes the calculation of VAT figures and the validation of VAT identifiers.

Although these are very common business processes, for electronic invoicing it is strongly advisable to describe these processes and their implementation in the day-to-day business processes of the enterprise, especially if more than one person is involved.

Business controls must include also organisational structure and internal control procedures of the organisations concerned such as the structure of the organisation, with the appropriate budget allocation and with the appointment of accountable managers who perform against budget. Another dimension includes the attestation policy that may apply staff charged with contracts, price revisions, ordering, goods/service dispatch and receipts, invoicing, payment, disputes, etc. and the authorisation of staff (individuals) who may engage in commercial transactions on behalf of a company.
Last but not least business controls cannot do without the up-to-date documentation of the roles, responsibilities and systems (whether ICT or not).

Typical examples of applying business controls in different e-invoicing scenarios are:

1. An SME has no ERP system and runs their business with paper-based processes. It is assumed that all necessary provisions are in place to check the authenticity and integrity of paper invoices.
   An SME receives some electronic invoices in addition to the main stream of paper invoices. These electronic invoices are printed in a human readable form and the business controls available for paper invoices are applied including the documentation of the process steps applied to the paper copy. Where so required by the applicable legislation the electronic invoices must be stored according to storage requirements for electronic invoices.

2. An SME has an ERP system but cannot process the invoices automatically into their ERP system. Most likely, the invoices are entered manually into the ERP system and the automatic business controls of the ERP system can be used. The remaining part of the invoice that cannot be checked by the system has to be checked manually. Automatic business controls can consist of the following checks:
    a. Matching of the master data held for the business partner e.g. whether the supplier is known in the system and whether the held data is accurate);
    b. Matching to order and delivery/receiving documents;
    c. Completeness and correctness of VAT information;
    d. Accuracy of the calculation.
3. An SME has an ERP system, the electronic data is sent in structured form and the invoice data can be automatically processed in the ERP system. The same controls as described in 2 apply.
4. In 1, 2 and 3, the integrity and authenticity of invoice data are checked based on the content. Additional proof of integrity and authenticity can be achieved by electronic signatures (including server-based signatures) or the use of secure transport protocols. However, the internal business controls must also always be applied for validating the content.

These controls are to be conducted on both sides (issuer and recipient), the requirements being the same.

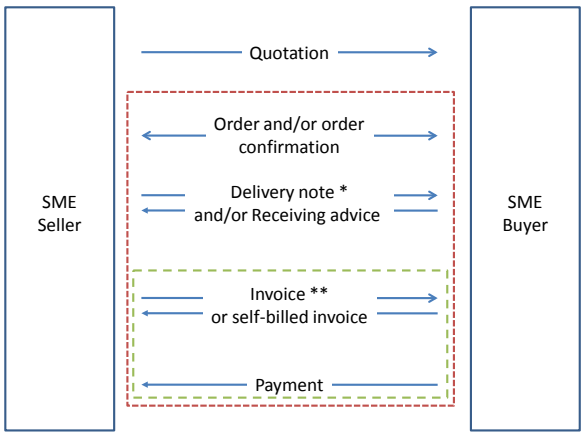
There are business cases where the complete audit trail as described in 2 cannot be established. For example contracts may be made by verbal agreement or services may have been provided without material evidence (e.g. in form of paper documents).

In this case the approval of the invoice creates the evidence that both parties agreed on issuing an invoice in relation of a presumed supply of goods or services. In a later audit process the auditor will probably also check whether the transaction fits to the overall business activities of the company that received the invoice and deducted the VAT. This can be related to the nature of the transaction, quantity, price etc.

Once the taxable persons on the invoice are correctly identified, any cross-check with the invoice issuer, intended by the auditor, can be easily made and will show the matching entries in the books of both parties.

Finally, the actual payment of an invoice (including the VAT amount) is another indicator that the invoice is based on a real business agreement and matching trade transactions and that the invoice recipient was entitled to reclaim the VAT paid from the fiscal authorities.

In the diagram below, the overall set of information exchanges is described.



* For services there will be also a timesheet and a service contract
** May include attachments, such as timesheets etc.

Figure 4 - The typical flow of business documents in a purchasing process – can be used to establish an audit trail

As shown in Figure 4,

- Sometimes, there may be no order available, for example, when the order is placed on a website. The order confirmation will then acknowledge the order and includes the price and delivery information.
- A signed delivery note or a receiving advice may be required in some industries to issue the invoice; they are taken as proofs of delivery.
- The minimum process (in green) is the invoice /self-billed invoice and its related payment.
- The payment is included because it concludes the business transaction and because it is the common element across all the scenarios.

8.7.1.1 How to create an audit trail as a customer / recipient of e-invoices

The following section describes in detail the situation whereby the SME is a customer and the recipient of the invoice. A business process according to Figure 4 is assumed. The following descriptions are intended to provide advice about which documents and data may be used in a typical process to create an audit trail and to enable the related business controls.

The validation process of incoming invoices is usually seen as a more challenging process because the invoice recipient may have to deal with various different formats of invoices. Furthermore, when these invoices are used for VAT deduction, the recipient exposes himself to higher risks in case the tax authorities declare the invoices as not VAT compliant as a result of auditing.

Order process

In the order process, a sales contract is established. This can be achieved by a single order with or without an order confirmation or by any other evidence of the order. An order evidencing document should be stored in such a way that the integrity and legibility are maintained and that the document is easily retrievable to enable the business controls and audit trail related to subsequent invoices. The storage period depends on applicable legislation:

An order evidencing document may typically contain the following information elements:

- Order date,
- Order identifier (number or any suitable reference that fully identifies the order),
- Name and address of the supplier,
- Name and address of the buyer, name or identification of the purchasing person, if applicable.
- If different from the buyer's, the billing name and address and the ship to name and address,
- Product or service description,
- Quantity (including unit of measure) where appropriate,
- Net price including currency plus pricing unit of measure if appropriate. If a framework contract or blanket order is established, the price can be derived from these documents.

Goods receipt proof process

The document used for this process can be a delivery note signed by the receiving person, a dedicated receiving advice, or any other evidence of delivery.
The process described here is concerned with creating the internal records confirming that the goods have been received according to the order and that the goods match the quantity and quality requirements.
If there is a discrepancy between the delivery and the order, an exception process is initiated and the discrepancies are recorded in the internal files and communicated to the supplier.

In this process the following checks will be done typically:[12]

- Is there an order (or similar) document? If not, an exception process is initiated.
- If yes,
- Does the order reference identifier exist in the system? If not, an exception process is initiated.
- If yes,
- Does the delivery match the order in terms of conditions, quantity and quality?

The following data are to be included:

- Receipt date
- Product description
- Delivered quantity (with unit of measure)
- Accepted/confirmed quantity

Incoming Invoice verification process

The checks described hereafter are likely to be complemented by national legislation requirements.
The invoicing validation process is initiated on receipt of the electronic invoice. The validation process includes several steps:

1. Record the invoice in the incoming invoice register (all incoming invoices are listed in the register, exception: invoices are incapable of being processed for technical reasons, invoices are not in the format agreed by the partners or invoices incorrectly addressed (addressed to another company))
2. Check the mandatory data according to minimum legal and business requirements,
    a. Does the invoice contain an order reference identifier? If not, an exception process is initiated

    If yes,

    b. Is the other mandatory data (VAT data as required) present in the invoice? If not, an exception process is initiated

    If yes,

    c. Is the calculation correct?
    d. Is the mandatory data correct? If not, an exception process is initiated
    e. Is VAT exemption/non exemption applied properly? If not, an exception process is initiated

3. Validate the compliance between the receipt data and the invoice data:
    a) matching product / service?
    b) matching quantity?
    If there are discrepancies, an exception process is initiated.
    If the data match, step 4 follows
4. Validate the compliance between the invoice data and the order data such as the price and other conditions, delivery terms etc. If there is no discrepancy, step 5 follows, otherwise again an exception process is initiated.
5. The invoice is validated. Payment is initiated.

The results of the validation process must be satisfactorily recorded in a suitable manner. This can be done automatically by a system or manually. The documents used in this process, which finally provide the evidence of a supply of goods or services that matches the invoice, must be stored so that this validation process can also be verified in subsequent audits. The above-mentioned identification of the business partner and data matching must be possible throughout the storage period.

Payment

The business cycle is completed when the invoice is paid. This is the last element of the audit trail. It is also very likely to be the final element in a chain to prove that the invoice represents a real supply of goods or services and that the buyer was entitled to claim VAT deductions against VAT liabilities.

[12] This paragraph is not meant to describe the full business process. The manner in which the various exceptions are dealt with depends on the business scenarios and separate agreements between the partners and are not in the scope of this document.

The payment record can be used to indicate the authenticity of the invoice during the required storage period. But payment can only provide an indicator that an invoice represents a real supply. It cannot replace the validation of authenticity and integrity as described above.

Self-billed invoices

In some industry sectors it is common to use self-billed invoices. In this scenario the customer issues an invoice based on the goods received and accepted. The supplier is the invoice recipient and the supplier must validate the invoice content in the same way as described above. The only difference is that the supplier uses the records of incoming orders or delivery instructions, the issued delivery notes (or, if available, the receiving advice information etc.) as validation. If the validation fails, an exception process is initiated.
However, as in this scenario the buyer uses the self-billed invoice to deduct VAT, it can be assumed that the buyer will conduct all necessary efforts to ensure VAT compliance.

