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Analysis of Business Requirements for e-Invoicing in a Public Procurement Context

Final Study

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1.1	09/03/2009	Final review by interviewees	Chapter 4, 5 and 6

1. INTRODUCTION

1.1. Purpose of this document

This final report is the final delivery of the second part of the Preparatory Phase of the IDABC e-Invoicing and e-Ordering project.

This document is intended to be read by

- All parties involved in the initiation and management of the "IDABC e-Invoicing and e-Ordering for public procurement project", including in particular, members of
 - DG MARKT
 - DIGIT
 - IDABC – PEGSCO
- All staff and contractors engaged in the execution of this project
- The Commission's Expert Group on Electronic Invoicing

1.2. Overview

Introductory Chapters

These chapters introduce the reader to the objectives and approach of the study.

Study Core Chapters

These chapters provide the reader with the core elements of the study.

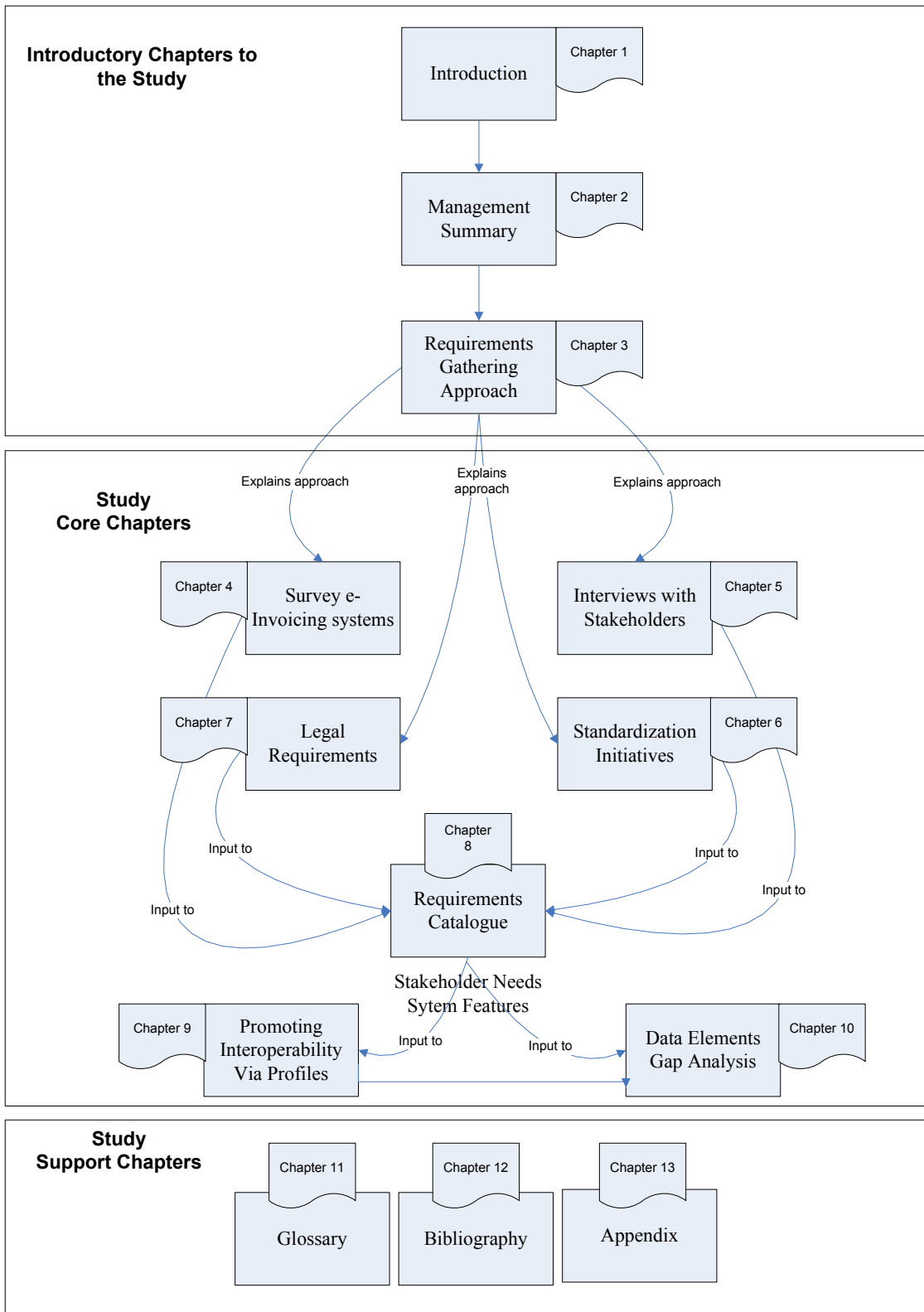
The reader may follow the outlined chapters' structure, starting from Chapter 4 to Chapter 8, or follow an alternative reading path. For example, the reader may start by reading Chapter 7 to become familiar with the e-Invoicing and e-Archiving legal requirements and only afterwards read the Chapters on the e-Invoicing solutions and standardisation initiatives.

Chapter 8 should be read after Chapter 4, Chapter 5 and Chapter 7. Readers not acquainted with the several standardisation initiatives should also read Chapter 6 before.

Chapter 9 and 10 provide information on the Profile approach to Interoperability and the Data Elements GAP analysis between NES/UBL Basic Invoice and the EC business requirements

Study Support Chapters

These chapters provide the reader with additional information on the study's core chapters. These chapters are to be consulted throughout the reading of the document.



2. MANAGEMENT SUMMARY

The IDABC e-Invoicing and e-Ordering project started in the summer of 2007 as a joint initiative from DG MARKT and DIGIT. The overall project objectives are twofold: a first objective is to contribute to the use of electronic invoicing in the public sector in line with the objectives of the i2010 e-Government action plan and the e-Procurement action plan. A second objective is to help establishing the European Electronic Invoicing Framework (EEI), which is under the responsibility of the Expert Group on e-Invoicing (see http://ec.europa.eu/internal_market/payments/einvoicing/index_en.htm for more information).

First, business requirements for e-Invoicing in a public procurement context and cross-border environment are gathered. As a result, an interim report with the identified business requirements was provided in spring 2008 to DG MARKT. This report is the final deliverable of this study.

Second, a pilot project has been launched to setup an e-Invoicing and e-Ordering system between DIGIT and a number of suppliers. After having finalised the feasibility study, DIGIT started the development of the proof-of-concept, which is run as a pilot in the beginning of 2009. In the first phase suppliers will only send invoices and later on the dispute and credit note process will be implemented. It is estimated that by the end of 2009 the e-Ordering process will complete the pilot.

Both the requirements gathering study and the pilot project are being managed as one project, where the identified business requirements are used as input to the pilot, and where practical results from the pilot serve as input to this study.

One of the main project principles was not to re-invent wheels. Therefore, where possible, much of the work done by NES/UBL and UN/CEFACT was re-used and interim deliverables of the requirements study as well as deliverables from the pilot project have been shared with other e-Invoicing initiatives, such as the Commission's Expert Group on e-Invoicing, the IDABC Expert Group on e-Procurement, the CEN/BII workshop and the PEPPOL consortium, in charge of the CIP large scale projects on e-Procurement.

This principle also explains why the scope of the project changed slightly during its course. Instead of following the ISO20022 modelling methodology to define data elements – as UN/CEFACT already had launched this process – the project team decided to replace this by making a more practical gap analysis. This gap analysis compared the business processes and data elements of the invoice as required by DIGIT to what is

available in NES/UBL. The identified gaps are discussed with CEN/BII and will lead to a number of improvements to their specifications.

As a side-product of the requirements analysis, a number of observations were made:

- Overall, there exist several different solutions which all can support e-Invoicing and e-Archiving for public administrations in Europe today. Some go through banks, others via service providers, others have own systems. The majority of those systems work in a local environment, and are connecting suppliers to public administrations of one Member State. Currently, there is a lack of cross-border interoperable solutions; however important work is done in this area by CEN, PEPPOL, the European Commission and the Expert Group on e-Invoicing.
- The business requirements between small/medium and large suppliers are not so different: both need to receive orders and send invoices, both might need to refer in the invoice to a purchase order or contract, both need to settle incorrect invoices, both have to comply with the VAT requirements for e-Invoicing and e-Archiving... However, the way to connect to these groups of suppliers might require different approaches. While large suppliers have own or outsourced IT teams and are capable of setting up a fully integrated solution, SMEs seem to have a larger need for support and in overall terms, a steeper learning curve. This support includes documentation and guidelines, but also tools, such as e-Invoicing portals or standard connectors, that must be easy to use and not expensive.
- Some public administrations enforce or will enforce by law, suppliers to send their invoices electronically, while others tend to follow a softer approach by encouraging suppliers to embrace their e-Invoicing solution and by demonstrating a clear win-win situation. The two approaches can work, it mostly depends on the specific environment, and similar cases are currently being carried-out by private companies or solution providers, where an opt-out strategy is used instead of an opt-in.

Finally, we would like to thank everyone that participated to this study.

3. REQUIREMENTS GATHERING APPROACH

In order to identify and document the business requirements, four work packages are foreseen in the work plan for this study as explained in the Preparatory Report:

- (1) Requirements gathering
- (2) Detail the business requirements
- (3) Model the business processes
- (4) Model the data elements

(1) Requirements gathering

For the Requirements gathering, a number of sources are investigated:

- Survey of e-Invoicing systems in Europe, with a focus on e-Invoicing systems as they have been implemented by several national public administrations in Europe
- Interviews with stakeholders, to gather information on business requirements and validate assumptions generated.
 - National public procurement agencies
 - Large companies
 - SMEs
 - IT and financial service providers
- Legal requirements: an overview of the VAT requirements, concluding with a summary of the minimal and maximal requirements relevant to system development.
- Other sources: existing material from other e-Invoicing or standardization initiatives.

(2) Detail the business requirements

The stakeholder requests gathered in work package 1 are registered in a Requirements Management tool, analyzed, and consolidated into a number of needs with related systems features. The outcome of this requirements management process is the requirements catalogue, which can be found in chapter 8.

(3) Model the business processes and model the data elements

Contrary to what was mentioned in the Preparatory Study, the ISO 20022 methodology will not be used to model the business requirements and data elements, as the UN/CEFACT standardisation body already has plans to do so and it is in the interest of everyone not to duplicate efforts. Instead, starting from an existing standard (NES/UBL), a gap-analysis between this standard and the identified business requirements will be made.

4. SURVEY E-INVOICING SYSTEMS

The following table summarizes the e-Invoicing systems that were analyzed. The investigated e-Invoicing systems operated in a Business-to-Government context.

e-Invoicing system	Status
Denmark	Interviewed + visited
ESA	Interviewed + visited
Finland	Interviewed
Iceland	Interviewed
Spain	Interviewed
Sweden	Interviewed
UK	Interviewed

A number of other public sector parties provided useful input:

Party	Status
Belgium	Interviewed
France (EDI France)	Interviewed
Switzerland (Swiss DIGIN)	Interviewed
Hungary	Written input
Norway	Desk research
Italy	Desk research
Latvia	Desk research

4.1. Description of the e-Invoicing systems

4.1.1. Denmark

4.1.1.1. *Contact persons*

Contact
Helle Schade-Sørensen
Peter Borresen
Cathrine Lippert

4.1.1.2. The solution

Organisational Viewpoint

The main driver for the rollout of the Danish procurement solution is the adoption of a regulation on February 1st 2005, mandating the private sector to send all invoices to the public sector in via electronic means.

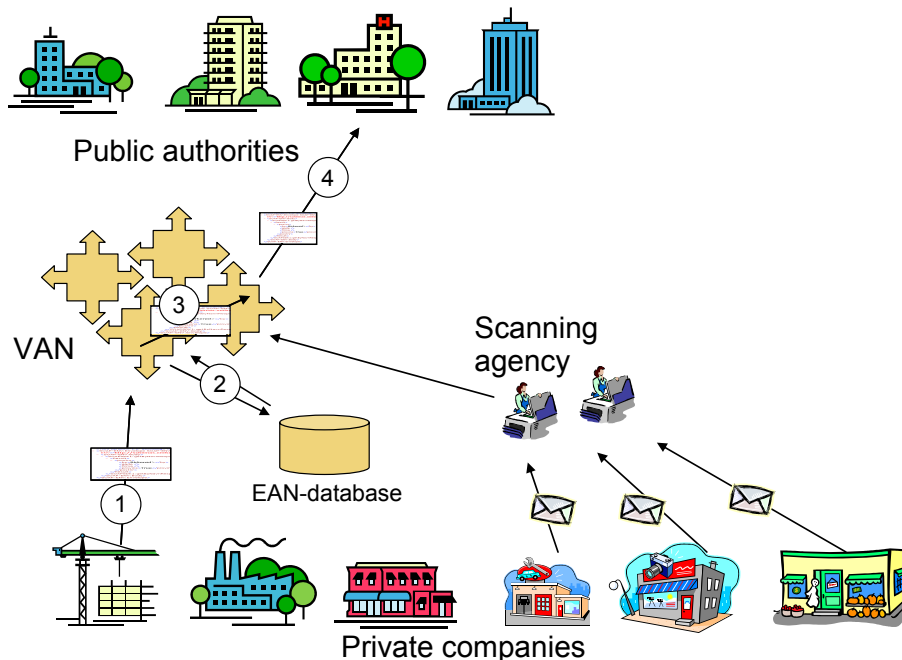
As a result, currently, over 200.000 companies are exchanging more than 1.000.000 invoices per month with public sector institutions. The main benefit of e-Invoicing is a time saving of 12 to 20 minutes per invoice, resulting in potential yearly cost saving of approximately EUR 500.000.000.

End 2007, the Danish government decided to make the use of open standards mandatory for all IT solutions in the public sector. The goal was to create a competitive and open market for software systems which can interoperate easily. This decision resulted in the design of a national SOA based infrastructure with OIOUBL as message format.

Processes and functional Viewpoint

VANS-based solution

Large companies connect via a gateway to a VAN to send their electronic invoices to public administrations, while SMEs may use e-Invoicing portal solutions or scanning agencies. This eases the adoption of e-Invoicing by SMEs.



To make use of the services provided by scanning agencies, SMEs send the paper invoice to a scanning agency, as opposed to sending it directly to the public administration. The scanning agency scans the paper invoice, creates a TIFF file and with the help of OCR an electronic invoice in XML format will be created and sent to the public administrations

over a VANs network. In case of scanning or recognition errors, these will be resolved by manual intervention. The scanning agencies have a processing time of maximum 5 days.

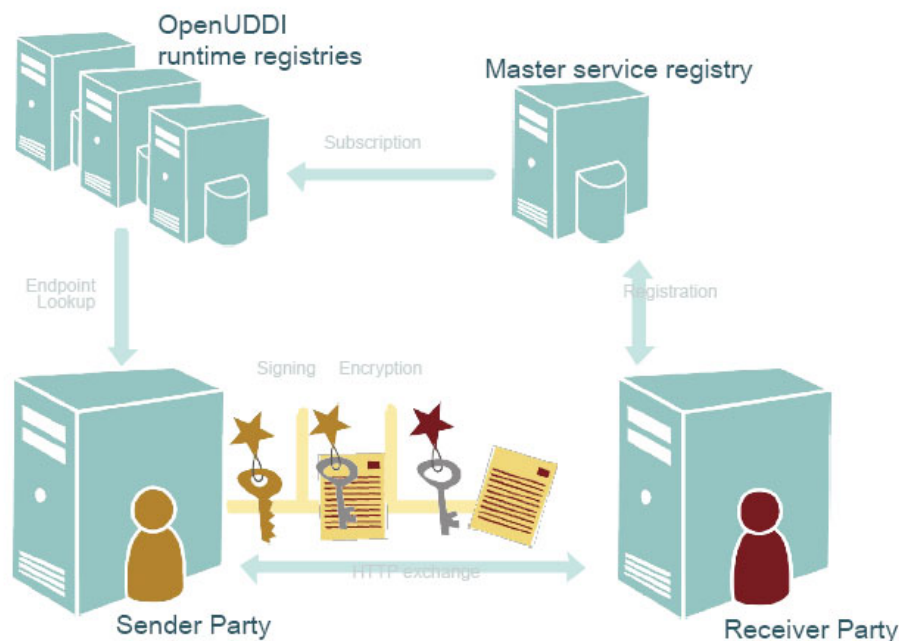
SMEs can make use of scanning agencies for free, as the scanning agencies are paid by the public administrations at 3€ per scanned invoice. Large companies can also use this system but have to pay this cost themselves. To increase further the adoption of a full e-Invoicing process, scanning will be discouraged by e.g. charging this cost also to the SMEs. As of July 2009, the scanning agencies will no longer be paid by the public administration.

SMEs can also subscribe to private e-Invoicing portal solutions, where they can use a web form to submit invoices, and the e-Invoicing portal solution will create and send the e-Invoice to the public administration in XML format.

Today, about 70% of the e-Invoices are sent directly via a VANs network, about 30% via scanning and only a small part via the e-Invoicing portals.

SOA-based solution

To be part of the Danish SOA-based solution, companies need to register their electronic endpoint (e.g. email address or an application URI) with the Danish IT and Telecom Agency. Subsequently they receive a digital certificate and will be listed in a service registry based on the UDDI standard. Upon completing the registration, companies can send their invoices electronically by using applications based on web services technologies.



An open source toolkit is available to support companies integrating their systems into the network. Alternatively a company can choose to buy a commercial product. Finally,

for facilitating the adoption by SMEs, an open source message handler has been made available that can be used to process their invoices without additional cost.

Use of standards

Originally, the VANs based solution was based on the exchanging of e-Invoices in the OIOXML format, based on UBL 0.7. The new SOA based solution uses OIOUBL, which is an updated customization for Danish business requirements of OASIS UBL 2.0 standard.

As part of standardization, profiles are used to define generic e-Business capabilities. They can include a description of the business processes supported by the profile.

Legal Viewpoint

A legal framework has been set up to take care of contractual issues. All companies involved have to sign multilateral agreements which enable organizations to exchange electronic procurement messages.

In the SOA-based solution, signatures are part of the infrastructure as they guarantee trust and security over the network. Building blocks for message level security are in place but not yet completely integrated in the solution. Invoice traceability guarantees safety.

Technical Viewpoint

The HTTP and SMTP transport protocols are supported. SMTP is used to facilitate the adoption of e-Invoicing by SMEs, however SMTP is less reliable than HTTP.

A validator makes sure that documents are well-formed, malformed documents will not pass the validation step. The validation tools are also delivered to the clients helping them doing a check at their side.

To stimulate adoption and further improvement of the electronic procurement solution, an open source toolkit and message handler has been developed by the Danish government. These tools are made available for free. The additional benefits are that extra features may be added over time and the digital evolution is stimulated in the Danish industry.

4.1.1.3. More information

For more information, see

- <http://www.itst.dk>
- <http://www.nesubl.eu/>
- <http://www.oio.dk/?o=a54bd5e3b9e3e94209f94882ac0c9301>
- <http://www.oes.dk/sw353.asp>

- <http://www.virk.dk/VirkPortal/site/VidenOgVaerktoej/Oekonomi/TemaElektroniskFakturering.aspx>
- <http://www.oioubl.info>
- <http://www.dkma.dk/1024/visUKLSArtikel.asp?artikelID=4639>
- http://archive.cabinetoffice.gov.uk/egov2005conference/documents/proceedings/pdf/presentation_ps7.pdf
- http://www.egov-iop.ifib.de/downloads/Interoperability_in_e-Invoicing_in_Denmark.pdf
- http://uk.bane.dk/visArtikel_eng.asp?artikelID=3390

4.1.2. ESA

4.1.2.1. *Contact persons*

Contact
Erfried Erker

4.1.2.2. *The solution*

Organisational Viewpoint

EFIS (ESA Financial and Invoicing System) is an internet based supplier portal that is designed by ESA to facilitate its contract management and invoicing processes. In being Europe's gateway to space, ESA deals with a high number of suppliers. The majority of these circa 1500 highly specialised companies or institutes within the European Space Cluster are SMEs, very often with ESA as their only or most important client. Particularly for these companies, typically positioned at lower tiers of complex contractual consortia, swift invoicing and timely payments are key. Therefore ESA has decided to create a financial and invoicing system that can deliver transparent contract management and payment details. The system currently covers 99% of all invoices against ESA contracts and 95% of all ESA expenditure (invoicing against Purchase Orders are mainly paper-based).

Due to the large nature of contractors, the system makes use of consortium contracting which makes a distinction between prime contractors and subcontractors. ESA has only direct contact with the prime contractor. The system however contains detailed information about the specifics of subcontracting. The prime contractor is responsible for the issuing of electronic invoices. When a subcontractor submits an invoice electronically, the prime contractor can approve it in the portal and automatically create a forward invoice to ESA. A subcontractor can also choose to submit paper invoices to the prime contractor. The prime contractor then must submit the invoice electronically on

behalf of the subcontractor. The subcontractor loses the advantage of traceability of his invoice by not using the EFIS system himself. Traceability is the main driver for adoption by companies and because of the interesting advantages associated herewith, nearly all subcontractors are using the EFIS system.

There are 3 main advantages for the adoption of EFIS. The first is that the electronic invoicing is faster and more efficient than paper invoicing. The second is that EFIS introduces traceability about the status of the invoicing process. This results in an acceleration of time to payment because every stakeholder can identify who is responsible for taking action on an invoice. Therefore non-payment becomes a non-issue. This prevents certain players in the overall value chain from pushing the responsibility to other actors. As already stated, timely payments are paramount for the space clusters. The third advantage is that EFIS enables financial planning based on real time corporate financial data. Additional advantages are that the EFIS system is flexible and provides secure and controlled access to the invoicing process.

Processes and functional Viewpoint

Submission of invoices is done via the EFIS web portal which users can access over HTTPS using a username and password for authentication.

The submission of invoices takes place in real time. However, invoices submitted by subcontractors have to be approved by the prime contractor before they can be processed further, but in the mean time they are visible in the system.

Mistakes in invoices cannot be rectified after being submitted, but on the same day the invoice can be withdrawn. To be able to withdraw an invoice, a supplier has to insert an audit message which is kept together with the data of the withdrawn invoice. Nothing that is submitted to the system will be deleted to provide a clear audit trail of all actions that have taken place on the system.

The dispute of invoices is possible via the rejection and approval process built into the system. In the system there are several states which an invoice can be in. These states are visible to all users of the system and comments belonging to a state change can be consulted (for example the reason for rejection).

Use of standards

The EFIS solution is a web portal that interfaces with a database administered by ESA. This makes it a proprietary system which is not based on a standardised data format.

Legal Viewpoint

All contractual data present in the EFIS system is based on paper documents. Changes to contracts are also approved in paper; however, contractual change notices can be triggered via EFIS electronically through the consortium to ESA. In addition, invoice-related data changes (supplier details, bank information) can be generated into a fax or

letter template inside of EFIS. The documents once printed are submitted off-line for security reasons on paper or fax. The result is that upon reception of the paper document, the updated information can then be processed in ESA electronically from the EFIS version instead of retyping it from fax or letter.

In the EFIS system, the supplier still has to include invoices in its own invoicing system.

Archiving of invoices is done for a minimum of 8 years. During the time of archiving, invoices are consultable online by the users of the system. Invoice reports can be made and downloaded for example in Excel format.

Technical Viewpoint

Electronic signatures are not used in the system. The security relies on user authentication via username and password over a secure HTTPS connection. According to the law, this is not EDI, not electronic signatures, but “other means” of security.

4.1.2.3. More information

For more information, see

- <http://efis.esa.int/>

4.1.3. Finland

4.1.3.1. Contact persons

Contact
Jere Reinikainen
Pirjo Ilola

4.1.3.2. Solution

Organisational Viewpoint

The Finnish public administrations are using an e-Invoicing system where they process all invoices through one dedicated and selected service operator. This service operator currently is Itella, a postal services company. Suppliers can send their invoices directly to Itella or they can choose to address Itella via a web portal by Basware or via a VAN operated by Finnish banks. Invoice formats supported are TEAPPS and Finvoice. For Public Administrations there is a governmental recommendation on the usage of electronic invoices. All new contracts signed between government agencies and suppliers

mandate the use of e-Invoices. However, suppliers with an old contract can send paper invoices to the service operator which will scan them and convert them into electronic invoices. The main driver for using an e-Invoicing solution was cost savings. Each year public administrations receive 3 million invoices and send 40 million invoices. Currently 35% of all invoices are being received electronically. Especially big companies prefer the format of the electronic invoice as it can contain very detailed information.

Processes and functional Viewpoint

The service operator collects all e-Invoices that need to be sent to the public administrations. Suppliers can send their invoices to this service operator, enter them via a web portal or send them through the VAN operated by the Finnish Banks.

Customers receiving and sending e-Invoices can fetch each other's addresses from the e-Invoice address service maintained by Tiede which is the Finnish Information Society Development Centre. The site lists the company name, identifier data and the intermediary codes.

Use of standards

When selecting the formats to be used for e-Invoicing, the Finnish public administrations decided to adopt standards that existed in the marketplace and had already proven their value.

The Finvoice format is designed by Finnish banks since 2000. It is an XML format which according to Finland is based on ebXML-compliant descriptions and the use of SOAP and the ePI standard. The Finvoice electronic invoice implementation guidelines and the DTD, XSD and XSL are freely available to the public.

According to the Finvoice standard, an electronic invoice comprises three parts:

- A transmission frame containing the information required for invoice forwarding
- A specification containing the information required for approval and accounting
- A payment proposal containing the information required for payment

Finvoice is designed for online communications between the invoicer to the invoicee via a banking institution. When the Finvoice is forwarded using the electronic invoice forwarding service of the banks, the recipient can be sure of the authenticity of the sender, and the sender gets proof that the invoice has been delivered to the recipient.

TEAPPS is an industry format created by the Finnish company TietoEnator and is widely used between operator intercommunications in Finland.

Legal Viewpoint

From a security viewpoint, the network is based on EDI. Additionally in the VAN the banks are using, the banks establish an agreement with both the sender and the receiver

of the invoices where they agree on the terms used during invoicing. The security, auditing and logging of the network is handled by the banks. The benefits of this secure banking network are that the recipient can be sure of the authenticity of the sender and the sender gets proof that the invoice has been delivered to the recipient.

Regarding cross-border transactions, there are currently several experiences ongoing, e.g. mapping with solutions of Denmark and Sweden. However, as in Finland electronic signatures are not used, this may become a problem for interoperability, especially outside of the Nordic area.

Technical Viewpoint

The Finvoice guidelines are available for free to the public including stylesheets to display and print invoices. To facilitate these functions and further electronic processing, an archiving program and guidelines are also available for free.

4.1.3.3. More information

For more information, see

- The Federation of Finnish Financial Services: www.fkl.fi
- Finvoice: <http://www.finvoice.info>
- Itella: <http://www.itella.com/>
- Basware: <http://www.basware.com/>

4.1.4. Iceland

4.1.4.1. Contacts

Contact
Bergþór Skúlason

4.1.4.2. Solution

Organisational Viewpoint

In 2001 Iceland has implemented the Oracle e-Business solution, which is currently being complemented with the reuse of the Danish e-Invoice experience. The connection between the suppliers and the public administration is currently done via a consolidator

platform. Iceland is currently studying the implementation of a direct point to point solution with its suppliers. This is believed to lower the cost and spread e-Invoicing to more suppliers. The use of cross-border transactions is also planned as Iceland is participating in the CIP project (Competitiveness and Innovation Framework Programme) that includes this goal.

During the e-Invoicing roll-out, paper and electronic invoices will coexist. The reason is that the Icelandic law currently only foresees EDI as a way to exchange e-Invoices and EDI may not be practical for SMEs.

Regarding e-Procurement, an electronic marketplace called *ANZA Procurement Portal* is live in Iceland. This application is operated in collaboration with IBX (a Swedish company operating similar marketplaces in other Nordic countries). The Ministry of Finance and Ríkiskaup play an active part in the further development of the portal, giving special focus to the creation of tools, which are to promote both the private and public sectors' use of e-Commerce. Thus the focus of the portal is for the time being the development of facilities addressing the after-contract stage, such as ordering and invoicing.

Iceland is currently participating in the NES project. The ultimate goal of the project is that by 2009 all invoices are sent to the Icelandic public administrations via electronic means. Iceland is also liaising with large buyers in the private sector, so they can also receive invoices electronically from the involved suppliers.

Processes and functional Viewpoint

The invoices are received from an intermediary who uploads them via an FTP channel into the public institutions' application. Different invoice formats can be sent to the intermediary where they will be converted to the NES format.

Use of standards

NES is used as a standard. Invoices are sent to an intermediary who converts the message to the NES format. Regarding the usage of coded values in the e-Invoice, EAN numbers are used as Legal Identity Number and UNSPSC numbers are used in the classification of goods.

Iceland is part of the CEN BII workshop and is actively participating in the further development of the NES standard.

Legal Viewpoint

Currently the Icelandic law only foresees EDI as a way to exchange electronic invoices.

Technical Viewpoint

Suppliers send the invoices to an intermediary which converts them to the NES format and passes them to the Public Administration via FTP. The use of web services is planned for 2008.

4.1.4.3. More information

For more information, see

- <http://www.icepro.is/Pages/FrontPage.aspx>

4.1.5. Spain

4.1.5.1. Contact persons

Contact
Maria-Jesus Garcia-Martin

4.1.5.2. The solution

Organisational Viewpoint

Facturae is originally an initiative by the Spanish Banking Association and the Spanish Tax Agency. The original name was "AEAT-CCI". In 2007, the Ministry of Industry, Tourism and Commerce (MITYC) and the Spanish Tax Agency renamed it to "Facturae". By 2008 all Spanish central public administrations will be mandated by law to receive invoices electronically from their suppliers and by 2009 regional and local administrations. The usage of scanning agencies is not foreseen, but a number of free tools will be available online to facilitate adoption by SMEs.

In parallel to the Facturae initiative, another Spanish government project exists by the Ministry of Economics and Finance. The name of this project is CODICE (Interoperable Components and Documents for e-Procurement). This initiative currently only covers electronic procurement processes such as tendering and ordering. CODICE is based on the UBL standard. A customization of the Facturae format to UBL 2.0 (named CCI UBL) is currently in progress.

Processes and functional Viewpoint

This section focus on the MITYC solution which is a web-based e-Invoicing portal for suppliers to manage their invoices. Some supported functions are the submission and retrieval of invoices, status consultation, workflow management and the export of invoices.

The Spanish regulation EHA/962/2007 foresees the usage of either EDI or electronic signatures to ensure the authenticity of origin and integrity of content of e-Invoices. Other means must be authorised by the *Director del Departamento de Inspección Financiera y Tributaria*. Only some industries use EDI. Electronic signatures are frequently used and are also mandatory for the exchange with Public Administrations. XML Advanced Electronic Signatures (XAdES) are used in the Facturae solution.

Use of standards

The Facturae format is based on the AEAT-CCI format originated by the Spanish Banking Association and the Spanish Tax Agency. The current version of the Facturae standard is 3.1. It is defined by an XML Schema (XSD) and uses electronic signatures according to the XAdES standard to guarantee security.

Since the current format is not aligned to the ebXML Core components and UBL there is an ongoing initiative named CCI UBL, which is a customization of the Facturae format to the invoice format of UBL 2.0.

Legal Viewpoint

It is mandated by law that Spanish public administrations receive all invoices electronically from their suppliers by 2008 (for central administrations) and by 2009 (for regional and local administrations).

To ensure the authenticity of origin and integrity of content of e-Invoices, the Facturae initiative is currently using XML Advanced Electronic Signatures (XAdES). Additionally, there are plans to adopt e-Signatures according to the XAdES-X-L standard, which adds certification path data and revocation status data to XAdES.

Technical Viewpoint

The Facturae solution by MITYC provides a web-portal that offers Web Services over a secure HTTPS channel. These Web Services are described using WSDL and published via UDDI registries. All messages are signed certificates which must be compliant with the standards provided by MITYC.

Detailed technical information and free software for the management of e-Invoices are available online to support suppliers to implement a compatible solution.

4.1.5.3. More information

For more information, see

- <http://www.facturae.es/>

4.1.6. Sweden

4.1.6.1. *Contacts*

Contact
Kerstin Wiss Holmdahl
Peter Norén

4.1.6.2. *Solution*

Organisational Viewpoint

The Swedish Association of Local Authorities and Regions (SKL) and the Swedish National Financial Management Authority (ESV) jointly work for the promotion of electronic procurement in the Swedish public sector. The joint activity takes place under the name of SFTI: "Single Face To Industry". Since 1995 it has mostly been based on the whole procurement process, from ordering to invoicing and mostly EDI with EANCOM/EDIFACT. But in spring 2003, SFTI initiated a working group with the goal of developing a simple electronic invoice message and transport protocol which would be suitable for introducing electronic invoicing to new companies, notably the smaller ones and those with a limited number of invoices per business relation. The result of the endeavour was an invoice XML standard, based on a subset of UBL 1.0, named Svefaktura and also a transport protocol – SFTI Transportprofil Bas – based on ebXML Messaging Services.

The role of SFTI is to promote and disseminate identified standards, and support good practice implementation based on them. In this work representatives for private companies (suppliers and software providers) participate in a collaborative spirit. SFTI does not provide any specific technical solutions (portal, software, etc) instead the commercial parties procure their solutions on the open market. As there are additional private initiatives on e-commerce standardisation, third party services have an important role to play in linking the commercial parties.

At national level, central government agencies are mandated from 1 July 2008 to handle their invoices electronically. Billing systems used by the agencies have support for e-Invoices. All supplier invoices are handled in workflow applications since July 1 2008. All intra-government invoices are both sent and received electronically. In February 2009 roughly ten per cent of the supplier invoices from private companies to central government are received electronically and the rest on paper is scanned to still enable an electronic workflow. The goal is to reach 30 per cent electronic invoices from private companies within a year after introducing e-Invoicing. The government agencies use a common infrastructure for e-Invoicing based on framework agreements provided by ESV. ESV also has been commissioned by government to lead and coordinate implementation. An important part of the work is to inform the government's supplier to make supplier connection easier for individual government agencies.

Regarding local authorities and county councils, there is instead of a common platform several ICT providers' solutions supporting the recommended standards from the public sector.

General drivers for e-Procurement from the start in the 1990's have been reducing costs in the administration. More recently the political goals (i2010) and the National Action plan for e-Government have made e-Procurement a high priority. From an operational perspective, the key factors for success are the support and commitment by stakeholders and the availability of resources. There were several obstacles to the large scale roll-out of the e-Invoicing solution. One obstacle is the lack of resources and knowledge to undertake a project in several public administrations. Another obstacle is that there are several e-Invoicing standards used by different industries and sectors in Sweden, not just a single one. However, it is strongly recommended to use common standards at the public administrations' level. Finally, since it is not mandatory for the private companies to e-Invoice the public administrations it has been necessary to show them incentives to start using e-Invoicing. e-Invoicing should therefore be further promoted. To make supplier connection easier different entities in the public sector are cooperating in their contacts with suppliers, sharing resources and getting higher attention. According to Sweden, the benefits of the solution are that e-Invoicing is easy, time can be saved, and payment time can be reduced and predicted. Besides that it gives suppliers a competitive advantage in tenders where sometimes the capability for e-Invoicing is a requirement.

Cross border transactions are not excluded, but has not been the main focus till recently. However, Sweden is actively participating in the development of international standards because it will make them better prepared for cross-border transactions and because it stimulates a wider market for ICT providers with solutions that support e-Invoicing. Possible barriers for cross border transactions are different interpretations of the e-Invoicing European directive and consequently the different requirements on electronic signatures across Europe. In Sweden there is no legal requirement to use signatures for e-Invoices nor are existing solutions using signatures. For Swedish multi-national companies however, the need for signatures is required due to legislation in other European countries.

Processes and functional Viewpoint

SFTI argues for technology-neutral treatment of invoices with only few rules (e.g. archiving) specific to electronic invoicing. As invoices are to be procured and verified in relation to other recordings, including the delivery of product/services, reliable and well documented processes can prove the authenticity of invoices far better than any technical means applied to the message – so it is generally left to the commercial parties to apply security provisions based on their commercial needs.

Invoices are usually received via dedicated applications or ERP systems with an add-on module, but also some portals are used to capture e-Invoices because through them more suppliers can be reached. Also the scanning of invoices is an accepted method and is used by several local administrations.

Because there are differences in the requirements on invoices depending on the product or service, different e-Invoice profiles are supported. Currently EDIFACT is mostly used

within e-Procurement/e-Commerce. There are therefore several services for conversion between various e-Invoicing standards and platforms.

Use of standards

The initial standards for EDI that were recommended by SFTI were based on UN/EDIFACT built over the GS1 EANCOM standard, which has been adapted to the Swedish commercial good practices by GS1Sweden. There are two basic processes covered: call-off under framework agreement (price list, call-off/order, order acknowledgement, delivery advice and invoice) and periodic billing (price list, consumption report and invoice). The implementation specifications are maintained by GS1 Sweden.

SFTI also have issued a stand-alone EDIFACT invoice (SFTI Fulltextfaktura), elaborated from the GS1 invoices but with descriptive texts added to it. The EDIFACT-solutions mainly have been adopted by municipalities and regional authorities for high volume suppliers. Government agencies have other buying patterns and prefer simpler solutions.

Since local and regional authorities started asking for simpler solutions for e-Invoicing based on XML messages, Sweden has developed the Svefaktura, "Swedinvoice" (SFTI Basic Invoice), which is based on UBL version 1.0. In 2005 ESV proposed using Svefaktura also for central government agencies in their e-invoicing.

To implement attachment support for XML-based e-Invoicing with Svefaktura (UBL subset) a technical envelope has also been defined. They are either sent as a reference to a web URI or sent together with the invoice in the same message transfer.

With regard to identifiers, GS1 Global Location Numbers (GLN) are commonly used for parties and GS1 Global Trade Item Numbers (GTIN) for products. As a classification code, the UNSPSC standard is promoted.

In 2008 SFTI also decided to recommend an XML-based order as SFTI. It is NES Profile Basic order only.

Sweden together with the Nordic countries initiated NES and later CEN workshop CEN/BII. For future developments Sweden therefore has plans for adopting more profiles from CEN/BII. Sweden is a member of NES and in CEN/BII. Currently Swedish government is considering also joining the PEPPOL consortia.

SFTI is actively working in different international standardisation initiatives including UN/CEFACT (mainly TBG1), CEN (WS e-invoice 2 and BII), IDABC initiatives and somewhat in OASIS (UBL TC).

Legal Viewpoint

Electronic signatures are not used because although a signature might add value, it is in no way required for e-Invoicing. In fact, it is a hindrance for conversion. They see the need to secure the process rather than the individual documents in it, as those documents are not always fit to be the sole and complete stand-alone documentation of the

commercial transaction. The European directive on signatures has been incorporated in Swedish law, but in the context of e-Invoicing there is little need for it.

The receiver is supposed to validate the invoice against what was ordered and delivered. The organisations handle invoices under auditing rules (which include traceability rules), and authorities should recognise the transactions as long as these rules are complied with.

Technical Viewpoint

For message exchange, multiple protocols are used including VANs and SOAP over HTTPS; to some limited extent also AS1 and AS2. Multiple message transport formats are being promoted through Transport profile Bas, based on ebXML Message Service Specification (ebMS), and through the technical envelope UN/CEFACT Standard Business Document Header (SBDH).

4.1.6.3. More information

For more information, see

- SFTI general information - <http://www.sfti.se>
- SFTI Svefaktura and Sveorder information – <http://www.svefaktura.se>
- Case description of e-invoicing in Swedish government – <http://www.epractice.eu/cases/eInvoiceSweden>
- Info to government’s suppliers on e-Invoicing to government – <http://www.e-fakturera.nu>

4.1.7. United Kingdom

4.1.7.1. Contacts

Contact
Mike Killin
Rob Rousou
Cora Byrne
Sue Bravery

4.1.7.2. Solution

Organisational Viewpoint

The Zanzibar Managed Service is *the UK Government's* **Electronic Procurement Managed Service** provided by ProcServe, available to all UK public sector organisations via a central government contract. Zanzibar is a web based purchase-to-pay and electronic marketplace solution. It provides a common hosted platform for e-Purchasing and e-Invoicing. Common off-the-shelf electronic invoice and request for payment products are available through Zanzibar. Invoices can be consolidated and automated to enable them to be placed seamlessly into finance systems. Furthermore the Zanzibar Supplier Transaction Portal provides a free-of-charge solution for suppliers which is vital to lowering the barriers of entry to electronic trading to small businesses. Zanzibar complies with the e-Invoicing Directive through being able to generate invoices in an electronic format to be uploaded onto the various finance systems and general ledger.

By accessing a simple supplier portal suppliers can receive electronic purchase orders and send electronic invoices. There are different levels of sophistication for suppliers connecting to the system to differentiate between their levels of capability with the most developed suppliers integrating the system with their own finance and logistics systems.

The Zanzibar Supplier Portal (e-Invoicing hub) facilitates e-Invoicing free-of-charge across the whole supplier community. Because the information contained on the purchase order 'flips' to form the invoice upon fulfilment of the order this ensures that the invoice information is presented in a required standard and recognised format and mirrors precisely Purchase Order content. This eliminates the possibility of human error in rekeying data and facilitates electronic matching and delivery of documentation into the buyer's and supplier's financial systems.

The UK Department for Work and Pensions (DWP) implemented Zanzibar in 2006. This platform allows suppliers to interface with this DWP corporate enterprise system, as well as having an electronically enabled interface through the Zanzibar supplier portal. Some key suppliers of the DWP have chosen themselves to integrate their back office function with Zanzibar and are now able

to participate in an end to end purchase to payment process. The Buyer Organisations (Clients) are always Public Sector Organisations; the Sellers (Suppliers) are private organisations.

The Zanzibar solution is the strategic choice for the UK government and includes a best of breed purchase to pay capability within its suite of functionality. However this does not prevent individual governmental organisations from implementing their own/other third party provided solutions which can be readily integrated with the marketplace. Zanzibar is 'Technology agnostic' and has standard interfaces for linking with SAP, Oracle, Agresso, Capita, COA and other corporate business system providers.

The main driver to the roll out of this solution was the need for greater efficiency, accuracy and transparency in the purchasing process. According to Zanzibar, electronic invoicing reduces the overhead of deploying staff on invoice processing, eliminates the need for re-keying information and means that suppliers are paid more quickly.

Electronic records enable the authorities to check that purchasers are compliant with local, national and EC purchasing policy. The most important obstacle they have faced was the fact that several governmental agencies have deployed alternatives to the strategic solution.

Funding and technical readiness are issues which require further work.

Critical success factors for the solution were

- Alignment with strategic UK government initiatives
- Alignment with individual organisation's objectives on financial efficiency and propriety within budgetary constraints
- Delivering efficiency in the purchasing process, driving down costs and improving compliance with contracts and payment performance
- Integration with individual organisation's systems

Capture and storage of all transactional data in a data warehouse which can be retrieved in a comprehensive range of business reports. This will underpin UK governments drive towards greater commercial capability and better demand management.

Currently 40% of enabled supplier transactions are generating electronic invoices. Zanzibar is a web enabled service and can be used for transactions with overseas suppliers as those in UK. Cross border transactions must of course address the issues of different currencies, languages and Tax regulations and variants to the system are already introduced in order to support specific geographies. For example there is a Welsh language portal to support members of the Welsh Assembly Government community of organisations and their suppliers. The Welsh Government system, known as xchangewales is one of the Zanzibar flagship programmes. Another is Online Procurement for Educational Needs (OPEN) which will see 22,000 schools in England and Wales connected to the marketplace within the next 2 years. Together with significant central government clients such as the Department for Work and Pensions which spends GBP 4.3bn each year Zanzibar is driving UK government's procurement transformation programme.

Processes and functional Viewpoint

Invoices are received via the Zanzibar supplier portal. The matching of data between purchase orders and invoices, guarantees that the invoice information is presented

according to the required standard. Errors are reduced by validating data in an early stage during the procurement process. The Zanzibar solution is not just an e-Invoicing solution, but offers a complete web-based end-to-end suite of solutions for complete e-Procurement, including electronic catalogue services, electronic ordering services, matching services, workflow validation and approval and management information services. According to Zanzibar, the portal should not be a standalone application because invoicing is one process within the P2P cycle and should not be viewed in isolation. A system or service that addresses the entire P2P cycle will provide greater efficiencies by reducing administration and repetition than using individual services to address each P2P stage.

Use of standards

All invoices, whether generated via the portal or directly from supplier back-office systems are processed as cXML files. cXML is being used as the common data format for transactions and this is also the format used to archive transactions for 7 years in accordance with the UK government accounting standard. The e-Invoice message is the same for all suppliers. Business documents in other formats can be mapped into cXML in the system to maintain data standards.

The use of supporting UBL was considered as a possibility in 2005 but, at that time, still not mature enough time for implementation. The same goes for the support of UDDI which was also considered not mature enough at the time of design. The use of EAN codes as party and product codes has been investigated but since the level of detail was considered to be insufficient, UNSPSC codes have been implemented in the project and are used for the production of granular management reports.

Legal Viewpoint

All online data is encrypted to ensure confidentiality. Archived data is sent to DAT tape and stored within a secure data repository.

Technical Viewpoint

Zanzibar is a fully hosted web based solution. It can either provide a user organisation with full e-Procurement capability or integrate with existing ERP solutions (SAP, Oracle etc). Zanzibar is accessible by suppliers through a supplier portal. It employs a simple process - the buyer organisation punches out to Zanzibar or through Zanzibar to a supplier's own site, bringing back a shopping basket to the buyer environment. Commitments, approvals, order generation, receipting and invoice processing are handled in the buyer environment. Clients may also access Zanzibar via a web-browser. The system will integrate with all B2B platforms that share common B2B interfacing standards such as cXML, OCI and OAG. A predefined workflow where an order is generated from an online catalogue and afterwards transformed to an invoice guarantees security and validity of content. On top of this also transport level security, audit trails and log files are used.