8.7.1.2 SME is supplier and issues e-invoices

In this scenario an SME has system in place for invoice generation. The invoices are created as paper invoices and the system is configured and maintained in a way, that all VAT relevant data will appear on the invoice.

In an ideal situation the generation of PDF invoices requires only the installation of a suitable printer driver. If the SME company uses forms with pre-printed information (e.g. address data, registration numbers etc.) then the output from the invoicing system has to be amended so that it generates this information as well in the PDF form. Once set up correctly according to the business transactions the company is conducting, the system should work properly, provided the master data and transaction data are maintained correctly.

If the SME company wants to create structured data the relevant invoice and VAT data will be available in their system and the task will be to export them into a data record or other structure that facilitates the structured data exchange. This is mainly a technical issue. The result of the process has to be validated with regards to syntax compliance, correctness and completeness of the exported file. One advantage of structured data is that automated processes can be used to validate outgoing invoices before issuing thereby avoiding any subsequent complaints from the invoice recipient related to missing information etc.

A special case is the application of Web EDI. Here the supplier is obliged to enter the invoice data into a portal application. Usually, the application on the portal has all internal controls available to check the completeness and, as far as possible, the correctness of the invoice data. Once the data set has been validated successfully by the Web EDI system, an electronic invoice is generated as structured data. The supplier receives a copy of this message, often together with a PDF visualisation of the content.

8.7.2 Best practices – e-invoicing checklist

Since the migration to e-invoicing involves changes to different functional areas within a company and various technical installations, a check list may be helpful to coordinate the activities and to ensure that all necessary steps have been carried out. The check list should define the typical phases and decisions of an e-invoicing project for fully automated end-to-end integration of structured invoicing data.

Although the steps may vary from company to company a general pattern should be applicable to the majority of situations. This CWA proposes such a generalised version. Although it can be used directly by SMEs it is mainly intended as input to trade or industry associations to develop more specific guidelines related to their industry and country. The check list is available in annex 12.2.

8.7.3 Agreement

The EU Directive 2010/45/EU amends Art. 232 as follows: “The use of an electronic invoice shall be subject to acceptance by the recipient”. However, the definition of acceptance is not prescribed. In practical terms an acceptance may be achieved just by the processing and paying of an invoice that has been sent in electronic form. However, due to the consequences that an electronic invoice may have for processing and storage it is recommended to have an explicit written agreement with trading partners concerning this form of exchange and documenting the consent of both partners. The recipient’s acceptance is not limited to only the electronic

format, but also to electronic communication means and points of receipt/acceptance of electronic messages.

In the Directive 2006/112/EC the Commission allowed that electronic invoices could be exchanged “by means of electronic data interchange (EDI), as defined in Article 2 of Commission Recommendation 1994/820/EC of 19 October 1994 relating to the legal aspects of electronic data interchange, if the agreement relating to the exchange provides for the use of procedures guaranteeing the authenticity of the origin and integrity of the data.”

Based on these requirements numerous electronic data interchange agreement templates have been developed by various business and industry associations or national authorities such as UN/CEFACT, the Danish government, GS1 Germany, Odette International, VDA and Peppol. If the SME intends to use structured data exchange for e-invoicing, a suitable agreement template can be obtained from any of these sources.

With the Directive 2010/45/EU the above-mentioned way is still appropriate. In the case of non-structured data exchange a simplified agreement should be acceptable which documents the consent of the business partners. In annex 12.3 a template suitable for this purpose is proposed. This template should be localized and amended according to the specific requirements of countries or industry sectors.

9 Past and present actions conducted to foster e-invoicing

9.1 New EU Directive and its implementation into national legislation

In the past there have been many discussions about how the:

- authenticity of origin
- integrity of content
- legibility of an invoice

can be ensured.

With regards to authenticity of origin, actors (both on the sending side and receiving side) must ensure that the supplier or the issuer of the invoice named in the invoice is really the company that generated the electronic document. Therefore origin authenticity means ensuring that the invoice has come from the source that it is reputed to have come from.

Integrity of content means, that the invoice data has not been changed in any way since it was issued[13]. The VAT Directive focuses on the VAT information but this applies to any other commercial information as well.

Legibility of an invoice means that the invoice content can be displayed in human-readable form on the sending and on the receiving side. An invoice should be displayable in such a way that all the VAT contents of the invoice are clearly readable, on paper or on screen. If needed legibility can be the result of a conversion process. This will often be the case for invoices generated as structured data.

The authenticity of the origin, the integrity of the content and the legibility of an invoice has to be ensured from the point of issue until the end of the period for storage of the invoice. The length of the period of storage of the invoice depends on national regulation.

Due to the lack of an EU-wide harmonised provision many SMEs were very reluctant to use e-invoicing. This was also realized by the EU-Commission which reacted to this unsatisfactory situation.

There have been various barriers to adoption of e-invoicing identified especially those resulting from the different implementation of the VAT Directive in the individual Member States. Often these barriers are in fact specific technical requirements that could not be met by SMEs without high incurred costs. These fiscal barriers have been addressed in the Commission’s Directive 2010/45/EU which amends Directive 2006/112/EC to simplify invoicing requirements. The Directive was published in the Official Journal on 22

[13] In some EUMS conversion is not allowed, the invoice has to be stored as sent and received there must be no alteration of any kind between sending and receiving.

July 2010[14] and. Member States must bring their national legislation in line with the new provisions by 1 January 2013. After this date, all Member States shall have the same legal environment in place and no country-specific barriers shall exist anymore.

The key points of the Directive are;

- The use of an electronic invoice shall be subject to acceptance by the recipient (not substantially changed)[15].
- e-invoicing must comply with VAT regulations (not changed);
- Electronic and paper invoices are to be treated equally - the administrative burden of paper invoicing should not increase (new).
- The authenticity of the origin, the integrity of the content and the legibility of an invoice, whether on paper or in electronic form, shall be ensured from the time of issue until the end of the period for storage of the invoice (not changed).
- The proof of authenticity and integrity may be provided using any mechanism the taxable person deems suitable (new).
    - The new provision allows business controls, which create a reliable audit trail linking an invoice to the supply of goods or services (new).
    - All other means (advanced electronic signature and electronic data interchange as defined in the Directive 2006/112/EC) remain valid options (not changed).
- Article 219a of the Directive defines which Member State's rules are applicable to e-invoicing (new). For further information please note the Document reference: B-1 of the Explanatory Notes on the VAT invoicing rules published by European Commission Taxation and Customs Union Directorate General[16]).
- Member States do not have the option to impose other rules to e-invoices (new).
- Where allowed by the Member State applicable legislation, paper invoices can be scanned for electronic storage purposes. However, this does not establish electronic invoices; it is only a legitimate way of storing invoices (not changed).

With the new Directive the Commission aims to reduce the technical barriers and to establish an equal treatment of electronic and paper invoices. However, the prevention of fraud remains of highest priority for all tax authorities.

The VAT Directive (2006/112/EC) and the amending Council Directive 2010/45/EU are applicable to EU Member States only.

9.2 E-business activities of governments in the European Union

Several European Governments have been the first to adopt e-invoicing and eProcurement on a national level.

The standard, most widely used by European Governments and common elsewhere is the Universal Business Language (UBL).

- The UBL Invoice standard has been required by law for the **Danish** public sector since 2005 as mentioned earlier and now 15 UBL documents are translated and supported.
- All **Swedish** national agencies have been UBL-enabled since 2006 and the UBL standard has been translated into Swedish.
- Electronic invoicing in **Norway** will be UBL enabled effective from 2012 and the UBL standard has been translated into Norwegian.
- The UBL standard is the basis for the **ePrior** eProcurement initiative of the European Commission Directorate General for Information Technology.
- Currently the UBL standard is the basis for testing in the PEPPOL (Pan-European Public Procurement Online) Post Award, an EC-funded initiative driven by a consortium of government

14 - http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:189:0001:0008:EN:PDF

15 (not changed) and (new) are used to highlight new provisions

16 http://ec.europa.eu/taxation_customs/resources/documents/taxation/vat/traders/invoicing_rules/explanatory_notes_en.pdf

agencies representing 12 countries (Austria, Denmark, Finland, France, Germany, Greece, Hungary, Italy, Norway, Portugal, Sweden, and the UK).
- As of 1 January 2011, all government agencies in **the Netherlands** are required to accept UBL-based invoices.
- In **Spain**, documents for eTendering and eAwarding based on the UBL library have been legally required for government eProcurement since 2008; these document types are now part of the UBL 2.1 standard.
- Electronic invoicing in **Peru** is UBL enabled and translated into Spanish.
- Electronic invoicing in **Turkey** is UBL-enabled.
- A project of La Camara de Comercio de **Panama** funded by the Inter-American Development Bank (IDB) and intended for use by SMEs throughout **Latin America** has implemented the UBL Order-to-Invoice message scenario.

CNIS (**China** National Institute of Standardization) has created a Chinese language localization of the UBL Common Library for use in developing Chinese UBL-based document types. The UBL standard has been translated into Chinese.

UBL 2.1 freight management documents are being used in European Commission initiatives (Freightwise, DiSCwise and e-Freight) and are being implemented by the U.S. Department of Transportation (Electronic Freight Management program).

Other Countries, such as Japan, have started translating the UBL standard into their national languages.

The following sections show some examples of how European governments are fostering the deployment of e-invoicing. In these cases the governments have taken actions to promote and stipulate e-invoicing, often with a specific focus on SMEs in order to help them with the transition.

9.2.1 The Peppol Project

In the European Union, governments are the largest buyers with purchases that account for around 16 % of GDP, an amount of 1,500 Billion Euro. Although this type of trade is significant, use of electronic procurement is not widespread and faces a series of implementation hurdles.

Recently, EU Member States have expressed a political will to change public procurement significantly. The Manchester ministerial declaration of 24 November 2005 for example states that by 2010 all public administrations across Europe will have the capability of carrying out 100 % of their procurement electronically and at least 50 % of public procurement above the EU public procurement threshold should be carried out electronically.

About Peppol Goals

The PEPPOL project is strongly supporting these targets. PEPPOL, (Pan-European Public eProcurement On-Line) is a European project that aims at linking existing national electronic public procurement systems with a common set of standards and business practices. Thirteen European countries are involved in the Peppol project. They fund 50% of the project costs and the remaining part is funded by the European Commission as a CIP PSP project. The project will end in April 2012.

The vision of PEPPOL is that any company including SMEs in the European Union can communicate electronically with any EU governmental institution for all procurement processes. The objective of the PEPPOL project is to set up a pan-European pilot solution that, conjointly with existing national solutions, facilitates EU-wide interoperable public eProcurement. The final outcome of PEPPOL will be a trading community based on a common set of standards and business practices, supporting the full cycle of eProcurement activities.

The eProcurement process can be divided into two main phases: the pre-award and the post-award phases. The pre-award phase is concerned with identifying and selecting suppliers to provide specific goods or services. The post-award phase is concerned with managing flow of goods and services provided by suppliers selected in the pre-award phase. This process is managed by exchange of information using documents like catalogue, order and invoice, leading to fulfilment, for example, payment.

PEPPOL work and piloting

The Peppol project is organised as a series of work packages with specific scope:

- Pre award eCatalogue
- Post Award eProcurement
- Pilot implementation and support unit
- Solutions architecture, design and validation

More information about the project and its deliverables can be found at www.peppol.eu

9.2.2 e-Invoicing in Denmark – Easy trade by the Danish Government

In 2007 the Danish Government launched a national open eBusiness framework 'NemHandel' (literally 'EasyTrade'), based on a new national service-oriented infrastructure, in order to utilise state-of-the-art open standards to conduct e-Business transactions, business-to-government and business-to-business via the Internet. The national open e-Business framework supports reliable, secure and asynchronous exchange of business messages, e.g. invoices, across heterogeneous networks, including the Internet.

Since 2005, suppliers to the Danish public sector have been required by law to send invoices electronically, which affects approximately 70 % of all Danish businesses.

The 'NemHandel' initiative also aims more widely in a business-to-business context to replace less cost-effective solutions, such as the scanning-based digitalisation of paper invoices, as well as to pave the way for more comprehensive digitisation of a range of eBusiness processes, in order to reduce administrative burdens in Danish businesses.

NemHandel is based on UBL 2.0 (Universal Business Language) as the standard for the definition of their business document formats. OIOUBL is a customisation for Danish business requirements of the international UBL 2.0 standard from OASIS (the Organisation for the Advancement of Structured Information Standards).

OIOUBL[17] was released in September 2009, has been mandatory when invoicing the Danish public sector since May 2011. All public authorities and institutions can receive e-invoices through NemHandel. Private companies also have the possibility to choose to use NemHandel in their relationship with other companies, business to business.

NemHandel solutions fall into three main categories:

- Fully integrated NemHandel-enabled ERP solutions (software or web-based)
- ERP solutions in combination with an open-source NemHandel message handler client
- NemHandel-enabled web-based invoicing portals (Web forms)

The Danish government has developed and made freely available a basic open source NemHandel message handler client available for free download (website in Danish only) and a basic NemHandel-enabled web-based invoicing portal catering to the needs of very small businesses as well as demonstrating the use of the technology.

All other NemHandel solutions are provided by private sector IT vendors and service providers. A number of commercial IT vendors have already done so and others are in the process of integrating the 'NemHandel'

[17] Prior to passing the executive order in April 2010, the Ministry evaluated UBL 2.0 as being the only existing XML-based e-invoicing standard living up to the business requirements of the Danish Public Sector. Download the official statement on the evaluation of UBL and the future plans for the Danish public sector use of e-invoice standards (pdf):

http://en.itst.dk/it-architecture-standards/standardisation/data-standardisation/filarkiv/Official%20statement%20on%20future%20plans%20for%20the%20Danish%20public%20sector%20use%20of%20e-invoice%20standards.pdf

technology into their products so that documents may be exchanged directly between existing IT solutions. Likewise a range of existing commercial Service Providers is looking to connect their individual networks to the NemHandel infrastructure.

Paper invoices can still be sent to a “Read-In bureau” that will scan the invoices and forward them electronically via NemHandel to the public customers. Their services were free of charge for small and medium-sized companies at the beginning of the project. Since July 2010, all companies are charged for the service.

Information for end-users

A targeted website (www.nemhandel.dk - Danish only) provides user-centric information for end-users (especially SMEs) and highlights user experiences through video user statements.

Available for sharing

NemHandel is designed with a view to encourage sharing. The infrastructure is based on open standards and open source and all components are freely available. The Danish government actively promotes and encourages reuse of the components by solution providers and others and participates in various knowledge sharing activities

Some figures about e-invoicing in Denmark

The mandatory use of e-invoicing is estimated to generate savings of 120 Million Euro per year and a cost benefit ratio of 1:10.

The official communications and dissemination campaign was initiated in April 2009. By January 2011, a total of 103,000 businesses had used the NemHandel infrastructure. In one month (December 2010) more than 300,000 electronic invoices were sent to public sector customers through the system. Business take-up is ~ 400 new businesses per week. The savings potential for businesses has been estimated to be EUR €590 minimum per year, and the project is considered on track to realise this potential within 2 to 3 years. [18]

9.2.3 e-Invoicing in Sweden

Governmental sector

The Swedish central government agencies have implemented electronic invoicing since July 1, 2008 following a decision taken by the Swedish government in December, 2006.
The Swedish Financial Management Authority (ESV) is the government agency responsible for the financial management and the development of administrative processes and support for the central government.
In December 2006, ESV finalised framework agreements with two VAN-operators that act as intermediaries between suppliers and government agencies and government agencies and their customers.

There are three options to send the invoices:

- Sending an electronic invoice (UBL based)
- Invoicing portal application
- Scanning paper and OCR transformation into electronic invoices

According to the Swedish authority, the project will generate government savings of € 400 million during the first five years. [19]

Local authorities and county councils/regions

Most of the Swedish municipalities and county councils/ regions have implemented e-invoicing. It is sometimes e-invoicing alone but many have also implemented the whole procurement process with electronic orders and invoices. A joint initiative between the Swedish Association of Local Authority (SALAR), the Swedish Financial Management Authority (ESV) and the Swedish Legal, Financial and Administrative

19 Press release “The government agencies ready to e-invoice on Time” dated 2008 06 12

Service Agency (Kammarkollegiet) has been working for more than 10 years to recommend standards for e-invoicing and e-Procurement. This initiative is called the Single Face To Industry (SFTI, www.sfti.se).

Many VAN services and ERP systems in Sweden have implemented the SFTI standards for e-invoicing and e-procurement. E-invoices are sent both between VAN service providers and through e-invoicing portals. There is no central portal for municipalities and regions; they use different solutions on the market for both the Svefaktura and other invoices.

9.3 e-Business activities of selected industry and trade associations

9.3.1 Automotive Industry – the Auto-gration project

In 2009 the European Commission issued a Call for Tender to launch a project aimed at a better integration of SMEs in the digital automotive supply chains. The contract was awarded to a consortium led by Odette International. The other consortium members are CLEPA, Boost, CECRA, and Inova+.

The auto-gration project aims to develop a universal Collaborative Reference Architecture and to jump-start its adoption by the industry's key players. The broad goal of the project is to make it possible for organisations at all levels of the automotive supply chains throughout Europe to exchange eBusiness data seamlessly, regardless of their locally installed digital infrastructure.

Electronic invoicing is an important component in automotive eBusiness processes and will play a central role in the auto-gration project. The project focuses on a real integration, i.e. the exchange of structured data and the automatic generation/processing of business documents. A simple graphical electronic representation of an invoice will be out of scope.

Whilst the auto-gration architecture will be able to support direct B2B connections between business partners, it takes major account of the common practice of involving 3rd party service providers such as B2B Platforms and Hubs as facilitators for e-business integration. These structures have emerged in both, the automotive supply chain and the automotive aftermarket in the past 10 years and it is now form an essential part of the e-business infrastructure.

With the involvement of Covisint, SupplyOn and TecCom the project counts three large B2B platform providers who have committed to implement and support the auto-gration collaborative reference architecture in their platform services. The auto-gration open architecture is intended to be supported by as many service providers as possible in the e-business area and the auto-gration consortium is currently in discussions with service providers from various European countries with the aim of getting them involved in the validation of the concept and to support the architecture in their solutions.

Auto-gration will present its deliverables – validated by a large number of pilot implementations – at the end of 2011. More information is available at www.auto-gration.eu .

9.3.2 VDA – German Automotive Industry Association

e-invoicing is a high priority topic within the VDA. Due to changes in German taxation law the car manufacturers and large suppliers decided to update their e-invoicing infrastructure and to support UN/EDIFACT messages for invoice data exchange rather than to stick with the currently used VDA messages 4906 and 4908. By using UN/EDIFACT they can stop issuing additional paper based summary sheets as they had to in the past.