4.1.7.3. More information

For more information, see

- <http://online.ogcbuyingsolutions.gov.uk/bcm/eCommerce/Zanzibar/>
- <http://www.procsolve.com/solutions/zanzibar>
- <http://www.unedocsuk.co.uk/>

4.2. Consolidator

The e-Invoicing solutions implemented by different Member States have been analysed, in order to see which elements, ideas, approaches or concepts could be re-used in the context of this project. The Member States whose solutions were analyzed are Denmark, Sweden, the United Kingdom, Iceland, Finland and Spain. Also the e-Invoicing application by the ESA was added to this table.

The following table summarizes the findings:

Member State	Denmark		Sweden	UK
	Current solution	Future solution		
Short description	The infrastructure is built around traditional EDI technology with a network of value-added-network operators (VAN).	The infrastructure is built upon web services and open standards.	A public sector joint effort for e-Procurement and e-Invoicing.	Zanzibar is a web based purchase to pay and electronic marketplace solution. It offers e-Procurement functions including catalogue, ordering, matching, workflow validation and approval services.
Transport protocols	Traditional EDI technology is used in the VANs.	HTTP and SMTP are supported. SMTP is used as an enabler for SME adoption.	VANs, SOAP over HTTPS, ebMS and SBDH (AS1 and AS2)	HTTPS and web services
Message standards	OIOXML	OIOUBL, UBL and NES.	Svefaktura (UBL 1.0 subset), Sveorder (NES profile 3, UBL 2.0), SFTI recommendations based on EANCOM UN/EDIFACT	cXML, OCI and OAG for Punch-out cXML, OAG and BASDA XML for transactions

	Denmark			
Security	<p>From a legal viewpoint, the security is ensured by EDI and the network is protected by the VAN operators. No signatures are used in this solution.</p>	<p>Centralised UDDI, digital certificates and a legal framework.</p>	<p>Electronic signatures are not used.</p> <p>The receiver is supposed to validate the Invoice against what was ordered and delivered.</p> <p>From a legal viewpoint, this solution is EDI.</p>	<p>Zanzibar is secured up to UK eGov Level 3 standards. ProcServe hosts all applications used within Zanzibar and is responsible for the network security of the solution.</p> <p>Electronic signatures are not used. The receiver is supposed to validate the invoice against what was ordered and delivered.</p> <p>Services that match Invoices to purchase orders, audit trails and log files.</p> <p>All online data is encrypted to ensure confidentiality. Archived data is sent to DAT tape and stored within a secure data repository.</p>
Support available	<p>Sample message handler and open source toolkit is provided to support adoption and development of the solution.</p>		<p>Framework agreements for the e-Invoicing infrastructure for central government agencies.</p> <p>Local authorities and regions rely on their own ICT-providers.</p> <p>Several solutions from ICT providers are supporting the recommended standards from the public sector.</p>	<p>Yes, suppliers can access the services via a web based portal or they can choose to have a solution implemented at their premises. Clients can choose to buy a P2P system or have a component integrated in their system.</p>

	Denmark		
Lessons learned	<p>Pragmatic approach helps to achieve results and a working solution.</p> <p>Provide a clear vision and market it to make the goal obvious to all partners. Communication is vital.</p> <p>Provide strong political support to speed up transition and reduce resistance.</p> <p>Integrate common standards and facilitate SME adoption by providing tools or guidelines and using an internet based secure and easy solution.</p>	<p>It is important to guide and educate SMEs and introduce them to the benefits that electronic commerce can bring.</p> <p>Secure the process rather than the individual documents in it.</p>	<p>Successful e-Procurement requires more than an IT solution. It needs buyers and suppliers to change policies, behaviours and culture and lock the changes into place.</p>
Legal enforcement	<p>Yes, since February 1st 2005 all Invoices to the public sector have to be sent via electronic means.</p>	<p>Yes, at a central government level, since July 1 2008 it is required for government agencies to be able to send and receive their Invoices electronically. If suppliers send paper invoices the agencies have to scan these invoices to handle in a workflow application the same way as e-Invoices.</p>	<p>No</p>
Comments	<p>Legal enforcement is the main driver for rolling-out of solution. All Invoices sent to public institutions have to be sent electronically.</p> <p>Scanning agencies have helped the adoption of mandatory electronic Invoicing, but are causing a number of new issues. These issues include the non-adoption of electronic means by SMEs and the manual correction of scanned Invoices.</p>	<p>Instead of a common B2G platform there are several ICT providers' solutions supporting the recommended standards from the public sector.</p>	<p>The use of supporting UBL was considered as a possibility in 2005 but, at that time; still not mature enough time for implementation. The same goes for the support of UDDI; which was also considered not mature enough at the time of design.</p>

Member State	Iceland	Finland	ESA	Spain
Short description	e-Invoicing and e-Procurement solution based on Oracle, using EDI and conversions to the NES format.	e-Invoicing solution through a service operator that connects suppliers directly, via a web portal or using banking infrastructure.	Internet based supplier portal connected to a database that is designed to facilitate contract management and invoicing processes.	Web-based e-Invoicing portal based on the Facturae message format using electronic signatures to ensure safety.
Transport protocols	VAN with EDI. Integration with back-end of public administrations is done via FTP.	Web services when using the banking infrastructure.	HTTPS	HTTPS and SMTP
Message standards	NES (The intermediary converts the different formats to the NES format)	FInvoice, based on ebXML. TEAPPS XML.	Not based on message standards.	Facturae
Security	EDI secured network and log files.	EDI secured network. Procedural contracts with service operator and banks.	Portal is protected by requiring username and password. Connection is protected by HTTPS.	Connection is protected by HTTPS. Authenticity of origin and integrity of content of e-Invoices is guaranteed by electronic signatures (XAdES).
Support available	No	Guidelines, stylesheets and archiving sample client available for users of the banking infrastructure. Users that connect directly to the service operator can get assistance via the service operator.	Detailed usage information, guidelines and FAQ section are available on the portal.	Detailed technical information and free software for the management of e-Invoices are available online.

Member State	Iceland	Finland	ESA	Spain
Lessons learned		<p>Use standards available in the market to speed up the process of adoption.</p> <p>Common standards are the basis for economies-of-scale benefits.</p> <p>e-Invoicing offers the greatest single cost-saving potential in the payments industry.</p> <p>SEPA and e-Invoicing is a win-win opportunity.</p>	<p>User involvement in the development of an e-Invoicing system is important.</p> <p>The roll-out of the system should be considered a distinct project where users are convinced of benefits.</p> <p>Investments made in elaborate user guides will offer high returns.</p>	<p>Getting SMEs to support and use your solution is an important aspect. This could be realised by providing detailed information and free support tools.</p> <p>When making e-Invoicing mandatory by law, it is crucial to create a legal framework covering all required aspects.</p>
Legal enforcement	<p>By the end of 2008, all governmental agencies should be able to receive e-Invoices. At the beginning, it will not be compulsory for the suppliers. The sending of e-Invoices will be mandatory for the suppliers by 2010.</p>	<p>In all new government contracts, it is mandatory for the suppliers to send e-Invoices. There currently is no law making e-Invoicing mandatory.</p>	<p>No</p>	<p>Yes. It is mandated by law that Spanish public administrations receive all invoices electronically from their suppliers by 2008 (central administrations) or 2009 (regional and local administrations).</p>

Member State	Iceland	Finland	ESA	Spain
Comments	<p>Iceland had implemented the Oracle e-business solution, but this application did not offer a fit e-Invoicing solution. Iceland has therefore reused the solution of Denmark on the way Oracle handles XML documents.</p> <p>Currently the Icelandic law only foresees EDI as a way to exchange e-Invoices. However this would not be practical for small suppliers. Currently, portal solutions would not comply with the current legal framework.</p>	<p>Finland further investigates the adoption of e-Procurement services through pilots and participation in the PEPPOL project.</p>	<p>The system being straightforward in its essence is a success due to the ease of operation and the proven benefits for the users of the system.</p>	<p>Since the Facturae message format is not aligned to the ebXML Core components and UBL there is an ongoing initiative called CCI UBL, which is a customization of the Facturae format to the invoice format of UBL 2.0.</p>

4.3. Other relevant information

A number other national public sector organisations or organisations with e-Invoicing or e-Procurement experience provided some useful input.

4.3.1. Belgium

Belgium provided useful input on their e-Procurement systems, but doesn't have an e-Invoicing system yet.

4.3.1.1. *Contact persons*

Contact
Mr. Christian Henrard (ETENBEL)
Mr. Waldo Van den Broeck (ETENBEL)
Mr. Patrick Boulvin (FEDCOM)

4.3.1.2. *The solution*

Organisational Viewpoint

The Belgian Federal Public Service P&O has set up an e-Tendering platform (pre-awarding) and an e-Catalogue platform (post-awarding), implementing two of the modules of the large e-Procurement project ETENBEL.

The main target groups are Belgian federal public officers and all companies who have concluded a framework contract with a contracting authority. The target group can also be extended to other levels of public governments such as regions and local authorities.

There are two other interrelated projects on the federal government level, namely FEDCOM and eHR, both of SPF-FOD P&O. Since these projects have different timings and objectives, there exists a clear will to minimise the dependencies, and as such, the projects are run independently.

The aim of the FEDCOM project is to modernise the federal accounting, from an entirely cash-based system to a mixed system of cash, accrual and analytical. In parallel, the old accounting system is being migrated towards a standard SAP platform.

Processes and functional Viewpoint

The context and scope of e-Procurement at the Belgium government is covered as follows:

1. Publication of Requests for Proposals, through a portal site (e-Notification)
2. Reception of electronic offers, through the platform e-Tendering
3. Evaluation and awarding (e-Awarding, foreseen for 2009, with a module e-Auction)
4. e-Catalogue, in case of framework contracts

e-Notification

Requests for Proposals (RFPs) are announced on the e-Notification portal and are as such accessible to anyone via Internet. Technically, the announcements are prepared in XML according to the OPOCE standard and are then sent to the e-Notification application through email. All notifications are electronically archived.

e-Tendering

The second module of the e-Procurement project is the e-Tendering module. It allows the submission of electronic tenders and the electronic opening. The end result is a publicly published official report with some information on the opening session.

Suppliers who want to respond to the call for proposals can either send their offer on paper via mail, or can upload an electronic offer via the e-Tendering platform. The e-Tendering platform allows for a secure HTTPS upload-connection. The offer is encrypted before sending and is decrypted during the opening ceremony. An official opening record ("proces verbal") is generated and can be digitally signed (e-ID) by the corresponding officer. All official opening records are electronically archived.

e-Awarding

Support for the evaluation of the different offers. This platform is foreseen for 2009.

e-Auction

e-Auction will also be part of the e-Awarding platform. It will allow reverse auctions (if permitted in the tendering procedure) where the suppliers can place anonymous "bids" to get a contract. The mechanism allows for the client to select the supplier offering the best price.

e-Catalogue

The Belgian e-Catalogue Platform is an autonomous, open, secure, inter operable, and re-configurable platform where public officers and companies can perform multiple tasks related to their electronic purchase process. It is composed of 2 components: the electronic catalogue and electronic ordering. The platform offers possibilities to manage contractual activities relating to electronic catalogues, such as the electronic ordering.

A pilot is currently running with four suppliers. The idea is that in case of a framework contract, an electronic catalogue is built. To support this process, suppliers need to upload the data via an Excel file (UBL 2.0 compliant). Once populated and put online, authorised officials can then browse the catalogue and prepare and digitally sign the order form with an e-ID card. The order form is XML-based and UBL 2.0 compliant. The order flow towards the supplier is still paper-based.

The processes regarding Invoicing fall within the FEDCOM project. The rollout-phase of the new accounting and financial system is planned between January 2009 and October 2010. It is clear that the migration and testing of the new system deserves the highest priority and as such, the e-Invoicing track will not start before the end of 2008.

Use of standards

The applications are based on open standards such as HTML, TSA, XML, SSL, OCSP, PKCS12, etc. For signing, the Belgian electronic identity card as well as other X.509 digital certificates is supported. The electronic catalogue's format is based on the UBL 2.0 standard. The OPOCE standard is used for the notifications (e-Notification).

The development of e-Procurement is hindered by the lack of a European standard for digital signatures. Large European countries have a tendency to just accept certificates issued in the own country.

The e-Tendering process could be made more efficient through the adaptation and use of standard forms, which will be implemented with the development of e-Awarding.

The envisaged e-Invoicing functionalities will be offered by the new SAP platform. Although this project is still in the infant stage, it is expected that open standards such as XML will be used.

Legal Viewpoint

The e-Tendering application is completely based on EC directives 2004/18/EG and the Belgian law and the Royal Decree of 28 February 2004, laying down some rules for electronic submission. To sign a tender, an economic operator needs to sign electronically and therefore e-Tendering is also based on the Belgian law concerning the electronic signatures (9 July, 2001).

For the moment, the Belgian public sector does not engage in e-Invoicing and e-Ordering, because of a lack of legal support on a national level.

Technical Viewpoint

e-Tendering is a web based application, completely based on open source components. It uses J2EE technology with apache, tomcat, mysql, etc.

The application implements the use of the Belgian e-ID card, which gives Belgian economic operators the possibility to easily sign their documents. Foreign economic operators can use a valid and qualified certificate.

4.3.1.3. More information

For more information, see

- <https://ecat.publicprocurement.be>
- http://www.begroting.be/portal/page?_pageid=158,152078,158_152080&_dad=portal&_schema=PORTAL

4.3.2. France

EDIFRANCE is a non profit organisation that promotes and develops ICT in French companies and administrations. They support the enhancement and adoption of paperless trade and electronic administration applications. Together with Gencod EAN France, they have produced a guide on e-Invoicing where they present a framework that allows companies and institutions to implement a solution in line with the European Directive on electronic invoicing. Despite all their effort, the rate of adoption of e-Invoicing in France still is very low, covering not more than 5% of all invoices. The major obstacles for adoption are of legal and fiscal nature. EDIFRANCE will continue to promote e-Invoicing and will focus on the exchange of e-Invoices between European partners, the requirements for solutions to comply with legal and fiscal aspects, and the selection criteria that allow companies to choose an e-Invoicing solution.

For more information, see

- <http://www.edifrance.org/>

4.3.3. Switzerland

Switzerland started e-Invoicing in 1999. Adoption grew since 2002, when Switzerland implemented a legal framework which covers e-Invoicing, VAT legislation and book keeping legislation. Switzerland does not enforce the exchange of electronic invoices, but requires the usage of Advanced Electronic Signatures when issuing invoices electronically. Since there are many technical standards currently available in the market, it was decided that Switzerland would not create its own e-Invoice format standard. Instead, a data dictionary would be created to guide companies on the content of an electronic invoice. swissDIGIN (swiss DIGital INvoice) is a cross-industry initiative to harmonize the content of electronic invoices. It covers the legal and industry requirements to enable the automatic reconciliation of invoices. This standard exists since 2005 and is coordinated by the University of Applied Sciences. The University steers a forum of stakeholders from several industries which is supported by the major relevant e-Invoicing service providers.

Currently the vast majority of electronic invoices are exchanged using consolidator platforms because of the coexistence of multiple e-Invoice formats and the required advanced electronic signatures.

Because Switzerland is not an EU member state and the EU directive allows a broader number of solutions than Switzerland, the alignment of cross border solutions with European countries needs bilateral clarifications with the involved tax authorities.

For more information, see

- http://www.economiesuisse.ch/web/fr/PDF%20Download%20File/s/071210_dp24_facturation_electronique.pdf

4.3.4. Hungary

Some written input was obtained from László Kétszeri, senior counsellor at the Central Services Directorate General at the PMO in Hungary, on e-Ordering and e-Invoicing in Hungary.

Ordering

The Central Services Directorate General at the PMO as Central Contracting Agency on PUP, are operating e-Order functionality in their framework system as overlay functionality of e-Catalogue. The use of the function is not mandatory, but to report the transactions is mandatory. They have 3 operational systems: one online real-time, one online off-time, and one off-line. The number of transactions being processed until today can be found on portal www.kozbeszerzes.gov.hu. e-Ordering as an e-Commerce message is in line with EANCOM (GS1) standards.

e-Invoicing

The private sector is employing e-Invoices being auditable by the national tax agency fully EU harmonised. The operational solution is EDI based including web-EDI for SMEs with the acceptance of XML formats. 23 large EDI service providers are existing also offering archiving functions. Main actors are from the FMCG sector like TESCO, METRO, and their suppliers. Cross-border solutions do not exist because of the mismatch of archiving functionality.

Corresponding standards are eancom-EDI, and eancom-xml.

EAN refers to GS1 (the provider of GTIN, GLN, EPC, GSDN and RFID, managing UNSPSC, owner of GPC classification among other global standards). See www.gs1.org.

4.3.5. Norway

E-handel, the Norwegian Electronic Public Procurement Portal is established in 2002 and aims to provide public sector entities and their suppliers easy access to a user friendly and affordable tool for operational e-Procurement with each other. The solution is accessible by both web-based services or integrated internal procurement or order handling systems. The focus initially was on the electronic handling of orders with sourcing activities and invoice handling being the next steps. The business model used lets suppliers receive orders for free, but publishing an e-Catalogue online in the system requires an annual fee based on sales volume. Although users initially questioned the price tag, they eventually concluded that the integration of their processes into the system produced a higher sales volume and improved process efficiency.

The Norwegian government is currently making efforts to enable public sector companies to send and receive invoices electronically by the end of 2008. It supports the e2b invoice

format originated from the e2b Forum which is a non-profit, user driven organisation run by a group of major Norwegian companies.

In the B2B and B2C market segments, eFaktura is a commonly used service. This is an electronic billing system which all Norwegian banks are connected to. Users can sign an agreement with their bank and subsequently send electronic bills to their clients or suppliers.

For more information, see

- http://www.ehandel.no/index_en.php

4.3.6. Italy

The Italian government has proposed to make the adoption of e-Invoicing mandatory for central government administrations by mid 2008. The goal is to improve efficiency in the public administrations and to support the adoption of e-Invoices by Italian companies. The Italian law only defines what has to be achieved, not how it should be achieved. Consequently, there is no mandatory data format or service specification.

ACBI, the Interbank Corporate Banking Association provides services that allow companies to electronically exchange documents. Safe end-to-end e-Invoice exchange is guaranteed by using the banking network. The data format is flexible and different possibilities are covered. They include a common header together with a body that can take on various forms.

For more information, see

- <http://www.acquistinretepa.it>

4.3.7. Latvia

The Electronic Procurement State Agency (EIVA), established in 2006, is responsible for the e-Procurement system (EPS) in Latvia. The solution provides a marketplace where public authorities can select goods and services provided by registered suppliers. The solution not only aims to improve efficiency and reduce cost, but also provides a transparent procurement process, reducing the risk of corruption.

Registered users can access the system via a web browser by providing their credentials. Buyers and Suppliers can also choose to integrate the system into their backend by implementing open interfaces provided by EPS. Suppliers can publish their service catalogues and respond to purchase requests made by buyers who can browse these catalogues from different suppliers.

For more information, see

- <https://www.eiepirkumi.gov.lv/PMB/>

5. INTERVIEWS WITH STAKEHOLDERS

5.1. Stakeholders List

Different stakeholders have been interviewed to collect information regarding their experience and requirements in the e-Invoicing and e-Ordering domain.

The following companies were interviewed:

5.1.1. Large suppliers

Contact	Contact Person
GE	Karl-Heinz Haydl
GE	Miguel Caulliez
GE	Chris Needham
ABB	Pether Jonsson
Belgacom	Ward Desmet
Belgacom	Fabien Guilmot
Unisys	Kurt Berckmans
Unisys	Maria Nozka
Siemens	Olivier Musin
Siemens	Kris Van Dycke
DHL	Brian Thumwood

5.1.2. SMEs

Contact	Contact Person
Certipost	Jan Van Leuven
Certipost	Patrick Van Hoorde
PricewaterhouseCoopers Belgium	Vicky De Bollen
An e-Invoicing and e-Ordering online survey on www.ePractice.com towards SMEs will be used to get further insights in the requirements of SMEs	Eva Coscia
Suomen Yrittäjät, Federation of Finnish enterprises	Risto Suominen

- Certipost, a Belgian e-Invoicing solution provider was interviewed, being representative for the SMEs suppliers connected to their platform.
- PricewaterhouseCoopers Belgium was interviewed as SME
- An e-Invoicing and e-Ordering online survey on www.ePractice.com towards SMEs will be used to get further insights in the requirements of SMEs
- The same survey was executed in Finland.

5.1.3. IT and Financial Providers

IT and Financial Providers were also interviewed, being supplier of goods or services, not as being vendors of e-Invoicing solutions (as some of them offer e-Invoice solutions, i.e. Systemat and Isabel).

Contact	Contact Person
Systemat	Christophe de Béthune
Systemat	Jan Druppel
SWIFT	Markus Hautala
SWIFT	Koen Deridder
Isabel	Nicolas Corluy

JP Morgan	James Barclay
JP Morgan	Ian Emery
ABN Amro	Peter Potgieser
ABN Amro	Igo Raadt

5.1.4. IBM, as large buyer

An interview with IBM was added, as a reference example of a buyer driven project.

Contact	Contact Person
IBM	Tony Nisbett

5.1.5. SAP, as ERP vendor

An interview with SAP was added in a later stage, in order to gain more insight from the ERP world.

Contact	Contact Person
SAP	Michel Haesendonckx

5.2. Results of the interviews with stakeholders

In order not to disclose any sensitive information, the results of the interviews have been consolidated in the tables below. These sections show the consolidation of their replies to the questionnaire prepared by the project. Note that for some questions, suppliers were allowed to mark more than one answer. This results in totals summing up to more than 100% for non-exclusive answers.

The requirements derived from the stakeholder interviews are integrated in the Requirements Catalogue (see further).

5.2.1. Organisational Viewpoint

Q. Could you provide us with some background about your organisation's experience with e-Invoicing?

Analysis of the question's result

- e-Invoicing systems are in place, for suppliers, customers but also intercompany invoices.
- SMEs suppliers can be supported through e.g. (outsourced) scanning, (outsourced) portals and virtual printers.

Q. Since when can your organisation send electronic Invoices towards its customers?

1980-1990	0	0%
1990-2000	3	23%
After 2000	6	46%
Still no e-Invoicing solution	4	31%

Analysis of the question's result

- The adoption of e-Invoicing is growing within the interviews sample.

Q. Regarding the generation of your e-Invoices. These are generated via:

A dedicated e-Invoice application	6	46%
Your company's accountancy or ERP application	9	69%
Order to Pay service	1	8%

Third party vendors	1	8%
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Analysis of the question's result

- In case of multiple ERP applications within one company, a central e-Invoice application might be useful.

Q. Which of the business models hereunder, better describes your organisation's e-Invoicing business model?

My organisation implements a self-owned e-Invoicing solution to send electronic Invoices to the customers	7	54%
My organisation uses a third-party solution to send electronic Invoices to the customers	7	54%
Order to Pay service	1	8%

Analysis of the question's result

- Combinations of the business models and hybrid solutions are possible.

Q. Which were the main drivers for the rollout of the e-Invoice solution?

Cost savings and efficiency improvement	8	62%
Client request	4	31%
Supplier request	4	31%
Improve client relations and customer service	4	31%
RFP	2	15%
Reputation	2	15%
Integration of e-Invoicing with payments	2	15%
Legal push	1	8%
European Directive 2001/115/EC	1	8%
Prevent loss of Invoices	1	8%
Management of cash-collection and treasury management	1	8%
Compliance	1	8%
Facilitation of the payment channel and the payment cycle	1	8%

Broaden service offerings and scope of interface with clients (corporates)	1	8%
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Analysis of the question's result

- This is in line with many international surveys on e-Invoicing: main drivers are efficiency improvement and cost reduction and improvement of customer and supplier relations.

Q. Did your organisation create a Business Case prior to the e-Invoicing roll-out decision?

Yes	9	69%
No	4	31%

Analysis of the question's result

- The majority of the companies that do e-Invoicing today, first made a business case.
- The business case mainly looks at direct cost savings, while indirect cost savings will be realized in terms of advanced integration of the financial value chain.
- Important considerations are choosing between an in-house and outsourced solution. Outsourcing can cover electronic invoicing and also the printing of paper invoices.
- Assumptions are made based on the volumes of invoices that can be converted towards electronic format.
- The business case could also include potential cost savings for your suppliers or customers.
- Different business cases can be made for inbound and outbound invoicing.

Q. Which were the most important obstacles when rolling-out your e-Invoice solution?

Varying regulations and lack of legal framework	5	38%
Cost issue / Low organisational priority / no core process	5	38%
Connectivity and system integration issues	3	23%
Involving SMEs	3	23%
Uncertainty about cross-border transactions	3	23%

Interpretation of data between involved parties and understanding of the technical aspects	2	15%
Finding the most optimal solution in the market or finding an industry leader	2	15%
Redesign of internal processes	2	15%
Lack of awareness	2	15%
Reluctance to change	2	15%
Overkill of standardisation initiatives	1	8%
Scepticism about benefits	1	8%

Analysis of the question's result

- One of the major barriers is disharmonised legal framework, especially in a cross-border environment, where it's not always clear to companies which local rules are applicable.
- System integration issues might become relevant when a large company has a diversity of billing systems, due to e.g. a very active merger and acquisition history.
- There is no real global or pan-European e-Invoicing solution provider that can be used for cross-border and cross-sector invoicing, and there are often questions on the compliance of those solutions.
- The need for a paper summary in case of EDI, as required from certain Member States prevents fully paperless invoicing.

Q. How did your organisation stimulate its customers to use e-Invoicing? Or are the customers asking for it (no stimulus in this case)?

Customer request (no stimulus)	7	54%
Offer help to the customers to use, buy or integrate the solution or portal	2	15%
Demonstrating possible cost savings	2	15%
Promotion by sales and support department	2	15%
Electronic duplicates	1	8%
Customer education	1	8%
Introduce surcharge to cover additional cost of sending paper Invoices	1	8%

Analysis of the question's result

- The majority of the suppliers don't have to ask their customers to receive e-Invoices, as in those cases, the customers are the demanding party.
- Customers requesting invoices to be sent electronically tend to be large customers.
- Customer education is important towards SMEs, to inform them of potential solutions, consequences on their internal processes, legal compliance, "do-s" and "don't-s".
- Some choose an opt-out strategy (e.g. every customer is switched to electronic invoicing, but if he can't or won't accept this, the system is switched back to paper).
- Sector initiatives could further stimulate the adoption of electronic invoicing.

Q. Is e-Invoice also used for cross-border transactions?

Yes	6	46%
No	6	46%
No answer	1	8%

Analysis of the question's result

- Cross-border transactions can include intercompany invoicing.
- Uncertainty on which local VAT rules apply and differences in local implementations of the Directive make it difficult.
- Cross-border transactions include transactions with non-EU trading partners.

Q. Is your organisation also receiving e-Invoices from its suppliers?

Yes	11	85%
No	1	8%
No answer	1	8%

Analysis of the question's result

- Most of the interviewed suppliers receive also e-Invoices from their own suppliers.

Q. When rolling-out the e-Invoice solution, or soon after, did the structure of any department in your organisation change, because of e-Invoicing?

Yes	2	15%
No	10	77%
No answer	1	8%

Analysis of the question's result

- Internal organisation doesn't change much as such, but internal processes do.
- If large volumes can be obtained and further enhancements can be realized by e.g. self-service functionality for customers, it could lead to reduction in service line staff.

Q. How did your organisation rollout the e-Invoice solution?

By customer. All Invoices are sent electronically to the customer adhering to/ requesting e-Invoicing	5	38%
By customer. However, e-Invoicing and paper Invoicing are performed in parallel to the customer	4	31%
PDF copies are sent on customer request	1	8%
By customer on a case by case basis in relation to the supplier network	1	8%
Large buyer (hub) provides roll-out program	1	8%
By country, then by customer (early adopters) and then through other conversion initiatives	1	8%
Ad-hoc e-Invoicing	0	0%

Analysis of the question's result

- Paper invoices are still sent in parallel in some cases.
- Most provide a test phase: during a certain period, paper is still sent and electronic invoices are sent as a copy. After this period, paper is switched off, and the electronic invoice is the original invoice.

Q. Does your organisation have selection criteria for sending e-Invoices (rather than paper Invoices) to a customer?

Yes	4	31%
No	7	54%
No answer	2	15%

Analysis of the question's result

- Potential selection criteria are
 - Number of invoices
 - “Importance” of the customer
- In case a company provides different solutions, there can be different selection criteria.
- Selection criteria can be different for inbound invoicing than for outbound invoicing.

Q. Please could you share with us the % of electronic Invoices vs. total Invoices (As-is)?
And, if existing, the targets for the future (To-be)?

As-is:

0%-10%	7	54%
10%-50%	3	23%
50%-75%	0	0%
75%-90%	1	8%
over 90%	1	8%
No answer	2	15%

To-be:

No information	4	31%
0%-10%	1	8%
10%-50%	0	0%
50%-75%	1	8%
75%-90%	2	15%
over 90%	3	23%
No answer	2	15%

Analysis of the question's result

- Adoption rates tend to be higher in the Nordic countries.
- The above-mentioned opt-out strategy can lead to high adoption rates in a short time.

5.2.2. Processes and Functional Viewpoint

Q. Should your organisation have implemented a solution to send e-Invoices to your customers, then this is made via:

A fully integrated document exchange system to which the customers' system connects to	9	69%
An E-Invoicing Portal	5	38%
A Scanning System, offering the support of scanning and character recognition	3	23%
On demand (triggered batch)	1	8%

Analysis of the question's result

- Multiple solutions might be needed, depending on the business requirements of the several trading partners.
- Fully integrated document exchange systems are more used by large suppliers, while e-Invoicing portals are aimed at SMEs.
- A difference should be made between EBPP/EIPP solutions where bills or invoices are “presented” and fully integrated solutions allowing automating the broader supply chain processes.
- On the other hand, other interviewees state that also SMEs can benefit from fully integrated solutions if these solutions are embedded in e.g. standard accounting software.
- Scanning is seen as a temporary solution, allowing SME suppliers to still send invoices on paper, while the customer receives an electronic and structured message in a transparent way.
- An e-Invoicing portal can be seen as an interactive tool for creating invoices using a web form, but also as a tool to upload an electronic invoice.

Q. Is the business data (i.e. Invoice attributes) in the e-Invoice the same for all customers?

Yes	5	38%
No	6	46%
No answer	2	15%

Analysis of the question's result

- Information in the electronic invoice contains at least the information in the paper invoice
- It depends on the customer's business requirements
- It can be easier to provide full data, consistent for all customers. It's up to the customer to use all data or just a part of it

Q. Regarding the e-Invoicing services, which functions (or e-Invoicing variants) do you cater for?

Classic Billing (i.e. submission of Invoice)	11	85%
Billing with Debit Note	9	69%
Billing with Credit Note	12	92%
Freight Billing	5	38%
Reporting Services (e.g. e-Invoices Summary Report)	6	46%

Analysis of the question's results

- Some interviewees sending e-Invoices also want to send electronic Credit Notes or Debit Notes.

Regarding the e-Archiving part of your solution, which documents do you currently archive?

Input files	8	62%
Intermediate files	4	31%
Output files	9	69%
Log Files	7	54%
Signatures	8	62%
PDF copies together with paper Invoices	2	15%

Analysis of the question's results

- Most of the interviewees archive more than just the electronic invoice they are sending or receiving.

Q. The readability of the archived data is achieved via:

XSLT	1	8%
PDF	8	62%
XML flat files	2	15%
ERP system	4	31%
Viewer of EDI files	1	8%

Analysis of the question's results

- XSLT is used to render XML into a human-readable HTML or PDF file.
- PDFs can be created at the moment of transaction, but also at the moment of visualizing the electronic invoice.
- e-Archiving systems seem to have basic retrieval capabilities, while ERP systems provide more advanced querying solutions.

Q. Is the archiving integrated with the back-office?

Yes	8	62%
No	3	23%
No answer	2	15%

Analysis of the question's results

- Most of the archiving systems seem to be integrated with the back-office.

Q. Are there plans for improving the current e-Archiving solution?

Yes	4	31%
No	5	38%
No answer	4	31%

Analysis of the question's results

- Improvement areas:
 - Roll-out to other countries, where other archiving requirements need to be met.
 - Expanding the functionality of the solutions.

Q. Do you send electronic reminders to the clients when the Invoice is not paid within the agreement payment term?

Yes	4	31%
No	8	62%
No answer	1	7%

Analysis of the question's results

- Paper is still seen today as the preferred way for sending reminders.
- In some Member States, “registered email” is possible, but where it’s not possible, paper “registered mail” has to be used.
- Some interviewees are of the opinion that if the e-Invoicing solution is implemented efficiently, reminders are no longer needed, or should at least be reduced drastically.
- Can reminders via email be seen as spam?

Q. Is the payment information available to the supplier?

Yes	4	31%
No	6	46%
No answer	3	23%

Analysis of the question's results

- Certain payment information can be on the invoice (a structured reference message to be mentioned in the payment instruction), but suppliers typically use other processes to manage their master data (e.g. account numbers)
- Providing suppliers with payment or other status information regarding their invoices can be seen as an argument to convince those sending invoices electronically.

Q. Can your system send an electronic copy of the Invoice to the client?

Yes	9	69%
No	2	15%
No answer	2	15%

Analysis of the question's results

- A copy of an electronic invoice is not really a copy, it doesn't make sense. But customers can ask to resend the electronic invoice or go to an online solution and download it themselves.

Q. Is your solution only providing e-Invoicing services?

Yes	3	23%
No	7	54%
No answer	3	23%

Analysis of the question's results

- Companies answering no, have their e-Invoicing solutions integrated with e-Ordering and e-Payment services (see below).

Q. If other e-Procurement services are already provided, or to be provided in the near future, please let us know which.

Electronic Ordering Services (e.g. Purchase Order and generation and submission)	7	54%
Payment Services	6	46%
Electronic Catalogue Services	4	31%
Matching Services (e.g. purchase order vs. Invoice vs. delivery)	4	31%
Automatic Business Rules Validation	3	23%
Approval Workflow (in the procurement scope)	4	31%
Specific B2B platform	1	8%
e-Mandates	1	8%
Requisitioning and associated approvals	1	8%

Analysis of the question's results

- Different services can be supported by different and multiple systems.
- For some services, the question is whether to support them in an e-Invoicing system or ERP system (e.g. approval workflow).
- E-Invoicing is more effective when associated with other supply-chain services.

Q. Should an e-Invoice be rejected by the Customer what happens then?

This situation is managed electronically	6	46%
This situation is not managed electronically	5	38%
No answer	2	15%

Analysis of the question's results

- In case the situation is not managed electronically – i.e. the dispute handling process - , the resulting credit note can still be sent electronically.
- Certain solutions provide online enquiry for customers.

Q. In a hypothetical scenario, for the exchange (issuing/transmission/receipt) of electronic Invoices with clients which solution would you prefer to engage with? Please rank from 1 (most preferred) to 3 (least preferred).

Fully integrated document exchange between the supplier and the customer	Prio	1
E-Invoicing Portal hosted by the customer, where you can view orders electronically and enter Invoices in a web form	Prio	2
Scanning System, offering the support of scanning and character recognition	Prio	3

Analysis of the question's results

- The fully integrated solution seems to provide the most added value, both for suppliers and customers.
- e-Invoicing portals and scanning can be useful for SMEs.
- Scanning is seen is far from ideal, while others believe there will always remain a part of invoices that can not be converted to electronic, and

scanning might be useful in those cases.

Q. Which functionalities would you see as essential in an E-Invoice Portal? Please, select at most 5 and at least 3.

Download the legal Invoice (e.g. signed PDF) to feed your own archive (in case you would like to archive)	8	62%
Check status of Invoices (received by customer, approved, to be paid in X days, paid, ...)	6	46%
Export Invoice to a booking file (XML or other format) for integration with your accounting system	5	38%
Edit (draft) Invoice and Submit Invoice	5	38%
Send credit / debit notes	5	38%
Resend Invoice	4	31%
Search and view archived Invoices for the legally required period of time (e.g. 10 years)	4	31%
Search and view archived Invoices for a limited number of time	3	23%
Create Invoice and save as draft	3	23%
Discussion Forum – Dispute management process	2	15%
Create Invoice from Order-Goods receipt	2	15%
Print Invoice	1	8%
Copy Invoice from previous Invoice	1	8%
Attach technical annex or timesheets	1	8%
Full integration for inbound and outbound e-Invoice flows with the ERP accounting system	1	8%
Payment integration	1	8%
Use pricing information from an online catalogue	0	0%

Analysis of the question's results

- An e-Invoicing portal should allow SME suppliers to
 - Download the legal invoice for own archiving purposes.
 - Check for invoice status information.
 - Download a structured “booking” file (which can be the legal invoice), for integration in the accounting software.

- Use the same system for Credit and Debit Notes.

Q. Does your organisation request from its clients an electronic proof of receipt (e.g. an electronic technical acknowledgement)?

Yes	5	38%
No	5	38%
No answer	3	23%

Analysis of the question's results

- Proof of receipt is not always required
- In case the invoice is made available for download on a website, it should be logged when the customer has downloaded and or viewed the invoice.

Q. Should your organisation use Invoices for other purposes (loans proofing document, customs import / export, etc), please provide information on which business scenarios?

Loans	0	0%
Customs	1	8%
Trade finance	1	8%
Logistics management	1	8%

Analysis of the question's results

- Some processes might still require paper invoices or print-outs of electronic invoices.

5.2.3. E-Invoice Data Viewpoint

Q. In your e-Invoice do you include references to business documents preceding the Invoice, such as a purchase order, delivery note or contract?

Yes	11	85%
No	0	0%
No answer	2	15%

Analysis of the question's results

- A reference to a purchase order or delivery note is typically needed for sales of goods.
- A reference to a contract number is typically needed for services.
- This could also be done by free text.

Q. Do you send attached documents in your electronic Invoices messages?

Yes	5	38%
No	6	46%
No answer	2	15%

Analysis of the question's results

- If answered “no”, some still would like to be able to send attachments.
- Timesheets are a typical example of attachments.
- Attachments can be any electronic document type (XML, DOC, JPF, PDF, XLS ...) or a URL to a supporting document.

Q. Do you use EAN codes (party and product codes) in your e-Invoices?

Yes	7	54%
No	3	23%
No answer	3	23%

Analysis of the question's results

- Other identifiers are possible (such as UNSPC).

Q. Do you send detailed bills (a.k.a. thick bills) and thin bills?

Thick bills	7	54%
Thin bills	3	23%

Analysis of the question's results

- The thin bill could be used as a cross-industry and standardized format, while the thick bill could be seen as an addendum to the thin bill, containing industry specific and non-standardized information.

Q. Please let us know the mechanisms used in your solution to guarantee authenticity of origin and integrity of content?

Advanced Electronic Signature	6	46%
Qualified Electronic Signature (i.e. an advanced electronic signature based on a qualified certificate and secure signature creation device, such as a smartcard)	3	23%
EDI (traditional EDIFACT messages over a VAN, but also XML over a secured internet connection)	6	46%
Other means	1	8%

Analysis of the question's results

- In case of cross-border solutions
 - Some use Qualified Electronic Signatures as “one-size-fits-all” solution.
 - Others use certain rules to automatically select between an Advanced Electronic Signature and Qualified Electronic Signature.
- Some suppliers might need to support multiple methods, depending on customer’s needs.
- “Other means” are not allowed in every Member State, so not suitable for a pan-European cross-border solution.

Q. Is your e-Invoicing solution validated or certified (be it by an auditor or local VAT administration)?

Yes	6	46%
No	4	31%
No answer	3	23%

Analysis of the question's results

- Some local VAT administrations do not provide written and binding rulings.
- Some local VAT administrations are more advanced in this area and more helpful than others.
- No certification possible on an EU level.

Q. If not, will you certify your solution in the near future?

Yes	1	8%
No	3	23%

Q. How often is your e-Invoicing solution audited?

Ad-hoc	6	46%
Yearly	0	0%
Each 2 years	0	0%
Never / does not apply	2	15%
No answer	5	38%

Analysis of the question's results

- Changing regulation can be a reason for re-auditing the system.

Q. Are special measures implemented to guarantee the privacy of your customer's data in your in-house or outsourced archives (e.g. encryption)?

Access Rights	3	23%
No special measures	2	15%
Physical Protection	1	8%
Encryption	1	8%
Network security	1	8%
SAP standard	1	8%

5.2.4. Technical Viewpoint

Interoperability

Q. Is your e-Invoice solution:

Bought Package	4	31%
Built in House	4	31%
Outsourced to a consolidator platform	3	23%

Partnership	2	15%
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Analysis of the question's results

- A company might use different solutions.
- Some interviewees would like to see a provider that can distribute invoices to all customers across Europe and guarantee legal compliance.

Q. Is your solution integrated to a B2B platform?

Yes	2	15%
No	7	54%
No answer	4	31%

Q. Which protocols do you use to communicate with your customers or consolidator platform?

HTTPs (e.g. secure download of an Invoice from a Portal)	8	62%
VAN or X400 network	6	46%
Web Services (e.g. SOAP over HTTP or HTTPS)	6	46%
(s)FTP	5	38%
SMTP (email)	4	31%
AS 2	4	31%
AS 1	1	8%
AS 3	1	8%
VPN	1	8%
EDI X400	0	0%

Analysis of the question's results

- Solutions may need to support multiple communication protocols.
- For external communication, a “secured network” should be used.
- There is a shift from VAN to secured internet based communication, using e.g. HTTPS.

Q. Which communication protocols do you use to integrate with the back-office?

ERP Connector	9	69%
Web Services	2	15%
Database Connector	1	8%
Intranet	1	8%
Queuing system	1	8%
FTP	1	8%
JMS	0	0%

Analysis of the question's results

- In case of different back-office systems, the solution may need to be able to support different communication protocols.

Q. Is your e-Invoice message format the same for all clients (Yes) or do you support different solutions according to the customer's needs (No)?

Yes	3	23%
No	5	38%
No answer	5	38%

Analysis of the question's results

- Solutions may need to support different file formats or conversion tools.
- Different customer's needs can require different formats.

Q. Which message format(s) do you support to send e-Invoices to your customers?

EDIFACT	6	46%
ANSI X12	5	38%
BMF 100	5	38%
SAP IDOC	4	31%
cXML	4	31%
UBL 2.0	2	15%
Certipost XML format	2	15%
UBL 1.0	1	8%
NES	1	8%

OIOXML	1	8%
FINVOICE SEPA	1	8%
Proprietary XML and TEAPPS	1	8%
Excel	1	8%

Analysis of the question's results

- Solutions may need to support different file formats or conversion tools.

Q. Does this standard cater to all your needs? (Yes) Or are there opportunities for improvement? (No)

Yes	5	38%
No	4	31%
No answer	4	31%

Analysis of the question's results

- A combination of the above-mentioned standards meets the need of most customers.
- The lack of a standard does not prevent implementing electronic invoicing.
- Some standards like UBL 2.0 were being developed when the interviewee had to decide on a certain format, so, they selected something else.

Q. Did your clients ever request the support of another format?

Yes	6	46%
No	3	23%
No answer	4	31%

Analysis of the question's results

- If yes, the work involved is evaluated and a decision is made whether to support another format.

Q. Is your organisation studying the support of standards such as UBL, NES, and UN/CEFACT?

Yes	7	54%
No	5	38%
No answer	1	8%

Analysis of the question's results

- Yes, but standard developments are “too slow”.

Q. Should you be using an e-Invoice messaging solution supported by WSDL documents, do you use a Universal Description, Discovery and Integration (UDDI) platform?

Yes	2	15%
No	6	46%
No answer	5	38%

Q. From past experience, the integration of a new customer is normally achieved how many months?

Unknown	1	8%
0 to 3	5	38%
3 to 6	2	15%
6 to 12	1	8%
12+	0	0%
No answer	4	31%

Authenticity of origin and integrity of content

Q. Which measures have you implemented to guarantee authenticity of origin and integrity of content of the e-Invoicing process?

Audit trails (transaction log for each transaction)	9	69%
Secured network	8	62%
Log files	7	54%
Automated process (Syntax checking, Content validation, Business rules validation)	7	54%
Status for each transaction	6	46%

Advanced Electronic Signatures	5	38%
Control messages / acknowledgements	4	31%
Qualified Electronic Signatures	3	23%
Userid and password	2	15%
Hash validation	1	8%
XML encryption	0	0%
WS-Security	0	0%

Analysis of the question's results

- Authenticity of origin and integrity of content is usually guaranteed by a combination of the above-mentioned measures.
- Also in case of AES/QES, additional measures to guarantee authenticity of origin and integrity of content can be implemented, such as audit trails or secured networks.

Q. How are the integrity / authenticity of the e-Archiving part of your solution guaranteed?

Signed data	6	46%
CD-WORM	4	31%
Access control	2	15%
Protected DVD	1	8%
Qualified Electronic Signatures	0	0%

Analysis of the question's results

- Also for the archiving part, a combination of several measures guarantees authenticity of origin and integrity of content.

Performance

Q. My solution is designed to send how many Invoices per month.

Unknown	0	0%
0 to 1.000	1	8%
1.000 to 10.000	1	8%

10.000 to 100.000	2	15%
100.000+	5	38%
No answer	4	31%

Q. Do you send Invoices in batch (e.g. once a month or once a day) or every time a new Invoice is created (real time)?

Batch	5	38%
Real time	6	46%
No answer	2	15%

Analysis of the question's results

- Suppliers can send electronic invoices in batch or real time.

Q. My solution's availability target is how many percent?

less than 95%	0	0%
95 to 98%	0	0%
98% to 99.5%	2	15%
99.5% and above	6	46%
No answer	5	38%

5.3. Results of the SME online surveys

In order to gather more input from SMEs, it was decided to participate to an online e-Procurement survey on e-Practice.eu.

The interim report from this study was presented to the Expert Group on e-Invoicing in April 2008. As a result, Risto Suominen, Expert Group member, proposed to execute the same SME survey in Finland.

The results from both surveys are presented below.

5.3.1. Results of the Finnish SME survey

5.3.1.1. *Contact persons*

Contact
Risto Suominen

5.3.1.2. *The survey*

The SME survey in Finland resulted in 692 responses on a total sample of +/- 5000 SMEs. Summarized findings can be found in the next section.