This solves only the problem for large companies. SMEs already struggled to implement the rather "simple" VDA messages into their IT systems; there will be even less ability to get connected through UN/EDIFACT. On the other hand the large companies realise that there is a high volume of invoices to be exchanged with SMEs. The general assumption is that traditional EDI solves about 50% of the potential e-invoicing volume. The other 50% remains on paper.

In September 2010 therefore the VDA started a separate project to develop proposals for an e-invoicing infrastructure that covers both the need of large companies for structured data exchange and automatic processing of the incoming invoices and the technical and financial abilities of SMEs. The target is to develop a solution that can be supported and used by companies which use Microsoft Office applications as

well as being a solution for companies with Material Resource Planning system (MRPs) and Enterprise Resource Planning systems (ERPs) as well. Also the integration with external certified public accountants is an issue since often the accounting and processing of invoices is outsourced by small companies to Certified Public Accountant (CPA)s.

The VDA project intends to produce a recommendation by the end of 2011. It will adopt the auto-gration architecture and message syntax.

9.3.3 The SME and electronic Steering Committee within GS1 France

GS1 France is a private organisation which has the mission to standardise technologies that enable secure information exchange between companies. GS1 France was established in 1972 and provides services to more than 30 000 members from more than 20 economic sectors. Its activities cover bar codes, electronic commerce, electronic catalogues and RFID. GS1 France is member of the global organisation GS1.

In July 2009, GS1 France created its “SME and electronic Invoicing Steering Committee”. This Committee is composed of leading members of GS1 France (invoice senders and recipients). The overall objective is to exchange electronically 90% of all invoices of Fast Moving Consumer Goods (FMCG).

More precisely, objectives targeted towards SMEs include:

- To increase awareness of the benefits of e-invoicing for SMEs;
- To support e-invoicing implementation projects;
- To support the adoption of e-invoicing by:
    - Publishing easy-to-read implementation documents;
    - Promoting GS1-certified solution providers;
    - Raising awareness and training to specific target audiences such as accountants, jurists, and service and solution providers.

Specific actions to support SMEs have been conducted such as:

- Development and publication of an easy-to-read guide on e-invoicing “La facture dématérialisée : mes premiers pas” or « my first steps in e-invoicing»;
- Organisation of two conferences on e-invoicing (in Paris and Bordeaux) which were also broadcasted as videoconferences in four Chambers of Commerce to reach smaller SMEs;
- Provision of a biannual newsletter targeted towards SMEs. Its table of contents comprises business cases from GS1 members and news. First issue was in June 2010;
- Publication of indicators by product sectors that show the volume of invoices exchanged between suppliers and retailers;
- Creation of a training module targeted towards SMEs including micro enterprises to help those companies to implement e-invoicing;
- Numerous communication activities and working sessions on e-invoicing covering such subjects as the evolution of the changes in the European legislation or technical developments or legal framework in collaboration with the French chartered accountants association (IFEC), jurists through their association AJE, with the Ministry of Finance and Economy, etc.

Continuous relationships are maintained with solution providers. GS1 France awards certificates to the solutions that comply with interoperability standards and the French legal e-invoicing framework.

9.4 eBusiness activities of LTPs to promote e-invoicing

The results of different studies[20] show that the proven accelerators for the introduction of e-invoicing are the following:

- Free IT-tools or solutions for the smaller partners to create, transmit and send electronic invoices;
- Guaranteed faster payments;
- Supporting material such as solution documentation, user manuals, legal documentation;
- A service desk for all electronic invoicing related questions.

[20] PriceWaterhouseCoopers 2008, Osservatorio Fatturazione Elettronica e Dematerializzazione – Politenico di Milano 2009

Sometimes taking into account the considerable technical requirements of e-invoicing the benefits are often only available to the LTPs, who often act as the senders of invoices or the issuers of self-billed invoices. In particular, if the recipient is an SME then the benefits are not as obvious on the SME side. LTPs are an important factor in improving the advancement of electronic invoicing with SMEs.

The below mentioned actions can be taken by LTPs to assure the benefits of e-invoicing for SMEs and to provide the SMEs with an appropriate permanent "e-invoicing toolbox" in order to foster the acceptance and deployment of e-invoicing by SMEs. In this context "e-invoicing toolbox" means a set of easily installable, usable and affordable software tools and additional information material for e-invoicing that lowers the threshold for the adoption of e-invoicing. Some of the tools are described in section 8. These actions are not onerous for the LTPs since they generate cost benefits for LTPs while supporting the implementation of e-invoicing processes by SMEs:

- LTPs lobby for e-invoicing solutions that exceed all expectations of both, the LTPs and SMEs.
- LTPs support the creation of standardized and simple to use e-invoicing modules (for instance specialised APIs for their ERP or MRP system) and solutions.
- LTPs support a SME-friendly and VAT-compliant e-invoicing solution with focus on business controls, which create a reliable audit trail between an invoice and a supply of goods or services.
- LTPs coordinate and steer within their business sector respectively among different business sectors the use of a limited number of data formats which are compatible and interoperable.
- If LTPs are sending invoices to SMEs or SMEs are sending invoices to LTPs then LTPs take responsibility with fiscal authorities in the SME-country for a ruling that the applied e-invoicing solution is in accordance with the respective national VAT-law.
- LTPs require their chosen service providers to participate in e-invoicing service networks (4 – corner model) or, in the 3 – corner situation, require their service provider to help the SMEs in the on-boarding phase and post on-boarding phase in order to abolish all obstacles on the way to a win-win situation.

LTPs often select a dedicated service provider for e-invoicing matters. If the offered e-invoicing solution or service meets the above mentioned requirements the on-boarding process for SMEs can be accelerated and eased.

10 Recommendations for future actions

In section 7 and 8 it was explained how a successful implementation strategy for e-invoicing can be organised and what technologies are the most advisable for SMEs to adopt.

This section addresses factors which can enable the e-invoicing environment to be improved in order to better tap into the potential benefits of adoption and to provide harmonised solutions for national and cross-border invoice exchanges. The target audiences are industry organisations, business partners, standardisation bodies and service providers.

10.1 Standards for structured e-Invoices

Although helpful, there is no real need for a standard format for plain text or PDF invoices. Some of the documents for international trade such as the EU Single Administrative Document (SAD) follow the UN layout rules and it is advisable to use these layout rules as a guideline for the design of cross-border invoice documents.

The situation is different for structured messages. In these cases the message has to be rendered by a computer program and every variance causes additional effort. Probably the most common standard in use for Supply Chain Messaging is UN/EDIFACT (Electronic Data Interchange For Administration Commerce and Transport) which has been developed as a UN/CEFACT standard for more than 20 years. The UN/EDIFACT INVOIC message (the standard message for invoice data) is widely used by large companies. However, implementation of the UN/EDIFACT syntax requires highly specialised knowledge and software, which is usually expensive to acquire. Therefore UN/EDIFACT has not found its way into SME infrastructures.

Within the past ten years XML has also become a popular syntax to exchange messages. All modern programming languages and operating systems support XML. However, since the publication of the W3C

recommendation a wide variety of XML exchange structures have been developed for e-invoicing. One of them, the Universal Business Language (UBL), is now used by several EU and non EU governments for invoice data exchange with public bodies.

The popularity of XML has driven a new requirement to provide XML standards to facilitate interoperability. In recent years UN/CEFACT has developed the Core Component Library (CCL) using the meta-data standard Core Component Technical Specification (CCTS), which is ISO TS 15000-5. The purpose of the CCL is to provide re-usable building blocks for information which can be reused consistently in various information exchange systems.

Based on the CCL, a set of message models for supply chain transactions have been developed. Among them is the Cross Industry Invoice (CII). A CEN Workshop has developed a Core Invoice[21] Message User Guideline (MUG) which provides the data model for the most common invoice components used across various industries. It provides guidelines for the use of the CII along with UN/CEFACT XML schema as an example for implementers. One of the goals of the CWA is to enable a semantic mapping between this common model and the various formats of structured data (including XML) that are implemented and in use for electronic invoicing. Through such a mapping a better interoperability between the different exchange formats can be achieved.

However, each transformation requires extra effort and adds complexity to the system. Since a large number of different formats are in use, a reduction to a small number of common format specifications (if not one), i.e. standards, could make it much easier for an SME to get started with structured data exchange and to address the majority of their customers (especially the large enterprises) with one common format.

As defined by legislation and also based on their market power, buyers (i.e. invoice recipients) have a big impact on the invoice format used for electronic invoicing. Some of the most major buyers from large and small enterprises in the EU are the governments. If these buyers would speak in the same (data) language, i.e. if they would require the same invoice format across Europe, it would certainly accelerate the adoption of e-invoicing. Examples of projects which address this issue are the aforementioned PEPPOL and the CEN BII Workshop. However, the Commission and the governments of the Member States have a specific responsibility here.

Meanwhile the SME will have to decide which one of the various standards to select and use. The following statements may help with this decision:

- If an SME is a buyer; then it should check what is happening in its business sector or Member State. Many organisations exist to provide advice specifically on business messaging; these include GS1, Odette, EDIFICE, SWIFT etc.
- If an SME are a supplier; then it needs to discuss with its buyers which standards they can accept. The new VAT Directive states that an e-invoice must be accepted by the recipient, which ultimately means that the buyer must accept it.

Adopting the right approach can offer maximum interoperability and contribute to convergence. Therefore it is best to avoid making short-term decisions which may not maximise the future benefits.

For more information on e-invoicing in the EU; CEN has a website http://www.e-invoice-gateway.net/. See also CWA 16462 CEN e-Invoice Gateway.