SME Questionnaire, Federation of Finnish enterprises

Version: <http://ec.europa.eu/yourvoice/ipm/forms/dispatch?form=eProcurementSurvey>

Context information

- The sector of your company? Results (692) to that question are:

<input type="checkbox"/>	Trade	20.7%
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<input type="checkbox"/>	Transport	4.5%
<input type="checkbox"/>	Services	39.7%
<input type="checkbox"/>	Construction	14.6%
<input type="checkbox"/>	Industry	8.8%
<input type="checkbox"/>	Other	11.7%

Transportation and industry are both somewhat underrepresented in the data while services is a little bit overrepresented.

- The number of employees in your company? 692 responses

<input type="checkbox"/>	1	34,2%
<input type="checkbox"/>	2 – 5	39,7%
<input type="checkbox"/>	6 – 10	11%
<input type="checkbox"/>	More than 10	15,2%

Survey questions

1. How many invoices does your organisation issue annually?

<input type="checkbox"/>	1-100	36,5%
<input type="checkbox"/>	101 - 5000	60,3%

<input type="checkbox"/>	5000 +	3,2%
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2. Is your organisation currently sending electronic invoices to its customers?

<input type="checkbox"/>	Yes.	19,9%
<input type="checkbox"/>	Not yet, but we plan to start sending electronic invoices to our customers	29%
<input type="checkbox"/>	No.	51%

3. Has your organisation ever been requested, by its customers, to send invoices electronically?

<input type="checkbox"/>	Yes.	40,3%
<input type="checkbox"/>	No.	59,7%

4. Which type of e-Invoicing solution is your organisation using or planning to use?

<input type="checkbox"/>	You send an electronic invoice, from your accounting application, directly to your customer	29,6%
<input type="checkbox"/>	You send an electronic invoice, from your accounting application, via an e-Invoicing platform, to your customer Name of the e-Invoicing platform:	17,7%
<input type="checkbox"/>	You use the portal of your customer, where you enter the invoice data into a web form	2,4%

<input type="checkbox"/>	You use the portal of an e-Invoicing platform, where you enter the invoice data into a web form, and the e-Invoicing platform sends the electronic invoice to your customer Name of the e-Invoicing platform:	4,4%
<input type="checkbox"/>	You send a PDF via email	46,2%
<input type="checkbox"/>	Other being	13,1%

5. What do you regard as potential benefits of electronic invoicing?

<input type="checkbox"/>	Cost reduction	57,4%
<input type="checkbox"/>	Increased efficiency	19,8%
<input type="checkbox"/>	Faster customer payments	33%
<input type="checkbox"/>	Less customer disputes	2,9%
<input type="checkbox"/>	In tune with customer preferences	26,4%
<input type="checkbox"/>	There are no benefits.	17,9%
<input type="checkbox"/>	Other being	5,5%

6. What do you regard as potential problems of electronic invoicing?

<input type="checkbox"/>	Complexity	18,9%
<input type="checkbox"/>	Expensive/high investment required	17,5%
<input type="checkbox"/>	Concerns over return on investment	9,2%
<input type="checkbox"/>	Readiness/compatibility of internal systems	34,6%

<input type="checkbox"/>	Customer compatibility/readiness	51,8%
<input type="checkbox"/>	Legal uncertainty concerning the acceptance of the invoice in different Member States.	9,4%
<input type="checkbox"/>	There are no barriers	11,6%
<input type="checkbox"/>	Other:	10,3%

7. Does your organisation use any of the following e-Procurement services?

<input type="checkbox"/>	Electronic Catalogue Services: you provide your customers with electronic product information or you use electronic product information from your suppliers	43,6%
<input type="checkbox"/>	Electronic Ordering Services: you receive orders from your customer electronically or you send electronic orders to your suppliers	76,6%
<input type="checkbox"/>	Electronic Payment Services: you pay your supplier electronically	56,5%

8. Which functionalities would you see as essential in an E-Invoice Portal (i.e. a portal where you enter the invoice data into a web form)?

<input type="checkbox"/>	Create invoice and save as draft	73,6%
<input type="checkbox"/>	Edit (draft) Invoice and Submit invoice	65,6%
<input type="checkbox"/>	Send credit / debit notes	45,4%
<input type="checkbox"/>	Resend invoice	49,8%

<input type="checkbox"/>	Search and view archived invoices for a limited number of time	28,9%
<input type="checkbox"/>	Search and view archived invoices for the legally required period of time (e.g. 10 years)	46,1%
<input type="checkbox"/>	Check status of invoices (received by customer, approved, to be paid in X days, paid, ...)	40,6%
<input type="checkbox"/>	Download the legal invoice (e.g. signed PDF)	27%
<input type="checkbox"/>	Export invoice to a booking file (XML or other format) for integration with your accounting system	44,4%
<input type="checkbox"/>	Print Invoice	45,4%
<input type="checkbox"/>	Discussion Forum – Dispute management process	13,4%
<input type="checkbox"/>	Create invoice from Order-Goods receipt	22,1%
<input type="checkbox"/>	Copy invoice from previous invoice	32%
<input type="checkbox"/>	Use pricing information from an online catalogue	20,1%
<input type="checkbox"/>	Attach technical annex or timesheets	48%

9. Which elements do you consider to be the most important accelerators for your organisation to engage with electronic invoicing?

<input type="checkbox"/>	Free IT tools or solutions for you to create, transmit and send electronic invoices.	62,1%
<input type="checkbox"/>	Guaranteed faster payments	29,5%

<input type="checkbox"/>	Supporting Material (solution documentation, user manuals, legal documentation, sample files, frequently asked questions, ...)	48%
<input type="checkbox"/>	A service desk for all your electronic invoicing related questions	40,4%
<input type="checkbox"/>	Training on proposed solutions	38,4%
<input type="checkbox"/>	A certification from a 3rd party, stating that the solution proposed by your customer is VAT compliant	48,8%
<input type="checkbox"/>	Other:	7,1%

5.3.1.3. Summary

- 20% of the SMEs already send e-Invoices to their clients; 29% intends to do so.
- 40% of the suppliers have ever been requested by its customers to send invoices electronically.
- The most used or planned-to-use solution is a PDF-based solution via email (46%). The use of an e-Invoicing platform (17%) or a portal (7%) is less popular with SMEs in Finland.
- Cost savings are regarded by 57% of the respondents as the potential benefit from e-Invoicing, second to being in tune with customer preferences (26%) – because the customer asks for it – and increased efficiency (20%).
- The largest obstacles are perceived to be customer compatibility/readiness (52%), readiness/compatibility of internal systems (35%) and complexity (19%). Legal uncertainty is only by 9% seen as a barrier.
- The majority of the SME companies use other electronic services like e-Ordering (77%) or electronic payments (57%). Electronic Catalogue Services are less common (44%).

- The most important functionalities of e-Invoicing portals are perceived to be:
 - creation of invoices and ability to save drafts (74%)
 - the ability to edit and submit invoices (66%)
 - the ability to resend invoices (50%)
 - availability of archived invoices throughout the legally required period of time (46%)
- The main accelerators to start with e-Invoicing are:
 - free IT tools or solutions (62%) – this is in line with the preference of sending PDFs via email
 - 3rd party VAT compliancy certification of proposed solution (49%)
 - provision of supporting material and documentation, lessons learned etc (48%)

5.3.2. Results of the survey on e-Practice

5.3.2.1. *Contact persons*

Contact
Eva Coscia

5.3.2.2. *The survey*

The survey was also executed on e-Practice.eu, as part of a larger e-Procurement survey. The answers in relation to e-Invoicing were withdrawn (22 on a total of 40). Although this sample is too small to be statistically relevant, it's in line with the Finnish survey, where there are significantly more participants.

SME Questionnaire, survey on e-Practice

Version: <http://ec.europa.eu/yourvoice/ipm/forms/dispatch?form=eProcurementSurvey>

Survey questions

1. How many invoices does your organisation issue annually?

<input type="checkbox"/>	1-100	13,6%
<input type="checkbox"/>	101 - 5000	18,1%
<input type="checkbox"/>	5000 +	18,1%

2. Is your organisation currently sending electronic invoices to its customers?

<input type="checkbox"/>	Yes.	36,6%
<input type="checkbox"/>	Not yet, but we plan to start sending electronic invoices to our customers	13,6%
<input type="checkbox"/>	No.	13,6%

3. Has your organisation ever been requested, by its customers, to send invoices electronically?

<input type="checkbox"/>	Yes.	40,9%
<input type="checkbox"/>	No.	22,7%

4. Which type of e-Invoicing solution is your organisation using or planning to use?

<input type="checkbox"/>	You send an electronic invoice, from your accounting application, directly to your customer	13,6%
<input type="checkbox"/>	You send an electronic invoice, from your accounting application, via an e-Invoicing platform, to your customer Name of the e-Invoicing platform:	22,7%
<input type="checkbox"/>	You use the portal of your customer, where you enter the invoice data into a web form	0%
<input type="checkbox"/>	You use the portal of an e-Invoicing platform, where you enter the invoice data into a web form, and the e-Invoicing platform sends the electronic invoice to your customer Name of the e-Invoicing platform:	4,5%
<input type="checkbox"/>	You send a PDF via email	18,1%
<input type="checkbox"/>	Other being	9,1%

5. What do you regard as potential benefits of electronic invoicing?

<input type="checkbox"/>	Cost reduction	59,1%
<input type="checkbox"/>	Increased efficiency	59,1%
<input type="checkbox"/>	Faster customer payments	40%
<input type="checkbox"/>	Less customer disputes	18,2%
<input type="checkbox"/>	In tune with customer preferences	31,8%
<input type="checkbox"/>	There are no benefits.	0%
<input type="checkbox"/>	Other being	9,1%

6. What do you regard as potential problems of electronic invoicing?

<input type="checkbox"/>	Complexity	22,7%
<input type="checkbox"/>	Expensive/high investment required	13,6%
<input type="checkbox"/>	Concerns over return on investment	9,1%
<input type="checkbox"/>	Readiness/compatibility of internal systems	36,3%
<input type="checkbox"/>	Customer compatibility/readiness	40,9%
<input type="checkbox"/>	Legal uncertainty concerning the acceptance of the invoice in different Member States.	31,8%
<input type="checkbox"/>	There are no barriers	4,5%
<input type="checkbox"/>	Other:	4,5%

7. Does your organisation use any of the following e-Procurement services?

<input type="checkbox"/>	Electronic Catalogue Services: you provide your customers with electronic product information or you use electronic product information from your suppliers	18,2%
<input type="checkbox"/>	Electronic Ordering Services: you receive orders from your customer electronically or you send electronic orders to your suppliers	27,3%
<input type="checkbox"/>	Electronic Payment Services: you pay your supplier electronically	45,5%

8. Which functionalities would you see as essential in an E-Invoice Portal (i.e. a portal where you enter the invoice data into a web form)?

<input type="checkbox"/>	Create invoice and save as draft	54,5%
<input type="checkbox"/>	Edit (draft) Invoice and Submit invoice	50 %
<input type="checkbox"/>	Send credit / debit notes	50%
<input type="checkbox"/>	Resend invoice	45,5%
<input type="checkbox"/>	Search and view archived invoices for a limited number of time	36,4%
<input type="checkbox"/>	Search and view archived invoices for the legally required period of time (e.g. 10 years)	41%
<input type="checkbox"/>	Check status of invoices (received by customer, approved, to be paid in X days, paid, ...)	54,5%
<input type="checkbox"/>	Download the legal invoice (e.g. signed PDF)	59,1%
<input type="checkbox"/>	Export invoice to a booking file (XML or other format) for integration with your accounting system	45,5%
<input type="checkbox"/>	Print Invoice	36,4%
<input type="checkbox"/>	Discussion Forum – Dispute management process	13,4%
<input type="checkbox"/>	Create invoice from Order-Goods receipt	27,3%
<input type="checkbox"/>	Copy invoice from previous invoice	31,8%
<input type="checkbox"/>	Use pricing information from an online catalogue	31,8%
<input type="checkbox"/>	Attach technical annex or timesheets	27,3%

9. Which elements do you consider to be the most important accelerators for your organisation to engage with electronic invoicing?

<input type="checkbox"/>	Free IT tools or solutions for you to create, transmit and send electronic invoices.	31,2%
<input type="checkbox"/>	Guaranteed faster payments	18,2%
<input type="checkbox"/>	Supporting Material (solution documentation, user manuals, legal documentation, sample files, frequently asked questions, ...)	27,3%
<input type="checkbox"/>	A service desk for all your electronic invoicing related questions	18,2%
<input type="checkbox"/>	Training on proposed solutions	13,6%
<input type="checkbox"/>	A certification from a 3rd party, stating that the solution proposed by your customer is VAT compliant	36,4%
<input type="checkbox"/>	Other:	4,5%

5.3.2.3. Summary

- 37% of the SMEs already send e-Invoices to their clients; 14% intends to do so.
- 41% of the suppliers have ever been requested by its customers to send invoices electronically.
- Most popular solutions are e-Invoicing portals (23%) and sending PDF via email.

- Cost savings and increased efficiency are regarded by 59% of the respondents as the potential benefit from e-Invoicing, followed by faster customer payments (40%)
- The largest obstacles are perceived to be customer compatibility/readiness (41%), readiness/compatibility of internal systems (36%) and complexity (23%). Legal uncertainty is by 32% seen as a barrier.
- The majority of the SME companies use other electronic services like electronic payments (46%) or e-Ordering (27%). Electronic Catalogue Services are less common (18%).
- The most important functionalities of e-Invoicing portals are perceived to be:
 - Download the legal invoice (e.g. signed PDF) (59%)
 - Check status of invoices and create invoice and save as draft (55%)
 - Edit (draft) Invoice and Submit invoice, and send credit / debit notes (50%)
- The main accelerators to start with e-Invoicing are:
 - 3rd party VAT compliancy certification of proposed solution (36%)
 - free IT tools or solutions (31%) – this is in line with the preference of sending PDFs via email
 - provision of supporting material and documentation, lessons learned etc (27%)

5.4. Results from the interview with IBM

5.4.1. IBM as a large buyer

5.4.1.1. *Organisational Viewpoint*

IBM joined the RosettaNet consortium used for exchanging business information (B2B) over 20 years ago. Over the last 10 years, IBM has provided other e-Invoicing solutions towards its suppliers – via EDI and using a web portal. By doing so, the number of paper invoices from all suppliers is reduced by 90%. The world-wide supplier portal has over 35.000 suppliers connected.

Rolling out e-Invoicing solutions towards customers is more difficult, since one has to pay attention to the customer requirements. IBM has a large number of invoicing platforms servicing these customers, as well as outsourced clients. These platforms are candidates for review and transformation to e-Invoicing.

5.4.1.2. *Processes and functional Viewpoint*

IBM has a Global Signature Signing Service that makes digital signatures available to all e-Invoicing platforms that wish to use it, world-wide. Currently the Supplier Portal Application uses it in Europe and in a few other locations and a supplier B2B application came online at end 2008. More platforms are scheduled to use it from 2009.

Additional countries are also being added to the signing service.

The major selling points for e-Invoicing are internal benefits: reduction in headcount, huge improvements in data quality and efficiency, cash flow benefits from beneficial payment terms, faster booking to ledgers and recovery of VAT.

External benefits are: speedier receipt of orders and invoices, adherence to payment terms, resultant improvement in image.

5.4.1.3. *Technological view*

The supplier portal is an extranet application with a secure log-in for authenticated suppliers connecting to internal applications. The application is fed by orders from ERP systems. There the suppliers can view the orders, acknowledge them and when fulfilled, they can select an order and create an invoice. Static data is pasted in the invoice, which should be completed with the additional delivery and tax info.

Afterwards, IBM signs it on their behalf, posts it for download and delivers the invoice to the IBM buying entity. Then, after verification, this info is passed into the ERP. IBM signed e-Invoices are accessible for tax auditors where they can access the IBM invoices, select the supplier and date, and then store them locally or validate on a public web service. Archiving the invoices is only applicable for IBM invoices, not of suppliers.

IBM's sell-side invoice platforms use similar procedures and can use the signing service too, at the appropriate point in the e-Invoicing chain. The signing solution is pluggable with platforms such as OB10 and E2Open for reformatting, delivery and archiving, with signing service or other web services incorporated as required.

5.4.1.4. Use of standards

IBM is a leading contributor to standards development and uses many standards internally and externally. Companies that wish to supply to IBM are required to conform to a specific set of supply chain and invoicing standards. In the customer market place, IBM supports various standards as required by customers.

5.5. Results from the interview with SAP

SAP provides a number of tools allowing setting up a compliant e-Invoicing system. They provide tools to setup e-Invoicing solutions towards suppliers or customers, but also for e-Invoicing solution providers (the Biller Consolidation), as used by a number of providers in Switzerland, Germany and Luxemburg.

As a conclusion, and this applies also to many other ERP solutions, they provide open solutions that can communicate with the outside world, be it by exchanging structured documents or PDF images, be it in an EDI concept or by applying advanced electronic signatures, be it in an in-house modus or by connecting to an outsourced solution platform... so basically almost everything is possible.

6. STANDARDIZATION INITIATIVES

6.1. The Standardisation Barrier¹

6.1.1. What is a standard²?

12. a. A definite level of excellence, attainment, wealth, or the like, or a definite degree of any quality, viewed as a prescribed object of endeavour or as the measure of what is adequate for some purpose.

[Oxford English Dictionary](#)

Standards:

- Cover several disciplines: dealing with all technical, economic and social aspects of human activity and covering all basic disciplines such as language, mathematics, physics, etc.;
- Are coherent and consistent: standards are generally developed by technical committees which are coordinated by a specialized body, and ensure that barriers between different areas of activity and different trades are overcome;
- Result from participation: standards reflect the results of joint work involving all competent parties concerned and are validated by consensus to represent all relevant interests: producers, users, laboratories, public authorities, consumers, etc.;
- Are a living process: standards are based on actual experience and lead to material results in practice (products – both goods and services, test methods, etc.); they establish a compromise between the state of the art and the economic constraints of the time;
- Are up to date: standards are reviewed periodically or as dictated by circumstance to ensure their currency, and therefore evolve together with technological and social progress;
- Have a reference status: in commercial contracts and in court in the event of a dispute;
- Have national or international recognition: standards are documents which are recognized as valid – nationally, regionally or internationally, as appropriate;
- Are available to everyone: standards may be consulted and purchased without restriction.

[WSSN \(World Standards Services Network\)](#)

¹ For more information the reader may consult the paper "[The challenges for European standardisation](#)"

² The term 'standard' is here used in its broadest sense:

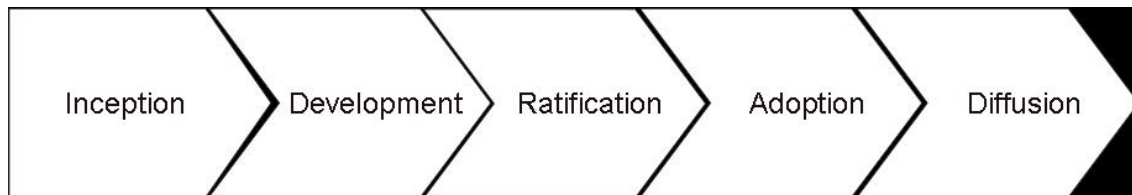
Document, established by consensus and approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context

[ISO/IEC Guide 2:2004 Standardization and related activities - General vocabulary](#)

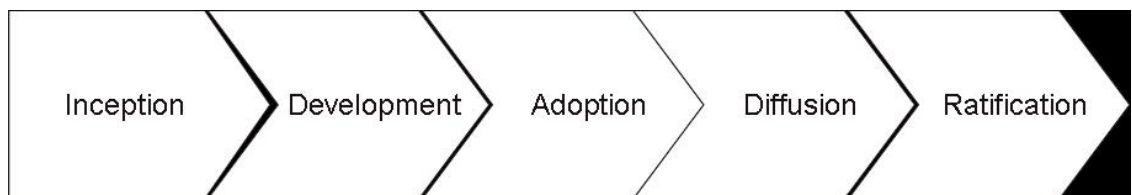
In its fundamental nature and in very generic terms a standard is a definite agreement (on something) that becomes the measure of what is adequate for some purpose (e.g. the way a process is run or a technology is implemented). According to ISO/IEC standards are voluntary documents for application as opposed to regulations which are binding legislative rules, adopted by an authority and mandatory for application. If a standard is referenced in a regulation then it may also become a mandatory document for application.

Standards established by consensus and approved by a recognized body are usually named *de jure* standards. Practices which are common and widely used in an industry despite not ratified by a standards body are often called *de facto* standards.

De jure standards may be created from scratch as a result of a standardisation initiative (by a group of vendors, an industry, governmental initiative, etc...). In this case the typical process would follow the stages depicted below:



Another possibility is the creation of *De jure* standards from *de facto* standards. In this case the standard making process could follow the stages depicted below. In this scenario, the ratification stage would encompass some development work (i.e. the documenting of the standard and possibly resolution of some harmonisation issues).



Getting to a definite *de jure* standard is complex since the agreement by stakeholders on the *measure of what is adequate* may turn out to be too limitative (the standard reflects only what all stakeholders were able to agree on) or too broad (the standard incorporates suggestions from every stakeholder making it not fit for use) for the industry or industries. To achieve a definite degree of quality and interoperability, the standard must be designed for wide adoption. Aiming at this goal, several standardisation bodies have been created with different links to the industry or industries for which the measure of what is adequate aims at being used. According to WSSN (world standards services network):

“Most countries have some form of standardizing activities and many countries participate in regional and international standardization activities. In some countries, there may be a number of standards development organizations.”

According to the ISO/IEC Guide a standard becomes international when endorsed by an international standards organization. In what concerns e-Invoicing, this objective should be reached by collaboration between UN/CEFACT (namely TBG1 Supply Chain and TBG5 Finance) and ISO (namely TC68 Financial Services).

Since the impact of standards is potentially very large, the governance of standardisation initiatives is an important challenge. An example of this is the World Trade Organization (WTO) agreement on the technical barriers to trade (a.k.a. the Standards Code). This initiative aims at ensuring that technical regulations, voluntary standards and conformity assessment procedures of WTO’s members do not create unnecessary obstacles to trade.

Standards can also be segregated between Open Standards (which are normally perceived as royalty free, available for public consultation and development) and Proprietary standards. To highlight the importance of Open Standards for the development of e-Invoicing we will quote the 'European Interoperability Framework for pan-European e-Government Services'³

"To attain interoperability in the context of pan-European e-Government services, guidance needs to focus on Open Standards. The following are the minimal characteristics that a specification and its attendant documents must have in order to be considered an open standard:

- The standard is adopted and will be maintained by a not-for-profit organisation, and its ongoing development occurs on the basis of an open decision-making procedure available to all interested parties (consensus or majority decision etc.).
- The standard has been published and the standard specification document is available either freely or at a nominal charge. It must be permissible to all to copy, distribute and use it for no fee or at a nominal fee.
- The intellectual property - i.e. patents possibly present - of (parts of) the standard is made irrevocably available on a royalty free basis.
- There are no constraints on the re-use of the standard.

In <http://europa.eu.int/idabc/en/document/3761>

6.1.2. The e-Invoice fragmentation of the international standard

Compared to paper invoices, e-Invoices are sensed to offer a number of important advantages for enterprises' competitiveness. E-Invoices are potentially faster to process, reach the customer quicker, and can be stored centrally at very low cost when compared to traditional paper invoices.

³ The EIF is the reference document on interoperability for the IDABC programme. It is the result of an extensive consultation process with the Member States and thus represents the highest ranking module for the implementation of European eGovernment services.

However, according to the latest European studies on e-Invoicing there are three main obstacles to the full uptake of e-Invoicing in Europe:

1. Standardisation of e-Invoices is currently fragmented in the EU and worldwide. This is an obstacle to a seamless transfer and thus to the full cost savings potential. It also leads to commercial barriers for SMEs, for whom it is difficult to decide which standards to implement.
2. The validity and acceptance of e-Invoices for legal, financial and administrative purposes still follow national rules, making cross-border transactions difficult.
3. Security, authenticity and integrity considerations lead to an operational risk and thus to a deficit of trust and market acceptance.

http://ec.europa.eu/enterprise/ict/policy/standards/einvoicing_en.htm#top

This document will only look at the first obstacle i.e. the fragmentation of the e-Invoice standard. According to the communication paper⁴ from the European Commission to the European Parliament and the European Council on the role of standardisation:

"Standards can help to create and ensure interoperability and hence contribute to avoid the fragmentation of markets. This is of particular importance in rapidly evolving markets with ever changing technologies"

The European e-Invoicing Final Report pointed-out that despite the importance of standards, too many of them (with the same objective) are as good as too little. In the last years the multiple initiatives, both in Europe and globally, on the e-Invoice standard has lead to a proliferation of specifications but not to a solution fit for the mass-market. This as ultimately contributed to a lack of interoperability between standards and a fragmentation of the e-Invoice market. To resolve this problem the report stated that: "It is proposed to establish a collaborative activity between the pre-eminent International standardisation bodies, being UN/CEFACT (Trade and Business Process Group (TBG1) "Supply Chain" and TBG5 "Finance") and ISO (Technical Committee 68 "Financial Services"), for the development and delivery of an International EEI standard."

"An international e-Invoice standard should be developed; building upon existing commonly used business practices, which will help consolidate the number of specifications in use, while establishing a solid well-respected semantic basis upon which the European Electronic Invoicing (EEI) Framework can be launched."

In <http://ec.europa.eu/enterprise/ict/policy/standards/einvoicing/2007-07-eei-final-rep-3-2.pdf>

According to this report the solution to resolve the standardisation barrier, should have an international scope, rather than purely European, and it should be lead by pre-eminent

⁴ http://europa.eu/eur-lex/en/com/cnc/2004/com2004_0674en01.pdf

International standardisation bodies, as opposed to an EU lead program. This report defended this strategy using the following arguments:

- “While time to market of any standard is critical, it is also vital that the standard forming the basis of the EEI Framework is international. This will increase market certainty in the solution, and respect the fact that European supply chains extend beyond European geographical boundaries.”
- “Experience suggests that a European standard will not readily gain the commercial support and acceptance that an International ISO/UN/CEFACT ratified standard will.”

In the same report, the recommendation to address the above standardisation barriers suggests that EEI Steering Committee (now called Expert Group on Electronic Invoicing) should be the driver of the EEI Framework. The business models and semantic components developed by UN/CEFACT should be used as the basis for the development of EEI compliant international standard. This would maximise interoperability with SEPA standards and allow the EEI Framework to be implemented on the basis of international (ISO20022/ UN/CEFACT) XML message standards. CEN would play an important role by ensuring that the e-Procurement standards align fully with the previous international standards, thus ensuring interoperability.

The table below provides information on the European recommendations outlined in the e-Invoicing Final Report.

e-Invoicing Final Report Version 3.0
It is recommended that the EEI Steering Committee takes overall responsibility for establishing the EEI Framework. It may wish to seek the assistance of UN/CEFACT/TBG5 with regard to ISO20022 e-Invoice standard ²² and/or other specialised bodies for the collation of existing well understood e-Invoicing data requirements.
The EEI Steering Committee should openly disseminate the EEI business requirements once agreed. Requirements linking the invoice and the payment elements (SEPA) are particularly important. In particular, these requirements should be communicated to CEN ISSS WS eINV to ensure that the e-Procurement standards align fully with the existing SEPA standards, thus ensuring interoperability.
The EEI Steering Committee should publish a standards development timeline in order to identify deliverables, responsibilities and resources necessary to produce international standards supporting the EEI Framework. The timeline will convey the approach by which EEI compliant standards will be developed to support the EEI Framework under the direction of the EEI Steering Committee.
The EEI Steering Committee should assess the need for specialist work under TBG5, supported by SWIFT Standards and in co-operation with CEN, to develop business models and data requirements that fulfil the EEI Framework. It is also recommended that the Steering Committee engage with other private and public sector bodies to help ensure wide enterprise, including SMEs, representation. The resulting business models and semantic components should be used as the basis for the development of EEI compliant international standards to fully address the barriers set out in this report.

The EEI Steering Committee should encourage both UN/CEFACT (via TBG1) and ISO20022 (via TBG5 with the support of SWIFT) to adopt the EEI business models and to develop, or amend existing, technical solutions in their respective standards (ISO15000, or ISO20022). It is envisaged that this can happen rapidly, producing an international standard within 18 months from the date when the EEI Steering Committee agrees the business requirements for the EEI Framework. This will maximise interoperability with SEPA standards and allow the EEI Framework will be implemented on the basis of either ISO20022 or UN/CEFACT (ISO15000) XML message standards. As both standards will be interoperable this will maximise mass-market appeal by leveraging both the UN/CEFACT and ISO brands.

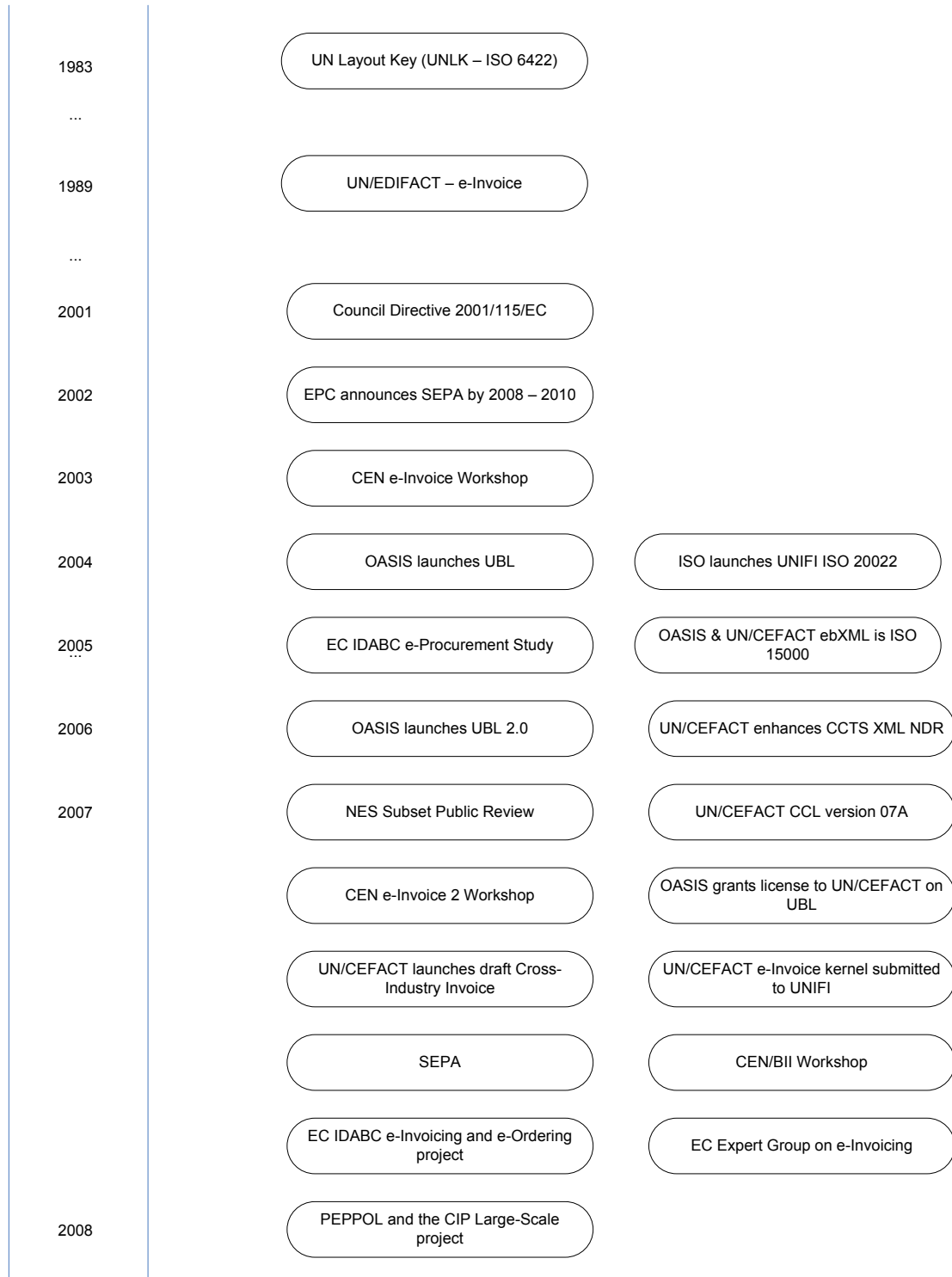
Alignment between UN/CEFACT and ISO20022 with regards to EEI standards will be the responsibility of TBG1 and TBG5 respectively.

In <http://ec.europa.eu/enterprise/ict/policy/standards/einvoicing/2007-07-eei-final-rep-3-2.pdf>

The next chapters will put the development of the e-Invoice standard into an historical perspective. As a support, the reader will also find a business and a technical annex.

6.2. Overview of initiatives

Please find below a timeline overview of some of the most relevant events and initiatives in relation to e-Invoicing and standardization.



6.3. International Standardization Bodies Initiatives

6.3.1. UN/CEFACT

"The relevance of UN/CEFACT work can easily be understood in the context of the end-to-end business transaction in international trade, which inevitably involves government administrative requirements. The essence of these transactions involves a buyer and a seller and a series of processes that have to be carried out.

The buyer has to:

- (a) Gather information on suppliers, products and services;
- (b) Establish contracts and place orders with suppliers;
- (c) Pay sellers according to the agreed terms of trade;
- (d) Respond to the requirements of customs/health/government authorities.

The seller has to:

- (a) Provide information on available products, services and trade capabilities;
- (b) Agree to the terms and conditions for delivering products or services;
- (c) Ship products or provide services according to the agreed terms of delivery;
- (d) Respond to customs/health/government authorities.

(...)

UN/CEFACT contributes to improved international trade processes for commerce that enable:

- (a) Activities between the buyer, seller and relevant authorities that are simple, cost-effective and support automation;
- (b) Border-crossing procedures and other government, commercial and transport processes that are transparent and effective, reducing as much as possible unforeseen or undue delays or unexpected additional costs;
- (c) Security considerations during the physical movement of goods that are optimized;
- (d) Off-the-shelf software solutions using UN/CEFACT standards and recommendations that are available to automate transactions and the flow of information."

[Draft programme of work of UN/CEFACT 2008-2009: work items](#)

United Nations Economic Commission for Europe (UNECE) has been developing trade facilitation tools since the 1960's. This work was originally carried out by the Working Party on the Facilitation of International Trade Procedures, Working Party 4 (WP.4). Working Party 4 developed a number of recommendations for best practices in trade procedures and for facilitating information management, traders and providers of trade-related services. These recommendations include the UN Layout Key, a guideline for designing documents that allows information to be recorded only once for an entire set of

trade documents. WP.4 was also very active in the development and maintenance of standards for electronic data interchange (EDI), which form the basis of the global standard for EDI, the UN Electronic Data Interchange for Administration, Commerce and Transport (UN/EDIFACT). In 1987, ISO approved the UN/EDIFACT syntax rules for EDI (ISO standard 9735); and two years later (1989), WP.4 published the (electronic) invoice and (electronic) order UN/EDIFACT messages. In 1997, UNECE restructured Working Party 4 and formed the UN Centre for Trade Facilitation and Electronic Business (UN/CEFACT). UN/CEFACT produces Standards and makes Recommendations for their usage. The Standards can be Business or Technical Specifications and can consist of a single part or multiple parts. They are intended for implementers and end-users. They provide specifications for any business use or technical application independent of communication protocol, underlying operating systems and hardware platforms. According to <http://www.uncefactforum.org/index.htm> “UN/CEFACT is in the unique position to create Global e-Business standards for the purpose of facilitating trade world wide. In cooperation with OASIS it has created the ebXML standard, which is leading the world into a new era, where business will be done over the Internet and businesses and governments will collaborate at a higher level to achieve the largest cost savings.”

6.3.1.1. UN Layout Key (UNLK a.k.a. ISO 6422)

This initiative provides an international basis for the standardization of documents used in international trade and transport, including the visual representation of such documents. The UN Layout Key (UNLK) is intended particularly to serve as a basis for designing aligned series of forms employing a master document in a reprographic one run method of document preparation. It can also be used to design screen layouts for the visual display of electronic documents. The Aligned Invoice Layout Key for International Trade is UN/CEFACT recommendation^o.6 (current version dates from 1983):

http://www.unece.org/cefact/recommendations/rec06/rec06_ecetrd148.pdf

At the time this document is written, UN/CEFACT International Trade & Business Processes Group (a.k.a.TBG15) is taking important steps on revising the existing Recommendation N^o. 6. This revision aims at ensuring that the future version of the Aligned Invoice Layout Key for International Trade contains the elements required to exchange information electronically, from the point of view of the user, the service provider and the legislator.

6.3.1.2. Trade Data Element Directory (TDED a.k.a. UNTDED or ISO 7372)

This ISO (original version 1993) contains the standard data elements, which can be used with any method for data interchange on paper documents as well as with other means of data communication http://www.unece.org/etrades/download/files/e-untded93_v1.2.zip. They can be selected for transmission one by one, or used within a particular system of interchange rules, e.g. the UN/EDIFACT. The Directory provides a common language for terms used in international trade and facilitates the interchange of data. UNTDED is a component of aligned, UNLK conform trade documents. The WCO data harmonization initiative is based on TDED definitions. The EDI developments, especially

UN/EDIFACT, were based initially on this semantic. During the ISO 7372 revision process in 2004/05, the Maintenance Agency has developed Trade Data Element Names which fully comply with the naming rules defined by ISO 11179, as required by the ebXML Core Components Technical Specification (a.k.a. ISO/TS 15000 part 5 – the reader should refer to the next chapters). For examples and additional information:

<http://www.unece.org/trade/untdid/UNTDED2005.pdf>

6.3.1.3. UNeDocs and the Trade Facilitation Toolkit and Forms Repository

This is a tool based on the UN Layout Key to provide standard based trade documents in paper and electronic format that has been designed with the objective of letting small and medium enterprises participate in advanced supply chains. UNeDocs is built upon the UN standard for the creation of paper documents (a.k.a. the UN Layout Key). UNeDocs documents incorporate UN/CEFACT trade facilitation recommendations and best business practices. Key documents for trade (invoice, custom declaration, shipping instruction, forwarding instruction, etc.) have been already implemented in UNeDocs. UNeDocs documents can be adapted to take into account specific country/industry requirements. Additionally, UNeDocs documents can be generated in paper, XML, PDF and EDI format, thus "delivering a powerful migration tool from a paper to a paper-less environment, with the option of "falling back" to paper at any time." In this context, in 2005, UN/CEFACT has also build the "Trade Facilitation Toolkit and Forms Repository" which the main goal is to accelerate Governments and trade associations initiatives in the simplification of documentary requirements: <http://unece.unog.ch/etrade/>

6.3.1.4. Electronic Business XML (ebXML) UN/CEFACT and OASIS⁵ joint project

The electronic business XML (ebXML) is an international initiative established by the UN/CEFACT and OASIS. The goal of ebXML is "to provide an XML-based open technical framework to enable XML to be utilized in a consistent and uniform manner for the exchange of electronic business (eb) data in application to application, application to human, and human to application environments—thus creating a single global electronic market.TM"

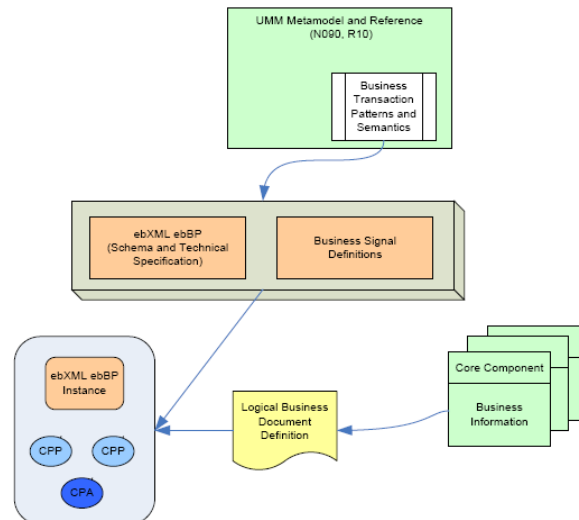
<http://www.ebxml.org/specs/index.htm>

In 2005, ISO has approved the five ebXML specifications as the ISO 15000 standard:

- ISO 15000-1: ebXML Collaborative Partner Profile Agreement
- ISO 15000-2: ebXML Messaging Service Specification
- ISO 15000-3: ebXML Registry Information Model
- ISO 15000-4: ebXML Registry Services Specification
- ISO 15000-5: ebXML Core Components Technical Specification⁶(Version 2.01).

⁵ Organization for the Advancement of Structured Information Standards (OASIS) is one the major world wide standardization bodies in the area of e-Business standards. Please refer to the next section.

In short the ebXML normative requirements documents and the ebXML Technical Architecture Specification aims at being the spinal cord for business partners engaging in electronic business transactions and interchange. The structure of the business collaboration would normally be based on the elements in the image below, with regards to its business operational view. However, ebXML does not describe the XML payload to be used. It only describes how to construct it:



<http://docs.oasis-open.org/ebxml-bp/2.0.4/OS/spec/ebxmlbp-v2.0.4-Spec-os-en.pdf>

For more information on the above picture the reader should consult the Annex chapter.

6.3.2. OASIS

The Organization for the Advancement of Structured Information Standards is a not-for-profit consortium that drives the development, convergence and adoption of open standards for the global information society. The Consortium hosts widely respected information portals on XML and, most important with regards to this paper's concern, on the ebXML standard.

- <http://ebxml.xml.org/>
- <http://www.ebxml.org/>

The above links provide access to two portals, hosted by OASIS, dedicated to ebXML (first to the list) and the ebXML community (second on the list). Moreover, OASIS hosts the <http://www.freeebxml.org/pr.htm>, "an initiative that aims to foster the development and adoption of ebXML and related technology through software and experience sharing. The mission of freeebXML.org is to provide a centralized site for developers to access and share 'free' ebXML code and applications".

For more information on OASIS committees, the reader should consult:

<http://www.oasis-open.org/committees/committees.php>

⁶ For more information on the Core Components specification the reader should consult the Annex chapter.

In this chapter we will only focus on the OASIS Universal Business Language initiative.

6.3.2.1. UBL

The Universal Business Language standard was launched in May 2004. This version further evolved and in December 2006 UBL 2.0 was released as the first international standards body implementation of the ebXML Core Components Technical Specification (CCTS 2.01, a.k.a. ISO/TS 15000-5). UBL version 2.0 includes a library of over a thousand XML data elements based on the ebXML CCTS (ISO/TS 15000-5). UBL includes an E-Invoice specification (part of the billing process). UBL has a cross industry vocation. It is absolutely neither sector nor region specific. The UBL library consists of ebXML CCTS Business Information Entities (BIEs). UBL XML schemas are defined through the application of UBL Naming and Design Rules (NDRs) to an underlying data model mapped to the Core Component types. In this way, UBL intends to abstract some concepts to word wide level and also implements few occurrence constraints (which means few mandatory attributes and few imposed associations). UBL messages can be used in a very wide range of functional contexts, from complex service-oriented architectures (SOAs) to the simple exchange of documents via email. Therefore both large companies and SMEs can benefit from UBL. Regarding SMEs, as part of the UBL project, SystML provides a range of forms for simple online and offline creation of UBL electronic business documents (e.g. an E-Invoice) in English, Spanish, and Italian. The documents can be found in <http://www.systml.co.uk/content/view/43/54/> and are part of "XForms For UBL," available in <http://sourceforge.net/projects/xforms4ubl>. Additionally a mapping of all the UBL documents to their equivalent UN Layout Keys is provided as part of the UBL 1.0 release. Free UBL 1.0 XSL-FO stylesheets and processor are available in <http://www.CraneSoftwrights.com/links/res-ublo.htm> to convert UBL 1.0 documents to their Layout Key equivalents in HTML and PDF form, and free Java software based on the this library is available in <http://ambrosoft.com/> to directly transform any UBL document into HTML files conformant to the UN Layout Key. Work is underway to create stylesheets that support the subset of UBL 2.0 documents that have UN Layout Key equivalents. The UBL 2.0 standard is maintained by an OASIS Technical Committee.

6.3.3. ISO

ISO is a federation of over 150 member countries, each represented by their national standards body. Technical Committee 68 (TC68) is in charge of international standards for the financial industry. Twenty-four ISO member countries have joined to actively participate in the work of TC68 as well as a number of observing countries and international organisations.

6.3.3.1. UNIFI

TC68 created standard rules on how financial business models and supporting message models should be described and specified. This is the Universal Financial Industry Schema (a.k.a. UNiversal Financial Industry message schema or UNIFI®). The UNIFI (ISO 20022) standard was published on 15 December 2004. This standard includes five parts:

- ISO 20022-1: Overall methodology and format specifications for inputs to and outputs from the ISO 20022 Repository
- ISO 20022-2: Roles and responsibilities of the registration bodies
- ISO/TS 20022-3: Technical Specification - ISO 20022 modelling guidelines
- ISO/TS 20022-4: Technical Specification - ISO 20022 XML design rules
- ISO/TS 20022-5: Technical Specification - ISO 20022 reverse engineering

This standard aims at the harmonisation of the messaging standards across a range of businesses, including securities, payments, trade services and foreign exchange. ISO 20022 intends to cover the complete life cycle of a business transaction and, therefore, becoming the common platform for the development of all financial message standards. The ISO 20022 Repository stores the business models, the message models and the derived XML schemas. A Registration Management Group (RMG) and a series of Standards Evaluation Groups (SEGs) were created to monitor the development, registration and publication of ISO 20022 models and messages. UNIFI is also the foundation stone for SEPA's objective of simplification of cash management processes and a unique multi-message XML standard for the whole transaction life-cycle including an e-Invoicing Kernel (proposal issued by UN/CEFACT, the reader should refer to the next chapters). The ISO 20022 - UNiversal Financial Industry message scheme, summary recipe:

- syntax neutral business modelling methodology
- syntax specific design rules
- industry led development/registration process
- financial repository on www.iso20022.org
- reverse engineering approach to ease coexistence

6.3.3.2. *Synergies between SEPA and e-Invoicing*

According to the website of the European Commission:

"e-Invoicing links the internal processes of enterprises to the payment system. Therefore, SEPA offers an ideal launching pad for a successful European e-Invoicing initiative. The SEPA route could be used to develop a common e-Invoicing scheme for Europe, based on common technical standards (preferably an ISO standard as for SEPA)"

http://ec.europa.eu/enterprise/ict/policy/standards/einvoicing_en.htm#top

6.3.3.3. *ISO20022 (UNIFI) vs. ISO/TS 15000-5 (ebXML CCTS)*

ISO 15000 is a series of technical specifications on an open technical framework. The UN/CEFACT core components repository can be considered an implementation of

ISO/TS 15000-5. ISO 20022 is a formal standard that covers the technical specifications and the process for establishing a registration authority and supporting repository of process models and messages.