10.2 e-invoicing modules for Standard Software Applications and APIs

The majority of SMEs will use computer systems to generate invoice documents, whether they are finally produced as paper or as an electronic document. The programs in use vary widely, starting with office suites (word processors, spreadsheets and databases) up to complete ERP systems. However, usually these systems do not have a specific e-invoicing functionality meeting all legal, technical and operational requirements as discussed in earlier sections of this document.

One way to contribute to a wider adoption of e-invoicing amongst SMEs would be the availability of specialised e-invoicing modules that can be used as plug-and-play add-ons to the existing software systems used by SMEs. The plug-and-play add-ons could then interact with the different ERP or invoice generation systems through a standardised API. The large pool of potential users should make these modules cheap

[21] The use of the term ‘Core’ here is not to be confused with its use in UN/CEFACT Core Component Library

and affordable for SMEs and still be profitable for the software vendors.

10.2.1 Integration Strategy

The scope of this section is limited to how Web enabled APIs could be used to exchange e-Invoices as part of a Supply Chain Workflow such as between the disparate systems of suppliers and buyers. In this scenario it only makes sense if the data exchange consists of structured information such as in XML format. For a basic implementation of an e-invoice scenario such as PDF (or even signed PDF) an API is not necessary as it cannot easily become part of a system to automate the business process, which maximises benefits.

In the past, APIs were generally limited to applications running on the same computer or the same internal network. This meant that remote API communications usually required specialist intermediaries which added to the expense of linking supply chains. Currently with the prevalence of broadband Internet, business APIs can be transparent to users. Every time you upload or download data to a website you are effectively invoking an API which usually parses and/or stores the contents of the file as well as transporting it. A standardised formal approach is usually necessary which typically involves storing and forwarding the data and optionally transforming it from the sender's format to the recipient's required format.

10.2.2 Logical layers of an e-invoicing module

Three logical layers can be distinguished:

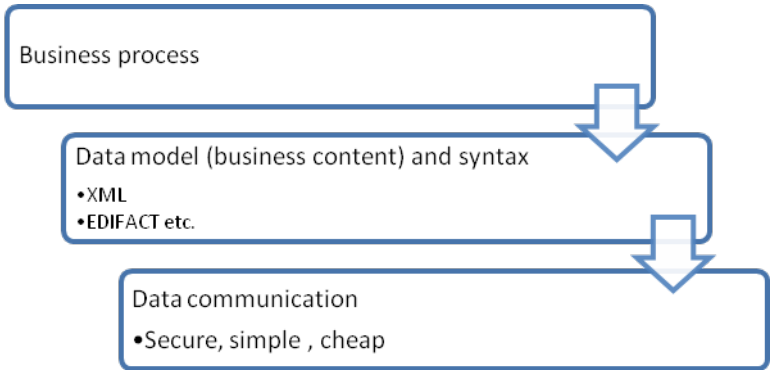


Figure 5 - The three logical levels of an e-invoicing module

Business process layer

Usually, when pursuing business process integration, the invoice is not a standalone document, but embedded within a whole business scenario. This scenario can include order messages, delivery instructions, delivery notes and receiving advices in addition to the invoice document.

This is the highest layer and may incorporate functions or web operations which are part of the business process specific to an organisation or to an industry sector. For example, it defines which business scenarios or processes shall be supported, in what industry context the exchanges happen and similar considerations. Although this document mainly discusses the requirements of the e-invoicing process, this does not exclude such a module from being used for other structured business messages as well.

Within the scope of this document, the functions covered are the issuing of e-invoice messages from the invoicing system (ERP or other e-invoice generation solution) including sending and storing them by the sender and the receiving, processing and storing of e-invoices by the recipient. These functions would be included as part of a sophisticated Business Process Interoperability (BPI) system. The CEN BII project provides profiles which tie the content layer with the business process layer. This can then form the basis of Web Service operations.

Content layer

This layer defines the data model (business content) of business documents and the actual syntax used for data exchange. The CEN MUG project provided a core e-invoice data model, which can be used to define

business requirements according to industry, regional and business process requirements (see http://www.cen.eu/cen/sectors/sectors/ISSS/Activity/pages/mug.aspx). This core e-invoice may not cover all the requirements of every business sector in every Member State but can cover the majority of scenarios and provide data which is compliant with the new VAT Directive.
Those sectors which are not fully catered for can engage with their representative business association to identify the required extra data elements in the CCL and to extend the core e-invoice subset.

The decision as to which syntax is to be used depends on various factors. Among these factors are national or industry sector requirements. For future systems XML is likely to be preferred due to the better integration with software development tools.

The content layer should also provide the means to validate a message instance against a set of validation rules so that compliance with tax and business requirements can be ensured before sending and after receiving.

The communication layer

This layer covers the transmission from sender to recipient. It can be assumed that the public Internet is the preferred network infrastructure for data communication for SMEs. However, additional measures for security are likely to be required. As discussed in chapter 8.4.2 various different file transfer or mail transfer protocols are currently used or may be chosen. Since these protocols are part of established data exchange infrastructures and as an SME may have to be interoperable with existing solutions, the communication layer should be flexible enough to support different protocols.

A state of the art technology for applications to interact across the Internet is the technology known as Web Services. Web Services form part of what is called the Service Oriented Architecture (SOA). This means that instead of simply dealing with the transmission of data, the system also deals with actions such as ‘send invoice’, ‘get invoice’, ‘get acknowledgement’ etc. Sufficient security can be provided by using credentials such as username/password or digital tokens (e.g. digital certificates) along with the standard web security protocol such as used in HTTPS.

10.2.3 Functional Specifications

An e-invoicing module will have to provide a number of functions in order to cover all business and legal requirements. These functions are shown in Figure 6.

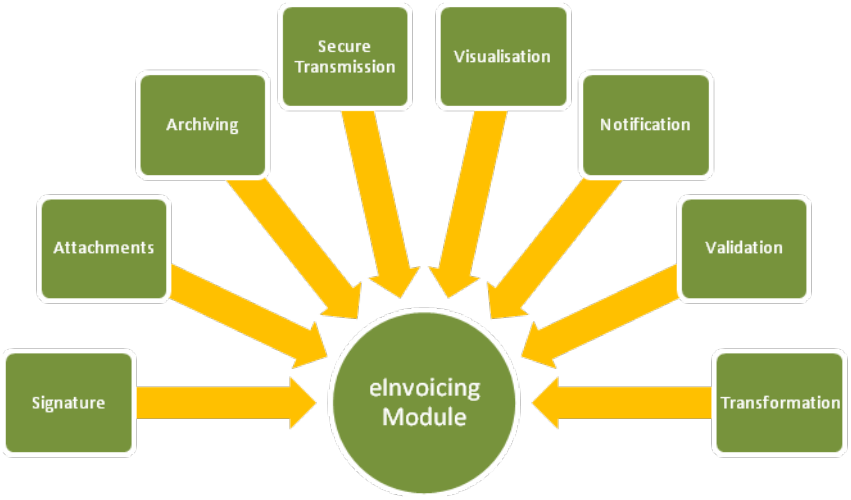


Figure 6 - Functions of the e-invoicing module

Storage – e-invoices must be stored in such a way that the authenticity and integrity of the content is maintained for the whole storage period.

Attachments – in many situations the invoice document must be accompanied by supporting documents,

such as timesheets, site measuring etc.

Notification - every automated system should provide the ability to notify a user or administrator in case of exceptions or errors. In addition, notifications can be used to provide information about pending steps in the process (the signing of messages or the attachment of files).

Secure transmission - security includes the protection of the content against access/alteration by unauthorised 3rd parties and ensuring the authenticity of both sender and recipient. See also the explanation of the communication layer.

Signature - an e-invoice module must allow the signing of outgoing messages and the validation of the signatures in incoming messages when used as a means of providing technical evidence of authenticity and integrity,.

Validation – is used to check the validity of the technical format and the content of an e-invoice before sending and directly after receiving.

Visualisation - since structured messages are not usually readable by human beings, provisions have to be made to convert the structured message into a human readable format. This also provides a fall-back solution for the sender in case the automated processing of the received messages does not work.

Transformation – if the software system cannot generate or process the technical format used for data exchange, a transformation of the proprietary format of the software system into the exchange format is necessary.

This complete set of functions can be integrated into one application but it is more likely to be established by linking specialised applications together.

A new way of providing e-invoicing modules is through cloud computing. The term cloud computing describes the situation where the application is hosted on a server in the Internet. There are several potential advantages compared with traditional locally hosted applications. The user does not have to provide the hardware, scalability supports growth in business requirements, software maintenance is centralised and the software can be deployed multiple times. This allows for the economy of scales and may further reduce the costs or effort for the end user.

Communications between the ERP or invoicing software and the e-invoicing module can be conducted through an API. This is a commonly used way for computer systems to exchange information with each other and to call remote functions. The technology of Web Services may be preferred since it allows the integration of different software systems on a local computer, in a local (IP) network or through the Internet. An example for such a Web Service definition is provided in annexe 12.4.