6.3.3.4. Interoperability between ISO20022 (UNIFI) and ISO/TS 15000-5 (ebXML CCTS)

According to UNIFI:

"When standards are developed independently of each other, 'translating' from one standard to another requires mapping data directly from one application to another and vice-versa. This is costly, unscalable and difficult to implement and maintain. Each time you add a new standard to support, it increases the complexity and cost exponentially. Using a single message model as a master model reduces the translation effort since each standard only needs to translate to the master to ensure a link with any other standard. Such an approach of developing syntax-independent business models is the core of the UNIFI standard... Longer term, the physical UNIFI messages generated from the model would become the one and only standard we are looking for. While getting there, the message model helps co-existence."

<http://www.iso20022.org/>

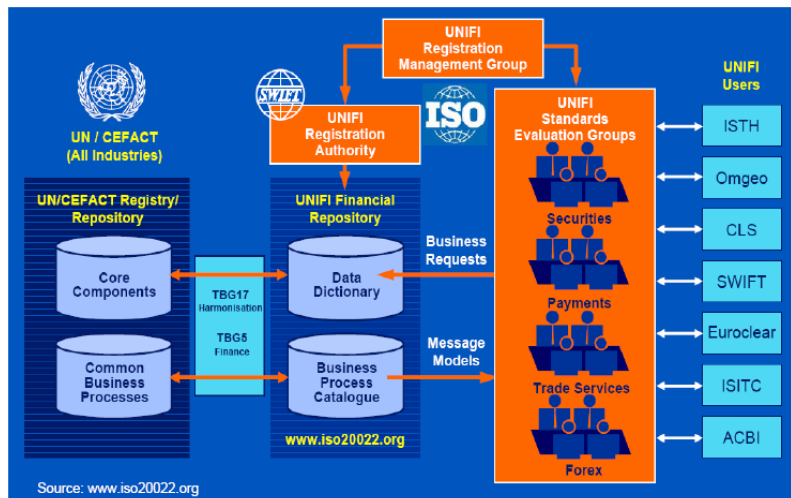
Since 17 June 2004 UN/CEFACT TBG5 has a MoU in place with ISO TC68 and SWIFT for purpose of co-operation and convergence between ISO20022 (UNIFI) and UN/CEFACT Core Component Technical Specification (part of ebXML and ISO/TS 15000) methodologies, message standards and Core Components Library. According to SWIFT http://www.swift.com/index.cfm?item_id=41730 "The purpose of the cooperation agreement is to analyse what needs to be changed to ensure that the content of UNIFI compliant messages can be 'harmonised' with the content of messages developed by other Core Components Technical Specifications compliant industries, and fed into the future global UN/CEFACT repository.(...) SWIFT has actively contributed to both initiatives and has worked at preserving alignment as much as possible between the new ISO and UN/CEFACT methodologies. As finance is a 'horizontal' industry servicing all other 'vertical' industries, it is vital to ensure coherence between finance message standards and those of other industry sectors. This facilitates end-to-end STP of business transactions from the originating industry right through to the final destination. SWIFT acts as the ISO 'Registration Authority' in charge of the UNIFI financial repository and has offered to UN/CEFACT the service of guardian of their finance-related items."

The first two steps of the above cooperation were achieved in 2005:

- SWIFT produced a 'gap analysis' to describe the differences between UNIFI and UN/CEFACT's CCTS, proposing different options on the way forward.
- The RA made a 'trial submission' of some components from the UNIFI Customer-to-Bank Payment Initiation messages to the UN/CEFACT group (TBG17) in charge of 'harmonising' components used in the various industries before their registration in the future UN/CEFACT repository.

The processing of this submission has allowed for the refinement of the gap analysis document. In 2006, the alignment of UNIFI and CCTS was transferred to TC68/WG4, in charge of reviewing UNIFI technical specifications. The trial submission from 2005 has then been turned into a real submission. UN/CEFACT (TBG17) started processing this submission in 2007 and harmonized and accepted it in early 2008.

Achieving interoperability between UN/CEFACT and ISO:



The ISO 20022 Registration Authority (RA) is the guardian of the UNIFI Financial Repository. The RA mission is to ensure compliance of developed Repository items with the approved technical specifications and to publish the Financial Repository on behalf of ISO. The RA services are provided by SWIFT. The ISO 20022 Standards Evaluation Groups (SEGs) are made up of industry experts in specific business domains of the financial industry as defined by the ISO 20022 Registration Management Group (RMG). The ISO 20022 Registration Management Group (RMG) is made of senior industry experts nominated by ISO TC68. The RMG is the highest UNIFI registration body: it monitors the overall registration process and reports directly to ISO TC68.

The UNIFI messages portfolio continues to grow around 94 messages already approved and 125 undergoing approval, some examples are provided below:

Payment message Portfolio:

29 UNIFI messages approved and published:

- Customer payment initiation
- Interbank payment clearing and settlement
- Payments exceptions & investigations
- Bank-to-customer cash management

Candidate UNIFI messages approved for development:

- Cash management

- Change/verify account identification
- New development proposals:
 - E-Mandates
 - Creditor payment activation request

Trade message Portfolio:

3 UNIFI messages approved and published:

- Invoice financing request

50 Candidate UNIFI messages under evaluation:

- Trade services management

Candidate UNIFI messages approved for development:

- E-invoice

Source: http://www.iso20022.org/index.cfm?item_id=64432

6.4. European Union Initiatives

6.4.1. European Commission

6.4.1.1. *Informal task force*

In December 2006 DG Enterprise & Industry and DG Internal Market & Services have started a joint action by creating an informal Task Force on e-Invoicing. The objective was to identify a possible roadmap for standardisation initiatives related to e-Invoicing and payments. Members were key stakeholders (e.g. service providers, solution providers, etc.), standardization bodies, and policy makers. The aforementioned Task Force has produced a report on the status quo and way forward. Key recommendation was to create a European e-Invoicing Framework (EEI) under the umbrella of a steering committee. The EEI Framework is to provide the basis for the interoperability of e-Invoicing solutions in the public and private sector based on common standards. In addition, it aims at removing or lowering legal barriers to the take-up cross-border e-Invoicing:

<http://ec.europa.eu/enterprise/ict/policy/standards/2007-07-eei-final-rep-3-2.pdf>

6.4.1.2. *Expert Group on e-Invoicing*

On 31 October 2007, the European Commission has adopted the decision to set up an Expert Group on e-Invoicing with a mandate to create the EEI Framework. The Group is expected to clarify all aspects of the identified obstacles and come up with recommendations how to remove them. The expert group is formed by stakeholders from both the public and private sectors. Representatives from large and small enterprises, financial services providers, standardisation organisations and the public sector attended a kick-off meeting held in Brussels on 26 February 2008. The group has a mandate to design a 'European Electronic Invoicing Framework' (EEIF) by 2009. Such a framework is expected to bring benefits to EU businesses and citizens by promoting the creation and development of open and interoperable e-Invoicing services. A mid-term report is expected to be presented to the Commission by the end of 2008 and a final report by the end of 2009.

See also http://ec.europa.eu/internal_market/payments/einvoicing.

6.4.1.3. *IDABC*

IDABC stands for Interoperable Delivery of European e-Government Services to public Administrations, Business and Citizens. To achieve its objectives, IDABC issues recommendations, develops solutions and provides services that enable national and European administrations to communicate electronically while offering modern public

services to businesses and citizens in Europe. The programme also provides financing to projects addressing European policy requirements, thus improving cooperation between administrations across Europe. National public sector policy-makers are represented in the IDABC programme's management committee and in many expert groups. This makes of the programme a unique forum for the coordination of national e-Government policies.

In 2004 the European Commission's IDABC Unit was active gathering the requirements for the European electronic procurement. In this context IDABC also participated in the enhancement of the UBL 1.0 standard. In 2005, the UBL TC agreed to adopt the IDABC Group's requirement. In 2006, IDABC and CEN/ISSS hosted a UBL TC meeting where a transition plan was prepared regarding the UBL support of European requirements captured by IDABC. On 15 December 2006 UBL 2.0 was released fulfilling the European requirements/comments captured by IDABC.

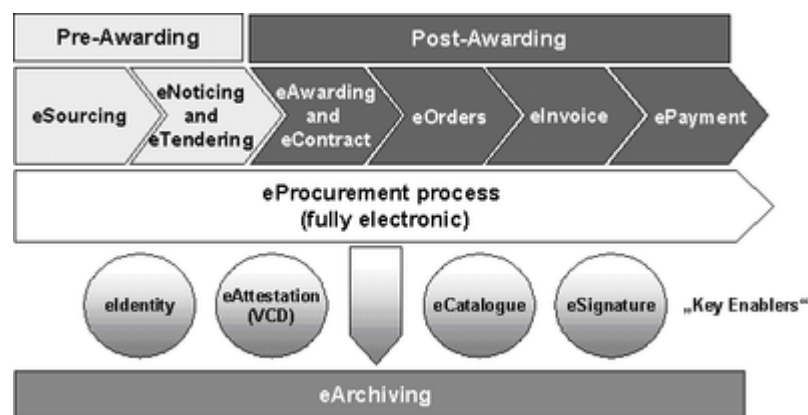
See also <http://ec.europa.eu/idabc>

6.4.1.4. Competitiveness and Innovation Framework Programme

The Competitiveness and Innovation Framework Programme (CIP) aims to encourage the competitiveness of European enterprises. With small and medium-sized enterprises (SMEs) as its main target, the programme will support innovation activities (including eco-innovation), provide better access to finance and deliver business support services in the regions. It will encourage a better take-up and use of information and communications technologies (ICT) and help to develop the information society. It will also promote the increased use of renewable energies and energy efficiency.

Supported by the CIP / ICT Policy Support Programme, PEPPOL (Pan-European Public Procurement Online) is a project to set up a pan-European pilot solution that, conjointly with existing national solutions, facilitates EU-wide interoperable public e-Procurement. The vision of the PEPPOL project is that any company and in particular SMEs in the EU can communicate electronically with any European governmental institution for the entire procurement process.

The final outcome of PEPPOL will be an interoperational environment build upon national systems and infrastructures supporting the full cycle of e-Procurement activities.



The pilots that will be developed in PEPPOL will support any economic operator in the EU and the European Economic Area (EEA) to respond to any published public tender notice electronically and to govern the entire procurement process from their own national infrastructure to any another national infrastructure. Thereby PEPPOL will focus on the engagement and participation of SME companies to public e-Procurement.

See also <http://www.peppol.eu>.

6.4.2. CEN

The Comité Européen de Normalisation / European Committee for Standardization is an EU standardisation body. CEN has been actively engaged in the e-Invoice harmonisation efforts. CEN has set up the e-Invoicing Workshop in 2003 and in 2007 Business Interoperability Interfaces on public procurement.

6.4.2.1. CEN/ISSS e-Invoicing Workshop (phase I)

In 2003, the European Commission issued a standardisation mandate (M 339) regarding the legal framework on e-Invoicing. CEN took the lead in the execution of this programme and set up a Workshop on e-Invoicing to prepare the first set of recommendations. The focus was mainly on the VAT related field(s) in the invoice. This Workshop brought together around 50 market players from national tax authorities, national organisations, IT vendors, service and application providers. The first deliverables of this activity addressed four main issues:

- Structure and content details of e-Invoice by using EDI (Electronic Data Interchange)
- Digital signatures for e-Invoicing
- Storage of e-Invoices
- Modelling of e-Invoice processes

After the publication of these first set of CEN recommendations, CEN continues to work on the field of e-Invoicing.

<http://ec.europa.eu/enterprise/ict/policy/legal/bxl2006/conclusions.pdf>

6.4.2.2. CEN/ISSS e-Invoicing Workshop (phase II)

Following the work of the first e-Invoice Workshop, Phase II is continuing this work by studying the various practices of e-Invoicing in Member States and collecting their experience into a set of best practices. Phase II has started with 50 participants and national tax authorities. The ongoing Phase II aims at:

- helping filling gaps in standardization for the use of electronic invoice processes.
- identifying the various practices in member states.
- integrating the emerging technical and practical solutions into effective best practices.

– defining and disseminate these best practices for e-Invoices in close coordination and cooperation with private industry, solution providers and public administration.

http://www.cen.eu/cenorm/businessdomains/businessdomains/iss/activity/einvoicing_2.asp

<http://www.cen.eu/cenorm/businessdomains/businessdomains/iss/activity/einvoicing2businessplanfinalv10wtc1.doc>

6.4.2.3. CEN/PSD Business Interoperability Interfaces on public procurement in Europe Workshop (CEN/BII)

The CEN/ISSS Workshop on business interoperability interfaces for public procurement in Europe (CEN/ISSS WS/BII) is established in order to

- Identify and document the required business interoperability interfaces related to pan-European electronic transactions in public procurement expressed as a set of technical specifications, developed by taking due account of current and emerging UN/CEFACT standards in order to ensure global interoperability;
- Co-ordinate and provide support to pilot projects implementing the technical specifications in order to remove technical barriers preventing interoperability.

To facilitate implementation of electronic commerce in a standardized way, thereby enabling the development of standardized software solutions as well as efficient connections between trading partners without case by case specification of the data interchange, the workshop agreed to document the required business interoperability interfaces as profile descriptions. The end goal is to reduce the cost of implementing electronic commerce to a level that is economical for small and medium size companies and institutions.

For more information, see www.peppol.eu.

6.5. Cross National Initiatives

6.5.1. Northern European Subset (NES)

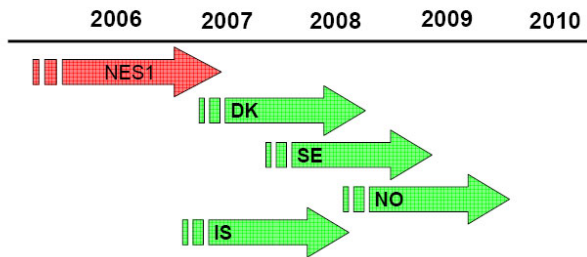
The Northern European Subset is an initiative to facilitate the establishment of a common platform for e-Procurement among its members, and through this to:

- Facilitate interoperability and practical use of e-Procurement in both domestic and cross border trade
- Facilitate harmonization of different types of e-Procurement documents
- Contribute to the development and use of an international standard for e-Procurement."

Currently, NES Participants are Denmark, Norway, Sweden, UK, Finland and Island:

<http://www.nesubl.eu/implementations.4.6f60681119df9656f80001151.html>

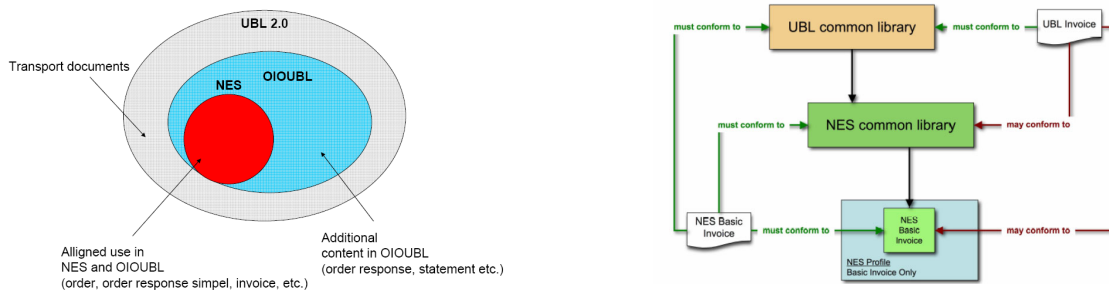
Despite that all listed countries participate in the upbringing of the NES standard, the actual implementation is done within the respective countries and each country has their own priorities and targets. According to NES, this is the planned rollout of the NES standard:



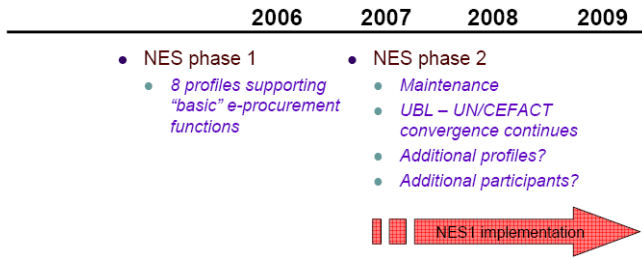
NES profiles are rolled out in the Nordic countries and so will CEN/BII profiles be. In the future other standards will continue to exist in these countries.

At content level NES is a subset of UBL 2.0. NES consists of 8 profiles of UBL messages for the ordering and invoicing processes. The starting point for NES was the existing UBL initiatives in Denmark (OIOXML e-Invoice, UBL 0.7 and work on Catalogue based on UBL 1.0), Sweden (Svefaktura based on UBL 1.0) and in the UK (several draft messages based on UBL 1.0). Support for ordering and catalogue (post-award) was added in the NES deliverables in February 2007.

In Denmark a larger scope than NES has been adopted called OIOUBL see figure below:



NES profiles are ready since February 2007, see <http://www.nesubl.eu>. Since then NES is in a maintenance phase and the members of NES initiated the CEN workshop CEN/BII and currently therefore the work is now allocated to CEN/BII.



For more information, see www.nesubl.eu

6.6. National Initiatives

6.6.1. FINVOICE (Finland)

Finvoice is an XML format for electronic invoices designed by the Finnish Financial Institutions. Finvoice is designed for online communications between the invoicer to the invoicee via a financial institution (e.g. a bank). The Finvoice contains a payment section jointly developed by the European banking associations and suitable for national and international payment transactions, ePI (electronic Payment Initiator). The ePI contains the data, provided by the payer, necessary for creating the payment instruction to be delivered to the bank. The ePI is designed for transferring both national and international payment orders. The ePI enables automatic processing from payer to recipient via banks. When the Finvoice is forwarded using the electronic invoice forwarding service of the banks, the recipient can be sure of the authenticity of the sender, and the sender gets proof that the invoice has been delivered to the recipient.

For more information, see <http://www.finvoice.info/>

6.6.2. SveFaktura (Sweden)

The Swedish Association of Local Authorities and Regions and The Swedish National Financial Management Authority jointly work together for the promotion of electronic procurement in the Swedish public sector. The joint activity takes place under the name of SFTI: "Single Face To Industry". In spring 2003, SFTI initiated a working group with the goal to develop a simple electronic invoice concept that would be suitable for introducing electronic invoicing to new corporations, notably the smaller ones and those with a limited number of invoices per business relation. The result of the endeavour was an invoice XML standard, inspired in UBL 1.0, named Svefaktura. According to its founders, Svefaktura is intended to:

- Complement the electronic invoices that are used in the existing e-Commerce/EDI scenarios under framework agreements (through SFTI scenarios, or other ones of equivalent functionality) which provide for far-reaching automation of the processes
- Offer an alternative to the scanning of paper invoices, with added value in terms of data quality, speed and cost
- Be simpler and more generally applicable compared to an existing stand-alone EDI invoice available in the SFTI series of specifications, by drawing on new technology.

The Svefaktura is implemented in Sweden in many different IT-solutions, by many IT-providers such as ERP-systems, e-invoicing portals, banks, VAN-operators etc; currently more than 60 providers of standard solutions have registered their support.

It is also mandated as the standard that governmental agencies shall use when they receive and send e-Invoices, which is mandatory since July 1, 2008. It is also used by many local authorities and county councils towards their suppliers, especially SMEs.

For more information, see

http://www.svefaktura.se/SFTI_Basic_Invoice20051130_EN/SFTI%20Basic%20Invoice_1.0/index.html

6.6.3. E2b (Norway)

The Norwegian e2b Forum is a non-profit, user driven organisation run by a group of major Norwegian companies. The objective of the e2b Forum is to increase the use of electronic invoicing, and the initiative is also supported by the Public authorities. After studying several e-Invoice formats, the e2b Forum decided to establish its own XML-based format. The following existing formats have been used as sources in the development of the e2b invoice format:

- Iocore's XML invoice as used by Gjensidige NOR Insurance
- VGIS (Visa Global Invoice Specification)
- EFO XML Invoice 1.0
- XML invoice as used by Selmer Skanska
- Telenor's XML invoice
- UN/CEFACT Edifact INVOICE
- DEDIP2 Edifact INVOICE

For more information, see <http://www.e2b.no/cgi-bin/ean/imaker?id=44333>

6.6.4. OIOUBL (Denmark)

In cooperation with a wide range of public and private stakeholders, the Danish National IT and Telecom Agency has drawn up a customised Danish version of the international e-Business standard UBL 2.0 issued by OASIS. The Danish version is known as OIOUBL.

For more information, see

<http://en.itst.dk/architecture-and-standards/data-standardisation/e-Business-standardisation/oioxml-electronic-invoicing>

6.6.5. FACTURAE (Spain)

El Centro de Cooperación Interbancaria (CCI) was founded on July 12, 1985 by a joint action of major banking entities and organizations (Banks, Savings and Loans Depositories, Credit Unions) that understood that the resolution of certain common problems would happen through the creation of a specific instrument destined to realize such a goal.

Since 2007 the electronic invoice standard developed by the CCI in cooperation with the AEAT (The Spanish State Tax Agency) "AEAT-CCI invoice standard" has been adopted by the Spanish Administración General del Estado changing its name to Facturae. According to the CCI website, this standard incorporates the following features:

- Compliance with applicable regulations in force and with the requisites set up by AEAT for electronic invoicing.

- Wide scope: it can be used by financial institutions as well as by their clients.
- Royalty-free: the use of the current version or of any new version is not subject to any fee or to the previous authorization of a body outside the financial industry.
- Free-of-charge distribution: it can be freely distributed to financial institutions and to their clients.
- Data specific to other industries may be included: the format is prepared to include specific data relevant to industries other than the financial sector, provided there is a previous agreement to do so.
- With information for factoring operations: as an optional feature, data specific to factoring operations can also be included.
- XML-based format: the XML standard is flexible, easy to implement and better suited for technical interoperability.

For more information see

<http://www.facturae.es/>

http://www.asociacioncci.es/Paginas/eFactura_AEAT-CCI_en.aspx

http://www.agenciatributaria.es/aeat/aeat.jsp?pg=camp/efactura/es_ES

6.6.6. swissDIGIN

The swissDIGIN-Forum is a forum/platform to promote B2B e-Invoicing in Switzerland (www.swissdigin.ch). The swissDIGIN standard is a cross-industry initiative to harmonize the content of electronic invoices. According to Prof. Christian Tanner (head of the swissDIGIN-Forum) since there are many technical standards currently available in the market, it was decided that Switzerland would not create its own e-Invoice format standard. Instead, a data dictionary would be created to guide companies on the content of an electronic invoice. The swissDIGIN initiative covers the legal requirements and also industry requirements (cross-industry) to enable the automatic reconciliation of invoices. This standard exists since 2005; its current version is version 2.0. The standard is coordinated by the University of Applied Sciences. The University steers a forum of stakeholders from several industries. The Forum is supported by the major relevant e-Invoicing service providers in Switzerland.

6.7. Cross-Industry Initiatives

6.7.1. SWIFT

The Society for Worldwide Interbank Financial Telecommunications is an industry-owned cooperative supplying messaging services and interface software to over 7000 financial institutions in 200 countries. SWIFT provides messaging services, using

SWIFTNet secure IP-based messaging platform, to banks, broker/dealers and investment managers, as well as to market infrastructures, in payments, treasury, securities and trade. The SWIFTNet portfolio includes real-time, interactive, browsing and file transfer facilities. SWIFT is increasingly used as the network and messaging service in many national and European high-value market infrastructures (Chaps, RTGS plus, Birel, EBA Step II, CLS, Euroclear, etc.). The SWIFTNet Trade Services Utility (TSU) is an interbank centralized data matching and workflow engine (only banks participate) designed to support matching of trade-related transaction data. These transaction data have been independently sourced from both the buyer's bank and the seller's bank and often originate from a purchase order but also from a commercial invoice or commercial and transport data sets (a.k.a. 3 way matching). Using TSU banks are able to offer a range of services, from the initial purchase order through reconciliation to completion. The TSU was officially launched on 2 April 2007 using SWIFTStandards XML.

To go a step further in the end-to-end automation of the business chain, including the bank-customer segment (E2E Straight Through Processing) and to aid standards convergence, SWIFT has joined forces with a number of initiatives/alliances, including SMPG, ISO WG 10 and ebXML, aiming to develop rules and standards for industry and cross-industry communication using XML.

6.7.2. Bolero

Bolero acts as both a standards development organisation and a market infrastructure. The rationale for cooperation with Bolero in the standards domain is to add value to SWIFT's standards offering by attaining interoperability throughout the entire trade transaction chain. The Bolero Trusted Trade Platform (TTP) provides mission-critical infrastructure to enable secure, guaranteed exchange of trade information and contractually binding trade documents.

Bolero has developed a common language to ensure the interoperation of disparate systems. Bolero has created an end-to-end trade data model and over 100 associated document types that belong to the boleroXML standard. boleroXML is a source standard for ebXML. boleroXML is used by Importers and Exporters across a wide industry spectrum – commodities, textiles, spirits and tobacco, automobiles, electronics

<http://www.bolero.net/assets/30/SWIFTpositioningdoc1110201885.pdf>

6.7.3. VISA

The Visa International Service Association is a joint venture of financial institutions that issue and market Visa related products. The Visa Extensible Markup Language (XML) Invoice Specification provides a cross-industry message format to enable processing of data across regions and industry sectors. The current Visa XML Invoice Specification supports:

- Line-item invoice detail for procurement (including Business-to-Business Electronic Commerce)
- Airline and travel itinerary data

- Lodging information (including detailed expenses)
- Car rental information (including detailed expenses)

Future releases of the Visa XML Invoice Specification will support:

- Health care
- Government
- Temporary services
- And others

<https://partnernetwork.visa.com/vpn/global/category.do>

6.7.4. EBA

The Euro Bankers Association is an association focused in the support of the banks' payments business. In this context EBA is the sponsor of the large-value clearing system EURO1. EBA has also developed a solution for handling low value payments entitled STEP1 as part of the S.T.E.P.S. (Straight Through Euro Payment System) programme designed to offer a full range of euro payments in a pan-European environment. The low-value payment system STEP1 went live in 2000. This program has taken a step further with the going live of STEP 2, the first PE-ACH (pan-European automated clearing house).

STEP2 is the first implementation of SWIFTNet FileAct and SWIFTStandards XML for ACHs: <http://www.ebaclearing.eu/>

In 2008, EBA as released a study on E-Invoicing: "European market description and analysis". This document may be downloaded: [E-Invoicing 2008](#)

6.7.5. CBI

The Corporate Banking Interbancario provides providing firms with electronic connection services to interbank payment systems, allowing online B2B transactions with one bank and providing a wide range of financial, information and business facilities.

In February 2007, CBI launched its new infrastructure, based on the XML standards, enabling end-to-end communications between banks and/or companies. Each company, through its access bank, is able to send and receive credit transfer, direct debit and invoices. The foundation for the definition of the CBI invoice message standard takes into consideration other "invoice standards" such as ebXML, EDIFACT, Finvoice etc. More generally, the CBI messages are based on the standards used by clearing and settlement circuits (SWIFT, ISO20022, SEPA etc.). CBI takes part in several standardization international initiatives and in particular to those regarding the creation of an e-Invoice international standard:

- UN/CEFACT TBG5 (permanent member)
- Trade Services SEG (Standard Evaluation Group) under ISO 20022 (permanent member)

- Management of registration process for new CBI service “Invoice financing” under ISO 20022 Repository
- ISO 20022 Registration Management Group (permanent member);
- CEN/ISSS (Workshop e-Invoicing), ETSI, EPC/OITS/SPTF (active participation)

6.7.6. Ariba commerce XML

Ariba is a provider of Spend Management solutions. Commerce XML (a.k.a. cXML) is an electronic business protocol, created by Ariba. The cXML invoice is published for free on the Internet along with its Document Type Definition.

cXML is a streamlined protocol intended for consistent communication of business documents between procurement applications, e-Commerce hubs and suppliers.

<http://cxml.org/>

6.7.7. GS1 XML

GS1 is a global organisation dedicated to the design and implementation of global standards and solutions to improve the efficiency and visibility of supply and demand chains globally and across sectors.

The Global Standards Management Process, or GSMP, is the pre-eminent worldwide collaborative forum where GS1 standards are built and maintained.

GS1 XML provides a standardised and predictable structure for electronic business messages, enabling business partners to communicate business data rapidly, efficiently and accurately, irrespective of their internal hardware or software types.

According to GS1, GS1 XML will be integrated in UN/CEFACT's business messages standardisation process (detailed in the next chapters).

6.7.8. Corporate Action for Standards (CAST)

CAST is an initiative aiming at the definition of rules and service level requirements to ensure interoperability between different EBPP operators Business Models and standards. CAST is also working on measures to facilitate adoption of e-Invoicing by SMEs.

6.8. Convergence of UN/CEFACT and UBL

6.8.1. UN/CEFACT XML schemas the future of UBL

OASIS is currently working with UN/CEFACT to converge the UBL Components Library with the emerging UN/CEFACT Core Component library (see previous chapters). In this context OASIS granted UN/CEFACT with a perpetual, irrevocable license to create derivative works based on UBL and recognised that the future UN/CEFACT deliverables constitute the upgrade path for UBL 2.0. However the maintenance of UBL 2.0 remains with the OASIS UBL TC. OASIS will produce no further major versions of UBL beyond UBL 2.0. Following this agreement with OASIS, UN/CEFACT press release in April 2007 announced the release of a Cross Industry

electronic Invoice (CII) XML Data Schema by UN/CEFACT
http://www.unece.org/cefact/prs/pr07_trd02e.pdf:

(...) The CII can be used, for instance, by the Steel, the Automotive or Electronic industries, the retail sector or Customs and other Government Authorities.

The CII also covers the requirement for Value Added Tax (VAT) declarations in European Union Member States. It includes account information that enables automatic handling in the accounting systems of both buyer and seller.

The UN/CEFACT CII provides not only standard XML schemas, but also globally consistent invoicing processes and data that are common across a wide range of industries.

When the UN/CEFACT Forum Chair commended project team members on the finalization of the invoice, he noted that the CII has the potential to create the necessary critical mass of national and international business and government partners required in order to reap the benefits of the huge savings offered by e-Invoicing. (...)

6.8.2. UN/CEFACT e-Invoice kernel submission to UNIFI

According to UN/CEFACT TG 5 the e-Invoice kernel initiative aims at defining a common International Core Invoice kernel which will embrace all the following initiatives:

- Nordic region (NES) adoption of e-Invoice formats, including Finvoice, UBL, and UN/CEFACT.
- European Commission project to deliver e-Invoicing cross border within the EU to lever SEPA and contribute significantly to the Lisbon Agenda.
- EBA Association project to investigate e-Invoicing and look into the case for the creation of a common EU e-Invoicing Scheme, Rulebook, and Standards.
- CBI specifically in regard to the Invoice Financing work under ISO20022.
- SWIFT in relation to the TSU phase 2 activity.

According to UN/CEFACT the objective of this initiative is to ensure efficient and interoperable matching of semantic data elements between the exchange of supply chain messages and the subsequent payment flow. What is commonly called the 'three way match' between Invoice, Despatch advice and Payment messages. It may be necessary to extend what is standardised under ISO20022 to ensure interoperability with the SEPA schemes. UN/CEFACT is currently preparing ISO20022 compliant models, business components and message components. This work is expected to be ready by the end of third quarter 2008.

6.8.3. Expected Next Steps

The Convergence of differing standards is currently in progress at international level. The interoperability of ISO *ISO20022XML* financial repository and UN/CEFACT *Core Component Library* (ebXML) may give birth to a Single Global e-Invoice kernel. This is the opportunity for a harmonisation and interoperability at a global scale.

7. LEGAL REQUIREMENTS

The VAT requirements for e-Invoicing and e-Archiving are detailed in this chapter, and summarized in the requirements catalogue. Next to VAT law (Indirect tax), there is also Direct Tax, Accounting and Commercial law. As e-Invoicing and e-Archiving regulations are mainly driven by Indirect Tax regulations, the focus of this chapter is on VAT.

Other relevant legal requirements are related to data protection and included in the requirements catalogue in chapter 8.

Country specific information in this chapter is based on information provided in the book “Global E-Invoicing and E-Archiving”, by PwC in 2006. For updated information, please refer to the DG TAXUD study for the review of the Directive 2001/115/EC.

7.1. Introduction

On the 17 November 2000 the Commission made a proposal to Council (Com (2000) 650 final) for a Council Directive to simplify, modernise and harmonise the conditions for invoicing in respect of value added tax (VAT). After debate in Council, resulting in amendments to the Commission proposal, on the 20 December 2001 the Council adopted Directive 2001/115/EC, the so-called Invoicing Directive. Member States had until 1 January 2004 to transpose the Invoicing Directive into their national legislation.

The Invoicing Directive, as from 1 January 2007, was incorporated into the VAT Directive (2006/112/EC). Article 237 of the said Directive requires that *“The Commission shall present, at the latest on 31 December 2008, a report and, if appropriate, a proposal amending the conditions applicable to electronic invoicing in order to take account of future technological developments in that field.”*

Finally, it should be noted that the Directive 2006/112/EC implies that Directive 67/227/EEC and Directive 77/388/EEC (the former ‘Sixth VAT Directive’) are repealed. However, according to article 411 of the new VAT Directive, references to the repealed Directives shall be construed as references to the new VAT Directive.

7.2. Overview of the e-Invoicing conditions⁷

7.2.1. General

Electronic invoicing⁸ is the name given to the transmission of invoices ‘by electronic means’ and is defined in the Directive 2006/112/EC as: “*transmitting them or making them available to the recipient using electronic equipment for processing (including digital compression) and employing wires, radio transmission, optical technologies or other electromagnetic means.*”

Member States have to allow invoices⁹ to be sent by electronic means in case the following conditions are met:

- The customer agrees to receive electronic invoices¹⁰;
- The authenticity of the origin and
- The integrity of the content are guaranteed¹¹.

Member States may not impose any obligations or formalities on taxable persons supplying goods or services in their territory other than those allowed under the Invoicing Directive (in the case of electronic signatures and EDI)¹². Thus, Member States can, since 1 January 2006, no longer require licences for e-Invoicing.

Nonetheless, Member States may, according to article 235 of the Directive 2006/112/EC and article 2(2) of the Invoicing Directive, lay down specific conditions for invoices issued by electronic means in respect of goods or services supplied in their territory from a country with which no mutual assistance agreement has been signed¹³.

⁷ Articles 232-237 of the Directive 2006/112/EC of 28 November 2006 on the common system of value added tax (hereafter ‘Directive 2006/112/EC’).

⁸ Articles 217 of the Directive 2006/112/EC.

⁹ Where series of invoices are sent by electronic means to one and the same recipient, data that is common to those invoices only has to be mentioned once provided all information is accessible for each separate invoice (article 236 of the Directive 2006/112/EC).

¹⁰ Article 232 of the Directive 2006/112/EC.

¹¹ Article 233 of the Directive 2006/112/EC.

¹² Article 234 of the Directive 2006/112/EC and article 2(2) of the Invoicing Directive.

¹³ I.e. an agreement with a scope similar to that of Council Directive 76/308/EEC of 15 March 1976 on mutual assistance for the recovery of claims relating to certain levies, duties, taxes other measures, O.J. L73, 19 March 1976, p. 18, as last amended by Directive 2001/44/EC (O.J. L175, 28 June 2001, p. 17), Council Directive 77/799/EEC of 19 December 1977 concerning mutual assistance by the competent authorities of the Member States in the field of direct and indirect taxation, O.J. L336, 27 December 1977, p. 15, as last amended by the 1994 Act of Accession, or Council Regulation (EEC) no. 218/92 of 27 January 1992 on administrative cooperation in the field of indirect taxation (VAT), O.J. L24, 1 February 1992, p. 1.

7.2.2. Methods to send electronic invoices

The invoices sent or made available by electronic means shall be accepted by Member States provided that the authenticity of the origin and the integrity of their content are guaranteed by one of the following methods:

7.2.2.1. *Electronic Data Interchange ('EDI')*

7.2.2.1.1. Definition

One way that is accepted throughout the EU to guarantee the authenticity of origin and the integrity of invoice content is to use EDI, as defined in article 2 of Commission Recommendation 1994/820/EC of 19 October 1994¹⁴ relating to the legal aspects of electronic data interchange¹⁵.

'Electronic data interchange' can be defined as:

- electronic transfer from computer to computer: It should be verified, especially in the case of inter-company invoicing within one ERP system, whether the exchange between different levels within the same system can qualify as electronic transfer from computer to computer (probably depending on how one defines a computer). Although used a lot in practice, the Recommendation, and hence the various Member States' VAT legislation, does not require the use of virtual private networks (VPNs). In other words, one can also opt to transfer the data over the internet;
- of commercial and administrative data: it is clear that commercial and administrative data can be found in an invoice message;
- using an agreed standard for structuring the EDI message: the use of the term 'agreed standard' includes, but is not limited to, the use of UN/Edifact standards and may be applied to such other standards as the parties (i.e. the supplier and the customer) may agree upon. Therefore, it is obvious that XML standards and ERP standards, such as the SAP IDoc, also fall within this requirement. The European Commission has also confirmed this position at various junctures.

7.2.2.1.2. EDI message

An EDI message has the following characteristics:

- consists of a set of segments: these segments will at least need to comprise the various obligatory invoice statements (name and address of the supplier, VAT rates, VAT amounts, etc.);
- structured using an agreed standard: see above;

¹⁴ Recommendation 1994/820/EC of 19 October 1994, O.J. L388, 28 December 1994, pp. 0098-0117: <http://europa.eu.int>.

¹⁵ Article 233, 1 paragraph, (b) of the Directive 2006/112/EC.

- prepared in a computer-readable format: it is obvious that computers can read XML, EDIFACT, IDocs, etc. At this stage, it may be more difficult to have a computer read a simple non-structured “Word” document¹⁶;
- capable of being automatically and unambiguously processed: besides being computer-readable, the message should also be capable of being processed without any manual intervention. In the event that an error should occur during processing, we do not feel that any manual intervention at that time in order to rectify the invoice-Processing procedure should not negate this.

Companies using EDI must be aware that article 233(1)(b) of the Directive 2006/112/EC stipulates the need for an agreement on the exchange of data, which needs to provide for the necessary procedures to guarantee authenticity of origin and the integrity of invoice content.

Here, it is important to know that almost none of the EU Member States imposed specific procedures in this respect, and they leave it up to the parties, i.e. the supplier and the customer, to agree the procedures for guaranteeing authenticity of origin and integrity of content.

Finally, please note that Member States are not allowed to derogate from any of the foregoing as regards the requirements of EDI.

7.2.2.1.3. Summary document

Member States are allowed to impose an additional condition to the above mentioned requirements. To be more specific, they may require that an additional summary document on paper be sent (article 233, paragraph 3 Directive 2006/112/EC).¹⁷

For instance, a summary document may list all sales invoices that have been sent to a specific customer during a specific period. The list allows the VAT inspector at the customer’s end to verify whether the invoices that the supplier claims to have sent correspond to the invoices the customer has processed in its VAT return. In other words, it is also a way of guaranteeing authenticity of origin and integrity of content.

7.2.2.2. *Advanced electronic signature*

7.2.2.2.1. Definition

An electronic signature¹⁸ is defined as “data in electronic form which are attached to or logically associated with other electronic data and which serve as a method of

¹⁶ See also <http://www.unece.org/cefact/>

¹⁷ In the following countries an additional summary document is necessary: Austria, Germany, France, Greece (on paper in case a paper copy of the invoice is not available), Hungary, Lithuania and Portugal.

¹⁸ Article 2(1) of the Directive 1999/93/EC of the European Parliament and of the Council of 13 December 1999 on a Community framework for electronic signatures (hereafter ‘Electronic Signatures Directive’).

authentication.” This means that a scanned image of a handwritten signature is considered to be an electronic signature.

However, the Electronic Signatures Directive refers to the use of an advanced electronic signature, which is an electronic signature that meets the following four requirements¹⁹:

- the signature is uniquely linked to the signatory: the signatory²⁰ is the person who holds a signature-creation device and acts either on his own behalf or on behalf of the natural or legal person or entity he represents. This implies that a signature can belong to an entity and needs not only to belong to a private individual. It also means that a third party can sign on behalf of another entity;
- the signature is capable of identifying the signatory: this means that there is some kind of electronic attestation which links signature-verification data to a given person and confirms his identity. Such signature-verification data²¹ means data, such as codes or public cryptographic keys, which are used for the purpose of verifying data by means of software or hardware²²;
- the signature is created using means that the signatory can maintain under his sole control: this means that the signatory makes use of signature-creation data²³ and a signature-creation device²⁴. In other words, he uses data, such as codes or private cryptographic keys, that are used to create the signature and software or hardware used to implement these data;
- the signature is linked to the data to which it relates in such a manner that any subsequent change of the data is detectable.

7.2.2.2.2. Options granted to Member States

According to article 233, paragraph 2 of the Directive 2006/112/EC Member States may ask for the advanced electronic signature be based on ‘a qualified certificate’ and created by a so-called ‘secure-Signature-creation device’ within the meaning of points (6) and (10) of Article 2 of Directive 1999/93/EC.

7.2.2.2.2.1. Qualified certificate

A qualified certificate²⁵ is a certificate that meets specific requirements and is provided by a certification-service-provider, which can be defined as an entity or a legal or natural person who issues certificates or provides other services related to electronic signature. As to the requirements put forward for the certificate, they relate to its content and

¹⁹ Article 2(2) of the Electronic Signatures Directive.

²⁰ Article 2(3) of the Electronic Signatures Directive.

²¹ Article 2(7) of the Electronic Signatures Directive.

²² Article 2(8) of the Electronic Signatures Directive.

²³ Article 2(4) of the Electronic Signatures Directive.

²⁴ Article 2(5) of the Electronic Signatures Directive.

²⁵ Article 2(10) of the Electronic Signatures Directive.

require that the certificate contains²⁶:

- an indication that the certificate is issued as a qualified certificate;
- identification of the certification-service-provider and the State in which it is established;
- the name of the signatory or a pseudonym, which is identified as such;
- a provision for a specific attribute of the signatory to be included if relevant depending on the purpose for which the certificate is intended;
- signature-verification-data that correspond to the signature-creation-data under the control of the signatory;
- an indication of the beginning and end of the period of validity of the certificate;
- the identity code of the certificate;
- the advanced electronic signature of the certification-service-provider issuing it;
- limitations on the scope of use of the certificate, if applicable;
- limits on the value of transactions for which the certificate can be used, if applicable;

As to the requirements put forward for qualifying as a certification-service-provider that can issue qualified certificates, these relate to its ability to²⁷:

- demonstrate the reliability necessary for providing certification services;
- ensure the operation of a prompt and secure directory and a secure and immediate revocation service;
- ensure that the date and time when a certificate is issued or revoked can be determined precisely;
- verify, by appropriate means in accordance with national law, the identity and any specific attributes of the person to which a qualified certificate is issued;
- employ personnel who possesses the expert knowledge, experience and qualifications necessary for the services provided, in particular competence at managerial level, expertise in electronic-signature technology and familiarity with proper security procedures; they must also apply administrative and management procedures that are adequate and correspond to recognised standards;
- use trustworthy systems and products that are protected against modification and ensure the technical and cryptographic security of the process supported by them;
- take measures against forgery of certificates and, in cases where the certification-service-provider generates signature-creation data, guarantee confidentiality during the process of generating such data;

²⁶ Annex I to the Electronic Signatures Directive.

²⁷ Annex II to the Electronic Signatures Directive.

- maintain sufficient financial resources to operate in conformity with the requirements of the Electronic Signatures Directive, in particular bear the risk of liability for damages, for example, by obtaining appropriate insurance;
- record all relevant information concerning a qualified certificate for an appropriate period of time, in particular for the purpose of providing evidence of certification for the purposes of legal proceedings;
- not store or copy signature-creation-data of the person to whom the certification-service-provider has provided key management services;
- before entering into a contractual relationship with a person seeking a certificate to support his electronic signature, inform that person by a durable means of communication of the precise terms and conditions regarding use of the certificate, including any limitations on its use, the existence of a voluntary accreditation scheme and procedures for compliance and dispute settlement. Such information, which may be transmitted electronically, must be in writing and in readily understandable language. Relevant parts of this information must also be made available on request to third parties relying on the certificate;
- use trustworthy systems to store certificates in a verifiable form, so that only authorised persons can make entries and changes, information can be checked for authenticity, certificates are publicly available for retrieval in only those cases for which the certificate-holder's consent has been obtained and any technical changes comprising these security requirements are apparent to the operator.

It is clear from the above list of requirements that it is not a simple matter to judge whether a certification-service-provider will be able to issue qualified certificates. In this respect, it is interesting that one can voluntarily request accreditation by a Member State.

To summarise, the technique of advanced electronic signatures based on qualified certificates is the same as that for advanced electronic signatures, but the requirements are much more stringent.

7.2.2.2.2. Secure-Signature-creation device

On the other hand, a 'secure-Signature-creation device' is a signature-creation device that meets the following specific requirements, which are ensured by appropriate technical and procedural means²⁸:

- the signature-creation-data used for signature generation can only be created once in practice, and their secrecy is reasonably assured;
- there is reasonable assurance that the signature-creation-data used for signature generation cannot be derived and the signature is protected against forgery using currently available technology;

²⁸ Annex III to the Electronic Signatures Directive.