10.3 Recommendations for the removal of e-invoicing barriers

Recommendations to trade associations and SME associations

- Continuing the use of existing business controls will often be the appropriate way to ensure the authenticity and integrity of e-invoices. The controls that are already established and in use for paper invoices will probably be sufficient for this purpose. The business controls should be appropriate to the size, activity and type of taxable organisation and should take into account the number and value of transactions as well as the number and type of suppliers and customers[22] .
- Digital signatures and EDI are valid options for ensuring authenticity and integrity of invoice data, as defined in the Directive 2006/112/EC, even where business controls do not suffice. eCommunity member organisations should identify which VAT compliant storage solutions are suitable for their environment and business processes.
- Adoption of e-invoice standards by any eCommunity will encourage Service Providers and e-invoice Solution Providers to invest resources to create innovative solutions to support the implementation of e-invoices and other related supply chain business messages. According to research conducted by the Politecnico Milano this measure alone could increase the cost benefits of invoicing electronically

[22] TAXUD explanatory notes – October version

by up to a factor of ten.
- Service Providers should be selected by eCommunity member organisations on the basis of their proven support of interoperability agreements and e-invoice standards.
- Trade and SME associations could engage with eBusiness standards-setting organisations that specialise in their sector. This may help with their technical issues and help to ensure the future maintenance and development of the developed sectoral standards.
- Message Implementation Guidelines should be developed, maintained and published at a sectoral level which can be used to ensure that message semantic content and context is unambiguously defined and fully understood so that interoperability occurs more easily within that sector.

Recommendations to e-invoice Service Providers

- e-invoice Service Providers should adopt the Model Interoperability Agreement (CWA 16464-2) as developed by the CEN Workshop to ensure the maximum possible interoperability for SMEs thus rendering the SMEs investment profitable and perennial.
- e-invoice Service Providers should agree on and use an open standard e-invoice format so that their users are not locked into a proprietary format. This format can be an industry standard, a national endorsed standard or, when available, an EU widely accepted standard. Meanwhile a semantic mapping to the UN/CEFACT CII data model should provide a semantic content model which can help to increase interoperability with other structured invoice data formats. This will help Service Providers invest in innovative value-added services which offer potential savings in the supply chain.

Recommendations to governments and larger organisations

- The larger buyer organisations, including governments, will have the biggest influence – this is guaranteed by the new VAT Directive which requires acceptance by e-invoice recipients. Therefore governments and larger businesses could help to ensure that the systems and processes that follow best practices and commercial terms are ultimately adopted. Faster adoption increases the Return On Investment for the investment made by governments and larger businesses. This may require a phased approach as many larger organisations have already invested heavily in systems which cannot easily be changed to facilitate the new recommendations. However the greater the consensus on message transport protocols and data formats, the more beneficial it will be for all involved in the long run.
- Governments and larger organisations should be aware of the costs which are sometimes pushed back on suppliers and which are particularly problematic for smaller SME suppliers. The total cost of ownership of an e-invoicing system at the SME side should be less than the current costs incurred for the traditional paper-based invoicing process. If an SME is convinced of the savings that e-invoicing can offer then they are more likely to respond well and invest resources in implementing a successful system.
- Governments and larger organisations should support an infrastructure where e-invoicing service providers are interoperable and acting in a competitive way. The SME as invoice issuer should have the liberty to choose the most appropriate Service Provider for them and should not be forced to choose a specific service provider which is mandated by a larger business partner (or even worse, having to use different Service Providers for different larger business partners).
- While there are very many existing e-invoice formats, CEN recommends the use of standards-based structured invoice data for electronic invoicing, which maximises the benefit for SMEs. This is in keeping with the recommendations of the Final Report of the Expert Group Report on e-invoicing. Using their influence to facilitate the adoption of a European recommended standard for the Sector or Member State, governments and larger organisations can enable the maximising of the benefits for all sizes of trading partners.
- Governments and larger organisations should keep their requirements as simple as possible. If they want to receive structured data, restricting their requirements to the absolute minimum necessary data set, will enable even simple invoice generation systems to cope with them with minimum extra investment requirements.

Other important considerations

- e-invoicing data must be stored and stored according to national law. In theory these laws should be consistent throughout the EU but some Member States may require the original form to be saved.
- Be aware that the e-invoice issuer and the e-invoice recipient remain responsible for the archive, whether or not they use a third party service provider.

- Whether or not an organisation is ready to support all the e-invoicing recommendations it should be remembered that they are not all the recommendations are mutually dependent. For example, a phased approach could introduce Interoperability Agreements in your sector before implementation of the recommended e-invoice format.

Recommendations to the European Commission

It is recommended to further support the development of e-invoicing solutions based on open standards that are royalty free. Open source reference implementations can help to achieve interoperability as they can be used by specialised Software Providers to quickly integrate these into their solutions and they may be used as stand-alone applications for e-invoicing as well. The Intellectual Property Rights should be managed in such a way that they allow every interested party to reuse, implement and enhance the components (for example, European Union Public License or Common Development and Distribution License) and that its documentation is royalty free (for example, Creative Commons).

- As already mentioned in section 10.1 the public procurement sector as the largest customer in Europe has a special responsibility to use standards in their communication with their suppliers. A further harmonisation of e-invoice formats used in public procurement is strongly advisable. The European Commission could use their power as policy-maker to further promote this harmonisation. This harmonised solution should cover the whole procurement process.

- Considering the emerging nature of the e-invoicing market, the European Commission's actions should primarily be aimed at the raising of awareness, the promotion of the adoption of e-invoicing by all economic actors and the setting up of a framework fostering innovation, competition and the effectiveness of e-invoicing services.

- The regulatory part of the e-invoicing framework should allow for sound business models on the one hand and aim at avoiding the creation of monopolistic positions by Service Providers on the other hand.

Recommendation to the e-invoicing national fora

- It is essential that the implementation of key components of e-invoicing systems is supported by the national e-invoicing fora which have been established by the Member States. They should promote and provide localised versions of the available standards, components and related documentation. They also play a key role in creating awareness and organising support and training where necessary.
- The national fora should play a role in spreading the word to the SME associations and vice versa in providing feedback for further improvement of the e-invoicing infrastructure.
- The national fora can be a major entry point for communication with the tax authorities when clarification of the applicability of specific solutions regarding their compliance with the VAT legislation is necessary.
- The national fora should provide comprehensive information on specific national requirement such as may arise from using the different options for storing e-invoices as specified in the Directive 2010/45/EU.

11 Conclusions / Summary

With the introduction of the Directive 2010/45/EU the European Commission strongly supports the equal treatment of paper invoices and e-invoices within the European Union. This is with regard to the means to ensure the authenticity of origin and to prove the integrity of content.

The Member States are obliged to adopt this Directive in their national legislation by 1.1.2013. This will significantly harmonise the legal e-invoicing environment throughout the EU and foster the deployment of e-invoicing. One intended goal of the Directive was to provide better opportunities and conditions for SMEs to use e-invoicing as a means of achieving greater integration into their business processes and to improve their competitive position.

If an SME intends to start with e-invoicing activities, the following questions should be answered:

- Is the SME free to choose the e-invoicing scenario, formats etc. or does their business environment enforce specific solutions?
- Which e-invoicing technology is the best choice to meet their objectives and their external circumstances?
- If an e-invoicing Service Providers will be used, which would be the best choice?
- Which benefits can be gained by the implementation of e-invoicing?
- Do the anticipated benefits justify the expected cost for migration from paper-based invoicing?
- Are there any internal and/or external barriers that could hamper the deployment of e-invoicing and if there are then how can these barriers be eliminated?
- Do the existing IT-system and business processes, including storage solutions, provide secure and reliable audit trails? If not, which changes need to be introduced??
- What will be the impact of e-invoicing on the daily operations of the business, especially with regard to accounting, materials management and IT and how will it be ensured that any changes in human resource tasks will not hamper the validity or execution of necessary processes?

In order to get a broad picture of the SME-specific e-invoicing environment, the SME should strive during its analysis phase for an open, comprehensive and honest dialogue with the following e-invoicing stakeholders:

- suppliers
- customers
- tax advisers
- e-invoicing specialists
- e-invoicing Service Providers
- fiscal authorities

Realistically planned project management is crucial to the success of the adoption of e-invoicing.

12 Annexes

12.1 Matrix of documents that can be used to create audit trails

	Integrity												
Sales Process Audit Trail & Master Data	VAT ID Supplier	Seller (Name + Address)	Buyer VAT ID	Buyer (Name + Address)	Invoice Date	Date of Supply	Invoice Number	Nature of Supply	Quantity	Taxable Amount	VAT Rate	VAT Amount	Currency
Order-to-Cash (goods)													
Sales Contract	✓	✓		✓				✓		✓			✓
Sales Order	✓	✓		✓				✓	✓	✓			✓
Goods Dispatch Note	✓	✓		✓		✓		✓	✓				
Invoice					✓								
Cash Recipt				✓			✓			✓		✓	✓
Buyer Master Data			✓								✓		
Material (Supply) Master Data											✓		
Pricing Master Data										✓			
VAT Determination Data											✓		
Other business controls							✓					✓	
Order-to-Cash (services)													
Service contract	✓	✓		✓	✓			✓		✓			✓
Billing Schedule / Timesheets / etc	✓	✓		✓		✓		✓		✓			✓
Invoice					✓								
Cash Recipt				✓			✓			✓		✓	✓
Buyer Master Data				✓									
Material (Supply) Master Data													
Pricing Master Data													
VAT Determination Data											✓		
Other business controls							✓						
Invoice-to-Cash													
Sales invoice requisition	✓	✓		✓				✓	✓	✓			✓
Invoice					✓								
Cash Recipt				✓			✓			✓		✓	✓
Buyer Master Data													
Material (Supply) Master Data													
Pricing Master Data													
VAT Determination Data											✓		
Other business controls							✓						

For more details on the matrix, see CWA on compliance.

12.2 Checklist of e-invoicing Readiness

Checklist for the introduction of e-invoicing for Incoming invoices (A. I-IN) and Outgoing invoices (B. O-IN) for SMEs					
This checklist defines the typical phases and decisions of an e-invoicing implementation project for fully automated end-to-end integration of structured invoice data.					
Question	Answer	Comments	Actions to be taken	Responsible person	Deadline
1 DEFINE THE SCOPE					
1.1. Consider both immediate and near future needs					
1.1.1 List current and potential suppliers who are e-invoicing capable and who are already using or planning to use structured e-invoice formats	Incoming invoices of SMEs (A. I-IN)				
Supplier name	e-invoice Format				
1.1.2 List current and potential customers who are e-invoicing capable and who are already using or due to use structured e-invoice formats	Outgoing invoices of SMEs (B. O-IN)				
Customer name	e-invoice Format				
Question	Answer	Comments	Actions to be taken	Responsible person	Deadline

1.1.3 Is the planned eBusiness capability (eventually) going to include;			
orders / order response / order change	A. I-IN	YES	NO
	B. O-IN	YES	NO
despatch advice	A. I-IN	YES	NO
	B. O-IN	YES	NO
remittance advice	A. I-IN	YES	NO
	B. O-IN	YES	NO
commercial accounts statement	A. I-IN	YES	NO
	B. O-IN	YES	NO
utility specification / metered services consumption report	A. I-IN	YES	NO
	B. O-IN	YES	NO
other document(s)	A. I-IN	YES	NO
	B. O-IN	YES	NO

1.2 Identify pilot trading partner(s)		Number capable	
Key questions to consider:			
1.2.1 How many of your business partners are currently capable of e-invoicing?	A. I-IN		
	B. O-IN		
1.2.2 Which of these business partners would be the best pilot candidate(s)?	A. I-IN	YES	NO
	B. O-IN	YES	NO

2 ASSESS CAPABILITY			
Consider the following list of questions both internally and externally with the pilot trading partner(s):			
2.1 Does the planned e-invoicing solution require specific IT-skills?	A. I-IN	YES	NO
	B. O-IN	YES	NO
2.2 Are these skills available?	A. I-IN	YES	NO
	B. O-IN	YES	NO
2.3 Are external resources needed?	A. I-IN	YES	NO
	B. O-IN	YES	NO
2.4 Others	A. I-IN	YES	NO
	B. O-IN	YES	NO

Question	Answer			Comments	Actions to be taken	Responsible person	Deadline
3 IDENTIFY YOUR TECHNICAL NEEDS							
Define your requirements							
Based on the outcome of the Capability Assessment, the following factors should be considered:							
3.1 Which transport mechanisms will need to be supported?							
Network (Public Internet / VPN / X400 / other)	A. I-IN	YES	NO				
	B. O-IN	YES	NO				
Specialised Service Provider	A. I-IN	YES	NO				
	B. O-IN	YES	NO				
Point to point file transfer (AS2, OFPT2, RASP, FTP, Secure FTP, FTPS)	A. I-IN	YES	NO				
	B. O-IN	YES	NO				
Web Services (LIME, AS4, BUSDOX, other)	A. I-IN	YES	NO				
	B. O-IN	YES	NO				
File up and download from or to a webportal	A. I-IN	YES	NO				
	B. O-IN	YES	NO				
Plain eMail	A. I-IN	YES	NO				
	B. O-IN	YES	NO				
Registered eMail (ETSI TS 102640)	A. I-IN	YES	NO				
	B. O-IN	YES	NO				
Other	A. I-IN	YES	NO				
	B. O-IN	YES	NO				
3.2 Software							
3.2.1 Do the existing system(s) or ERP provider have the capability to provide or integrate a module to allow e-invoicing?	A. I-IN	YES	NO				
	B. O-IN	YES	NO				
3.2.2 Is there a specific communication module necessary and, if so, is it available?	A. I-IN	YES	NO				
	B. O-IN	YES	NO				
3.2.3 Are you going to use Open Source?	A. I-IN	YES	NO				
	B. O-IN	YES	NO				

Question	Answer	Comments	Actions to be taken	Responsible person	Deadline
4 OUTSOURCING, IN-HOUSE OR, LIMITED IN-HOUSE CAPABILITY					
After defining the requirements, the company should decide how to implement its chosen solution, considering the options described below.					
4.1 Outsourcing to a specialised Service Provider (SP)					
4.1.1 Has the SP knowledge of the e-invoice formats to be used and have they any necessary certifications?	A. I-IN YES NO				
	B. O-IN YES NO				
4.1.2 Has the SP signed an interoperability agreement as defined by CEN WG3 CWA?	A. I-IN YES NO				
	B. O-IN YES NO				
4.1.3 Are the fees and the commercial conditions transparent and appropriate?	A. I-IN YES NO				
	B. O-IN YES NO				
4.2 Services provided by the SP					
4.2.1 Has the SP the capability to issue and send or receive e-invoices?	A. I-IN YES NO				
	B. O-IN YES NO				
4.2.2 Can the SP provide storage services?	A. I-IN YES NO				
	B. O-IN YES NO				
4.2.3 Is the storage service compliant to ETSI TS101533/1 (secure storage)	A. I-IN YES NO				
	B. O-IN YES NO				
4.2.4 Has the SP the capability to exchange the invoice data directly with the ERP / Invoice system(s), if needed?	A. I-IN YES NO				
	B. O-IN YES NO				
4.2.5 List other e-invoicing Services that are required?					
	A. I-IN YES NO				
	A. I-IN YES NO				
	A. I-IN YES NO				
	A. I-IN YES NO				
	B. O-IN YES NO				
	B. O-IN YES NO				
	B. O-IN YES NO				
	B. O-IN YES NO				
4.3 In-house Capability Check					
4.3.1 Do you require;					
4.3.1.1 data translation software?	A. I-IN YES NO				
	B. O-IN YES NO				
4.3.1.2 guidance on how to setup the communication software (for sending and receiving files)?	A. I-IN YES NO				
	B. O-IN YES NO				
4.3.1.3 training and implementation support?	A. I-IN YES NO				
	B. O-IN YES NO				
4.3.2 Can you begin with a 'one-to-one or one-to-a-few' solution, allowing a low cost start with a limited number of trading partners?	A. I-IN YES NO				
	B. O-IN YES NO				
4.3.3 Is there an 'off the shelf' solution available that fulfils most of your requirements?	A. I-IN YES NO				
	B. O-IN YES NO				

Question	Answer	Comments	Actions to be taken	Responsible person	Deadline
5 ORGANISATIONAL ISSUES					
Once you have decided on an e-invoicing platform (software / hardware or solution provider) and have chosen 'pilot' trading partner(s) who are e-invoicing capable, then the e-invoicing implementation stage can begin.					
5.1 Define and document responsibilities for running the e-invoicing-system	A. I-IN YES NO				
	B. O-IN YES NO				
5.2 Sign an agreement with your trading partner to use e-invoicing	A. I-IN YES NO				
	B. O-IN YES NO				
5.3 Have areas of fiscal responsibility between all involved traders / trading partners and their Service Provider(s) been defined and agreed?	A. I-IN YES NO				
	B. O-IN YES NO				
6 DETAILED DATA REVIEW					
In this implementation phase the following key actions should be taken:					
6.1 Define a list of data that must be transmitted on the e-invoice	A. I-IN YES NO				
	B. O-IN YES NO				
6.2 Ensure all mandatory invoice information will be transmitted and can be obtained from the internal system for O-IN or can be processed by the internal system for I-IN.	A. I-IN YES NO				
	B. O-IN YES NO				
6.3 Discuss any special processing requirements (discounts, freight or other charges)	A. I-IN YES NO				
	B. O-IN YES NO				
6.4 Check data field sizes with pilot trading partner(s) to ensure compatibility	A. I-IN YES NO				
	B. O-IN YES NO				
7 REVIEW BUSINESS CONTROLS					
Business Controls that are necessary for correct business management. They are a key issue from a fiscal viewpoint too, but the extent of their implementation varies in practice. In this regard the Guidelines issued by the European Commission Directorate-General Taxation and Customs Union – TAXUD state: "The business controls should be appropriate to the size, activity and type of taxable person and should take account of the number and value of transactions as well as the number and type of suppliers and customers. Where relevant other factors should also be taken into consideration."					
7.1 Has a suitable set of Business Controls been defined and set up (if appropriate together with the service provider)?	A. I-IN YES NO				
	B. O-IN YES NO				
7.2 Are the internal staff aware of their tasks to apply business controls under the changed conditions?	A. I-IN YES NO				
	B. O-IN YES NO				
8 CUSTOMER SET-UP AND DATA MAPPING					
Set up the communication software so that transmission of e-invoices to the selected pilot partner(s) is enabled.					
If necessary set up the translation tables to convert internal data into the agreed exchange format and vice versa.					
Test your setup with a test message exchange to verify the quality and compliance of the implementation.					