- the signature-creation-data used for signature generation can be reliably protected by the legitimate signatory against use by others.

As an example of the technology used on a secure-Signature-creation device, we can point to smart card authentication systems. With these cards, similarly to what happens with a signature created through a secure-Signature-creation device, unlawful use by a third party is reasonably excluded. Exclusion of forgery and violations of confidentiality are also ensured. Furthermore, such devices must not alter the data to be signed or prevent such data from being presented to the signatory prior to the signature process.

7.2.2.3. *Other means*²⁹

The Member States may also allow invoices to be sent electronically in other ways than using EDI or advanced electronic signatures³⁰.

Example:

Invoices are sent out by e-mail without meeting any further conditions³¹;

Making invoices available on a secure website³², whether or not accessed using a PIN code (a personal identification number).

It is clear that, in the future, other technological developments are fairly likely to be taken into account. In this respect, the Directive 2006/112/EEC expects that the European Commission will prepare an evaluation report by no later than 31 December 2008, which may include a proposal for amending the conditions for electronic invoicing³³.

Business would like to see an increasing number of Member States introduce the application of other electronic means. They believe that an audit trail, consisting in a set of corresponding documents (contracts, order forms, invoices, payment documents, matching with delivered goods, etc.) can also adequately guarantee authenticity of origin and the integrity of invoice content. In the following, we further detail how this can help in guaranteeing authenticity of origin and integrity of content through internal verification processes. Please note that this information can also be considered to set up procedures in the case of an EDI system.

A **taxable person** should, amongst other things, demonstrate:

- its control over the completeness and accuracy of the data and the processing thereof;
- control over the timeliness of the processing;

²⁹ Article 233 (1), paragraph 2 of the Directive 2006/112/EC.

³⁰ Invoices can be issued by electronic means other than EDI or electronic signatures in the following Member States: Belgium, Cyprus, Denmark, Estonia, Finland, Greece, Ireland, Lithuania, Malta, The Netherlands, Slovak Republic, Spain, Czech Republic, The United Kingdom and Sweden.

³¹ In cases involving cross-border electronic invoicing, this option is not such an obvious solution.

³² See also article 217 of the Directive 2006/112/EC, which shows that the 'electronic transmission of an invoice' includes making the invoice available to the addressee.

³³ Article 237 Directive 2006/112/EC.

- the ability to prevent duplication of the processing;
- controls over the authorisation of invoices (before payment), including on the basis of matching data on orders and goods received/services rendered;
- the ability to prevent corruption during transmission;
- the existence of a contingency plan in the case of system failure/loss of data;
- adequate procedures/controls (manual or automated) to ensure that non-standard invoices such as those in the context of the margin scheme, self-billing, new means of transport (NMT), etc. are not handled/processed incorrectly;
- an audit trail between the user's internal applications, back office and external systems that enable e-Invoices to be transmitted and stored.

In this respect, the audit trail of invoices and payments guarantees that self-created purchase invoices that are incorrect cannot be processed, and thus cannot be paid. On the other hand, if the invoice and the payment correspond to one another, the only task remaining for the authorities is to check whether the tax charge based on the invoice has been affected correctly. If anyone were subsequently to change VAT information so that it had an effect on tax revenues, the accounting entries would no longer match. This check is quite sufficient³⁴. By way of example, we hereby provide an overview of a number of relevant checks that should be part of the approval procedures with respect to the purchase cycle.

Order (purchase order):

- purchase orders are prepared, which identify suppliers, quantities ordered, prices and freight terms;
- purchase orders are duly approved;
- purchase orders are entered for processing completely, accurately and once only;
- rejected purchasing data is isolated, analysed and corrected in a timely manner.
- Supply (receipt of goods or services):
- data on all goods or services received is entered for processing completely, accurately and once only;
- receiving data is matched with purchase orders for goods or services received and differences are investigated on a timely basis;
- receiving reports are prepared, which identify suppliers, dates and the actual quantities and condition of the goods or services received;
- rejected or unmatched receiving reports are isolated, analysed and corrected in a timely manner.

³⁴ See the position of a consortium of Finnish enterprises on the proposal of the Invoicing Directive: 'Comment on directive proposal aimed at amending the common system of value added tax – the Sixth VAT directive', 17 April 2001.

Invoicing (supplier-invoicing processing):

- all supplier invoice and credit note data is entered for processing completely, accurately and once only;
- input VAT on purchases is determined and accounted for in accordance with applicable laws and regulations;
- the arithmetical accuracy of supplier invoices is checked;
- rejected or unmatched supplier invoices or credit notes are isolated, analysed and corrected in a timely manner;
- supplier invoice data for goods or services received is matched with purchasing and receiving data;
- supplier invoice and credit note data is completely and accurately accumulated in the underlying financial records;
- supplier invoices are duly approved before being released for payment.

Payment (accounts payable):

- accounts payable balances are reconciled with supplier statements;
- supplier invoices for goods or services received are approved for payment by an appropriate officer;
- payments are properly recorded in the accounting records;
- bank statements are reconciled with payments processed.

7.2.3. Conclusion

Member States may not impose any other (i.e. additional) electronic invoicing requirements or formalities over and above those already mentioned.

The Directive 2006/112/EC provides for various methods to guarantee the authenticity of origin and the integrity of content. Unfortunately, it also offers Member States the possibility to introduce derogations. These can be either more stringent or more flexible.

7.3. Overview e-Archiving requirements³⁵

7.3.1. General

Storage by electronic means³⁶ is defined as “storage of data using electronic equipment for processing (including digital compression) and storage, and employing wire, radio, optical or other electromagnetic means.”

The Directive 2006/112/EC only deals with storage requirements relating to invoices. In so far as Member States currently also require other documents to be stored for VAT and other taxation purposes, harmonisation is required, which should cover not only all other documents required by the VAT laws, but also all other documents required by other legislation, such as accounting or corporation tax laws.

7.3.2. Requirements

The following requirements should be taken into account in case the electronic invoices will be stored.

7.3.2.1. *The person obliged to store records*³⁷.

Article 244 of the Directive 2006/112/EC lays down a general obligation that taxable persons supplying goods or rendering services should store purchase invoices and copies of sales invoices. The obligation exists not only for invoices issued by a taxable person himself but also where invoices have been generated by his customer (self-billing) or by third parties (outsourcing).

- Subject to such conditions as they may lay down, Member States can require non-taxable persons to store invoices they receive³⁸. This is applicable both where they are legal persons (viz. a municipal authority, a ‘pure’ holding company, etc.) and where they are private individuals.
- Member States may define the scope of this obligation. It can apply to all non-taxable persons, and to all or a limited number of their purchases.
- Given that private individuals cannot recover input VAT on invoices, it may be welcomed if the storage of invoices by non-taxable persons were to be subject to less stringent conditions than those imposed on businesses.

7.3.2.2. *Place of storage*

For VAT purposes, a taxable person may freely decide the place of storage of all invoices provided that the invoices or information stored at that location can be made available

³⁵ Article 244-249 of the Directive 2006/112/EC of 28 November 2006 on the common system of value added tax (hereafter ‘Directive 2006/112/EC’).

³⁶ Article 241 of the Directive 2006/112/EC.

³⁷ Article 244 of the Directive 2006/112/EC.

³⁸ Article 248 Directive 2006/112/EC.

without undue delay to the competent authorities whenever they request them³⁹. The words ‘without undue delay’ do not mean ‘immediately’, but mean ‘within a reasonable timeframe’.

In this respect, a distinction has to be made between the storage outside the Member State but within the European Union or outside the Member State and outside the European Union.

7.3.2.2.1. Storage outside the Member State of establishment but within the European Union

Where a taxable person wants to store its invoices outside its Member State of establishment but within the European Union, the VAT authorities may require that:

- the taxable person notifies the tax authorities of the place where its invoices are stored. Such notification is merely a duty of information, and may not transformed into a requirement for authorisation before being allowed to keep records outside the relevant Member State of establishment; and/or
- records are stored by electronic means guaranteeing full, on-line access to the data concerned. “Full, on-line access” should be read as meaning that access can be afforded to the VAT inspector in the case of an audit. In general, it should not be construed as meaning that the authorities have to be provided with full access to the whole records at all times. The scope of access (to be) granted may depend on the country where the taxable person is established.

This last option implies that Member States may oblige taxable persons established in their territory to store copies of sales and (original) purchase invoices within that Member State, if the storage is not by electronic means guaranteeing full, on-line access to the data.

7.3.2.2.2. Storage outside the Member State of establishment and outside the European Union⁴⁰

Besides the options available to Member States as mentioned above, they may in addition impose specific conditions prohibiting or restricting the storage of invoices in certain third countries⁴¹. This option is granted:

- for sales invoices, to Member States on whose territory goods or services are supplied;
- for purchase invoices, to the Member State of establishment of the taxable person.

If a Member State implements such provisions, storage in such a third country may only be allowed if a back-up is available within the EU. This back-up system is a burden to

39 Article 245(1) Directive 2006/112/EC.

40 Article 247(3) of the Directive 2006/112/EC.

41 A country with which no legal instrument exists in relation to mutual assistance similar in scope to that laid down by Directives 76/308/EEC and 77/799/EEC and by Regulation (EEC) No. 218/92 or to the right of access by electronic means, download and use referred to in article 249 of the Directive 2006/112/EC.

companies:

- technically difficult to set up;
- huge impact of costs;
- additional service fees and other costs for location, security and operations like additional data-communication; and
- where storage is outsourced to a third party requirement is not as straightforward as it may seem. First, it may be technically difficult for the company to set this up. Second, there is a huge impact on costs. A back-up means additional service fees and other costs for location, security and operations like additional data-communication. Lastly, where storage is the costs of the outsourcing will increase.

Where Member States introduce such restrictions, they may thus cause trouble for companies wanting to store their invoices electronically at a shared service centre located outside the EU. They also create discrimination against EU-based businesses, which are no longer be able to choose on the basis of cost whether to store their data in or outside the EU.

7.3.2.3. Storage period⁴²

EU Member States may determine the period throughout which taxable persons must store copies of their sales invoices in relation to goods or services supplied on their territory. For purchase invoices, the storage period is determined by the Member State where the taxable person is established⁴³.

Consequently, as with VAT rates, there is no harmonisation within the EU as to the storage period for invoices. The authenticity of the origin and the integrity of the content of the invoices stored, as well as their legibility, must be guaranteed throughout the storage period⁴⁴.

7.3.2.4. Format of stored records⁴⁵

Where invoices are sent electronically using an advanced electronic signature or EDI to guarantee the authenticity of their origin and integrity of their content, the taxable person must throughout the entire storage period guarantee:

- the authenticity of the origin of the invoice; and
- the integrity of its content; and
- its readability.

Where invoices are sent using other electronic means, the information they contain:

⁴² Article 247(1) of the Directive 2006/112/EC.

⁴³ Article 247 of the Directive 2006/112/EC.

⁴⁴ Article 246, 1st paragraph of the Directive 2006/112/EC.

- may not be altered; and
- must remain legible throughout the storage period.

If these criteria can be guaranteed, invoices can be stored on any medium. Thus, in principle, they can be stored on paper or electronically.

In most cases, the stored document will have the same layout as the original document. However, there should be no problem in the case of dissociation between content and layout. In that case, the content of the stored document should prevail over its layout. Furthermore, referring to the above requirements, when invoices are issued using electronic means other than electronic signatures and EDI, the requirement only refers to the information, i.e. the content, which may not be altered.

7.3.2.5. Options available to Member States⁴⁶

The Directive lays down two options for Member States. In order to ensure that the above conditions are met, Member States may require:

- that invoices be stored in the original format in which they were sent, whether that is on paper or electronically;
- that, where invoices are stored by electronic means, the data guaranteeing the authenticity of their origin and the integrity of their content also be stored.

The relevant Member State is:

- for sales invoices, the Member State on whose territory the taxable person has effected the supply of goods or services;
- for purchase invoices, the Member State where the taxable person is established.

7.3.2.5.1. Storage in 'original' format

This option means that Member States can prohibit invoices sent on 'paper' from being stored electronically. It also means that purchase invoices received on 'paper' cannot be stored electronically with the original paper copy being destroyed after being scanned if the relevant Member State implements this option. Needless to say, any simplifying and cost-reduction effect is lost if paper documents need to be kept even after scanning. This means that companies scanning purchase invoices for internal approval purposes still need the paper copy as well, just for VAT purposes.

⁴⁶ Article 247(3) of the Directive 2006/112/EC.

Conversely it also means that invoices sent/received electronically cannot be stored on paper.

7.3.2.5.2. Storage of the data guaranteeing authenticity of origin and integrity of content⁴⁷

Member States may require that, where invoices are stored by electronic means, the data guaranteeing authenticity of origin and integrity of content must also be stored.

Member States can require this where invoices are received or sent electronically using advanced electronic signatures or using EDI.

In that case, the Member State can require that

- not only the data contained in the invoicing message;
- but also the advanced electronic signature; and/or
- the qualified certificate; and/or
- in the case of EDI, the data providing evidence of authenticity and integrity, e.g. verification messages;
- also be stored.

Where invoices are sent/received electronically using means other than EDI or advanced electronic signatures, in accordance with the provisions of the Member States concerned, the above option is not available in our opinion unless the Member State concerned requires proof of authenticity or integrity as a condition for invoicing electronically by such other means.

7.3.2.5.3. Prohibit or restrict the storage of invoicing outside the EU in certain third countries⁴⁸

Besides the options available to Member States as mentioned above, they may in addition impose specific conditions prohibiting or restricting the storage of invoices in certain third countries⁴⁹. Such restrictions may also affect the format in which records may be stored.

⁴⁷ Article 247(3) of the Directive 2006/112/EC.

⁴⁸ Article 247(3) of the Directive 2006/112/EC.

⁴⁹ A country with which no legal instrument exists in relation to mutual assistance similar in scope to that provided for by Directives 76/308/EEC and 77/799/EEC and by Regulation (EEC) No. 218/92 or to the rights of access by electronic means, download and use referred to in Article 245.

7.3.2.6. Access by the authorities and downloading of data⁵⁰

Member States have a right of access where invoices issued or received by taxable persons established in their territory are stored by electronic means in another Member State. The following conditions have to be adhered to:

- sales or purchase invoices are issued or received by electronic means; and
- on-line access to the data is guaranteed; and
- the place of storage is in a Member State other than that in which the taxable person is established.

If all these conditions are fulfilled, the competent authorities in the Member State in which the taxable person is established have the right:

- to access the data by electronic means; and
- download it; and
- use the invoices.

The Member States have to observe the following criteria when making use of these rights:

- use should be for the purposes of the Invoicing Directive; and
- use should be by the competent authorities of the Member State in which the taxable person is established; and
- the limits set by the regulations of the Member State of establishment of the taxable person should be adhered to; and
- the use required by the Member State of establishment should be for control purposes.

7.3.2.7. Additional obligations

Article 273 of the Directive 2006/112/EC allows Member States to impose other obligations that they deem necessary for the correct collection of VAT and to prevent evasion, albeit subject to the requirement that domestic transactions and inter-State transactions by taxable persons be treated equally. Furthermore, any such obligations should not give rise to formalities in cross-border trade between Member States.

In order to avoid this provision being used to impose more stringent requirements regarding the storage of invoices, the Invoicing Directive has added a new subparagraph to article: ‘The option provided for in the first subparagraph cannot be used to impose additional obligations over and above those laid down in chapter 3 with respect to e-

⁵⁰ Article 249 of the Directive 2006/112/EC.

Invoicing.’ This means that Member States cannot impose additional obligations (amongst other things) with respect to the requirements regarding the storage of invoices on top of those expressly stated in the aforementioned Directive.

7.4. Cross-border compliant invoicing and storage system

7.4.1. Introduction

Cross-border invoicing occurs where the place of supply of the goods and services is located outside of the territory of establishment of the supplier.

- In order to issue a compliant invoice, the supplier needs to know what rules apply. His customer should know these as well in order to be entitled to deduct any input VAT. From the customer's point of view a compliant invoice is also required in order to avoid any joint liability and/or penalties on accepting non-compliant purchase invoices.
- Furthermore, where one invoices, he also needs to store the invoices. Cross-border storage refers to storage where invoices are stored either outside the territory of establishment of the supplier or where invoices are stored inside the territory of the supplier's establishment but relate to transactions that took place outside his territory.
- In order to comply with the records storage obligation, the supplier again needs to know what rules apply. The Directive 2006/112/EC foresees rules to determine which Member State is competent.

7.4.2. Cross-border invoicing

7.4.2.1. *Provisions with common requirements*

The provisions laying down common requirements are always applicable to any invoice a taxable person issues for supplies of goods or services made to taxable persons or non-taxable persons. The supplier should comply with these 'common' rules wherever the supply takes place, be it within or outside of his country of establishment.

Application of the Invoicing Directive is not restricted to suppliers established in the European Union. Any supplier making supplies taking place within the European Union, be it supplies of goods or of services, is required to apply the 'common' rules of the Directive.

A compliant invoice should be issued or made available to the customer, as the invoice should allow the customer to exercise his right to deduct any input VAT.

Please note that there might be the case where national law of certain member-States is not in line with the common provision of the Directive. In those cases, the supplier will incur no risk when applying the national provision instead of the common provision of the Directive. If the supplier is implementing a cross-border invoicing solution it is advisable to apply the common provision. Specificities of some countries may although require analysis in those cases.

7.4.2.2. *Options granted to Member States*

The Directive grants many options to Member States to have stricter rules or to relieve suppliers from certain obligations. The options are granted to the Member State within whose territory the supplies of goods or services take place. Thus, if the option is

exercised, the supplier needs to apply such provisions only where his supplies take place in the relevant Member State.

7.4.3. Cross-border storage

7.4.3.1. Provisions with common requirements

As for invoicing, provisions laying down common requirements are always applicable to storage of invoices issued and received. The taxpayer should comply with these 'common' rules, wherever the relevant supply takes place, i.e. whether within or outside his country of establishment.

Also here, is the application of the Invoicing Directive not restricted to suppliers established in the European Union. Any supplier effecting supplies that take place within the European Union, be it supplies of goods or of services, is required to apply the 'common' rules under the Directive, including regarding records storage.

Please note that as for invoicing, there might be some Member States where the internal requirements are not in line with the common requirements of the Directive. In those cases, the remark made above is applicable.

7.4.3.2. Options granted to Member States

Also for storage, the Directive grants options to Member States that allow them to beef up or relax the storage obligations imposed with regard to invoices issued and invoices received.

Unlike invoicing itself, the options regarding storage are granted to either the Member State of establishment of the taxable person or to the Member State within whose territory the supplies of goods or services take place depending on the derogation or option.

7.4.4. Methodology to create a compliant invoicing system

In order to create a compliant cross-border invoicing system, the following methodology can be applied. Invoices need to be compliant with both the 'common' and the 'optional obligatory' invoicing rules, where the latter are applicable.

The provisions containing 'common' requirements always apply to any invoices that need to be issued, wherever the place of supply is located. Some of these 'common' obligations have to be defined by the Member States individually.

The 'optional obligatory' invoicing rules only apply where the supplier effects supplies of goods or services in a given Member State and that Member State has exercised the

option granted. The same will be the case where the individual Member States are able to define any one of the invoicing requirements.

The supplier can, if he wants to, additionally take advantage of any ‘relief’ from invoicing obligations. Such ‘relief’ can, again, be granted by the Member State where the supply of goods or services takes place. In the table below, this is referred to as an option available to the Member State where the supply is located.

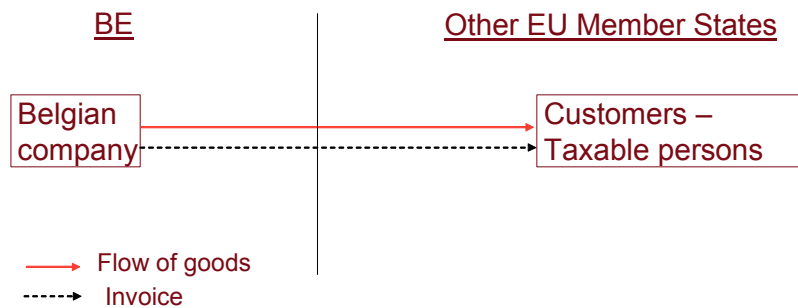
Below, we provide an overview of the various provisions and indicate which Member State’s rules apply by indicating an ‘X’ in the relevant column.

Before moving to the examples, we point out the following as to the invoicing obligation. The invoices issued need to be compliant with the invoicing rules set down by the Directive. Therefore, there is an obligation to issue invoices for all supplies to both taxable persons and non-taxable legal persons. Besides these, a supplier needs to check in which cases there is an obligation to issue an invoice to non-taxable natural persons (i.e. private individuals). The Member States where the supplies are located will determine this. Where a Member State imposes such an obligation, the supplier will need to review what data need to be mentioned on the invoice. This can differ from one Member State to another. Indeed, it may be possible to issue simplified invoices. Again, their content will be defined by each Member State where the supplies of goods or services take place.

Examples

In order to clarify the above, we have included some examples below. Our intention is to provide an indication of how the different ‘common’ and ‘optional’ provisions of the Directive need to be combined to create a compliant invoicing framework.

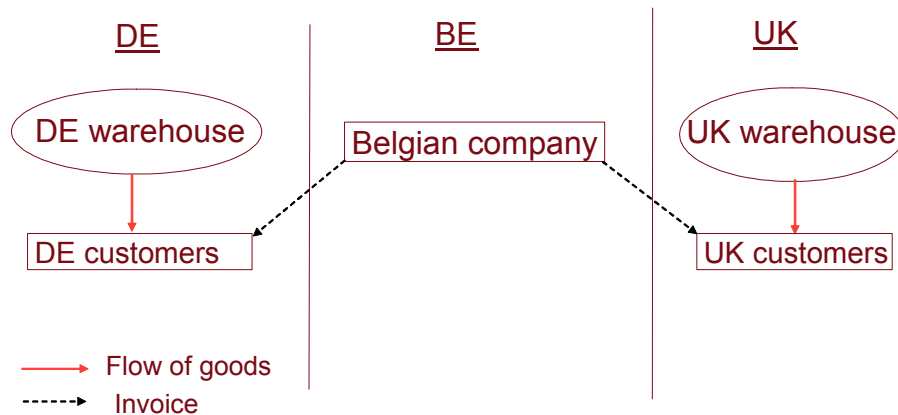
Which Member State’s legislation is applicable as to self-billing requirements?



**Place of supply = BE
=> BE legislation**

In this example, a Belgian company supplies goods to customers that are taxable persons in another EU Member State than Belgium. Self-billing requirements to apply to this supply are the requirements in force in Belgium, since the place of supply of this operation is Belgium.

Which Member State’s legislation is applicable as to e-Invoicing requirements?

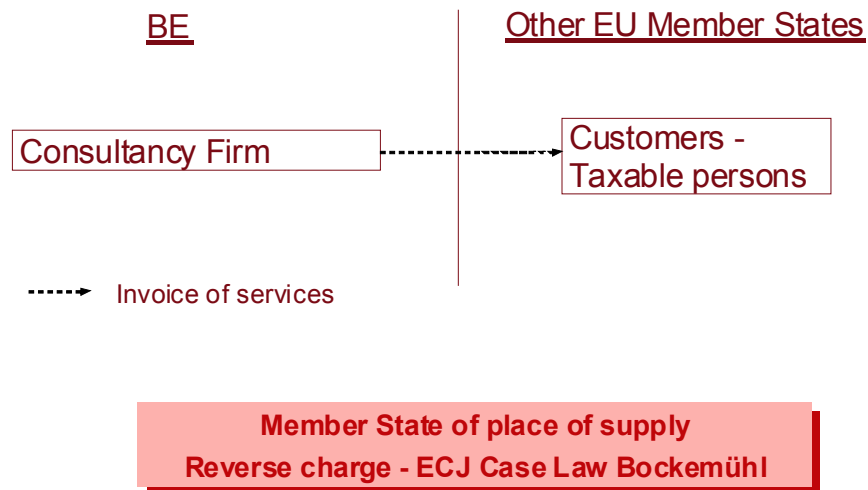


**Place of supply = DE and UK
=> DE and UK legislation**

In the example above, the Belgian company carries out taxable supplies in Germany and in the United Kingdom, thus the e-Invoicing requirements applicable for these sales will be:

- the requirements in place in Germany for the supplies made in Germany to German customers
- the requirements in the United Kingdom for the supplies made in the UK to UK customers

Which Member State's legislation is applicable as to e-Invoicing requirements?



In this example, the consultancy firm established in Belgium invoices a taxable person established in an EU Member State other than Belgium for advisory services. The place of supply of these services will be the Member State of the customer. In this case the VAT liability is shifted to the customer. The e-Invoicing requirements will be these of the country of the customer. However, even when the invoices would not be compliant with the customer's Member State's provisions, the right to deduct would not be jeopardized as, according to ECJ Case Law, the customer is not obliged to be in possession of an invoice drawn up in accordance with the Directive to be able to exercise his right to deduct⁵¹.

7.4.5. Methodology to create a compliant storage system

In order to create a compliant cross-border invoicing storage system, the following

51 European Court of Justice, Case C-90/02, 1 April 2004, Gerhard Bockemühl, <http://curia.eu.int/eu/content/juris/index.htm>

methodology can be applied. The system needs to be compliant with both the ‘common’ and the ‘optional obligatory’ storage rules, where the latter are applicable.

The ‘common’ obligations of direct effect are always applicable. Some of these ‘common’ obligations have to be defined by the Member States themselves.

The ‘optional obligatory’ storage rules are only applicable where the taxable person is either established in a given Member State or has made supplies of goods or services in a given Member State and that Member State has exercised the option granted.

Regarding records storage, Member States cannot grant any additional relief, the rationale for which being that the starting principle is that the taxable person has to be able to comply with his records storage obligations anywhere and on any medium.

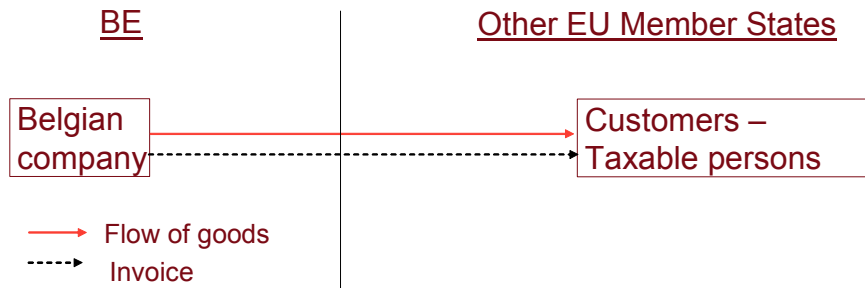
Below, we provide an overview of the various provisions and indicate which Member State’s rules apply by indicating an ‘X’ in the relevant column.

Before moving to the examples, we point out the following as to the storage obligation. The storage of the issued and received need to be compliant with the rules set down by the Directive. As a taxable person, one is obliged to store copies of invoices issued and invoices received for all its sales and purchases, whether they take place in the EU or outside the EU.

Examples

In order to clarify the above, we have included some examples below. Our intention is to provide an indication of how the different ‘common’ and ‘optional’ provisions of the Directive need to be combined to create a compliant storage framework.

Which Member State’s legislation is applicable as to the location of the storage?



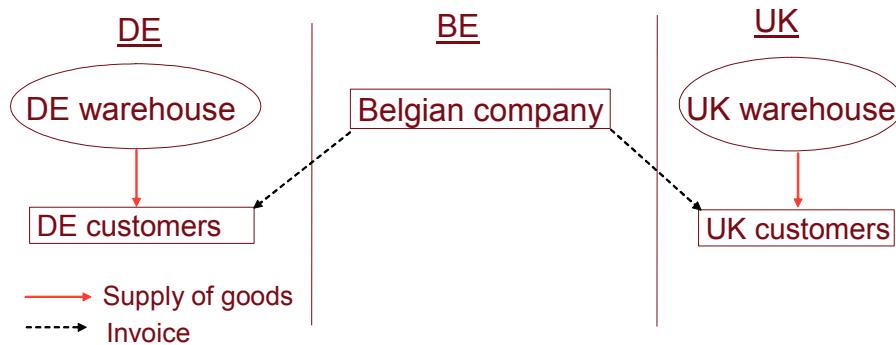
- Sales invoices: place of establishment of the supplier (BE) except in case of storage outside EU (= place of supply)
- Purchase invoices: place of establishment of the customer

In this example, a Belgian company supplies goods to customers that are taxable persons in other EU Member State than Belgium. The rules on the location of storage in this case will be set as follows in so far as the warehouses do not qualify as establishments for VAT purposes⁵²:

- sales invoices: Belgian rules will apply, except as to the acceptance of storage outside the EU;
- the purchase invoices: the rules will be set by the Member State where the customer is established.

Which Member State's legislation is applicable as to the location of the storage?

⁵² This should in principle not be the case if the Belgian company only uses a warehousing facility in Germany and the UK further to ECJ cases Günther Berkholz Case C-168/84, 4 July 1985 and Case C-231/94, 2 May 1996, Case C-190/95, 17 July 1997, Faaborg-Gelting Linien. See <http://curia.eu.int/eu/content/juris/index.htm>.

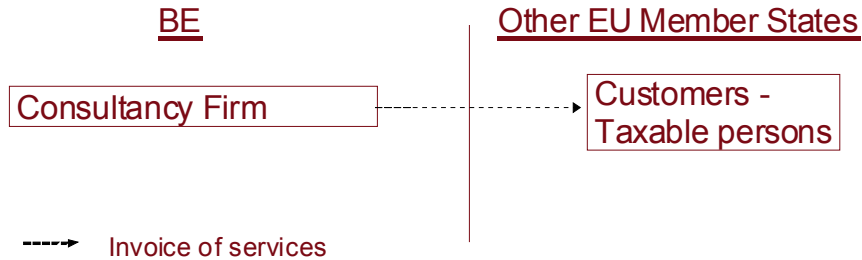


- **Sales invoices: place of establishment of the supplier (BE) except in case of storage outside the EU (UK/DE => UK = Yes ; DE = No)**
- **Purchase invoices: place of establishment of the customer = UK / DE**

In the example above, the Belgian company carries out taxable supplies in Germany and in the United Kingdom. The rules on the location of storage in this case will be set as follows:

- sales invoices: Belgian rules will apply, except as to the acceptance of storage outside the EU. Then, the Belgian company will need to take into account the UK and German rules. UK will accept that the sales invoices with respect to the UK activity are stored outside the EU. Germany will not accept this for the invoices related to the German activity;
- the purchase invoices: the rules will be set by the Member State where the customer is established. Thus, German customers take into account the German rules, UK customers the UK rules.

Which Member State's legislation is applicable as to the format of storage and the period of storage?



- Sales invoices: Place of supply = other EU-countries???
- Purchase invoices: Place of establishment of the customer

In this example, the consultancy firm established in Belgium invoices a taxable person established in an EU Member State other than Belgium for advisory services. The rules on the location of storage in this case will be set as follows:

- sales invoices: Belgian rules will apply, except as to the acceptance of storage outside the EU. Then, the Belgian company will need to take into account the rules of all Member States where it has customers. This is an administrative burdensome exercise. Indeed, although there is no VAT on the invoice, one would need to consider various local storage rules if he would like to store sales invoices outside the EU;
- the purchase invoices: the rules will be set by the Member State where the customer is established.

7.5. Checklist obligations e-Invoicing systems

Below, we provide an overview of the various provisions and indicate which Member State's rules apply by indicating an 'X' in the relevant column.

Obligation	Common obligation		Options	
	Applicable in all Member States without further definition	Defined by the Member State where the supply is located	To add an obligation - defined by the Member State where the supply is located	To grant relief by the Member State where the supply is located
The obligation to issue an invoice				
For supplies to taxable persons	X			
For supplies to non-taxable legal persons	X			
For distance sales	X			
For intra-Community supplies of goods	X			
For payments to account	X			
For supplies to non-taxable persons			X	X (regarding content, conditions regarding e-Invoicing and e-Archiving)
No obligation to invoice some exempt supplies of goods with or without refund ⁵³				X
Definition of an invoice				
Any document	X			
Corrective documents/messages				X (from certain statements)

⁵³ Article 221(2) of the Directive 2006/112/EC.

Obligation	Common obligation		Options	
	Applicable in all Member States without further definition	Defined by the Member State where the supply is located	To add an obligation - defined by the Member State where the supply is located	To grant relief by the Member State where the supply is located
Time limit				
Invoicing			X	
Summary invoicing			X	
Self-billing				
Principle	X			
Prior agreement		X		
Procedure for the acceptance of each invoice		X		
Further conditions			X	
Customers in third countries			X	
Outsourcing				
Principle	X			
Service provider in third countries			X	

Obligation	Common obligation		Options	
	Applicable in all Member States without further definition	Defined by the Member State where the supply is located	To add an obligation - defined by the Member State where the supply is located	To grant relief by the Member State where the supply is located
Content of an invoice				
Date of issue	X			
Sequential number, unique identifier	X			
VAT number of the supplier in accordance with ISO Standard, under which he has effected the supply	X			
VAT number of the supplier in accordance with ISO Standard under which he has effected the supply or mention of a tax reference number			X – if the supplier is established in this Member State	
VAT identification number of the customer in accordance with ISO Standard if he is liable to pay the VAT	X			

Obligation	Common obligation		Options	
	Applicable in all Member States without further definition	Defined by the Member State where the supply is located	To add an obligation - defined by the Member State where the supply is located	To grant relief by the Member State where the supply is located
VAT number of the customer that can be in accordance with the ISO Standard or tax reference number of the customer for other supplies			X	
Full name and address of the supplier	X			
Full name and address of the customer	X			
Details of supply	X			
Date of completion of supply or of payment to account	X			
Taxable amount per rate or per exemption	X			
VAT rate applied	X			
VAT amount payable unless not required by the Directive	X			
Reason for exemption	X			
Wording for exempt intra-Community supplies of new means of transport	X			

Obligation	Common obligation		Options	
	Applicable in all Member States without further definition	Defined by the Member State where the supply is located	To add an obligation - defined by the Member State where the supply is located	To grant relief by the Member State where the supply is located
Wording regarding margin schemes	X			
Wording when person liable for VAT is a tax representative	X			

Obligation	Common obligation		Options	
	Applicable in all Member States without further definition	Defined by the Member State where the supply is located	To add an obligation - defined by the Member State where the supply is located	To grant relief by the Member State where the supply is located
Simplified invoices				
Consultation of the VAT Committee	X			
Cases:				
Small-value invoices or Practices in business sector or Technical conditions that make it difficult to comply with normal invoicing requirements regarding content	X			
Exclusion for intra-Community supplies	X			
Exclusion for intra-Community acquisitions	X			
Minimum invoice requirements				
Date of issue	X			
Identification of the taxable person	X			
Identification of the supply	X			
The VAT due or The information to calculate the VAT due	X			
Format of the invoice				

Obligation	Common obligation		Options	
	Applicable in all Member States without further definition	Defined by the Member State where the supply is located	To add an obligation - defined by the Member State where the supply is located	To grant relief by the Member State where the supply is located
The supplier can choose the format (on condition the customer accepts where electronic invoicing is used)	X			
The supplier can choose the format (on condition the customer accepts where electronic invoicing is used)	X			
Paper	X			
Electronic	X			
Definition of electronic invoicing	X			

Obligation	Common obligation		Options	
	Applicable in all Member States without further definition	Defined by the Member State where the supply is located	To add an obligation - defined by the Member State where the supply is located	To grant relief by the Member State where the supply is located
Requirements regarding electronic invoicing				
Definition of authenticity and integrity	X			
Definition of advanced electronic signature	X			
Use of a qualified certificate			X	
Use of a secure-Signature-creation device			X	
Definition of EDI	X			
Requirement to issue a short paper summary			X	
Acceptance of the 'third method'				X
No licences	X			
Notification			X	
E-Invoicing from third countries			X	

7.6. Checklist obligations e-Archiving systems

Below, we provide an overview of the various provisions and indicate which Member State's rules apply by indicating an 'X' in the relevant column.

Obligation	Common obligation		Options		
	Applicable in all Member States without further definition	Definition required		To add an obligation	
		by the Member State of establishment	by the Member State where the supply is located	by the Member State where the supply is located	by the Member State where the supply is located
The obligation to store invoices issued					
By taxable persons	X				
The obligation to store invoices received					
By taxable persons	X				
By non-taxable persons				X	
The obligation to store other documents					
By taxable persons				X	
By non-taxable persons				X	
The place of storage of invoices issued and received					
Determination of location by the taxable person – if access without undue delay	X				
Obligation to notify storage outside Member State of establishment but within the EU				X	
Excluding 'paper' records, which are kept outside of country of establishment if there is no full on-line access to the data				X	

Obligation	Common obligation		Options		
	Applicable in all Member States without further definition	Definition required		To add an obligation	
		by the Member State of establishment	by the Member State where the supply is located	by the Member State where the supply is located	by the Member State where the supply is located
Prohibition of storage in certain third countries				X (for invoices received)	X (for invoices issued)

Obligation					
Common obligation					
	For all Member States without further definition	Definition required		To add an obligation	
		by the Member State of establishment	by the Member State where the supply is located	by the Member State where the supply is located	by the Member State where the supply is located
Period of storage					
Invoices issued			X		
Invoices received		X			
Format of records – invoices issued					
On any medium	X				
Authenticity of origin, integrity of content and legibility to be guaranteed throughout storage period for electronic invoices sent by means of an advanced or qualified signature or EDI	X				
Obligation not to alter and to keep legible throughout the storage period invoices sent by other electronic means	X				
Storage in format sent in (paper should stay paper/electronic stays electronic, excluding digitisation)					X
Storage of data guaranteeing authenticity of origin and integrity of content for invoices sent using an advanced/qualified electronic signature or by means of EDI					X

Obligation		Common obligation			
	For all Member States without further definition	Definition required		To add an obligation	
		by the Member State of establishment	by the Member State where the supply is located	by the Member State where the supply is located	by the Member State where the supply is located
Storage in certain third countries: imposing specific conditions					X

Obligation	Common obligation				
	For all Member States without further definition	Definition required		To add an obligation	
		by the Member State of establishment	by the Member State where the supply is located	by the Member State where the supply is located	by the Member State where the supply is located
Format of records – invoices received					
On any medium	X				
Authenticity of origin, integrity of content and legibility to be guaranteed throughout storage period for electronic invoices sent by means of an advanced electronic or qualified electronic signature or EDI	X				
Obligation not to alter and to keep legible throughout the storage period invoices sent by other electronic means	X				
Storage in format sent in (paper should stay paper/electronic stays electronic, excluding digitisation)				X	
Storage of data guaranteeing authenticity of origin and integrity of content for invoices sent using an advanced electronic signature or by means of EDI				X	
Storage in certain third countries: imposing specific conditions				X	

7.7. Content of an invoice

The tables below provide an overview of the content requirements from a VAT point of view, per Member State. Data elements required by a Member State are marked by an X. Additional remarks are indicated by a reference to a footnote below the tables.

		Austria	Belgium	Bulgaria	Cyprus	Czech Republic	Denmark	Estonia	Finland	France	Germany	Greece
SUPPLIER INFORMATION												
1	full name of the supplier	X	X	X	X	X	X	X	X	X	X	X
2	full address of the supplier	X	X	X	X	X	X	X	X	X	X	X
3	the VAT identification number of the supplier in accordance with ISO Standard under which he supplied the goods or services	X	X		X	X	X	X	X ¹	X	X	X
4	the tax reference number of the supplier, in other cases, where your country refrains from allocating a VAT identification number in accordance with ISO Standard for certain cases			X	X						X ¹	X
5	full name of the tax representative (if any) of the supplier where the person liable to pay the VAT is the tax representative		X		X		X	X		X ¹	X ²	X
6	full address of the tax representative (if any) of the supplier where the person liable to pay the VAT is the tax representative		X ¹		X		X	X		X	X ³	X
7	the VAT identification number of the fiscal representative in accordance with ISO Standard (if any) of the supplier where the person liable to pay the VAT is the tax representative		X ²		X		X	X		X	X	X

		Hungary	Ireland	Italy	Latvia	Lithuania	Luxembourg	Malta	Netherlands	Poland
SUPPLIER INFORMATION										
1	full name of the supplier	X	X	X	X	X	X	X	X	X ₁
2	full address of the supplier	X	X	X	X	X	X	X	X	X
3	the VAT identification number of the supplier in accordance with ISO Standard under which he supplied the goods or services	X	X	X ₁	X	X	X	X	X	X
4	the tax reference number of the supplier, in other cases, where your country refrains from allocating a VAT identification number in accordance with ISO Standard for certain cases									
5	full name of the tax representative (if any) of the supplier where the person liable to pay the VAT is the tax representative	X		X ₂	X	X			X	X
6	full address of the tax representative (if any) of the supplier where the person liable to pay the VAT is the tax representative	X		X ₃	X	X			X	X
7	the VAT identification number of the fiscal representative in accordance with ISO Standard (if any) of the supplier where the person liable to pay the VAT is the tax representative	X		X ₄	X	X			X	X

		Portugal	Romania	Slovak Republic	Slovenia	Spain	Sweden	UK
SUPPLIER INFORMATION								
1	full name of the supplier	X	X	X	X	X	X	X
2	full address of the supplier	X	X	X	X	X ¹	X	X
3	the VAT identification number of the supplier in accordance with ISO Standard under which he supplied the goods or services	X	X	X	X	X	X	X
4	the tax reference number of the supplier, in other cases, where your country refrains from allocating a VAT identification number in accordance with ISO Standard for certain cases		X		X			
5	full name of the tax representative (if any) of the supplier where the person liable to pay the VAT is the tax representative	X	X		X			
6	full address of the tax representative (if any) of the supplier where the person liable to pay the VAT is the tax representative	X	X		X			
7	the VAT identification number of the fiscal representative in accordance with ISO Standard (if any) of the supplier where the person liable to pay the VAT is the tax representative	X	X		X			

Belgium

- 1 The capacity of the tax representative has to be mentioned also.
- 2 In case the supplier/customer is represented by a global tax representative.

Finland

- 1 The business identity code for domestic supplies.

France

- 1 The capacity of the tax representative must be mentioned also.

Germany

- 1 Reference number alternatively to VAT identification number for some transactions.
- 2 Cases of a tax representative are very rare.
- 3 The invoice must include 'Representation'.

Italy

1 The ISO code referred to Italy (IT) can be omitted in case of domestic (local) supplies.

2 In case of invoices issued/received by/from a non-resident taxable person by means of its fiscal representative, the details of the taxable person established abroad, the details of the fiscal representative and his function (i.e.: that he is acting as VAT representative) have to be mentioned. In case of invoices issued/received by/from non-resident entities directly VAT registered in Italy by means of the Italian VAT number, the latter has to be mentioned.

Poland

1 Abbreviation is possible.

Spain

1 In case of non-resident taxpayers acting in Spain through a permanent establishment, the complete address of the permanent establishment from which taxable activities are carried out in Spain, should be mentioned.