Question	Answer			Comments	Actions to be taken	Responsible person	Deadline
9 CUSTOMER SET UP AND CROSS-REFERENCING							
The supplier's and customer's systems may adopt different coding systems to identify goods, services, etc. in such cases it would be necessary to link the two parties' codes by, for example, adopting cross referencing.							
9.1 Are the master data and identification systems used by both trading partners aligned and up to date? This relates to trading partner`s identification and product, goods, services, currency information, etc..	A. I-IN	YES	NO				
	B. O-IN	YES	NO				
9.2 Is a maintenance process defined to update these master data according to subsequent changes and to keep the necessary history information?	A. I-IN	YES	NO				
	B. O-IN	YES	NO				

12.3 Agreement on e-invoicing

Agreement on exchange of electronic invoices between:

Invoice sender:	Invoice recipient:
Name: ……	Name: ……
Address: …….....	Address: …….....
……..	……..
……..	……..
Partner identification number (e.g. GLN):	Partner identification number (e.g. GLN):
……..	……..
VAT Number: ……	VAT number: ……

Country of despatch: ……
[repeat country of despatch and corresponding VAT Number as many times as countries of despatch]

Referred to in the further document as "*partners*"

Preambles
Both partners agree to exchange electronic invoices as part of their business transactions. This agreement documents the consensus of invoice issuer and invoice recipient with respect to invoice format, way of transmission and responsibilities arising from using e-invoicing.
The invoice sender confirms to provide all information required by the applicable VAT law. The additional business information will include the necessary references to establish reliable audit trail form the supply to the invoice, where applicable (details to be provided in the annexe, if necessary).

Scope of the e-invoicing
The e-invoices cover the following invoice document types:

Invoice/credit notes/debit notes/self-billed invoice/other [specify]: ……

The invoice sender agrees to receive return documents in the same format (e.g. debit notes or credit notes). [Delete if not applicable]

The e-invoices are exchanged for the following types of transactions:
……
[specify goods or services, production material, etc.]

The following types of transactions are excluded and will still be exchanged as paper documents:
……..
[specify if necessary]

The partners agree to exchange electronic invoices in the following format:
……..
[PDF, text, signed PDF, XML, etc.]

If necessary, provide further technical specifications as an annexe to this agreement.

Transmission
The invoice data/file will be transmitted using the following technical means and protocols:
……..
[specify the appropriate means like: email, registered email, Web Service, OFTP2, Web portal applications, etc.]

Means to ensure authenticity and integrity

- Each partner will apply the business controls to establish a reliable audit trail from the supply to the invoice as appropriate to the size and type of their own business.

Electronic signatures are used with the following specifications [as applicable]
……..
[specify details as necessary]

- Identification and security means embedded in the transmission protocol:
  ……
  [specify details as necessary]

Technical address information:
Sender: …… Recipient: ……..
[provide email address, URI/URL, station identification, etc. as required by the communication protocol]

Other technical specifications:
……..
[specify here or refer to an appropriate annexe if necessary]

Receiving notifications
The invoice can be considered as transmitted (to be made available to the recipient) when the
……..
[specify the means used to acknowledge the receiving, like implicit protocol acknowledgment, explicit receiving acknowledgment, none]

Storage
Both partners understand their responsibilities to comply with the storage requirements as applicable to their location of business.

Contact information

Invoice sender	Invoice recipient
Electronic matter contact person	Electronic matter contact person
Name: ……	Name: ……
Telephone number: …….....	Telephone number: …….....
Email address: ……..	Email address: ……..
Technical contact person	Technical contact person
Name: ……	Name: ……
Telephone number: …….....	Telephone number: …….....
Email address: ……..	Email address: ……..
Accounting contact person	Accounting contact person
Name: ……	Name: ……
Telephone number: …….....	Telephone number: …….....
Email address: ……..	Email address: ……..

Frequency of exchanges of electronic invoices
Daily/weekly [specify on which day]/monthly [specify on which day]
[if applicable]

Contingency solutions
Specify the alternative in case of failure of any of the above-described process components:
……..
……..

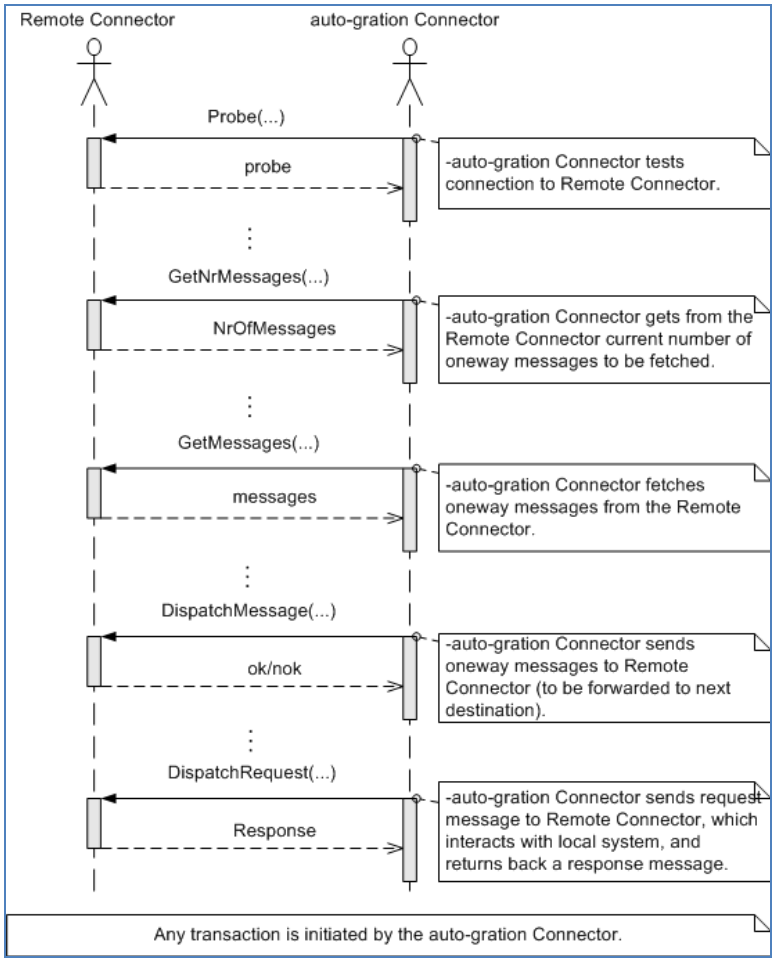
Test phase
For a test phase, partners agree to conduct parallel invoice exchanges (paper and electronic form) starting on [date]. During this test period, the paper invoice will be the original invoice. After the successful finish of the test phase, both partners will agree in writing to go live and stop sending paper invoices. From this date only electronic invoices will be accepted by the recipient. .

Date: ……
Place of signing: ……
Sender: Recipient:

12.4 Example of a Web Service specification for data transmission

This annexe is targeting system developers.
The following example explains how a Web-Service can be used to transmit files between two partners. Remote Connector refers to a computer acting as server and auto-gration Connector refers to a computer acting as client only (e.g. at SME's site). All transactions are initiated by the client.

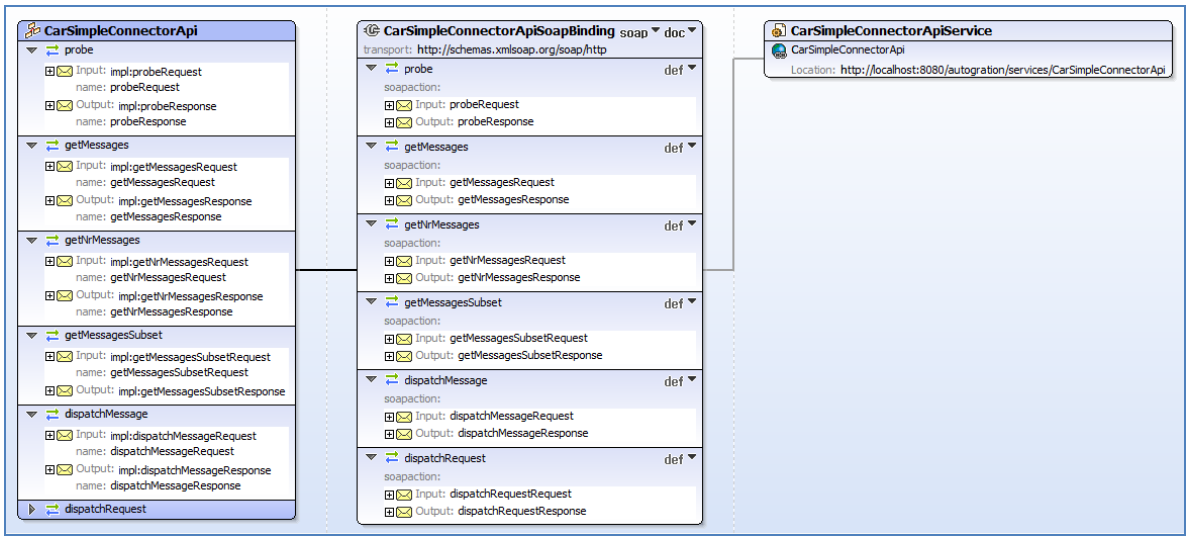
An open source implementation is available at http://www.auto-gration.eu/downloads/software .



Functions of the Web-Service:

- **Probe:** to test the connection from the client to the server
- **GetNrMessages:** to check, whether messages are available for download and get the number of messages available messages
- **GetMessages:** to download available messages from the remote server to the local system
- **DispatchMessage:** to send a message from the local system to the remote server

The service is implemented as CarSimpleConnectorApiService:



The technical details are further described in a Web Service Description Language (WSDL) file. This file can be downloaded from
http://www.auto-gration.eu/downloads/technical-specifications/CARSimpleConnectorAPI.wsdl

Bibliography

Council Directive 2006/112/EC of 28 November 2006 on the common system of value added tax as amended by Council Directive 2010/45/EU of 13 July 2010;

94/820/EC: Commission Recommendation of 19 October 1994 relating to the legal aspects of electronic data interchange (Text with EEA relevance).