		Austria	Belgium	Bulgaria	Cyprus	Czech Republic	Denmark	Estonia	Finland	France	Germany	Greece
CUSTOMER INFORMATION												
8	full name of the customer	X	X	X	X	X	X	X	X	X	X	X
9	full address of the customer	X	X	X	X	X	X	X	X	X	X	X
10	the VAT identification number of the customer in accordance with ISO Standard where the customer is liable to pay the VAT or in case of intra-Community supplies	X ₁	X ₃		X	X	X	X	X	X ₂	X ₄	X
11	the VAT identification number of the customer in other cases than the above-mentioned	X ₂ / 3	X ₄	X ₁	X	X					X ₅	X ₁
12	full name of the tax representative (if any) of the customer where the person liable to pay the VAT is the tax representative		X		X			X				X
13	full address of the tax representative (if any) of the customer where the person liable to pay the VAT is the tax representative		X ₅		X			X				X
14	the VAT identification number of the fiscal representative (if any) of the customer where the person liable to pay the VAT is the tax representative		X ₆		X			x				X

		Hungary	Ireland	Italy	Latvia	Lithuania	Luxembourg	Malta	Netherlands	Poland	Portugal	Romania
CUSTOMER INFORMATION												
8	full name of the customer	X	X	X	X	X	X	X	X	X ²	X	X
9	full address of the customer	X	X	X	X	X	X	X	X	X	X	X
10	the VAT identification number of the customer in accordance with ISO Standard where the customer is liable to pay the VAT or in case of intra-Community supplies	X ¹	X ¹	X ⁵	X	X	X	X	X	X ³	X	X
11	the VAT identification number of the customer in other cases than the above-mentioned				X	X ¹		X		X ⁴	X ¹	X
12	full name of the tax representative (if any) of the customer where the person liable to pay the VAT is the tax representative	X		X ⁶	X	X			X	X	X	X
13	full address of the tax representative (if any) of the customer where the person liable to pay the VAT is the tax representative	X		X ⁷	X	X			X	X	X	X
14	the VAT identification number of the fiscal representative (if any) of the customer where the person liable to pay the VAT is the tax representative	X		X	X	X			X	X	X	X

		Slovak Republic	Slovenia	Spain	Sweden	UK
CUSTOMER INFORMATION						
8	full name of the customer	X	X	X	X	X
9	full address of the customer	X	X	X 2 / 3	X	X
10	the VAT identification number of the customer in accordance with ISO Standard where the customer is liable to pay the VAT or in case of intra-Community supplies	X	X	X	X	X 1
11	the VAT identification number of the customer in other cases than the above-mentioned	X1		X 4		
12	full name of the tax representative (if any) of the customer where the person liable to pay the VAT is the tax representative		X			
13	full address of the tax representative (if any) of the customer where the person liable to pay the VAT is the tax representative		X			
14	the VAT identification number of the fiscal representative (if any) of the customer where the person liable to pay the VAT is the tax representative		X			

BELGIUM

3 This information is however not compulsory for services referred to by article 56 of the Directive 2006/112/EC.

4 In case the customer uses his Belgian VAT number, the VAT number has always to be mentioned if the supplier is established in Belgium and it concerns a local supply

5 The capacity of the tax representative has to be mentioned also

6 In case the supplier/customer is represented by a global tax representative

BULGARIA

1 Always

FRANCE

2 This information is however not compulsory for services referred to by article 56 of the Directive 2006/112/EC.

LITHUANIA

1 For domestic supplies where the customer has a Lithuanian VAT number.

POLAND

2 Abbreviation is possible

3 This information is however not compulsory for services rendered to by article 56 of the Directive 2006/112/EC.

4 In case the customer uses his Polish VAT number, it has to be mentioned if the supplier is established in Poland and it concerns a local supply

PORTUGAL

1 A valid invoice should always contain the VAT identification of the customer

SLOVAK REPUBLIC

1 It should be stated in each case when the supplier is obliged to issue an invoice and the customer has a VAT number

SPAIN

2 Not required in case the customer does not qualify as a taxable person

3 In case the customer holds different permanent establishments in Spain, the full address of the permanent establishment affected by the relevant transaction should be mentioned

4 In domestic transactions carried out by Spanish VAT established taxpayers

UNITED KINGDOM

1 This information is however not compulsory for services rendered to by article 56 of the Directive 2006/112/EC.

		Austria	Belgium	Bulgaria	Cyprus	Czech Republic	Denmark	Estonia	Finland	France	Germany	Greece
CONTENT INFORMATION												
15	sequential number, based on one or more series, which uniquely identifies the invoice	X	X 7	X 2	X	X	X	X	X	X 3	X	X
16	date of issue of the invoice	X	X	X	X	X	X	X	X	X	X	X
17	date on which the supply of goods or services was made or completed or the date on which the payment on account was made before any supply, insofar as that a date can be determined and differs from the date of issue of the invoice	X	X		X	X	X	X	X	X	X	X 2
18	description/nature of the goods or services	X	X	X	X	X	X	X	X	X	X	X
19	quantity of the goods supplied or the extent and nature of the services rendered	X	X	X	X	X	X	X	X	X	X	X
20	price per unit (excluding VAT)	X	X	X	X	X	X	X	X	X		X
21	any discounts or rebates, not included in the unit price		X	X	X	X	X	X	X	X	X	X
22	taxable amount per VAT rate or exemption	X	X	X 3	X	X	X	X	X	X	X	X
23	VAT rate(s) applied	X	X	X	X	X	X	X	X	X	X	X
24	Total VAT amount	X	X	X	X	X	X	X	X	X	X	X
25	Where an exemption is involved or where the customer is liable to pay the tax : • reference to the appropriate provision of the Directive 2006/112/EC; or	X	X		X		X	X	X	X	X	
	• reference to the corresponding national provision; or	X	X		X	X1	X	X	X	X	X	X
	• any indication that the supply is exempt or subject to the reverse charge procedure	X	X	X	X	X	X		X	X	X	X
26	Any other requirements?			X 4						X 4	X 6	X 3
27	Is it required to mention the amounts on the invoice in the local currency?		X 8	X 5	X	X	X 1	X 1	X 2	X 5		X 4
28	Is it required to issue the invoice in (one of the) official languages?			X								X 5

		Hungary	Ireland	Italy	Latvia	Lithuania	Luxembourg	Malta	Netherlands	Poland	Portugal	Romania
CONTENT INFORMATION												
15	sequential number, based on one or more series, which uniquely identifies the invoice	X	X	X 8	X	X	X	X	X	X	X	X
16	date of issue of the invoice	X	X	X	X	X	X	X	X	X	X	X
17	date on which the supply of goods or services was made or completed or the date on which the payment on account was made before any supply, insofar as that a date can be determined and differs from the date of issue of the invoice	X	X	X 9	X	X	X	X	X	X	X	X
18	description/nature of the goods or services	X 2	X	X	X	X	X	X	X	X	X	X
19	quantity of the goods supplied or the extent and nature of the services rendered	X	X	X	X	X	X	X	X	X	X	X
20	price per unit (excluding VAT)	X	X	X 1 0	X	X	X	X	X	X	X	X
21	any discounts or rebates, not included in the unit price	X	X	X 1 1	X	X	X	X	X	X	X	X
22	taxable amount per VAT rate or exemption	X	X	X 1 2	X	X	X	X	X	X	X	X
23	VAT rate(s) applied	X	X	X	X	X	X	X	X	X	X	X
24	Total VAT amount	X	X	X	X	X	X	X	X	X	X	X
25	Where an exemption is involved or where the customer is liable to pay the tax : • reference to the appropriate provision of the Directive 2006/112/EC; or		X			X	X		X	X		
	• reference to the corresponding national provision; or	X	X	X	X	X	X	X	X	X	X	
	• any indication that the supply is exempt or subject to the reverse charge procedure	X	X				X	X	X	X	X	X
26	Any other requirements?	X 3	X 1	X 1 3		X 2	X1			X 5		X 1
27	Is it required to mention the amounts on the invoice in the local currency?	X 4	X 2	X 1 4	X 1	X 3	X2	X1	X1	X 6	X 2	X 2
28	Is it required to issue the invoice in (one of the) official languages?	X				X 4				X		X

		Slovak Republic	Slovenia	Spain	Sweden	UK
CONTENT INFORMATION						
15	sequential number, based on one or more series, which uniquely identifies the invoice	X	X	X	X	X2
16	date of issue of the invoice	X	X	X	X	X
17	date on which the supply of goods or services was made or completed or the date on which the payment on account was made before any supply, insofar as that a date can be determined and differs from the date of issue of the invoice	X	X	X	X	X
18	description/nature of the goods or services	X	X	X	X	X
19	quantity of the goods supplied or the extent and nature of the services rendered	X	X	X	X	X
20	price per unit (excluding VAT)	X	X	X	X	X
21	any discounts or rebates, not included in the unit price	X	X	X	X	X
22	taxable amount per VAT rate or exemption	X	X	X	X	
23	VAT rate(s) applied	X	X	X	X	X
24	Total VAT amount	X	X	X	X	X
25	Where an exemption is involved or where the customer is liable to pay the tax : • reference to the appropriate provision of the Directive 2006/112/EC; or			X	X	X
	• reference to the corresponding national provision; or	X	X	X	X	X
	• any indication that the supply is exempt or subject to the reverse charge procedure			X	X	X
26	Any other requirements?	X	X 1			
27	Is it required to mention the amounts on the invoice in the local currency?	X2	X 2	X 5	X1	X3
28	Is it required to issue the invoice in (one of the) official languages?					X4

BELGIUM

7 The sequential number is the number under which the invoice is mentioned in the sales journal of the supplier

8 Only for the total VAT amount in EUR

BULGARIA

2 10-digit sequential number in Arabic

3 The total taxable amount should be shown on a separate line as well

4 The invoice should also contain BULSTAT (statistical number) of the issuer and the recipient of the invoice; name and signature of the individual issuing the invoice; the text "ORIGINAL" on the first copy of the invoice and in case the amount due by the supplier differs from the taxable amount, both amounts should be shown separately

5 In Bulgarian Leva

CZECH REPUBLIC

1 As well as a statement that the customer is liable to pay taxes if applicable

DENMARK

1 The total VAT amount in DKK or Euro

ESTONIA

1 Only for the total VAT amount in Estonian Kroons

FINLAND

2 Only for the total VAT amount in EUR

FRANCE

3 The invoice should also be numbered on a chronological basis

4 There are specific statements from a legal viewpoint

5 The total VAT amount in Euro

GERMANY

6 In very specific cases, other statements may apply

GREECE

2 Delivery notes must be mentioned

3 Signature of the issuer and additional charges

4 In Euro

5 In Greek

HUNGARY

2 If a reduced VAT rate or an exemption applies, the statistical number classifying the good/service must be included

3 Total taxable amount, exclusive VAT and the total invoice amount have to be mentioned as well, method of payment (e.g. bank transfer) and due date for the payment

4 The total amount of VAT and the total taxable amount must be in HUF

IRELAND

1 The 13B number must be included where applicable

2 The total VAT amount in EUR

ITALY

8 A different sequential number (even for multiple series) has to be attributed with reference to each calendar year.

9 In case of “deferred invoices”, the date and the number of the proper transport document have to be indicated.

Different rules apply in particular cases e.g.: commissionaire.

10 The consideration excluding VAT and other elements necessary in order to determine the taxable basis, including

the arm’s length value of the goods given in specific cases as discount, premium or rebate, have to be mentioned.

11 Moreover, in case of discount in kind, the arm’s length value of the goods given in specific cases as discount, premium or rebate has to be mentioned.

12 In case of supplies of goods or services with different VAT rates, the following items have to be indicated separately on the basis of the applicable rate:

- nature, quality, quantity of the goods and services supplied;
- consideration (excluding VAT);
- VAT rate, taxable amount and amount of VAT (to be mentioned in Euro).

13 For specific transactions only

14 The total amount of VAT in Euro

LATVIA

1 Only the total VAT amount in a national currency (Lats and Santims)

LITHUANIA

2 In very specific cases such as agricultural products

3 The total VAT amount in local currency. The other amounts only in local currency if the supplier is established in Lithuania

4 Invoices issued by established entities have to be in Lithuanian

LUXEMBOURG

- 1 In very specific case such as sales under the margin scheme
- 2 The total VAT amount in Euro

MALTA

- 1 Only the total VAT amount in Maltese Lira

NETHERLANDS

- 1 The total VAT amount in Euro

POLAND

- 5 The total amount due shall be expressed both in figures and in words.
- 6 The total VAT amount in PLN

PORTUGAL

- 2 Invoices issued in a foreign currency must show the taxable base and the VAT amount in Euro

ROMENIA

- 2 The capacity of the tax representative has to be mentioned also
- 3 total VAT amount must be expressed in RON

SLOVAK REPUBLIC

- 2 The total VAT amount in Slovak Crowns

SLOVENIA

- 1 A signature is required
- 2 The total VAT amount in SIT

SPAIN

- 5 The total VAT amount in Euro

SWEDEN

- 1 If a company's accounting currency is EUR the VAT amount must also be shown in the accounting currency. Furthermore, the exchange rate used must be shown on the invoice. If an invoice is issued in another currency than SEK and the company's accounting currency is not EUR or SEK, the VAT amount must be shown in SEK. If both the accounting currency and the invoicing currency are EUR, no conversion to SEK is needed

UK

- 2 The UK requires a unique identifying number and regards this as being sequential. Cancelled or spoiled invoices should be kept for verification by HMRC
- 3 The total VAT amount in local currency.
- 4 In English

7.8. Overview of Country requirements

The tables below provide an overview of Member State requirements.

7.8.1. Overview of legislation (EMEA)

	A T	B E	B G	C Y Z	C Z	D K	D E	E I	F I	F R	D E	E L	H U	I E	I T	L V	L T	L U	M T	N L	P L	P T	R O	S K	S L	E S	S E	U K
1A	Green	Green	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
1B	Amber	Green	Green	Green	Green	Green	Green	Green	Amber	Amber	Amber	Amber	Green	Green	Green	Green	Amber	Green	Green	Green	Green	Green	Amber	Green	Green	Green	Green	Green
2A	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
2B	Green	Green	Amber	Amber	Amber	Green	Green	Green	Green	Green	Amber	Amber	Green	Green	Amber	Green	Amber	Green	Amber	Green	Amber	Amber	Amber	Amber	Amber	Amber	Amber	Green
3	Amber	Green	Amber	Green	Green	Green	Green	Green	Green	Amber	Amber	Green	Amber	Green	Amber	Green	Amber	Green	Green	Green	Amber	Amber	Green	Amber	Amber	Green	Green	Green

1A. Acceptance of EDI to send e-invoices (green = yes / red = no)

1B. Obligation to issue paper recapitulative statements (amber = yes / green = no)

2A. Acceptance of 'advanced e-signatures' to send e-invoices (green = yes)

2B. Obligation to use a qualified certificate and a secure signature-creation device (amber = yes / green = no)

3. Acceptance of 'other electronic means' to send e-invoices (green = yes / amber = not accepted)

7.8.2. Overview of local administrative or political clarifications

	A T	B E	B G	C Y Z	C Z	D K	D E	E L	E S	F I	F R	H U	I E	I T	L V	L T	L U	M T	N L	P L	P T	R O	S K	S L	U K	C H	N O	R T	T U	Z A	
1	Green	Red	Red	Red	Red	Green	Red	Red	Green	Red	Red	Green	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Green	Green	Red	Red	Red	Red	Green

1. Availability of administrative or political clarifications (green)
Non-availability of administrative or political clarifications (red)

7.8.3. Purchase invoices: scanning paper invoices

	A	B	B	C	C	D	E	F	F	D	E	H	I	I	L	L	L	M	N	P	P	R	S	S	E	S	U
	T	E	G	Y	Z	K	E	I	R	E	L	U	E	T	V	T	U	T	L	L	T	O	K	L	S	E	K
1	Green	Red	Green	Red	Green	Red	Green	Green	Red	Red	Red	Green	Red	Red	Red	Red	Red	Green	Red	Green	Red	Green	Green	Red	Red	Red	Green

1. Is storage of paper invoices without online access possible (green = yes)

7.8.4. Sales Invoices: paper vs. electronic invoicing

	A	B	C	C	D	E	F	F	D	H	I	I	L	L	L	N	N	P	P	S	S	E	S	U	
	T	H	Z	K	E	I	R	E	U	E	T	V	T	U	L	O	L	T	K	L	S	E	K		
1	Green	Green	Green	Red	Green	Amber	Green	Green	Green	Amber	Red	Amber	Amber	Amber	Amber	Green	Amber	Amber	Amber	Amber	Amber	Red	Green	Green	Amber

1. Is sending an invoice as PDF. attachment to e-mails without electronic signature and without an explicit acceptance of the customer seen as e-invoicing (green), paper invoicing (amber) or as no invoicing at all (red)?

7.9. Minimum – maximum requirements

The VAT rules regarding issuance and storage of electronic invoices and especially the interpretation of some rules still tend to differ from Member State to Member State. Although the Invoicing Directive 2001/115/EC provides the legal framework and the requirements to be fully compliant with the legislation, it provides the Member States the discretionary power to implement the optional requirements as stated by the Council.

Therefore, in some Member States organisations face a maximum of requirements while in other Member States a minimum is anticipated for.

In analysing the different requirements below, the minimum and maximum requirements as applicable in the Member States (not country specific but in general) are mentioned

<i>e-Invoicing</i>		
	Minimum requirements	Maximum requirements
Acceptance by the customer	As far as the acceptance by the customer is required, some Member States are fine with a tacit agreement.	In other Member States, an explicit acceptance by the client is required to receive electronic invoices. In case of using a third party to issue invoices on behalf of a supplier, some Member States also require an explicit outsourcing agreement.
Accepted methods	In some countries sending a PDF file via email is considered as electronic invoicing which is fully compliant for VAT purposes.	Electronic invoices can only be issued in case the following requirements are complied with: By means of an advanced electronic signature based on a qualified certificate and created by a secure-Signature-creation-device. Some Member States also require the immediate verification of the signature; By means of Electronic Data Interchange (EDI) where there is an agreement, drafted in express terms, covering the exchange providing for the use of procedures guaranteeing the authenticity of the origin and the integrity of the data. In addition, Member States request, on paper or electronically signed, for a summary document.

e-Archiving

	Minimum requirements	Maximum requirements
Place of storage	<p>Both paper and electronic invoices can be stored abroad in case the tax authorities are notified beforehand. As also the paper invoices can be stored abroad, no full on-line access should be guaranteed.</p> <p>It is allowed to store invoices in a country with which there is no legal instrument relating to mutual assistance, without any specific conditions.</p> <p>The stored invoices and information should be available without undue delay to the competent authorities whenever they request them. In some countries this undue delay means 3-5 days.</p>	<p>Paper invoices cannot be stored abroad and electronic invoices can only be stored abroad in case the following conditions are met:</p> <ul style="list-style-type: none">- the invoices are stored in another EU Member State;- the tax offices should be notified beforehand. Some Member States require the use of a specific form.- Full on-line access should be guaranteed <p>The most severe Member States do not allow storing the invoices in a country with which there is no legal instrument relating to mutual assistance.</p>
Storage period	<p>The minimum storage period for VAT purposes is 4 years as from the year following the year in which the invoice has been issued.</p>	<p>The maximum storage period for VAT purposes is 10 years, not taking into account specific rules on immovable capital goods.</p>
Format of storage	<p>It is permissible for invoices to be stored in another format than the original. In some countries there are no specific requirements in this respect.</p> <p>In all cases the authenticity of origin, the integrity of the content and the readability of the invoices must be guaranteed throughout the storage period.</p>	<p>Some Member States do not allow for invoices to be stored in another format than the original.</p> <p>Some Member States require the archive to be signed and time-stamped by an external party</p>

7.10. Other relevant requirements

7.10.1. 8 en 13th directive

According to the current Directive 79/1072/EEC (the ‘8th VAT Directive’) and the Directive 86/560EEC (the ‘13th VAT Directive’) Member States shall refund to any taxable person who is not established in the territory of the country but who is established in another Member State (8th) or outside the EU (13th), subject to the conditions as mentioned in the Directive, any VAT charged in respect of services or movable property supplied to him by other taxable persons in the territory of the country or charged in respect of the importation of goods into the country, in so far as such goods and services are used for the required .

Businesses can receive a VAT refund both in case the original invoices as the original electronic invoices are submitted to the competent VAT authorities. The conditions applicable for the paper invoices are also applicable for the electronic invoices.

However, the conditions laid down in both the 8th and 13th Directive are very stringent. Therefore, the Council Directive on refund procedures, containing regulations on simplification of cross-border VAT obligations and refund procedures for non-established businesses, will be issued. Under the new regulation the request for refund of the VAT can be submitted via an electronic ‘portal’, made available by the Member State in which the taxable person is established. This electronically submitted request will subsequently be submitted to the Member State in which the VAT is due. This new regulation will be applicable as from 1 January 2010.

7.10.2. Code list

The use of code lists for e.g. party or products is allowed by certain Member States.

7.11. Update VAT legislation

Note: The situation is applicable at the end of February 2007 and compared to the information in the publication “Global E-Invoicing and E-Archiving” by PwC.

7.11.1. No changes to be reported

In that respect, we confirm that until end of February 2007 the legislation of the following 23 countries **did not change** compared to our initial validation in October - November 2006:

Austria

Belgium

Cyprus

Czech Republic (there is currently a discussion ongoing with the Czech Ministry of Finance regarding the storage of original invoices and e-Archiving solutions)

Denmark

Estonia
Finland
Germany
Hungary
Ireland
Iceland
Latvia
Luxembourg
Malta
The Netherlands
Poland
Romania
Slovenia
Slovak Republic
Spain (However, recently - after end February - a new Ministerial Order has been approved. We will provide you with a newsflash on this pretty soon)
Sweden
Switzerland
The United Kingdom

7.11.2. Changes to be reported

For the other countries, the following changes have to be reported:

France

New administrative comments regarding e-Archiving of sales invoices issued on paper.

Greece

Accreditation

As from 22 December 2006 customers (in case of self-billing) and taxable persons (in case of outsourcing) established outside of Greece are **not** required to provide accreditation (through official documentation) to the Greek tax authorities prior to self-billing or outsourcing. The above obligation is still in force for taxable persons established in countries with which Greece has not signed a mutual assistance or equivalent legal instrument.

Prior written agreement

The new tax regulations explicitly provides for the signing and notification of a written agreement prior to the issuance of the first invoice by the customer or the outsourcing party.

Content of the invoice

Due to the change in the VAT legislation (according to which the appointment of a fiscal agent is not mandatory for EU principals and the simplified VAT agent of EU principals is abolished) the invoice should state the particulars of the fiscal agent (representative) where such exists.

Language of invoices

Invoices may be expressed in any language and the translation of its content into Greek is no longer required. This is also applicable for local transactions. However, the tax authorities may request the translation of the content of the invoice into Greek for auditing purposes, irrespective of whether the underlying transactions are local or cross-border.

Currency of invoices

Invoices may be expressed in any currency, on the condition that the amount of VAT is in the currency of the country, where the supply takes place. The currency conversion should be made in accordance to the rules laid down in the VAT Directive.

Storage of invoices

Abolishment of the obligation to store invoices in Greece in paper format when the storage was:

- not carried out via electronic means, which would guarantee on-line access to the information or
- with a country which has not signed a mutual assistance or other equivalent legal instrument with Greece.

Italy

On 6 December 2006, a Circular Letter was issued regarding e-Archiving.

Lithuania

As of 1 January 2007, one invoicing requirement has changed.

The requirement for reference to articles of the VAT Act or the VAT Directive. Invoices may also make any other reference (such as “the supply is VAT-exempt”, “VAT shall be calculated by the purchaser” etc.).

Norway

The legislation regarding self-billing has changed.

Portugal

Since January 2007, a paper summary document (a list) of all electronic sales and purchases invoices is no longer required.

Slovenia

As far as e-Invoicing is concerned, EDI is now introduced in the Law.

Latvia

Additional input was received from Aigars Jaundalders, Business development manager at DPA in Latvia, and member of the Expert Group. Where as the above mentioned legal requirements originate from VAT law, one can see that other (accounting law e.g.) or local legislation makes it even more complicated, as illustrated below.

- 1) There is an additional requirement in Latvia, stating that invoice number must not only be sequential, but that this number must be applied for at the State Revenue Service. SRS then allocates number series and tax payers are allowed to use invoice numbers only from within those number series that have been allocated by SRS. Tax payers also must regularly submit reports on usage of such number series to SRS. Reference to legal instrument – Cabinet of Ministers regulation nr. 1038 from Dec 27th, 2005.
- 2) In principle of the EU Directive, legislation does not require invoices to be issued in national language. Actually, aforementioned Cabinet of Ministers regulations in some of the clauses refer to the mandatory labels to be included in the invoice and specifies values for those labels only in Latvian language (e.g. clause 9.1. specifying that invoice must include the name of the document – “pavadzīme” (meaning “invoice” in Latvian)).
- 3) As to the obligation to use a qualified certificate to send an invoice. According to Latvian law on digital documents, when any public institution engages into electronic communication, it must use qualified certificates unless each public institution prior to engaging into such communications signs written agreement with each potential recipient

and explicitly agree on not using qualified certificate. Even more – in such cases public institutions must use not only qualified certificates but also must timestamp such messages. For public sector, the same is true for usage of qualified certificates, but there is no direct reference to mandatory use of timestamps.

4) As to the maximum requirements for place of storage. I would say that there are even more severe Member States like Latvia which require invoices to be stored only in the Member State where tax payer is registered. Regarding Latvia, Latvian Accounting Law (clause 6) requires that accounting registers along with all supporting documents (invoices included) must be stored in the Republic of Latvia.

5) There is additional obstacle to e-Invoicing in Latvian legislation. For example, Cabinet of Ministers regulation nr. 1038 (Dec 27th, 2005) in clause 14 requires to issue invoices in 4 original copies where the 4th of the originals (issued to the party offering transportation services) must be stored at the address where goods were delivered/released until the next annual inventory. This basically means that there is currently no legal way to fully outsource storage of invoices in Latvia (even to the service provider located within Latvia).

8. REQUIREMENTS CATALOGUE

8.1. Overall Requirements Description

A requirement describes a condition or capability to which the e-Invoicing and e-Archiving system must conform; either derived directly from user needs, or stated in a contract, standard, specification, or other formally imposed document.

The departure point of the requirement analysis of the e-Invoicing and e-Archiving solution is the business needs (a.k.a. business requirement). At this level the focus is on the problem that the business wants to see taken on board by the system requirements and for which the system must, should or may provide solution. Each business need is the root of one or more system features. Since these features can be of several types, we have used the FURPS+ methodology to classify them:

- **Functional features**, encompassing domain specific functionality, general capabilities and security. The domain specific functionality has been divided into several areas:

Functional Subtypes	Short Description
Automatic Processing or Cross-Functional	Functionality related to the automatic processing of e-Invoices by the system or functionality supporting several system functions.
Invoicing	Invoicing specific functionality.
Archiving	Archiving specific functionality.
Data	Data requirements.
Dispute	Dispute specific functionality.
Information	Functionality regarding the querying and retrieval of information.
Security	Functionality specific on security.

- **Usability features**, encompassing among other subtypes the aesthetics, consistency, accessibility and learnability of the solution.
- **Reliability features**, encompassing among other subtypes encompassing availability, predictability, accuracy, mean time to failure of the solution.
- **Performance features**, encompassing among other subtypes encompassing response time, efficiency, throughput of the solution.
- **Supportability features**, encompassing among other subtypes encompassing testability, extensibility, adaptability of the solution.
- **Constraints** such as

Constraint Subtypes	Short Description
Constraint: Regulation	This includes: VAT e-Invoicing VAT e-Archiving VAT Data Elements VAT Cross Border All of these are detailed in Chapter 7 - Legal Requirements
Constraint: Interface	This includes the External Systems with which the system may interface and the Interface Formats.

Note: a feature may have at the same time the attribute "functional feature" and "constraint - regulation"; this happens because some functionality is mandated by law.

The system features are then used in the specification of system Use-Cases and Design Mechanisms.

According to the FURPS+ methodology there are also two wide areas:

- Functional Requirements are mapped to functional features.
- Non Functional Requirements are mapped to Usability, Reliability, Performance and Supportability feature + Constraints.

The details on the mapping of the Use Cases to the Functional and Non Functional Requirements have been entered into a Requirements Management database. This database contains two mapping matrixes of Requirements (one for Functional and another for Non Functional features) to Use Cases.

8.1.1. Business Need Overview

The business needs are the business requirements that must be fulfilled in order to justify the use of an e-Invoicing and e-Archiving system. These are also known as the goals or objectives of the e-Invoicing and e-Archiving system. Each Business Need is given a unique identifier, a name and a description.

8.1.2. Feature Overview

A system feature is a capability or characteristic of a system that directly fulfils a Stakeholder Need. Often thought of as the "advertised benefits" of the system, these are the conditions or capabilities to which the e-Invoicing and e-Archiving system must conform to. In brief, these are system requirements.

The key words "MUST", "MUST NOT", "SHOULD", "SHOULD NOT" and "MAY", used in each feature are to be interpreted as described in the IETF RFC 2119.

Feature Key Word	Short Description
MUST	The feature is an absolute requirement of the system specification.
MUST NOT	The feature is an absolute prohibition of the system specification.
SHOULD	There may exist valid reasons in particular circumstances to ignore this particular feature, but the full implications must be understood and carefully weighed before choosing a different course.
MAY	The feature is truly optional.

The features are linked to the system's Use Cases:

Use Case	Short Description
Archive document	The system supports the archiving of invoices and credit notes via electronic means respecting the legal constraints.
Consult Archived Documents	The system allows the search of the archived documents received via electronic means by Tax Representatives.
Query for business document	The system allows the search of business documents via electronic means.
Retrieve business document	The system allows the retrieve of business documents via electronic means.
Retrieve business document attachment	The system allows the retrieve of attachments (such as time sheets) via electronic means.
Submit Summary Report	In the case of EDI solutions, some countries require the sending of invoices summary reports which is a summary of the invoices received by the client from a specific supplier.
Submit Attachment	The system supports the submission of attachments via electronic means.
Submit Invoice	The system supports the creation and submission of invoices via electronic means respecting the legal constraints.

Use Case	Short Description
Dispute Invoice	The system supports the dispute of invoices via electronic means.
Submit Credit Note	The system supports the creation and submission of credit notes via electronic means respecting the legal constraints.
Submit Debit Note	The system supports the creation and submission of debit notes via electronic means respecting the legal constraints.
Business Notification	The system supports the submission of business notification via electronic means.
Remind Payment	The system supports the submission of payment reminders via electronic means respecting the legal constraints.
Request business document copy	The system supports the request of business documents copies via electronic means respecting the legal constraints.
Request Status	The system supports the submission of status requests via electronic means.
Logging	The system supports the logging of actions and messages.
Monitoring	The system supports the monitoring of events related to its services.
User Access	The system supports User Access Control.
Scan invoice	The system supports the receipt of scanned invoices.
Retrieve log	The system supports the retrieve of logs by system administrators.
Code tables distribution	The system supports code-tables distribution.
System Administration	The system supports dedicated services for system administration.
Route Document	The system supports the routing of an Invoice, credit Note or debit Note inside the customer's organisation.
Discovery of Services	The system supports dedicated services related to the discovery of its services.
View Business Document	The system supports dedicated services related to the presentation of business documents.

8.1.3. Stakeholder Request Overview

The Stakeholder Request(s) section presents the Original Requests from stakeholders without any rephrasing. More details are available in the table below:

Resource Name	Organisation	Document Reference
ebXML technical specifications	UN/CEFACT OASIS	N/A
Cross Industry Invoice – Supply Chain	UN/CEFACT	CEFACT/Forum/2006/... – Revision 1.1
Universal Business Language v2.0	OASIS	UBL-2.0
NES Profile 7 Simple Procurement version 2.0	NES	N/A
NES Profile 8 Basic Billing with Dispute Response	NES	N/A
IDABC e-Procurement protocol XML schemas initiative, European Contribution to UBL	IDABC	N/A
European interoperability framework for pan-european e-government services	IDABC	ISBN 92-894-8389-X
Preparatory Report of the e-Invoicing and e-Ordering project for public procurement	EC	N/A
Stackholder interviews of the of the e-Invoicing and e-Ordering project for public procurement	EC	N/A
MAKT and DIGIT team of the e-Invoicing and e-Ordering project for public procurement	EC	N/A
Survey of VAT Data Element usage in the Member States and the use of codes for VAT Exemptions	CEN	CWA 15578

8.1.4. Traceability

In the Requirements Management database, each Stakeholder request can be traced to a Need, each Need is linked to one or more Features and the Features to Use Cases.

The following objects are part of this document:

- Stakeholder Requests

Stakeholder approved requests must be traced to one or more stakeholder needs.

- Stakeholder Needs

Stakeholder approved needs must be traced from a stakeholder request and trace to one or more non-obsolete features.

- Features

Every approved and non-obsolete feature must be traceable to one or more Use Cases.

- Use cases

Use Cases realise the system's features.

With this mapping the following is achieved:

- Backward traceability – every requirement explicitly references its foundation on a Request, Need, and Feature...
- Forward Traceability - every requirement explicitly references its realisation in a system requirement.
- A formal change process can be initiated to identify, control, track and report projected changes on the system.

8.2. Specific Requirements

The requirements which the e-Invoicing and e-Archiving system must conform to are detailed in the next sections of this chapter.

8.2.1. e-Invoicing

8.2.1.1. Stakeholder Need: Services to create and submit invoices via electronic means

Description
<p>Suppliers need services to create and submit their invoices, to their customers, via electronic means. This MAY be accomplished by any of the following e-Invoicing business models:</p> <ul style="list-style-type: none"> - The seller-direct model: seller driven solution (a.k.a. seller direct). - The buyer-direct model: buyer driven solution (a.k.a. buyer direct). - The consolidator model: service providers handling the process of distributing and/or receiving e-Invoices on behalf of the seller and/ or the buyer. - Hybrid model: combination of the previous models. <p>In any of the models above there MAY be visible or invisible outsourced service provider roles.</p> <p>The invoices MAY be generated by one of the following applications:</p> <ul style="list-style-type: none"> - A dedicated e-Invoice application. - An accountancy or ERP application. - An order to pay service.

8.2.1.1.1. Related System Features:

Support of invoice submission via electronic means

Description	Type	Subtype
<p>The system MUST provide a service for invoice creation and submission via electronic means. The invoices MAY be for goods, services or goods and services. Goods are often linked to a purchase order, while services are not always linked to a purchase order and might be linked to a contract. This service MAY cover the following invoicing functions:</p> <ul style="list-style-type: none"> - Pre-payment invoice (payment 	Functional	Invoicing

<p>expected)</p> <ul style="list-style-type: none"> - Pro-forma invoice (pre advice, no payment is expected) - Normal invoice, on despatch for despatched items - Invoice after return of receipt advice - Any other type of commercial invoice 		
<p>Use Cases:</p> <p>Submit Invoice</p>		

Support of attachments submission via electronic means

Description	Type	Subtype
<p>The system SHOULD provide a service for submission of attachments to business documents (such as invoices) via electronic means. The submitted attachments MUST have a reference to a valid business document.</p>	Functional	Cross-Functional
<p>Use Cases:</p> <p>Submit Attachment</p>		

Invoice mandatory data elements

Description	Type	Subtype
<p>An invoice MUST contain at least the following elements to be compliant</p> <p>Date of issue of the invoice</p> <p>A sequential number, based on one or more series, which uniquely identifies the invoice</p> <p>VAT identification number of supplier</p> <p>VAT identification number of</p>	Constraint: Regulation	VAT Data Elements

<p>customer: in case he is liable to pay the VAT due in other cases</p> <p>Full name and address of supplier</p> <p>Full name and address of customer</p> <p>Quantity and nature of the goods supplied or the extent and nature of the services rendered</p> <p>Date of supply of goods or rendering of services or date on which payment of account was made if different from invoice date</p> <p>Price per unit</p> <p>Discounts or rebates not included in the unit price</p> <p>Taxable amount per rate or exemption</p> <p>VAT rate applied</p> <p>VAT amount payable in the national currency</p> <p>Where an exemption is involved or where the customer is liable to pay VAT, reference to the provision of the 6th Directive national legislation or any other indication</p> <p>Where the person liable to pay the tax is a tax representative; the identification number for VAT purposes, together with full name and address</p>		
<p>Use Cases:</p> <p>Submit Invoice</p>		

8.2.1.1.2. Related Stakeholder Requests:

<p>Suppliers questionnaire conclusion</p> <p>Question: Could you provide us with some background about your organisation's experience with e-Invoicing?</p>

<p>Conclusion: e-Invoicing systems are in place, for suppliers, customers but also intercompany invoices</p> <p><i>Origin:</i> Stakeholder Interview</p>
<p>Suppliers questionnaire conclusion</p> <p>Question: Is your organisation also receiving e-Invoices from its suppliers?</p> <p>Conclusion: Most of the interviewed suppliers receive also e-Invoices from their own suppliers</p> <p><i>Origin:</i> Stakeholder Interview</p>
<p>Suppliers questionnaire conclusion</p> <p>Question: Is the business data (i.e. Invoice attributes) in the e-Invoice the same for all customers?</p> <p>Conclusion: Information in the electronic invoice contains at least the information in the paper invoice</p> <p><i>Origin:</i> Stakeholder Interview</p>
<p>The exchange of electronic invoices</p> <p>The exchange of electronic invoices</p> <p><i>Origin:</i> Preparatory Report</p>
<p>Invoices for goods and services</p> <p>Support of electronic invoices for goods and services</p> <p><i>Origin:</i> Preparatory Report</p>
<p>Invoice sent after payment</p> <p>Support of invoices sent after a payment has been made</p> <p><i>Origin:</i> Preparatory Report</p>
<p>Send electronic invoices - make available for download</p> <p>When issuing an invoice, the supplier MUST be able to send an electronic invoice, or make the electronic invoice available for download</p> <p><i>Origin:</i> Preparatory Report</p>

<p>Supplier initiated invoice</p> <p>The traditional or supplier initiated invoice</p> <p>This process supports the generation of the invoice by the supplier to the customer, and covers also the treatment and the reconciliation of an incorrect invoice.</p> <p><i>Origin:</i> UN/CEFACT</p>
<p>Invoice Creation</p> <p>STRQ23 In the traditional or supplier initiated invoice the invoice is created by the supplier and sent to the customer, claiming payment for the goods or services that have been ordered, delivered, received or consumed under the conditions agreed by both parties.</p> <p><i>Origin:</i> UN/CEFACT</p>
<p>Invoice Creation</p> <p>the invoice can be created at the moment of the acceptance of the order, at the moment of the despatch of the goods or when the customer or a third party gives acknowledgment that the goods are received or consumed or can be invoiced. Today, the most common way used for direct deliveries to the customer, is the creation of the invoice based on the despatch of goods. When an external warehouse or a consignment stock is used for the supply of goods between the supplier and the customer, the invoice based on the received or consumed goods is more relevant.</p> <p><i>Origin:</i> UN/CEFACT</p>
<p>Invoice Functions</p> <p>The invoice can also cover the functions of a pro-forma invoice, a pre-Invoice, a consolidated invoice, or a debit note and credit note.</p> <p><i>Origin:</i> UN/CEFACT</p>
<p>Invoice Creation</p> <p>The Invoice is normally issued on the basis of one despatch event triggering one invoice. An Invoice MAY also be issued for pre-payment on a whole or partial basis. The possibilities are:</p> <p>Prepayment invoice (payment expected)</p> <p>Pro-forma invoice (pre advice, payment not expected)</p> <p>Normal Invoice, on despatch for despatched items</p>

Invoice after return of Receipt Advice

Origin: UBL 2.0

Traditional Billing

Traditional billing is where the supplier invoices the customer when the goods are delivered or the services provided.

Origin: UBL 2.0

Invoice Creation

the Supplier sends an electronic Invoice and, potentially, an electronic Credit Note that can be received and processed by the Customer

Origin: NES

Invoice Creation

the invoice MAY be created at the time of despatch or when the Delivery Party acknowledges that the goods have been received (using a Receipt Advice).

Origin: UBL 2.0

8.2.1.2. Stakeholder Need: Services to submit invoices when the place of supply of the goods and services is located outside of the home territory

Description
The system's service for submission of invoices by suppliers MUST support cross-border invoicing by complying with the relevant national legal requirements. This happens when the place of supply of the goods or services is located outside of the territory where they are established.

8.2.1.2.1. Related System Features:

Support of cross-border invoicing

Description	Type	Subtype
The system's service for submission of invoices by suppliers MUST support cross-border invoicing and comply with relevant legal requirements. This happens when the place of supply of the goods or services is located outside of the territory where they are established.	Functional, Constraint: Regulation	Invoicing, VAT Cross Border
Use Cases: Submit Invoice		

Support of invoices summary report

Description	Type	Subtype
In the case of EDI solutions, some countries require that suppliers convey to their customers a summary of the invoices submitted, to the specific customer, within a predefined period up to a predefined number of months (generally one month). The system SHOULD handle this business document and ensure that the data structure of the summary report complies with the legislation of the relevant country.	Functional, Constraint: Regulation	Cross-Functional, VAT e-Invoicing
Use Cases:		

Submit Summary Report

Multilingualism support

Description	Type	Subtype
<p>The system SHOULD enable users to submit requests in their own language, or in a limited set of languages at EU level. The responses generated by the system SHOULD comply with the language of the request or with the user's predefined language. Alternatively the system MAY provide translation services to yield a rough translation of the contents of its services into the user's desired language within a set of languages at EU level.</p>	<p>Non Functional: Supportability</p>	<p>Localizability</p>
<p>Use Cases:</p> <ul style="list-style-type: none">Query for business documentRetrieve business documentRetrieve business document attachmentSubmit Summary ReportSubmit AttachmentSubmit InvoiceDispute InvoiceSubmit Credit NoteSubmit Debit NoteBusiness NotificationRemind PaymentRequest business document copyRequest StatusDiscovery of Services		

Support of standardised business documents

Description	Type	Subtype
To ensure that the meaning of the exchanged data is shared and defined between the several Users in the typical order-to-invoice procurement cycle (i.e. semantic interoperability), the system's business documents (i.e. invoice, credit note, etc) SHOULD be based on a standard such as UN/CEFACT, UBL	Constraint: Interface	External Systems
Use Cases: Discovery of Services		

Support of multiple time zones

Description	Type	Subtype
The system MAY support different local dates and times. Therefore to avoid misunderstandings regarding the date of receipt of business documents the system SHOULD handle dates from different time zones consistently. The usage of Coordinated Universal Time (UTC) plus the time zone offset for that location, plus the time zone offset for daylight saving time is recommended.	Non Functional: Usability	Consistency
Use Cases: Archive document Consult Archived Documents Query for business document Retrieve business document Retrieve business document attachment Submit Summary Report Submit Attachment Submit Invoice Dispute Invoice		

Submit Credit Note
Submit Debit Note
Business Notification
Remind Payment
Request business document copy
Request Status

Support of Unicode Encoding

Description	Type	Subtype
The system SHOULD be able to handle characters in the Unicode standard.	Constraint: Interface	Interface Formats
Use Cases: Consult Archived Documents Query for business document Retrieve business document Retrieve business document attachment Submit Summary Report Submit Attachment Submit Invoice Dispute Invoice Submit Credit Note Submit Debit Note Business Notification Remind Payment Request business document copy Request Status		

8.2.1.2.2. Related Stakeholder Requests:

Suppliers questionnaire conclusion
Question: Which were the most important obstacles when rolling-out your e-Invoice

solution?

Conclusion: One of the major barriers is disharmonised legal framework, especially in a cross-border environment, where it's not always clear to companies which local rules are applicable

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: Which were the most important obstacles when rolling-out your e-Invoice solution?

Conclusion: There is no real global or pan-European e-Invoicing solution provider that can be used for cross-border and cross-sector invoicing, and there are often questions on the compliance of those solutions

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: Is e-Invoice also used for cross-border transactions?

Conclusion: Cross-border transactions can include intercompany invoicing

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: Is e-Invoice also used for cross-border transactions?

Conclusion: Uncertainty on which local VAT rules apply and differences in local implementations of the Directive make it difficult

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: Is e-Invoice also used for cross-border transactions?

Conclusion: Cross-border transactions include transactions with non-EU trading partners

Origin: Stakeholder Interview

Semantic interoperability

Semantic interoperability concerns the need to agree on common definitions and understanding for the pieces of data that will need to be exchanged on a pan-European

level

Origin: IDABC

Cross-border invoicing

The exchange (issuing/transmission/receipt) of electronic invoices between the European Commission and its suppliers in a cross-border environment

Origin: EU COM (DIGIT)

MULTILINGUALISM

TECHNICAL - MULTILINGUALISM):

As concerns the submission of requests via e-mail or front of ices, there SHOULD be facilities for citizens and enterprises to submit requests in their own language when possible. An alternative is to submit requests only in a limited set of languages at EU level (e.g. 3 languages such as English, French and German).

Origin: IDABC

TECHNICAL - MULTILINGUALISM

RECOMMENDATION 17

(TECHNICAL - MULTILINGUALISM):

For other cases machine translation software MAY be used to yield a rough translation of the contents of a website into the desired language.

Origin: IDABC

8.2.1.3. Stakeholder Need: Services to process paper invoices

Description
Customers need services to process paper invoices through scanning and OCR.

8.2.1.3.1. Related System Features:

Support of invoices processing via scanning and OCR

Description	Type	Subtype
The system MAY provide a service for paper invoices the processing via scanning and OCR.	Functional	Invoicing
Use Cases: Scan invoice		

8.2.1.3.2. Related Stakeholder Requests:

Suppliers questionnaire conclusion Question: In a hypothetical scenario, for the exchange (issuing/transmission/receipt) of electronic Invoices with clients which solution would you prefer to engage with? Conclusion: e-Invoicing portals and scanning can be useful for SMEs <i>Origin:</i> Stakeholder Interview
Suppliers questionnaire conclusion Question: In a hypothetical scenario, for the exchange (issuing/transmission/receipt) of electronic Invoices with clients which solution would you prefer to engage with? Conclusion: Scanning is seen is far from ideal, while others believe there will always remain a part of invoices that can not be converted to electronic, and scanning might be useful in those cases <i>Origin:</i> Stakeholder Interview
Support of paper invoices Support of paper invoices - support of scanning and optical character recognition (OCR) <i>Origin:</i> Preparatory Report

8.2.1.4. Stakeholder Need: Ability to charge additional costs

Description
Suppliers need to be able to charge additional costs such as allowances and freight bills.

8.2.1.4.1. Related System Features:

Support of freight billing and additional costs

Description	Type	Subtype
The system SHOULD be able to handle allowances and additional costs such as freight bills via electronic means.	Functional	Invoicing
Use Cases: Submit Invoice		

8.2.1.4.2. Related Stakeholder Requests:

<p>Freight Billing</p> <p>An extension of the Billing process is that of Freight Billing. This represents the billing process between the Transport Service Buyer and Transport Service Provider through the use of an Invoice for freight charges.</p> <p>The Transport Service Provider initiates the process of billing the Transport Service Buyer for logistic services.</p> <p>The Freight Invoice lists the charges incurred in order to fulfil the agreed service.</p> <p><i>Origin:</i> UBL 2.0</p>

8.2.1.5. Stakeholder Need: Services to retrieve copies of previously sent business documents

Description
Customers need services to retrieve copies of previously sent business documents.

8.2.1.5.1. Related System Features:

Resending of business documents support

Description	Type	Subtype
The system SHOULD enable users to retrieve the business documents conveyed via electronic means using the unique identifier of the business document. A request MAY contain one or more business document identifiers. The result SHOULD return a list of structured alphanumeric data containing a single or multiple items (i.e. one or more business documents). This list MAY be restricted to a predefined number of items and within a predefined time window.	Functional	Information
Use Cases: Request business document copy		

8.2.1.5.2. Related Stakeholder Requests:

<p>Suppliers questionnaire conclusion</p> <p>Question: Can your system send an electronic copy of the Invoice to the client?</p> <p>Conclusion: A copy of an electronic invoice is not really a copy, it doesn't make sense. But customers can ask to resend the electronic invoice or go to an online solution and download it themselves</p> <p><i>Origin:</i> Stakeholder Interview</p>
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Suppliers questionnaire conclusion

Question: Which functionalities would you see as essential in an E-Invoice Portal?

Conclusion: An e-Invoicing portal SHOULD allow SMEs to

- Download the legal invoice for own archiving purposes
- Check for invoice status information
- Download a structured "booking" file (which can be the legal invoice), for integration in the accounting software
- Use the same system for Credit and Debit Notes

Origin: Stakeholder Interview

Invoice copy - resend invoice

Customers requesting a copy of an already sent invoice - resending documents

Origin: Preparatory Report

8.2.1.6. Stakeholder Need: Information on business events related to the business documents

Description
Invoicing combines the business processes of sellers and buyers. Therefore the outcome of the electronic invoicing process MUST be clear for both. Following the sending of a business document such as an invoice, suppliers need to be informed of (relevant) business events related to the processing of the business document by the customer (even when error-free). Therefore, following the reception of a business document (from the supplier), the customer SHOULD monitor the (relevant) business events related to the processing of this data and pass them to the supplier when relevant.

8.2.1.6.1. Related System Features:

Support of a notification service

Description	Type	Subtype
<p>The system SHOULD support a notification service. The system SHOULD provide mandatory and optional notifications. The optional notifications SHOULD be subject to subscription. Un-subscription SHOULD also be possible.</p> <p>Possible mandatory notifications linked to the processing of any business document by the customer:</p> <ul style="list-style-type: none"> - Receipt of Business Document - Acceptance/ Approval of Business Document <p>Possible mandatory notifications linked to the processing of error-free invoices by the customer:</p> <ul style="list-style-type: none"> - Remittance Advice - Invoice Dispute <p>Possible optional notifications linked to an invoice dispute by the customer:</p>	Functional	Information

<ul style="list-style-type: none"> - Upon a dispute of an invoice, a notification is produced informing the supplier about the halt of the payment delay counter - Once the dispute is resolved, a notification is produced informing the supplier about the payment delay (re)start. 		
<p>Use Cases:</p> <p>Business Notification</p>		

Remittance Data

Description	Type	Subtype
<p>The system SHOULD be capable of conveying data on the Invoice payment details (i.e. Remittance Data).</p>	Functional	Invoicing
<p>Use Cases:</p> <p>Business Notification</p>		

Business Monitoring

Description	Type	Subtype
<p>The system SHOULD support the monitoring of business documents throughout the various stages and states of their lifecycle, associated with predefined business events. This business monitoring feature SHOULD allow monitoring of the:</p> <ul style="list-style-type: none"> - time a business document remains in a business state - when the state transition occurs - retrieve the current or past business state of 1 or more business documents 	Functional	Cross-Functional
<p>Use Cases:</p>		

Monitoring

8.2.1.6.2. Related Stakeholder Requests:

Suppliers questionnaire conclusion

Question: The readability of the archived data is achieved via:

Conclusion: XSLT is used to render XML into a human-readable HTML or PDF file

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: The readability of the archived data is achieved via:

Conclusion: PDFs can be created at the moment of transaction, but also at the moment of visualizing the electronic invoice

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: The readability of the archived data is achieved via:

Conclusion: e-Archiving systems seem to have basic retrieval capabilities, while ERP systems provide more advanced querying solutions

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: Is the payment information available to the supplier?

Conclusion: Providing suppliers with payment or other status information regarding their invoices can be seen as an argument to convince them sending invoices electronically

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: Which functionalities would you see as essential in an E-Invoice Portal?

Conclusion: An e-Invoicing portal SHOULD allow SMEs to

- Download the legal invoice for own archiving purposes
- Check for invoice status information

- Download a structured "booking" file (which can be the legal invoice), for integration in the accounting software

- Use the same system for Credit and Debit Notes

Origin: Stakeholder Interview

Remittance advice

Support of a remittance advice in case the invoice was approved by the customer

Origin: Preparatory Report

8.2.1.7. Stakeholder Need: Automatic reminders of invoices due to be paid

Description
Suppliers need to automatically remind their customers of invoices due to be paid.

8.2.1.7.1. Related System Features:

Support of payment reminders

Description	Type	Subtype
The system SHOULD automatically handle the payment reminders from the supplier to its customer, when the customer does not pay the invoice within the agreed payment term.	Functional	Invoicing
Use Cases: Remind Payment		

8.2.1.7.2. Related Stakeholder Requests:

Suppliers questionnaire conclusion Question: Do you send electronic reminders to the clients when the Invoice is not paid within the agreement payment term? Conclusion: Paper is still seen today as the preferred way for sending reminders <i>Origin: Stakeholder Interview</i>
Suppliers questionnaire conclusion Question: Do you send electronic reminders to the clients when the Invoice is not paid within the agreement payment term? Conclusion: In some Member States, "registered email" is possible, but where it's not possible, paper "registered mail" has to be used <i>Origin: Stakeholder Interview</i>
Suppliers questionnaire conclusion Question: Do you send electronic reminders to the clients when the Invoice is not paid within the agreement payment term? Conclusion: Some interviewees are of the opinion that if the e-Invoicing solution is

implemented efficiently, reminders are no longer needed, or SHOULD at least be reduced drastically

Origin: Stakeholder Interview

Reminder

The support of a reminder sent by the supplier to the buyer when the invoice is not paid within the agreed payment term

Origin: Preparatory Report

Reminder for Payment

A Reminder MAY be used to notify the Customer of accounts due to be paid.

Origin: UBL 2.0

8.2.1.8. Stakeholder Need: Assurance of the delivery of business documents

Description
Suppliers need to be sure that business documents are successfully received after submitting them via electronic means. This is required so that the supplier is able to trace the receipt of the business document by the customer and by doing so separate its business process from the subsequent processes at the customer side.

8.2.1.8.1. Related System Features:

Support of a technical and/or business response to every request

Description	Type	Subtype
The system SHOULD provide a technical and/or business response to every request from users shortly after the receipt of the request. Receipt occurs at the time when the business document is available to the receiver at the predetermined electronic endpoint.	Functional	Cross-Functional
Use Cases: Consult Archived Documents Query for business document Retrieve business document Retrieve business document attachment Submit Attachment Submit Invoice Submit Credit Note Submit Debit Note Remind Payment Request business document copy Request Status		

Supported response types

Description	Type	Subtype
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<p>The system SHOULD support the following responses to users' requests:</p> <ul style="list-style-type: none"> - Technical acknowledgements of message receipt. When the sender receives the acknowledgement of receipt, it is presumed that the business document was successfully received. However, this presumption does not imply that the business document is valid. - Error messages upon failure (for example in case of technical error). - Business responses upon the successful/unsuccessful handling of the request (for example in the case of data creation or in the case of data enquiry). Regarding the return of data items the system MAY return: <ul style="list-style-type: none"> - No data items and the information that no data items were found. - A list of data items (that SHOULD be ordered by the date of creation). - A single data item. <p>A receipt and acknowledgement policy SHOULD be created to describe the handling of possible exceptions.</p>	<p>Functional</p>	<p>Cross-Functional</p>
<p>Use Cases:</p> <ul style="list-style-type: none"> Consult Archived Documents Query for business document Retrieve business document Retrieve business document attachment Submit Attachment Submit Invoice Submit Credit Note Submit Debit Note 		

Remind Payment
Request business document copy
Request Status

Query of business documents status

Description	Type	Subtype
<p>The system SHOULD enable suppliers to query on the status of their business documents:</p> <p>Via the business document's (e.g. Invoice) unique identifier. Upon being handled, this service returns the customer's status of the business document.</p> <p>The system SHOULD respond with the status of the business document. As an illustration the status of a business document in a moment in time MAY be one of the following:</p> <ul style="list-style-type: none"> - Business document received - Business document in process. - Business document approved. <p>The list of status MAY vary depending on the specific business document.</p> <p>Via the business document's (e.g. Invoice) status within the document's state flow. This service SHOULD allow users searching for states within a range of dates:</p> <ul style="list-style-type: none"> - All business documents which did not arrive into a certain status (e.g. Invoice Processed) within a range of dates. - All business documents which 	<p>Functional</p>	<p>Information</p>

<p>arrived a certain status (e.g. Invoice Processed).</p> <p>The system SHOULD respond with a structured answer containing:</p> <ul style="list-style-type: none"> - The unique identifiers of the business documents. For performance reasons, the number of conveyed identifiers MAY be limited to a predefined number. - The unique identifiers of the business documents linked to the status transition (e.g. dispute notice). For performance reasons, the number of conveyed identifiers MAY be limited to a predefined number. 		
<p>Use Cases:</p> <p>Request Status</p>		

8.2.1.8.2. Related Stakeholder Requests:

<p>Invoice Traceability</p> <p>The supplier shall have full traceability of his invoice, to make sure it has been received.</p> <p><i>Origin:</i> UN/CEFACT</p>

8.2.1.9. Stakeholder Need: Services settle incorrect invoices

Description
Suppliers need services that allow them to settle incorrect invoices via electronic means, using Credit and Debit Notes and without modifying the original invoice.

8.2.1.9.1. Related System Features:

Update of (successfully submitted) invoice data not supported

Description	Type	Subtype
Any data of a successfully submitted invoice or credit note cannot be modified. The system MUST NOT provide a service for the update of successfully submitted data.	Functional	Dispute
Use Cases: User Access		

Deletion of (successfully submitted) invoice data not supported

Description	Type	Subtype
Any data of a successfully submitted invoice or credit note cannot be deleted. The system MUST NOT provide a service for the deletion of a previously submitted invoice. Therefore un-deletion is also not required.	Functional	Dispute
Use Cases: User Access		

Support of credit notes submission for settlement of incorrect invoice via electronic means

Description	Type	Subtype
The system SHOULD provide a service for submission of Credit Notes by suppliers, for goods and	Functional	Dispute

services, via electronic means.		
Use Cases: Submit Credit Note		

Invoice and Credit Note relationship

Description	Type	Subtype
A credit note MUST always refer to a single invoice.	Functional	Dispute
Use Cases: Submit Credit Note		

Support of debit notes submission for settlement of incorrect invoice via electronic means

Description	Type	Subtype
The system SHOULD provide a service for submission of Debit Notes by suppliers, for goods and services, via electronic means.	Functional	Dispute
Use Cases: Submit Debit Note		

Invoice and Debit Note relationship

Description	Type	Subtype
A debit note MUST always refer to a single invoice.	Functional	Dispute
Use Cases: Submit Debit Note		

8.2.1.9.2. Related Stakeholder Requests:

Suppliers questionnaire conclusion

Question: Regarding the e-Invoicing services, which functions (or e-Invoicing variants) do you cater for?

Conclusion: Some interviewees sending e-Invoices also want to send electronic Credit Notes or Debit Notes

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: SHOULD an e-Invoice be rejected by the Customer what happens then?

Conclusion: In case the situation is not managed electronically - i.e. the dispute handling process - , the resulting credit note can still be sent electronically

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: Which functionalities would you see as essential in an E-Invoice Portal?

Conclusion: An e-Invoicing portal SHOULD allow SMEs to

- Download the legal invoice for own archiving purposes
- Check for invoice status information
- Download a structured "booking" file (which can be the legal invoice), for integration in the accounting software
- Use the same system for Credit and Debit Notes

Origin: Stakeholder Interview

Application response

The support of an application response, asking the supplier to send a credit note/debit note

Origin: Preparatory Report

Credit notes / debit notes

Support of the exchange of credit notes / debit notes

Origin: Preparatory Report

Invoice Error

If the customer finds an error in the invoice or he detects damaged goods, he can raise a dispute notice by using the Commercial dispute message. By means of a dispute

notice, the customer can provide the reason for non-acceptance and can propose the corrections to be made. The supplier can use the dispute notice response to respond with an answer to the customer, mentioning how the incorrect invoice will be settled.

Origin: UN/CEFACT

Settlement of incorrect invoice

The settlement of the incorrect invoice can be done in one of the following ways. A credit note is generated to cancel the previously sent invoice, together with a new invoice with the correct information. Or a credit or debit note is sent to the customer to settle the corrections agreed between the parties.

Origin: UN/CEFACT

Customer Role

The customer has the obligation to reconcile the invoices against the purchase order and the received and accepted goods. If relevant, the customer SHOULD report invoices with errors to the supplier.

The customer has the obligation to issue notification of payment and to make remittance to the supplier, based on the reconciled invoices.

Origin: UN/CEFACT

Settle of incorrect Invoice

To settle the incorrect invoice, the supplier MAY either send a credit note to cancel the previously invoice and to generate a correct invoice, or he can settle the difference by using a credit note or a debit note.

Origin: UN/CEFACT

Dispute Notice Traceability

The customer shall have full traceability of his dispute notice, to make sure it has been received.

Origin: UN/CEFACT

Dispute Notice Re-issue

Failing this technical acknowledgement, the customer shall re-issue his dispute notice

Origin: UN/CEFACT

Invoice Error

When there are discrepancies between the Despatch Advice, Receipt Advice, and/or the Invoice and the goods actually received, or the goods are rejected for quality reasons, the customer MAY send an Application Response or a Debit Note to the supplier. The supplier MAY then issue a Credit Note or another Invoice as required.

Origin: UBL 2.0

Invoice Creation

the Supplier sends an electronic Invoice and, potentially, an electronic Credit Note that can be received and processed by the Customer

Origin: NES

Invoice Error

Rejection leads to Accounting Customers notifying the Accounting Supplier of the discrepancy via a business level Application

Origin: NES

Invoice Error

In rejecting the Invoice, Accounting Customer Party sends an Application Response to the Accounting Supplier.

Origin: NES

Invoice Error

If the notification has (correctly) identified an undercharge, Accounting Supplier creates and sends a second Invoice to Accounting Customer

Origin: NES

Invoice Error

If the notification has (correctly) identified an overcharge, Accounting Supplier creates and sends a Credit Note to the Accounting Customer.

Origin: NES

Invoice Error

If the notification has (correctly) identified an Invoice containing wrong information (other than monetary amounts), Accounting Supplier creates and sends a Credit Note (zero balancing the Invoice) and a replacement Invoice to Accounting Customer.

Origin: NES

Credit Note Processing

Accounting Customer receives and processes the Credit Note and the replacement Invoice (new process). If the Credit Note zero balances the Invoice, the Credit Note processing ends; if not, the Customer notifies the Supplier via an Application Response.

Origin: NES

Tax Requirements

When using Credit Notes, the Supplier (in their Accounting role) is responsible for specifying the tax requirements.

Origin: UBL 2.0

Debit note - UBL

When using Debit Notes, both the Supplier (in their Accounting role) and the Customer (in their Accounting role) are responsible for providing taxation information

Origin: UBL 2.0

8.2.1.10. Stakeholder Need: Services to initiate the dispute of invoices

Description
Customers need services to initiate the dispute of invoices via electronic means.

8.2.1.10.1. Related System Features:

Support of invoices dispute

Description	Type	Subtype
The system SHOULD enable customers to dispute their invoices via electronic means. This service SHOULD convey a dispute notice of a single invoice to the supplier. This notice MUST allow the customer to specify the reason for the non-acceptance of the invoice and the proposed corrections to be made. This dispute SHOULD be traceable and the customer SHOULD be able to re-issue the notice in case of failure.	Functional	Dispute
Use Cases: Dispute Invoice		

8.2.1.10.2. Related Stakeholder Requests:

Suppliers questionnaire conclusion Question: Regarding the e-Invoicing services, which functions (or e-Invoicing variants) do you cater for? Conclusion: Some interviewees sending e-Invoices also want to send electronic Credit Notes or Debit Notes <i>Origin:</i> Stakeholder Interview
Suppliers questionnaire conclusion Question: SHOULD an e-Invoice be rejected by the Customer what happens then? Conclusion: In case the situation is not managed electronically - i.e. the dispute handling process - , the resulting credit note can still be sent electronically <i>Origin:</i> Stakeholder Interview

<p>Suppliers questionnaire conclusion</p> <p>Question: Which functionalities would you see as essential in an E-Invoice Portal?</p> <p>Conclusion: An e-Invoicing portal SHOULD allow SMEs to</p> <ul style="list-style-type: none"> - Download the legal invoice for own archiving purposes - Check for invoice status information - Download a structured "booking" file (which can be the legal invoice), for integration in the accounting software - Use the same system for Credit and Debit Notes <p><i>Origin: Stakeholder Interview</i></p>
<p>Application response</p> <p>The support of an application response, asking the supplier to send a credit note/debit note</p> <p><i>Origin: Preparatory Report</i></p>
<p>Credit notes / debit notes</p> <p>Support of the exchange of credit notes / debit notes</p> <p><i>Origin: Preparatory Report</i></p>
<p>Invoice Error</p> <p>If the customer finds an error in the invoice or he detects damaged goods, he can raise a dispute notice by using the Commercial dispute message. By means of a dispute notice, the customer can provide the reason for non-acceptance and can propose the corrections to be made. The supplier can use the dispute notice response to respond with an answer to the customer, mentioning how the incorrect invoice will be settled.</p> <p><i>Origin: UN/CEFACT</i></p>
<p>Settlement of incorrect invoice</p> <p>The settlement of the incorrect invoice can be done in one of the following ways. A credit note is generated to cancel the previously sent invoice, together with a new invoice with the correct information. Or a credit or debit note is sent to the customer to settle the corrections agreed between the parties.</p> <p><i>Origin: UN/CEFACT</i></p>

<p>Customer Role</p> <p>The customer has the obligation to reconcile the invoices against the purchase order and the received and accepted goods. If relevant, the customer SHOULD report invoices with errors to the supplier.</p> <p>The customer has the obligation to issue notification of payment and to make remittance to the supplier, based on the reconciled invoices.</p> <p><i>Origin:</i> UN/CEFACT</p>
<p>Settle of incorrect Invoice</p> <p>To settle the incorrect invoice, the supplier MAY either send a credit note to cancel the previously invoice and to generate a correct invoice, or he can settle the difference by using a credit note or a debit note.</p> <p><i>Origin:</i> UN/CEFACT</p>
<p>Dispute Notice Traceability</p> <p>The customer shall have full traceability of his dispute notice, to make sure it has been received.</p> <p><i>Origin:</i> UN/CEFACT</p>
<p>Dispute Notice Re-issue</p> <p>Failing this technical acknowledgement, the customer shall re-issue his dispute notice</p> <p><i>Origin:</i> UN/CEFACT</p>
<p>Invoice Error</p> <p>When there are discrepancies between the Despatch Advice, Receipt Advice, and/or the Invoice and the goods actually received, or the goods are rejected for quality reasons, the customer MAY send an Application Response or a Debit Note to the supplier. The supplier MAY then issue a Credit Note or another Invoice as required.</p> <p><i>Origin:</i> UBL 2.0</p>
<p>Invoice Creation</p> <p>the Supplier sends an electronic Invoice and, potentially, an electronic Credit Note that can be received and processed by the Customer</p> <p><i>Origin:</i> NES</p>

<p>Invoice Error</p> <p>Rejection leads to Accounting Customers notifying the Accounting Supplier of the discrepancy via a business level Application</p> <p><i>Origin: NES</i></p>
<p>Invoice Error</p> <p>In rejecting the Invoice, Accounting Customer Party sends an Application Response to the Accounting Supplier.</p> <p><i>Origin: NES</i></p>
<p>Invoice Error</p> <p>If the notification has (correctly) identified an undercharge, Accounting Supplier creates and sends a second Invoice to Accounting Customer</p> <p><i>Origin: NES</i></p>
<p>Invoice Error</p> <p>If the notification has (correctly) identified an overcharge, Accounting Supplier creates and sends a Credit Note to the Accounting Customer.</p> <p><i>Origin: NES</i></p>
<p>Invoice Error</p> <p>If the notification has (correctly) identified an Invoice containing wrong information (other than monetary amounts), Accounting Supplier creates and sends a Credit Note (zero balancing the Invoice) and a replacement Invoice to Accounting Customer.</p> <p><i>Origin: NES</i></p>
<p>Credit Note Processing</p> <p>Accounting Customer receives and processes the Credit Note and the replacement Invoice (new process). If the Credit Note zero balances the Invoice, the Credit Note processing ends; if not, the Customer notifies the Supplier via an Application Response.</p> <p><i>Origin: NES</i></p>

Tax Requirements

When using Credit Notes, the Supplier (in their Accounting role) is responsible for specifying the tax requirements.

Origin: UBL 2.0

Debit note - UBL

When using Debit Notes, both the Supplier (in their Accounting role) and the Customer (in their Accounting role) are responsible for providing taxation information

Origin: UBL 2.0

8.2.1.11. Stakeholder Need: Services need to be easily identifiable, easily accessible and open to SMEs

Description
The electronic invoicing services of Customers and Suppliers need to be accessible by small, medium and large enterprises. Therefore these services SHOULD be easily identifiable, easily accessible, easy to use and exposed via several electronic means (a.k.a. multi-channel approach).

8.2.1.11.1. Related System Features:

Exposure of an applications interface for data communications

Description	Type	Subtype
The system SHOULD expose an interface for data communications with external and/or internal applications. This interface MUST facilitate the access to the system's services.	Non Functional: Usability	Accessibility
Use Cases: Archive document Query for business document Retrieve business document Retrieve business document attachment Submit Summary Report Submit Attachment Submit Invoice Dispute Invoice Submit Credit Note Submit Debit Note Business Notification Remind Payment Request business document copy Request Status Code tables distribution Route Document		

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Human interface

Description	Type	Subtype
The system SHOULD expose an interface for data communications with Human Users (a.k.a. End-Users) of external and/or internal organization(s). This interface MUST facilitate the access to the system's services.	Non Functional: Usability	Accessibility
Use Cases: Route Document		

Distribution of data schemas and data definitions

Description	Type	Subtype
The system SHOULD facilitate the distribution of the data schemas and data definitions needed by users for accessing its services.	Non Functional: Usability	Accessibility
Use Cases: Discovery of Services		

Discovery of services

Description	Type	Subtype
The system SHOULD facilitate the discovery of its services by its users	Non Functional: Usability	Accessibility
Use Cases: Discovery of Services		

Maximum level of transparency, minimum effort and agreed level of security

Description	Type	Subtype
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The system's services SHOULD have a maximum level of transparency, involve minimum effort and provide the agreed level of security.	Non Functional: Usability	Operability
Use Cases: User Access		

Access to support documentation

Description	Type	Subtype
The system SHOULD facilitate the access to support documentation directed to its users/ end-users (e.g. user manual, data dictionary). The system's data dictionary SHOULD contain syntax neutral definitions of the data.	Non Functional: Usability	Learnability
Use Cases: Discovery of Services		

8.2.1.11.2. Related Stakeholder Requests:

Suppliers questionnaire conclusion Question: Which of the business models hereunder, better describes your organisation's e-Invoicing business model? Conclusion: Combinations of the business models and hybrid solutions are possible <i>Origin: Stakeholder Interview</i>
Suppliers questionnaire conclusion Question: How did your organisation stimulate its customers to use e-Invoicing? Or are the customers asking for it (no stimulus in this case)? Conclusion: Customer education is important towards SMEs, to inform them of potential solutions, consequences on their internal processes, legal compliance, "do-s" and "don't-s" <i>Origin: Stakeholder Interview</i>
Suppliers questionnaire conclusion Question: SHOULD your organisation have implemented a solution to send e-Invoices

to your customers, then this is made via:

Conclusion: Multiple solutions might needed, depending on the business requirements of the several trading partners

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: SHOULD your organisation have implemented a solution to send e-Invoices to your customers, then this is made via:

Conclusion: Fully integrated document exchange systems are more used by large suppliers, while e-Invoicing portals are aimed at SMEs

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: In a hypothetical scenario, for the exchange (issuing/transmission/receipt) of electronic Invoices with clients which solution would you prefer to engage with?

Conclusion: e-Invoicing portals and scanning can be useful for SMEs

Origin: Stakeholder Interview

Open to small, medium and large suppliers

The e-Invoicing system MUST be open to small, medium and large suppliers

Origin: Preparatory Report

Simple invoice message

The invoice message SHOULD be simple, so SMEs can also adopt to it

Origin: Preparatory Report

Security Functions

From the user perspective, functions associated with security (identification, authentication, non-repudiation, confidentiality) SHOULD have a maximum level of transparency, involve minimum effort and provide the agreed level of security.

Origin: IDABC

Organisational interoperability

Moreover, organisational interoperability aims at addressing the requirements of the

user community by making services available, easily identifiable, accessible and user-oriented.

Origin: IDABC

Single language for exchange of information

An essential requirement for the exchange of information is a single language that enables the description of the meaning and structure of the underlying data, i.e. a mark-up language.

Origin: IDABC

Availability of schemas and definitions

Specific European schemas and definitions **SHOULD** be made available to all pan-European stakeholders through common infrastructures

Origin: IDABC

Transparency in finding and using services

Transparency: Ease of finding and using services, thus allowing citizens and enterprises better access to and participation in administrative matters and political issues.

Origin: IDABC

Services can be located easily

eServices can be located easily.

Origin: IDABC

Accessibility of services

e-Services **MUST** be accessible to all members of the intended target groups.

Origin: IDABC

Confidentiality of services

The provision of eServices **SHOULD** be safe, confidential and in no way harm the privacy of either party.

Origin: IDABC

Distribute XML schemas

Centrally agreed XML schemas MAY be provided free of charge throughout the public sector.

Origin: IDABC

Enable wide access

Enable wide access (user-friendly interfaces, access for the disabled, foreign language support, etc.).

Origin: IDABC

Provide generalised access to all Suppliers and Customer's departments

8.2.1.12. Stakeholder Need: Automate the processes subsequent to the reception of a business document

Description
Customers need to reduce the cost of processing paper-based information by automating the processes subsequent to the reception of business documents such as purchase orders or invoices (i.e. Accounts Payable Automation). For example, in the process of assessing whether the invoice is payable, the customer needs to identify the contract or order and the receipt of goods or services justifying the invoice (e.g. the approval of the received invoices).

8.2.1.12.1. Related System Features:

Support of business documents routing to a predefined workflow

Description	Type	Subtype
The system MAY provide a service so that business documents are automatically routed to a predefined approval workflow. The selected workflow will depend on the content of the business document e.g. routing based on the Order number, routing based on the Project Number, etc. These workflows can be fully automated (i.e. no Human intervention) or semi-automated (requiring at some step(s) Human intervention).	Functional	Automatic Processing
Use Cases: Submit Invoice Dispute Invoice Submit Credit Note Submit Debit Note		

Reconciliation Support

Description	Type	Subtype
The system MAY support the reconciliation of Invoices, Credit	Functional	Automatic Processing

Notes and Debit Notes.		
Use Cases: Submit Invoice		

Matching invoice data against the data in the Purchase Order

Description	Type	Subtype
The system MAY support the automatic validation of the invoices, credit notes and debit notes data against the data in the purchase order or equivalent document.	Functional	Automatic Processing
Use Cases: Submit Invoice		

Matching invoice data against the data in the Goods Receipt

Description	Type	Subtype
The system MAY support the automatic validation of the invoices, or credit notes and debit notes data against the data in the Goods Receipt or equivalent document.	Functional	Automatic Processing
Use Cases: Submit Invoice		

Automatic validation of tax values

Description	Type	Subtype
The system SHOULD support the automatic validation of the tax values in the Invoices, Credit Notes or Debit Notes.	Functional	Automatic Processing
Use Cases: Submit Invoice		

Submit Credit Note
Submit Debit Note

Registration of received business documents

Description	Type	Subtype
Upon receiving a business document such as an invoice, a credit note or debit note via electronic means, from external applications, the system MAY assign the Customer's registration identifier to the business document. This identifier MUST be unique for the Customer and SHOULD not be returned to the supplier.	Functional	Automatic Processing
Use Cases: Route Document		

Attribution of message receipt date

Description	Type	Subtype
Upon receiving messages from external applications, the system SHOULD assign them the message's date of receipt	Functional	Automatic Processing
Use Cases: Route Document		

Payments automation via e-Invoicing

Description	Type	Subtype
The invoice is to some extent a request for payment, therefore the invoice SHOULD contain the data fields required for payments	Functional	Data

automation.		
Use Cases: Submit Invoice		

Payments automation via e-Invoicing (Factoring Support)

Description	Type	Subtype
Given the invoice is to some extent a request for payment; the invoice SHOULD contain the data required for factoring purposes.	Functional	Data
Use Cases: Submit Invoice		

Credit Notes waiting room

Description	Type	Subtype
Since the Credit Note MAY be received before the related Invoice, when a Credit Note contains a valid reference to an Invoice, the system MUST be able to wait for the relevant Invoice for a predefined time period.	Functional	Automatic Processing
Use Cases: Submit Invoice		

Credit Notes waiting room

Description	Type	Subtype
Since attachments MAY be submitted after the submission of their parent document, the system MUST cater for the reconciliation of the attachment with its parent document based upon the metadata of the attachment.	Functional	Automatic Processing

Use Cases:

Submit Attachment

8.2.1.12.2. Related Stakeholder Requests:

Suppliers questionnaire conclusion

Question: SHOULD your organisation have implemented a solution to send e-Invoices to your customers, then this is made via:

Conclusion: A difference SHOULD be made between EBPP/EIPP solutions where bills or invoices are "presented" and fully integrated solutions allowing automating the broader supply chain processes

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: SHOULD your organisation have implemented a solution to send e-Invoices to your customers, then this is made via:

Conclusion: On the other hand, other interviewees state that also SMEs can benefit from fully integrated solutions if these solutions are embedded in e.g. standard accounting software

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: Is the archiving integrated with the back-office?

Conclusion: Most of the archiving systems seem to be integrated with the back-office

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: Is the payment information available to the supplier?

Conclusion: Certain payment information can be on the invoice (a structured reference message to be mentioned in the payment instruction), but suppliers typically use other processes to manage their master data (e.g. account numbers)

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: Is your solution only providing e-Invoicing services?

Conclusion: Companies answering no, have their e-Invoicing solutions integrated with e-Ordering and e-Payment services (see below).

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: If other e-Procurement services are already provided, or to be provided in the near future, please let us know which.

Conclusion: E-Invoicing is more effective when associated with other supply-chain services

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: In your e-Invoice do you include references to business documents preceding the Invoice, such as a purchase order, delivery note or contract?

Conclusion: A reference to a purchase order or delivery note is typically needed for a sales of goods

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: In your e-Invoice do you include references to business documents preceding the Invoice, such as a purchase order, delivery note or contract?

Conclusion: A reference to a contract number is typically needed for services

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: Do you use EAN codes (party and product codes) in your e-Invoices?

Conclusion: Other identifiers are possible (such as UNSPC)

Origin: Stakeholder Interview

Back-Office Integration

The traditional or supplier initiated invoice offers the opportunity to handle automatically the invoice in the supplier and customer accountants system.

Origin: UN/CEFACT

<p>Adding of Accounting Entries Data into the Invoice</p> <p>In order to book the invoice into the customer payable accounts system and supplier receivable accounts system, additional account information is included in the invoice to allow the automatic generation of the corresponding accounting entries.</p> <p><i>Origin:</i> UN/CEFACT</p>
<p>Goods Receipt</p> <p>Once the goods are delivered to the customer, together with the shipment notice (despatch advice, packing list or waybill), the customer checks the invoice with the order, the contract and with the goods receipt report.</p> <p>If there is any discrepancy found, the customer shall start the process to handle incorrect invoices. Otherwise, the invoice will be submitted to the payment cycle.</p> <p><i>Origin:</i> UN/CEFACT</p>
<p>Matching to the Order</p> <p>by reference to the Order and its Lines, the Invoice enables automated matching by the Customer via a workflow process</p> <p><i>Origin:</i> NES</p>
<p>Workflow Capabilities</p> <p>the Invoice and Credit Note content enables the Customer's system to route the document to a specific person, department or unit within the organisation; this MAY be required for authorisation etc.</p> <p><i>Origin:</i> NES</p>
<p>VAT Verification</p> <p>the Invoice and Credit Note content facilitates automatic validation of legal and tax values, tax accounting and payment</p> <p><i>Origin:</i> NES</p>
<p>Invoice Acceptance</p> <p>Acceptance of the Invoice initiates a payment process.</p> <p><i>Origin:</i> NES</p>

8.2.1.13. Stakeholder Need: Provide proof that the sender did send the information and the receiver received the identical information (Non Repudiation)

Description
Both the Customers and the Suppliers, when sending business documents, need to ensure proof that these have been sent, and that the receiver received identical information. So that the sender cannot deny having sent the message and the receiver cannot deny having received it.

8.2.1.13.1. Related System Features:

Support of logging capability

Description	Type	Subtype
The system SHOULD support logging.	Functional	Security
Use Cases: Logging User Access		

Logging of logons, transactions, checks and other actions

Description	Type	Subtype
The system SHOULD log all logons, transactions, performed checks, exceptions and other actions. All actions performed by system administrators MUST equally be logged. For each log entry the system MUST log the date and time of the log entry.	Functional	Security
Use Cases: Logging User Access		

Logging of exchanged messages (Transactions Log)

Description	Type	Subtype
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<p>Upon receiving or when sending a message the system SHOULD log the following data:</p> <p>Sender / Receiver</p> <p>Sender / Receiver Profiles (if applicable)</p> <p>Message type (e.g. invoice)</p> <p>Message date and time of receipt / sending</p> <p>When processing a message the following business data MUST be logged if present:</p> <p>Business document unique number</p> <p>Sender location code (if applicable)</p> <p>Receiver location code (if applicable)</p> <p>Processing date and time</p> <p>Logging MAY be subject to constraints mandated by member states.</p>	Functional	Security
<p>Use Cases:</p> <p>Logging</p>		

Support the retrieval and query of log entries

Description	Type	Subtype
The system SHOULD support the query and retrieval of log entries.	Functional	Security
<p>Use Cases:</p> <p>Retrieve log</p> <p>System Administration</p>		

Restricted access to logs

Description	Type	Subtype
Access to the Logging data SHOULD be restricted to administrators and specific security features MUST be implemented to ensure this.	Functional	Security
Use Cases: User Access Retrieve log System Administration		

Modification of log entries not allowed

Description	Type	Subtype
The system SHOULD ensure that log entries are never modified.	Functional	Security
Use Cases: Logging		

Retention period for logs

Description	Type	Subtype
The system SHOULD keep the log entries for the same period as the retention period of data storage. This period will start from the log entry registration date.	Functional	Security
Use Cases: Logging		

Non repudiation of data sent or received

Description	Type	Subtype
The system MUST be able to prove or disprove having previously sent or received data from a particular User	Functional	Security

(i.e. User cannot repudiate the transaction).		
<p>Use Cases:</p> <ul style="list-style-type: none"> Archive document Submit Summary Report Submit Attachment Submit Invoice Dispute Invoice Submit Credit Note Submit Debit Note Business Notification Remind Payment Code tables distribution 		

8.2.1.13.2. Related Stakeholder Requests:

<p>Suppliers questionnaire conclusion</p> <p>Question: Does your organisation request from its clients an electronic proof of receipt (e.g. an electronic technical acknowledgement)?</p> <p>Conclusion: In case the invoice is made available for download on a website, it SHOULD be logged when the customer has downloaded and or viewed the invoice</p> <p><i>Origin:</i> Stakeholder Interview</p>
<p>Back-Office Integration</p> <p>The traditional or supplier initiated invoice offers the opportunity to handle automatically the invoice in the supplier and customer accountants system.</p> <p><i>Origin:</i> UN/CEFACT</p>
<p>Adding of Accounting Entries Data into the Invoice</p> <p>In order to book the invoice into the customer payable accounts system and supplier receivable accounts system, additional account information is included in the invoice to allow the automatic generation of the corresponding accounting entries.</p> <p><i>Origin:</i> UN/CEFACT</p>

<p>Goods Receipt</p> <p>Once the goods are delivered to the customer, together with the shipment notice (despatch advice, packing list or waybill), the customer checks the invoice with the order, the contract and with the goods receipt report.</p> <p>If there is any discrepancy found, the customer shall start the process to handle incorrect invoices. Otherwise, the invoice will be submitted to the payment cycle.</p> <p><i>Origin:</i> UN/CEFACT</p>
<p>Matching to the Order</p> <p>by reference to the Order and its Lines, the Invoice enables automated matching by the Customer via a workflow process</p> <p><i>Origin:</i> NES</p>
<p>Workflow Capabilities</p> <p>the Invoice and Credit Note content enables the Customer's system to route the document to a specific person, department or unit within the organisation; this MAY be required for authorisation etc.</p> <p><i>Origin:</i> NES</p>
<p>VAT Verification</p> <p>the Invoice and Credit Note content facilitates automatic validation of legal and tax values, tax accounting and payment</p> <p><i>Origin:</i> NES</p>
<p>Invoice Acceptance</p> <p>Acceptance of the Invoice initiates a payment process.</p> <p><i>Origin:</i> NES</p>

8.2.1.14. Stakeholder Need: Protect business information from unauthorised disclosure and access controlled

Description
Both the Customers and the Suppliers need to protect the business documents from unauthorised disclosure. Specific measures are therefore needed to guarantee the confidentiality of this data. Access to the information system and its services needs to be controlled.

8.2.1.14.1. Related System Features:

Data confidentiality during message exchange

Description	Type	Subtype
The system SHOULD ensure that the data is protected against unauthorized reading during message exchange.	Functional	Security
Use Cases: User Access		

Restricted access to services via the support of user profiles

Description	Type	Subtype
The system MUST ensure that the access to its services is restricted and that every User is authorized before accessing a system resource. In case of unsuccessful authorization the system MUST refuse access to the requested resource. User Profiles, consisting of a bundle of system rights, SHOULD be used to segregate the access to the system's services.	Functional	Security
Use Cases: User Access System Administration		

Profile Administration

Description	Type	Subtype
The allocation of User Profiles SHOULD be administered within the system. At a given moment in time, the User MUST have at most one profile. This profile MAY change (over time).	Functional	Security
Use Cases: System Administration		

Available Profiles

Description	Type	Subtype
The system MAY offer at least offer the following profiles: - A profile covering invoice services. - A profile covering invoice services and dispute services.	Functional	Security
Use Cases: System Administration		

Acceptance by the customer

Description	Type	Subtype
Given that the customer MUST accept that the supplier sends invoices electronically, the system SHOULD enable the management of Users via an Administration Console.	Functional, Constraint: Regulation	Security, VAT e-Invoicing
Use Cases: Register Supplier		

8.2.1.14.2. Related Stakeholder Requests:

Suppliers questionnaire conclusion Question: Which protocols do you use to communicate with your customers or
--

consolidator platform?

Conclusion: For external communication, a "secured network" SHOULD be used

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: Which measures have you implemented to guarantee authenticity of origin and integrity of content of the e-Invoicing process?

Conclusion: Also in case of AES/QES, additional measures to guarantee authenticity of origin and integrity of content can be implemented, such as audit trails or secured networks

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: How is the integrity / authenticity of the e-Archiving part of your solution guaranteed?

Conclusion: Also for the archiving part, a combination of several measures guarantees authenticity of origin and integrity of content

Origin: Stakeholder Interview

8.2.1.15. Stakeholder Need: Message exchange and storage *MUST* ensure authenticity of origin, destination and integrity of content

Description
Suppliers and Clients need authenticity of origin (i.e. assurance of the sender's identity) and integrity of content (i.e. assurance that the message contents have not been altered) during the electronic invoicing process.

8.2.1.15.1. Related System Features:

Authenticity of origin and integrity of content

Description	Type	Subtype
<p>The system MUST ensure authenticity of origin and integrity of content, by one of the following means:</p> <ul style="list-style-type: none"> - EDI (Electronic Data Interchange). In case of EDI solutions the system's authenticity and integrity measures MUST be formalized in bilateral agreements. - AES (Advanced Electronic Signatures). The AES Certificates MAY be required to comply with predefined criteria. - Other means <p>Member States can ask for additional requirements.</p> <p>In case of EDI, this can be a paper summary. In case of AES, Member States can require that the signature is based on a qualified certificate and created by using an SSCD (Secure Signature Creation Device).</p>	Constraint: Regulation	VAT e-Invoicing
<p>Use Cases:</p> <ul style="list-style-type: none"> Archive document Consult Archived Documents Query for business document Retrieve business document 		

Retrieve business document attachment
Submit Summary Report
Submit Attachment
Submit Invoice
Dispute Invoice
Submit Credit Note
Submit Debit Note
Business Notification
Remind Payment
Request business document copy
Request Status
Code tables distribution

Data integrity during message exchange

Description	Type	Subtype
The system SHOULD ensure that the data is protected against unauthorized modifications during message exchange. If changes happen then it MUST be possible to spot this. This SHOULD be achieved by the usage of encryption algorithms at transport protocol level.	Functional	Security
Use Cases: User Access		

Authenticity of destination.

Description	Type	Subtype
When in the receiver role, the system SHOULD provide means for Users to recognise its identity.	Functional	Security
Use Cases:		

User Access

8.2.1.15.2. Related Stakeholder Requests:

Suppliers questionnaire conclusion

Question: Which were the most important obstacles when rolling-out your e-Invoice solution?

Conclusion: The need for a paper summary in case of EDI, as required from certain Member States prevents fully paperless invoicing

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: Please let us know the mechanisms used in your solution to guarantee authenticity of origin and integrity of content?

Conclusion: In case of cross-border solutions

- Some use Qualified Electronic Signatures as "one-size-fits-all" solution
- Others use certain rules to automatically select between an Advanced Electronic Signature and Qualified Electronic Signature

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: Please let us know the mechanisms used in your solution to guarantee authenticity of origin and integrity of content?

Conclusion: Some suppliers might need to support multiple methods, depending on customer's needs

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: Please let us know the mechanisms used in your solution to guarantee authenticity of origin and integrity of content?

Conclusion: "Other means" are not allowed in every Member State, so not suitable for a pan-European cross-border solution

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: Which measures have you implemented to guarantee authenticity of origin and integrity of content of the e-Invoicing process?

Conclusion: Authenticity of origin and integrity of content is usually guaranteed by a

combination of the above-mentioned measures

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: Which measures have you implemented to guarantee authenticity of origin and integrity of content of the e-Invoicing process?

Conclusion: Also in case of AES/QES, additional measures to guarantee authenticity of origin and integrity of content can be implemented, such as audit trails or secured networks

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: How is the integrity / authenticity of the e-Archiving part of your solution guaranteed?

Conclusion: Also for the archiving part, a combination of several measures guarantees authenticity of origin and integrity of content

Origin: Stakeholder Interview

e-Invoicing: Authenticity of origin and integrity of content

The system MUST be able of Guaranteeing authenticity of origin and integrity of content, by means of

EDI (Electronic Data Interchange)

AES (Advanced Electronic Signatures)

Other means

Origin: Preparatory Report

e-Archiving: Authenticity of origin, integrity of content, readability

The system MUST be able to Guaranteeing authenticity of origin, integrity of content and readability of the e-Invoices during the complete archiving period

Origin: Preparatory Report

8.2.1.16. Stakeholder Need: Content of the electronic documents needs to be accurate and reliable

Description
The content of the electronic documents exchanged between Suppliers and Customers needs to be accurate and reliable. For this same reason, these documents SHOULD support references to other business documents, code tables and other mechanisms to ensure the accuracy of the data.

8.2.1.16.1. Related System Features:

Business document types of data

Description	Type	Subtype
<p>The business document MUST contain:</p> <p>(a) Alphanumeric data</p> <p>The business document MAY contain:</p> <p>(b) One or more attachments to the business document (including business signatures)</p>	Functional	Data
<p>Use Cases:</p> <p>Submit Invoice</p> <p>Submit Credit Note</p> <p>Submit Debit Note</p>		

Exchanged data in pre-agreed structure and format

Description	Type	Subtype
Data SHOULD be sent following a pre-agreed data structure and format. The system SHOULD use a single normative schema for representing each business document.	Non Functional: Usability	Data
Use Cases:		

Query for business document
Retrieve business document
Retrieve business document attachment
Submit Summary Report
Submit Attachment
Submit Invoice
Dispute Invoice
Submit Credit Note
Submit Debit Note
Business Notification
Remind Payment
Request business document copy
Request Status

Code table support

Description	Type	Subtype
The system's business documents MAY support the use of business code tables such as ISO code tables.	Functional	Data
<p>Use Cases:</p> <ul style="list-style-type: none"> Consult Archived Documents Query for business document Retrieve business document Retrieve business document attachment Submit Summary Report Submit Attachment Submit Invoice Dispute Invoice Submit Credit Note Submit Debit Note Business Notification 		

Remind Payment Request business document copy Request Status
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Code Tables Versioning

Description	Type	Subtype
If code tables are supported then the system MUST support the versioning of code tables, each version of a code table MUST be identified by a unique version number. Each entry MUST only be used during its validity period. Outdated code table entries MUST only be used to display existing data. Creation of new code-table entries MUST be possible.	Functional	Data
Use Cases: System Administration Discovery of Services		

Code Tables Distribution

Description	Type	Subtype
The system SHOULD facilitate the secured distribution of code-tables to its users.	Functional	Data
Use Cases: Discovery of Services		

8.2.1.16.2. Related Stakeholder Requests:

Addendum - attachment The support of a reference to an addendum - attachment (e.g. time sheets, call details ...)
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Origin: Preparatory Report

Invoice Content

The Invoice only contains the information that is necessary for invoicing purposes. It does not reiterate any information already established in the Order, Order Change, Order Response, Despatch Advice, or Receipt Advice that is not necessary when invoicing. If necessary, the Invoice refers to the Order, Despatch Advice, or Receipt Advice by a Reference for those documents.

Origin: UBL 2.0

Sequential number that uniquely identifies the invoice

The sequential number **MUST** have sufficient digits so as not to repeat within the calendar or accounting year.

Origin: CEN

8.2.1.17. Stakeholder Need: Easily recognizable exchanged information

Description
To enable wide access and transparency, the services provided by Customers and Suppliers need to ensure that the exchanged information is easily recognizable both at the level of the logical concept and also at the level of its applicability. In this regard, the system's functions and specification MUST be fully documented and the presentation of business documented made possible.

8.2.1.17.1. Related System Features:

Understandable data schemas (at the logical level)

Description	Type	Subtype
The system SHOULD use data schemas enclosing data definitions which are understandable both at the level of the logical concept and also at the level of its applicability.	Usability	Understandability
Use Cases: Discovery of Services		

Description	Type	Subtype
The system MUST facilitate the presentation of the business documents via the application of formatting templates such as style sheets to the information components. The presentation service MUST render the business documents into the presentation format interactively. The formatting templates MUST be fit to the type of document in terms of the font type and size, colour scheme, indentation, columns organisation and other formatting characteristics. The presented business documents MUST be complete and correct with regard to the foundation information components.	Functional	Cross Functional
Use Cases:		

View Business Document

8.2.1.17.2. Related Stakeholder Requests:

Reduce the amount of data to be collected

Reduce the amount of data to be collected by using well defined data dictionaries and data structures.

Origin: IDABC

Reduce the amount of data to be collected

This aspect of interoperability is concerned with ensuring that the precise meaning of exchanged information is understandable by any other application that was not initially developed for this purpose. Semantic interoperability enables systems to combine received information with other information resources and to process it in a meaningful manner.

Origin: IDABC

Promotion of services and benefits

eServices are made known to users and users are aware of the benefits of using the services.

Origin: IDABC

User centered services

eServices SHOULD be user-centred.

They SHOULD be comprehensive, correct, readily available, and easy to understand in terms of language and structure.

Origin: IDABC

8.2.1.18. Stakeholder Need: Compliance with legal data protection requirements

Description
To ensure compliance with the data protection requirements, the services provided by Customers and Suppliers need to comply with the existing legal data protection requirements and, where available, make use of technologies that are privacy compliant and privacy-enhancing.

8.2.1.18.1. Related System Features:

Comply with legal data protection requirements

Description	Type	Subtype
The system MUST comply with the existing legal data protection requirements and, where available, make use of technologies that are privacy compliant and privacy-enhancing.	Constraint: Regulation	Data Protection
Use Cases: Archive document		

8.2.1.18.2. Related Stakeholder Requests:

Suppliers questionnaire conclusion Question: Which were the most important obstacles when rolling-out your e-Invoice solution? Conclusion: One of the major barriers is disharmonised legal framework, especially in a cross-border environment, where it's not always clear to companies which local rules are applicable <i>Origin: Stakeholder Interview</i>
Suppliers questionnaire conclusion Question: Which were the most important obstacles when rolling-out your e-Invoice solution? Conclusion: There is no real global or pan-European e-Invoicing solution provider that can be used for cross-border and cross-sector invoicing, and there are often questions on the compliance of those solutions <i>Origin: Stakeholder Interview</i>

<p>Suppliers questionnaire conclusion</p> <p>Question: Is e-Invoice also used for cross-border transactions?</p> <p>Conclusion: Uncertainty on which local VAT rules apply and differences in local implementations of the Directive make it difficult</p> <p><i>Origin:</i> Stakeholder Interview</p>
<p>Data protection legislation</p> <p>Full compliance with the existing European and national data protection legislation SHOULD be ensured.</p> <p><i>Origin:</i> IDABC</p>
<p>Services SHOULD comply with data protection requirements</p> <p>The design of e-Government applications SHOULD comply with the existing legal data protection requirements and, where available, make use of technologies that are privacy compliant and privacy-enhancing.</p> <p><i>Origin:</i> IDABC</p>
<p>Ensure information security</p> <p>Ensure information security by preventing unauthorised access to systems and, in the case of highly confidential information, securing each record (or even each component) individually.</p> <p><i>Origin:</i> IDABC</p>

8.2.1.19. Stakeholder Need: Automatically register the e-Invoice at its reception

Description

The customer needs to register upon receipt, into his accounts, business documents such as invoices, credit and debit notes.

8.2.1.19.1. Related System Features:

Support of an interface with the accounting system

Description	Type	Subtype
The system MUST interface with the system responsible for the accounting registration of the Invoice and Credit Note.	Constraint: Interface	External Systems
Use Cases: Route Document		

8.2.1.19.2. Related Stakeholder Requests:

Accrual Accounting

Under the accrual basis of accounting, the European Communities SHOULD apply a basis of accounting under which transactions and other events are recognised when they occur and not only when cash or its equivalent is received or paid or when the invoice is received.

Origin: EU COM (DIGIT)

8.2.2. e-Archiving

8.2.2.1. Stakeholder Need: Archiving of business documents

Description
Suppliers and Customers need to store business documents (e.g. invoices) for business reasons and to enable the tax authorities to carry out the necessary checks to ensure the correct application of the VAT legislation. For this same reason, the readability and integrity of content of these documents also needs to be guaranteed throughout the entire storage period (i.e. assurance that the message contents have not been altered). Compliance to other specific legal conditions MUST also be ensured.

8.2.2.1.1. Related System Features:

Support of business documents archiving

Description	Type	Subtype
The system MUST support the electronic archiving of business documents such as invoices, credit and debit notes.	Functional	Archive
Use Cases: Archive document		

Retention period of data storage

Description	Type	Subtype
The system MUST archive the business documents for a pre-defined retention period. The storage period is defined by the individual member state.	Functional, Constraint: Regulation	Archive, VAT e-Archiving
Use Cases: Archive document Consult Archived Documents Query for business document Retrieve business document Retrieve business document attachment Submit Summary Report		

Support of attachments archiving

Description	Type	Subtype
The system SHOULD support the archiving of the documents attached to the archived business documents.	Functional	Archive
Use Cases: Archive document Submit Attachment		

Authenticity of origin and integrity of the archived data

Description	Type	Subtype
To guarantee that the business document's intent is not altered throughout the storage period, the system MUST ensure the authenticity of origin and integrity of content of the archived data during the complete archiving period.	Functional, Constraint: Regulation	Archive, VAT e-Archiving
Use Cases: Archive document		

Respect of archived data place of storage

Description	Type	Subtype
The system MUST respect the specific legal conditions regarding the place of storage of the archived data. Member States can impose additional conditions: obligation to notify the VAT administration if storage is in another Member State; obligation to have full on-line access when data is stored abroad; limitations or prohibition of storage in 3rd countries (non EU).	Constraint: Regulation	VAT e-Archiving

<p>Use Cases:</p> <p>Archive document</p>

Respect of archived data format of storage

Description	Type	Subtype
The system MUST respect the specific legal conditions regarding the format of storage of the archived data. Member States MAY impose additional requirements regarding the obligation to store data in its original format and the obligation to store additional data.	Constraint: Regulation	VAT e-Archiving
<p>Use Cases:</p> <p>Archive document</p>		

Support of archived data readability

Description	Type	Subtype
The business documents MUST be human-readable. Therefore throughout the entire storage period, the system MUST provide an instrument for Users (in this case End-Users) to read the archived business documents. This MAY be achieved via a dedicated interface for Human Users (a.k.a. End-Users), a run-time service or other.	Functional, Constraint: Regulation	Archive, VAT e-Archiving
<p>Use Cases:</p> <p>Archive document</p> <p>Consult Archived Documents</p> <p>Query for business document</p> <p>Retrieve business document</p> <p>Retrieve business document attachment</p>		

Archiving of messages in the format received from external applications

Description	Type	Subtype
The system SHOULD archive the business documents received via electronic means in their original format. Likewise the system MUST archive the purchase orders, dispute requests and reminders sent via electronic means in the format used to interface with external applications.	Functional	VAT e-Archiving
Use Cases: Archive document		

Archiving of messages in the format used to interface with backend applications

Description	Type	Subtype
The system SHOULD archive the business documents in the format used to interface with backend applications.	Functional	VAT e-Archiving
Use Cases: Archive document		

Archiving of malformed or invalid messages

Description	Type	Subtype
The system SHOULD archive every message received via electronic means even if technically malformed or invalid when recognized via its name as being an invoice, a credit note or a debit note.	Functional	VAT e-Archiving
Use Cases: Archive document		

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Storage of Electronic Signatures

Description	Type	Subtype
In the case electronic signatures are used then each electronic signature and the associated meta-data to validate it MUST equally be archived.	Functional	Archive, VAT e-Archiving
Use Cases:		

On-line access to archived data

Description	Type	Subtype
Once archived, the system MUST guarantee the full on-line access to the VAT inspector to the archived data for at least, the legal storage period. Member States MAY impose additional requirements regarding the access to archive data by tax authorities.	Functional	Archive
Use Cases:		
Consult Archived Documents		
Query for business document		
Retrieve business document		
Retrieve business document attachment		

8.2.2.1.2. Related Stakeholder Requests:

<p>Suppliers questionnaire conclusion</p> <p>Question: Regarding the e-Archiving part of your solution, which documents do you currently archive?</p> <p>Conclusion: Most of the interviewees archive more then just the electronic invoice they are sending or receiving</p> <p><i>Origin:</i> Stakeholder Interview</p>

Suppliers questionnaire conclusion

Question: Which functionalities would you see as essential in an E-Invoice Portal?

Conclusion: An e-Invoicing portal SHOULD allow SMEs to

- Download the legal invoice for own archiving purposes
- Check for invoice status information
- Download a structured "booking" file (which can be the legal invoice), for integration in the accounting software
- Use the same system for Credit and Debit Notes

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: Do you send attached documents in your electronic Invoices messages?

Conclusion: Attachments can be any electronic document type (XML, DOC, JPF, PDF, XLS, ...) or a URL to a supporting document

Origin: Stakeholder Interview

The archiving and retrieval / visualisation of the exchanged documents

The archiving and retrieval / visualisation of the exchanged documents

Origin: Preparatory Report

8.2.2.2. Stakeholder Need: Access to exchanged business documents

Description
Suppliers and Customers need to have access to the business documents exchanged via electronic means. Tax authorities often require that the invoices exchanged via electronic means are present both to the Customer and to the Supplier.

8.2.2.2.1. Related System Features:

Search of archived business document

Description	Type	Subtype
The system SHOULD enable the users to search for the archived business documents. This service SHOULD at least allow searching using simple search criteria such as a range of dates (i.e. the date of submission of the business document) and the type of business document (e.g. Invoice). A request MAY contain one or more types of business documents. As a result, the system SHOULD return a single or a list of unique identifiers of the requested business document and their status. This list MAY be restricted to a predefined number of items and within a predefined time window.	Functional	Archive
Use Cases: Consult Archived Documents Query for business document		

Retrieval of the archived business document alphanumeric data

Description	Type	Subtype
The system SHOULD enable users to retrieve archived business document(s) (a single item or a list of items up to a predefined number), using the unique identifier of the business document. As a result, the system SHOULD return a list with a single item or multiple items of structured alphanumeric data being (i.e. the business document such as an invoice). This list MAY be restricted	Functional	Archive

to a predefined number of items and within a predefined time window.		
Use Cases: Retrieve business document		

Retrieval of the attachments to a business document

Description	Type	Subtype
The system SHOULD enable the users to retrieve the documents attached to a single business document using the unique identifier of the business document. As a result, the system SHOULD return all the attachments to the requested business document.	Functional	Archive
Use Cases: Retrieve business document attachment		

Supplier invoice number is unique

Description	Type	Subtype
The invoice number combined with the supplier identification MAY be used as the primary and single identifier of this business document in order to retrieve its status or any of its data. To ensure this, the system SHOULD control upon receiving an invoice that the invoice number combined with the supplier identification has not been previously received by the system.	Functional	Data
Use Cases: Submit Invoice Submit Credit Note Submit Debit Note		

Credit Note number is unique

Description	Type	Subtype
The Credit Note number combined with the supplier identification MAY be used as the primary and single identifier of this business document in order to retrieve its status or any of its data. To ensure this, the system SHOULD control upon receiving a Credit Note that the Credit Note number combined with the supplier identification has not been previously received by the system.	Functional	Data
Use Cases: Submit Credit Note		

Debit Note number is unique

Description	Type	Subtype
The Debit Note number combined with the supplier identification MAY be used as the primary and single identifier of this business document in order to retrieve its status or any of its data. To ensure this, the system SHOULD control upon receiving a Debit Note that the Debit Note number combined with the supplier identification has not been previously received by the system.	Functional	Data
Use Cases: Submit Debit Note		

8.2.2.2.2. Related Stakeholder Requests:

<p>Suppliers questionnaire conclusion</p> <p>Question: The readability of the archived data is achieved via:</p> <p>Conclusion: XSLT is used to render XML into a human-readable HTML or PDF file</p> <p><i>Origin:</i> Stakeholder Interview</p>

Suppliers questionnaire conclusion

Question: The readability of the archived data is achieved via:

Conclusion: PDFs can be created at the moment of transaction, but also at the moment of visualizing the electronic invoice

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: The readability of the archived data is achieved via:

Conclusion: e-Archiving systems seem to have basic retrieval capabilities, while ERP systems provide more advanced querying solutions

Origin: Stakeholder Interview

Suppliers questionnaire conclusion

Question: Which functionalities would you see as essential in an E-Invoice Portal?

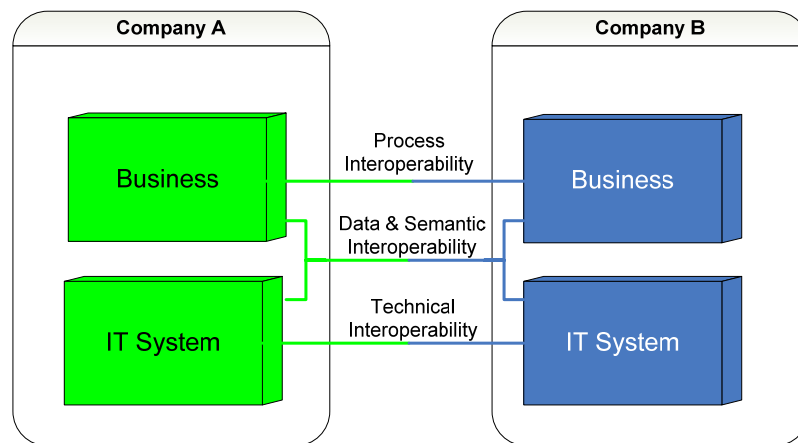
Conclusion: An e-Invoicing portal SHOULD allow SMEs to

- Download the legal invoice for own archiving purposes
- Check for invoice status information
- Download a structured "booking" file (which can be the legal invoice), for integration in the accounting software
- Use the same system for Credit and Debit Notes

Origin: Stakeholder Interview

9. PROMOTING INTEROPERABILITY VIA PROFILES

Interoperability among organisations and their information systems is an essential enabler for the provision and usage of electronic services such as e-Invoicing. There is already great standardisation in the use of IT networking protocols such as TCP/IP and transfer protocols such as HTTP, SMTP or FTP. However interoperability encompasses the alignment of business processes, data elements and their semantic meaning, plus the technological aspects of data exchange between heterogeneous systems.



Therefore for Organisations to start exchanging data in the context of e-invoicing, Business Reference Models are as important as Technical Reference Models. According to ISO/IEC 15504-1 these are models comprising definitions of processes in a life cycle described in terms of process purpose and outcomes, together with an architecture describing the relationships between the processes. The goal is to achieve reusable, generalized business process abstractions which can be applied to the e-Invoicing business domain and possibly in the complete Procurement Value-Chain.

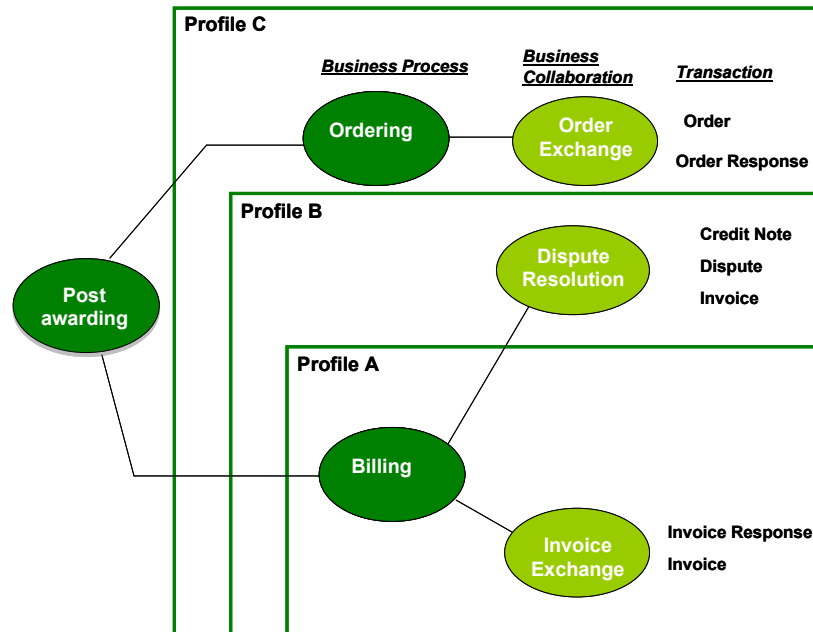
As defined in the ebXML Business Process Specification Schema, a Business Partner is an entity that engages in Business Transactions with another Business Partner. In ebXML Profiles are used to govern this collaboration.

Without going further on the ebXML specification, the Profile concept is a tool for establishing collaboration patterns and promoting interoperability:

at business process level	<ul style="list-style-type: none"> • By defining the relevant business processes purpose and outcomes, the business rules governing its execution and the structural design of the relationships between processes.
at data semantic level	<ul style="list-style-type: none"> • By promoting the definition and meaning of data elements, as well as their structured use via standard data dictionaries • By guiding the bridging among different data models.

at technical level	<ul style="list-style-type: none"> • By promoting the use of a standard transport protocols. • By guiding the bridging among different transport protocols.
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Profiles specify the business collaborations between business partners, within a business process, and the atomic business transactions within them. Profiles can also be incrementally complex, departing from a basic collaboration to a complex set of collaborations.



An approach of rolling-out e-Invoicing, within a trading community, is using standard profiles defining how trading partners should engage in electronic business collaborations. A trading partner implementing a certain profile would then need to comply with the profile's:

- Functional capabilities
- Business Messages (target logical data model respecting its semantic meaning and business rules)
- Expected sequence of business messages exchange

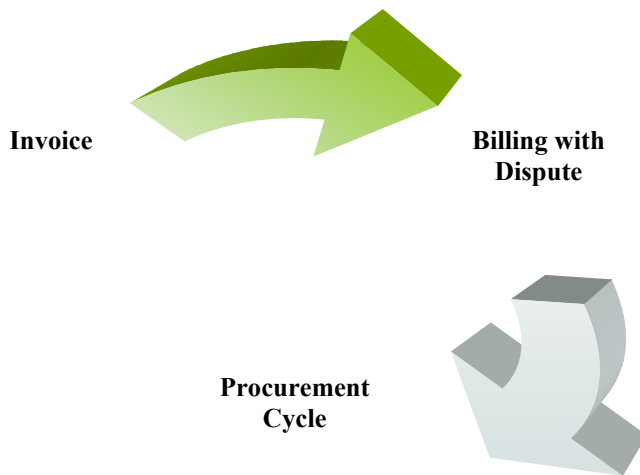
The usage of profiles can be incrementally exploited as the community of trading partners grows since it promotes regulated message exchanges in a heterogeneous and distributed environment. The details of message transport, security policies and other implementation details may be regulated via a bilateral message exchange agreement.

10. DATA ELEMENTS GAP ANALYSIS BETWEEN NES/UBL BASIC INVOICE AND THE EC BUSINESS REQUIREMENTS

The NES project defined a number of e-Procurement Profiles. At the moment this document is written, the European Commission DG Informatics is developing an e-Invoicing application supported on the Requirements listed in Chapter 8 and, like NES, conceptually based on Profiles. This work is carried-out in close collaboration with the CEN WS/BII (CEN Workshop on Business Interoperability Interfaces on public procurement in Europe). The objectives of this Workshop are to provide a basic framework for technical interoperability in pan-European electronic transactions, expressed as a set of technical specifications that cross-refer to relevant activities, and in particular are compatible with UN/CEFACT in order to ensure global interoperability.

NES version 2.01 Profiles (www.NESUBL.eu)	
<p>Profile 1: Catalogue Only</p> <ul style="list-style-type: none"> • Catalogue Only • Catalogue • Application Response <p>Profile 2: Catalogue with Updates</p> <ul style="list-style-type: none"> • Catalogue • Catalogue Item Specification Update • Catalogue Pricing Update • Application Response <p>Profile 3: Basic Order Only</p> <ul style="list-style-type: none"> • Order <p>Profile 4: Basic Invoice Only</p> <ul style="list-style-type: none"> • Invoice <p>Profile 5: Basic Billing</p> <ul style="list-style-type: none"> • Invoice • Credit Note 	<p>Profile 6: Basic Procurement</p> <ul style="list-style-type: none"> • Order • Order Response Simple • Invoice • Credit Note <p>Profile 7: Simple Procurement</p> <ul style="list-style-type: none"> • Order • Order Response Simple • Invoice • Credit Note • Application Response <p>Profile 8: Basic Billing with Dispute</p> <ul style="list-style-type: none"> • Response • Invoice • Credit Note • Application Response

The European Commission will make Profiles available as the project evolves. The “Invoice” profile is the first profile to be made available; afterwards both the Profile “Billing with Dispute” and the Profile “Procurement Cycle” will be offered to Suppliers of the European Commission. If the supplier opts to enrol with the e-Invoicing and e-Ordering services, the Supplier is allowed to choose the preferred profile. The more complete profiles contain all services of the simpler profiles.

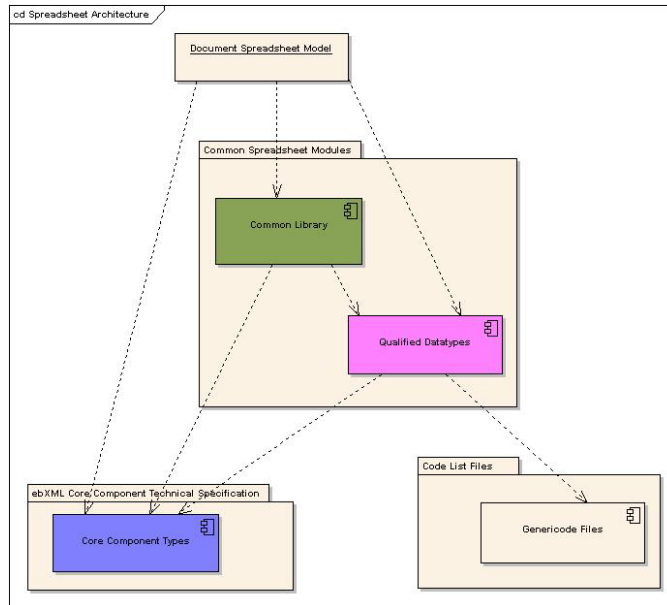


Profile currently being defined	Profile Description	Business Documents	Based on NES Profile
Invoice	<p>This profile describes a process comprising electronic Invoicing with an Application Response. The Application Response is a business level response used to notify the successful processing of the invoice, an error or dispute.</p> <p>It is intended for situations where invoicing is electronic but where the dispute process is paper based. It is not a primary objective of this profile to facilitate automatic order matching.</p>	<p>Request Messages:</p> <ul style="list-style-type: none"> • Invoice • Attachment <p>Response Messages:</p> <ul style="list-style-type: none"> • Application Response <p>Consultation Messages:</p> <ul style="list-style-type: none"> • Status Request • Retrieve Request 	Profile 4: Basic Invoice Only
Billing with Dispute	<p>This profile describes a process comprising electronic Invoicing with an Application Response. The Application Response is a business level response used to notify the successful processing of the invoice, an error or dispute.</p> <p>It is intended for situations where invoicing</p>	<p>Request Messages:</p> <ul style="list-style-type: none"> • Invoice • Attachment • Credit Note <p>Response Messages:</p> <ul style="list-style-type: none"> • Application Response <p>Consultation Messages:</p>	Profile 8: Basic Billing with Dispute

	and dispute handling is electronic. It is not a primary objective of this profile to facilitate automatic order matching.	<ul style="list-style-type: none"> • Status Request • Retrieve Request 	
Procurement Cycle	This profile describes a process comprising an electronic (purchase) Order, an electronic Order Response Simple, an electronic Invoice, an electronic Application Response and, potentially, an electronic Credit Note.	Request Messages: <ul style="list-style-type: none"> • Invoice • Attachment • Credit Note • Order Response Messages: <ul style="list-style-type: none"> • Application Response • Order Response Simple Consultation Messages: <ul style="list-style-type: none"> • Status Request • Retrieve Request 	Profile 7: Simple Procurement

At the moment this document is written, the European Commission DG Informatics is working on the content of the messages listed above in close collaboration with the CEN WS/BII. Currently, the business transactions of these profiles are based on the existing NES messages. Since the Profile's business transactions are the atomic unit of work in a trading arrangement between two business partners. The mapping of these business transactions to other message standards is possible.

The tables below correspond to the Invoice message data model. These tables are used to represent the document models expressed as UML Class Diagrams in a similar style as the UBL-specific spreadsheets. The UBL Spreadsheet Architecture is depicted in the diagram below:



The first table named ***Invoice*** lists the Parent Element of the Invoice and its children (simple types and first level complex elements with their simple and/or complex elements. The children of the complex elements child of a first level complex element are specified in the table ***Other Elements***.

The Invoice message data model is built from the NES Basic Invoice data elements. However, this message is enriched with additional requirements.

The Gaps marked in the data element of the "Invoice" and "Other Elements" tables are listed in the Data table ***GAP between Invoice and NES Basic Invoice***.

Data Elements Table: Invoice (BII Profile 23 – Work in Progress)

Prior to looking at the table's content the reader should be familiar with the colour code used in their elaboration:

	Top parent element
	First Level Complex element, parent of simple elements and/or complex elements
	Element containing other elements (a.k.a. complex element)
	Simple element
	These are the gaps between the NES Basic Invoice and the Invoice Profile. The Invoice Profile is currently under elaboration jointly by the European Commission and the CEN BII workshop. These GAPS are currently under discussion.

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
Invoice			Invoice	The document used to request payment.		
UBLExtensions	0..1	0..1	Invoice	The document customization extension point		
UBLVersionID	1	1	Invoice	The earliest version of the UBL 2 schema for this document type that defines all of the elements that might be encountered in the current instance.	2.0.5	

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
CustomizationID	1	1	Invoice	Identifies a user-defined customization of UBL for a specific use.	NES	
ProfileID	1	1	Invoice	Identifies a user-defined profile of the customization of UBL being used. A NES Code List is available.	urn:www.nesubl.eu:profiles:profile4:ver2.0	Values Controlled by Code Table
ID	1	1	Invoice	An identifier for the Invoice assigned by the Creditor.	51011100	Must be unique
CopyIndicator	0..1	0..1	Invoice	Indicates whether a document is a copy (true) or not (false).	FALSE	
IssueDate	1	1	Invoice	The date assigned by the Creditor on which the Invoice was issued.	2008-01-13	

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
InvoiceTypeCode	1	1	Invoice	Code specifying the type of the Invoice.	The Code Table will have the following values: "Goods with PO" "Services with PO" "Goods without PO" (to be checked) "Services without PO" "Goods and Services without PO" "Goods and Services with PO"	Values Controlled by Code Table
Note	0..1	0..1	Invoice	Free-form text applying to the Invoice. This element may contain notes or any other similar information that is not contained explicitly in another structure.	"The exportation codes not mentioned on the bill can be consulted on the delivery note or on the list transmitted at the end of the project."	
TaxPointDate	0..1	0..1	Invoice	The date of the Invoice, used to indicate the point at which tax becomes applicable.		
DocumentCurrencyCode	1	1	Invoice	The currency in which the Document is presented. This may be the same currency as the pricing or as the tax.	EUR	Values Controlled by Code Table

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
TaxCurrencyCode	0..1	0..1	Invoice	The currency used for tax amounts in the Invoice.		Values Controlled by Code Table
AccountingCost	0..1	0..1	Invoice	The Buyer's accounting code applied to the Invoice as a whole, expressed as text.		
InvoicePeriod	0..1	0..1	Invoice	An association to period(s) to which the Invoice applies.		
StartDate	0..1	0..1	Period	The start date of the period.	2008-01-05	
EndDate	0..1	0..1	Period	The end date of the period.	2008-01-10	End date must be bigger or equal to the start date
OrderReference	0..1	0..1	Invoice	An association to Order Reference.		
ID	1	1	Order Reference	Identifies the referenced Order assigned by the buyer.	"SC 1243 DI 3410 2007-18202"	
IssueDate	0..1	0..1	Order Reference	The date on which the referenced Order was issued.	2008-01-04	

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
DocumentReference	0..1	0..0	Order Reference	An association to Document Reference.		
BillingReference	0..1	0..1	Invoice	An association to Billing Reference.		
InvoiceDocumentReference	0..1	0..1	Billing Reference	An associative reference to Invoice.		
CreditNoteDocumentReference	0..1	0..1	Billing Reference	An associative reference to Credit Note.		
BillingReferenceLine	0..1	0..1	Billing Reference	An association to Billing Reference Line.		
OriginatorDocumentReference	0..1	0..1	Invoice	An associative reference to Originator Document.		
ID	1	1	Document Reference	Identifies the document being referred to.	Originator document reference: "48130021/101617" Additional document reference: 2007-18202	
IssueDate	0..1	0..1	Document Reference	The date, assigned by the sender of the referenced document, on which the referenced document was issued.	2008-01-04	
DocumentTypeCode	0..1	0..0	Document Reference	The document type, expressed as a code.		Values Controlled by Code

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
						Table
DocumentType	0..1	0..1	Document Reference	The document type, expressed as text.	"Invoice"	
Attachment	0..1	0..1	Document Reference	An attached document, externally referred to, referred to in the MIME location, or embedded.		
ContractDocumentReference	0..1	0..0	Invoice	An associative reference to Contract.		
ID	1	1	Document Reference	Identifies the document being referred to.	Originator document reference: "48130021/101617" Additional document reference: 2007-18202	
IssueDate	0..1	0..1	Document Reference	The date, assigned by the sender of the referenced document, on which the referenced document was issued.	2008-01-04	
DocumentTypeCode	0..1	0..0	Document Reference	The document type, expressed as a code.		Values Controlled by Code Table
DocumentType	0..1	0..1	Document Reference	The document type,	"Invoice"	

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
				expressed as text.		
Attachment	0..1	0..1	Document Reference	An attached document, externally referred to, referred to in the MIME location, or embedded.		
AdditionalDocumentReference	0..n	0..n	Invoice	An associative reference to Additional Document.		
ID	1	1	Document Reference	Identifies the document being referred to.	Originator document reference: "48130021/101617" Additional document reference: 2007-18202	
IssueDate	0..1	0..1	Document Reference	The date, assigned by the sender of the referenced document, on which the referenced document was issued.	2008-01-04	
DocumentTypeCode	0..1	0..0	Document Reference	The document type, expressed as a code.		Values Controlled by Code Table
DocumentType	0..1	0..1	Document Reference	The document type, expressed as text.	"Invoice"	
Attachment	0..1	0..1	Document Reference	An attached document, externally referred to,		

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
				referred to in the MIME location, or embedded.		
Signature	0..n	0..n	Invoice	An association to Signature.		
ID	1	1	Signature	An identifier for the Signature.		
Note	0..1	0..1	Signature	Free form text about the signature or the circumstances where the signature has been used.		
ValidationDate	0..1	0..1	Signature	Specifies the date when the signature was approved.		
ValidationTime	0..1	0..1	Signature	Specifies the time when the signature was approved.		
ValidatorID	0..1	0..1	Signature	Identifies the organization, person, service or server that has validated the signature.		
CanonicalizationMethod	0..1	0..1	Signature	The mathematical logic method used by the Signature.		
SignatureMethod	0..1	0..1	Signature	The method of signature.		
SignatoryParty	1	1	Signature	An association to the signing Party.		

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
DigitalSignatureAttachment	0..1	0..1	Signature	Refers to the actual encoded signature (e.g., in XMLDSIG format).		
OriginalDocumentReference	0..1	0..1	Signature	A reference to the actual document that the signature applies to. For evidentiary purposes, this may be the document image that the signatory party saw when applying their signature.		
AccountingSupplierParty	1	1	Invoice	An association to the Accounting Supplier Party.		
CustomerAssignedAccountID	0..1	0..0	Supplier Party	The customer's internal identifier for the supplier.		
Party	1	1	Supplier Party	An association to Party.		
AccountingCustomerParty	1	1	Invoice	An association to the Accounting Customer Party.		
Party	1	1	Customer Party	An association to Party.		
PayeeParty	0..1	0..1	Invoice	An association to the Payee.		
WebsiteURI	0..1	0..1	Party	The Uniform Resource Identifier (URI) of the		

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
				party.		
EndpointID	0..1	0..1	Party	Identifies the end point of the routing service, e.g., EAN Location Number, GLN.	5790002221134	
PartyIdentification	0..1	0..1	Party	An association to Party Identification.		
PartyName	1	1	Party	An association to Party Name.		
PostalAddress	0..1	0..1	Party	The party's postal address.		Must be Present
PartyTaxScheme	0..n	0..n	Party	An association to Party Tax Scheme.		Must be Present
PartyLegalEntity	0..1	0..1	Party	An association to Party Legal Entity.		
Contact	0..1	0..1	Party	An association to Contact.		
Delivery	0..1	0..1	Invoice	An association to Delivery.		
ActualDeliveryDate	0..1	0..1	Delivery	The actual Delivery date.		
DeliveryLocation	0..1	0..1	Delivery	An association to Location.		
DeliveryTerms	0..1	0..1	Invoice	An association to Delivery Terms.		

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
ID	0..1	0..1	Delivery Terms	Identifies the Delivery Terms.	CIF, FOB, or EXW from the INCOTERMS Terms of Delivery. (2000 version preferred.)	Values Controlled by Code Table
SpecialTerms	0..1	0..1	Delivery Terms	A description of special conditions relating to the Delivery Terms.	"DIGIT named location"	
PaymentMeans	0..n	0..n	Invoice	An association to Payment Means.		
PaymentMeansCode	1	1	Payment Means	The Payment Means expressed as a code.	"Bank Transfer"	Values Controlled by Code Table
PaymentDueDate	0..1	1	Payment Means	The date on which payment is due for the Payment Means.		
PaymentChannelCode	0..1	0..1	Payment Means	The Payment Channel, expressed as a code.	"SWIFT"	Values Controlled by Code Table
InstructionID	0..1	0..1	Payment Means	Identifies the Payment Instruction.	"++080/0304/39777++"	
InstructionNote	0..1	0..1	Payment Means	Free-form text applying to the Payment.	"Transfer"	
PaymentID	0..1	0..1	Payment Means	Identifies the Payment(s).	"080030439777310016390359+0001692372+"	

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
PayeeFinancialAccount	0..1	0..1	Payment Means	An association to the payee's Financial Account.		
CreditAccount	0..1	0..1	Payment Means	An association to Credit Account.		
PaymentTerms	0..1	0..1	Invoice	An association to Payment Terms.		
Note	0..1	0..1	Payment Terms	Free-form text applying to the Payment Terms. This element may contain notes or any other similar information that is not contained explicitly in another structure.	"60 days without deduction"	
ReferenceEventCode	0..1	0..1	Payment Terms	The event from which terms are offered for a length of time, identified by a standard code.	"30 days" (default)	Values Controlled by Code Table
PenaltySurchargePercent	0..1	0..1	Payment Terms	The penalty rate (percentage) charged for late payment.	10	
Amount	0..1	0..1	Payment Terms	The payment amount for the Payment Terms.		
SettlementPeriod	0..1	0..1	Payment Terms	An association to Settlement Period.		
PenaltyPeriod	0..1	0..1	Payment Terms	An association to Penalty		

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
				Period.		
AllowanceCharge	0..n	0..n	Invoice	An association to Allowances and Charges that apply to the Invoice as a whole.		
ChargeIndicator	1	1	Allowance Charge	Indicates whether the Allowance Charge is a charge (true) or a discount (false).		
AllowanceChargeReasonCode	0..1	0..1	Allowance Charge	The reason for the Allowance Charge, expressed as a code.		Values Controlled by Code Table
AllowanceChargeReason	0..1	0..1	Allowance Charge	The reason for the Allowance Charge, expressed as text.		
MultiplierFactorNumeric	0..1	0..1	Allowance Charge	The factor applied to the Base Amount to calculate the Allowance Charge.		
Amount	1	1	Allowance Charge	The Allowance Charge amount.		
BaseAmount	0..1	0..1	Allowance Charge	The amount to which the MultiplierFactorNumeric is applied to calculate the Allowance Charge.		
TaxCategory	0..1	0..1	Allowance Charge	An association to Tax		

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
				Category.		
TaxExchangeRate	0..1	0..1	Invoice	An association to Exchange Rate between the Document Currency and the Tax Currency.		
SourceCurrencyCode	1	1	Exchange Rate	The reference currency for the Exchange Rate; the currency from which the exchange is being made (CC Definition).	"EUR"	Values Controlled by Code Table
SourceCurrencyBaseRate	0..1	0..1	Exchange Rate	The unit base of the source currency for currencies with small denominations.	"1.4"	
TargetCurrencyCode	1	1	Exchange Rate	The target currency for the Exchange Rate; the currency to which the exchange is being made (CC Definition).	"USD"	Values Controlled by Code Table
TargetCurrencyBaseRate	0..1	0..1	Exchange Rate	The unit base of the target currency for currencies with small denominations.	"0.6"	
CalculationRate	0..1	0..1	Exchange Rate	The factor applied to the source currency to calculate the target currency.	"1.4"	

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
Date	0..1	0..1	Exchange Rate	The date of the Exchange.	2008-01-15	
TaxTotal	1..n	1..n	Invoice	An association to tax total for specific tax types/rates.		
TaxAmount	1	1	Tax Total	The total tax amount for particular tax scheme e.g. VAT; the sum of each of the tax subtotals for each tax category within the tax scheme.	0	
TaxSubtotal	0..n	0..n	Tax Total	An association to Tax Subtotal.		VAT requirement (Tax amount per rate or exemption)
LegalMonetaryTotal	1	1	Invoice	An association to the total amount payable on the Invoice, including Allowances, Charges, and Taxes.		
LineExtensionAmount	1	1	Monetary Total	The total of Line Extension Amounts net of tax and settlement discounts, but inclusive of any applicable rounding amount.		
TaxExclusiveAmount	0..1	0..1	Monetary Total	The total amount exclusive of taxes.		

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
TaxInclusiveAmount	0..1	0..1	Monetary Total	The total amount inclusive of taxes.		
AllowanceTotalAmount	0..1	0..1	Monetary Total	The total amount of all allowances.		
ChargeTotalAmount	0..1	0..1	Monetary Total	The total amount of all charges.		
PayableRoundingAmount	0..1	0..1	Monetary Total	The rounding amount (positive or negative) added to the calculated Line Extension Total Amount to produce the rounded Line Extension Total Amount.		
PayableAmount	1	1	Monetary Total	The total amount to be paid.	3874,52	
InvoiceLine	1..n	1..n	Invoice	An association to one or more Invoice Lines.		
ID	1	1	Invoice Line	Identifies the Invoice Line.		Must be unique within a particular Invoice
Note	0..1	0..1	Invoice Line	Free-form text applying to the Invoice Line. This element may contain notes or any other similar information that is not	"Standard PCs"	

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
				contained explicitly in another structure.		
InvoicedQuantity	0..1	0..1	Invoice Line	The quantity (of Items) on the Invoice Line.	4	
LineExtensionAmount	1	1	Invoice Line	The total amount for the Invoice Line, including Allowance Charges but net of taxes.	2136,52	
AccountingCost	0..1	0..1	Invoice Line	The buyer's accounting code applied to the Invoice Line, expressed as text.	44450000	
OrderLineReference	0..1	0..1	Invoice Line	An association to Order Line Reference.		
Delivery	0..1	0..1	Invoice Line	An association to Delivery.		
AllowanceCharge	0..n	0..n	Invoice Line	An association to Allowance Charge.		
TaxTotal	0..1	0..1	Invoice Line	An association to Tax Total.		
Item	1	1	Invoice Line	An association to Item.		
Price	1	0..1	Invoice Line	An association to Price.		

Data Elements Table: Other Elements

Prior to looking at the table's content the reader should be familiar with the colour code used in their elaboration:

	Top parent element
	First Level Complex element, parent of simple elements and/or complex elements
	Element containing other elements (a.k.a. complex element)
	Simple element
	These are the GAPS between the NES Basic Invoice and the Simple Invoice Profile. The Simple Invoice Profile is currently under elaboration jointly by the European Commission and the CEN BII workshop. These GAPS are currently under discussion.

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
Invoice			Invoice	The document used to request payment.		
UBLExtensions	0..1	0..1	Invoice	The document customization extension point		
UBLVersionID	1	1	Invoice	The earliest version of the UBL 2 schema for this document type that defines all of the elements that might be encountered in the current instance.	2.0.5	

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
CustomizationID	1	1	Invoice	Identifies a user-defined customization of UBL for a specific use.	NES	
ProfileID	1	1	Invoice	Identifies a user-defined profile of the customization of UBL being used. A NES Code List is available.	urn:www.nesubl.eu:profiles:profile4:ver2.0	Values Controlled by Code Table
ID	1	1	Invoice	An identifier for the Invoice assigned by the Creditor.	51011100	Must be unique
CopyIndicator	0..0	0..1	Invoice	Indicates whether a document is a copy (true) or not (false).	FALSE	
IssueDate	1	1	Invoice	The date assigned by the Creditor on which the Invoice was issued.	2008-01-13	

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
InvoiceTypeCode	1	1	Invoice	Code specifying the type of the Invoice.	The Code Table will have the following values: "Goods with PO" "Services with PO" "Goods without PO" (to be checked) "Services without PO" "Goods and Services without PO" "Goods and Services with PO"	Values Controlled by Code Table
Note	0..1	0..1	Invoice	Free-form text applying to the Invoice. This element may contain notes or any other similar information that is not contained explicitly in another structure.	"The exportation codes not mentioned on the bill can be consulted on the delivery note or on the list transmitted at the end of the project."	
TaxPointDate	0..1	0..1	Invoice	The date of the Invoice, used to indicate the point at which tax becomes applicable.		
DocumentCurrencyCode	1	1	Invoice	The currency in which the Document is presented. This may be the same currency as the pricing or as the tax.	EUR	Values Controlled by Code Table

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
TaxCurrencyCode	0..1	0..1	Invoice	The currency used for tax amounts in the Invoice.		Values Controlled by Code Table
AccountingCost	0..1	0..1	Invoice	The Buyer's accounting code applied to the Invoice as a whole, expressed as text.		
InvoicePeriod	0..1	0..1	Invoice	An association to period(s) to which the Invoice applies.		
StartDate	0..1	0..1	Period	The start date of the period.	2008-01-05	
EndDate	0..1	0..1	Period	The end date of the period.	2008-01-10	End date must be bigger or equal to the start date
OrderReference	0..1	0..1	Invoice	An association to Order Reference.		
ID	1	1	Order Reference	Identifies the referenced Order assigned by the buyer.	"SC 1243 DI 3410 2007-18202"	
IssueDate	0..1	0..1	Order Reference	The date on which the referenced Order was issued.	2008-01-04	

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
BillingReference	0..1	0..1	Invoice	An association to Billing Reference.		
InvoiceDocumentReference	0..1	0..1	Billing Reference	An associative reference to Invoice.		
CreditNoteDocumentReference	0..1	0..1	Billing Reference	An associative reference to Credit Note.		
BillingReferenceLine	0..1	0..1	Billing Reference	An association to Billing Reference Line.		
OriginatorDocumentReference	0..1	0..1	Invoice	An associative reference to Originator Document.		
ID	1	1	Document Reference	Identifies the document being referred to.	Originator document reference: "48130021/101617" Additional document reference: 2007-18202	
IssueDate	0..1	0..1	Document Reference	The date, assigned by the sender of the referenced document, on which the referenced document was issued.	2008-01-04	
DocumentTypeCode	0..1	0..0	Document Reference	The document type, expressed as a code.		Values Controlled by Code Table

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
DocumentType	0..1	0..1	Document Reference	The document type, expressed as text.	"Invoice"	
Attachment	0..0	0..1	Document Reference	An attached document, externally referred to, referred to in the MIME location, or embedded.		
ContractDocumentReference	0..1	0..0	Invoice	An associative reference to Contract.		
ID	1	1	Document Reference	Identifies the document being referred to.	Originator document reference: "48130021/101617" Additional document reference: 2007-18202	
IssueDate	0..1	0..1	Document Reference	The date, assigned by the sender of the referenced document, on which the referenced document was issued.	2008-01-04	
DocumentTypeCode	0..1	0..0	Document Reference	The document type, expressed as a code.		Values Controlled by Code Table
DocumentType	0..1	0..1	Document Reference	The document type, expressed as text.	"Invoice"	

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
Attachment	0..0	0..1	Document Reference	An attached document, externally referred to, referred to in the MIME location, or embedded.		
AdditionalDocumentReference	0..n	0..n	Invoice	An associative reference to Additional Document.		
ID	1	1	Document Reference	Identifies the document being referred to.	Originator document reference: "48130021/101617" Additional document reference: 2007-18202	
IssueDate	0..1	0..1	Document Reference	The date, assigned by the sender of the referenced document, on which the referenced document was issued.	2008-01-04	
DocumentTypeCode	0..1	0..0	Document Reference	The document type, expressed as a code.		Values Controlled by Code Table
DocumentType	0..1	0..1	Document Reference	The document type, expressed as text.	"Invoice"	
Attachment	0..0	0..1	Document Reference	An attached document, externally referred to, referred to in the MIME		

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
				location, or embedded.		
Signature	0..0	0..n	Invoice	An association to Signature.		
AccountingSupplierParty	1	1	Invoice	An association to the Accounting Supplier Party.		
CustomerAssignedAccountID	0..1	0..0	Supplier Party	The customer's internal identifier for the supplier.		
Party	1	1	Supplier Party	An association to Party.		
AccountingCustomerParty	1	1	Invoice	An association to the Accounting Customer Party.		
Party	1	1	Customer Party	An association to Party.		
PayeeParty	0..1	0..1	Invoice	An association to the Payee.		
WebsiteURI	0..1	0..1	Party	The Uniform Resource Identifier (URI) of the party.		
EndpointID	0..1	0..1	Party	Identifies the end point of the routing service, e.g., EAN Location Number, GLN.	5790002221134	
PartyIdentification	0..1	0..1	Party	An association to Party		

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
				Identification.		
PartyName	1	1	Party	An association to Party Name.		
PostalAddress	0..1	0..1	Party	The party's postal address.		Must be Present
PartyTaxScheme	0..n	0..n	Party	An association to Party Tax Scheme.		Must be Present
PartyLegalEntity	0..1	0..1	Party	An association to Party Legal Entity.		
Contact	0..1	0..1	Party	An association to Contact.		
Delivery	0..1	0..1	Invoice	An association to Delivery.		
ActualDeliveryDate	0..1	0..1	Delivery	The actual Delivery date.		
DeliveryLocation	0..1	0..1	Delivery	An association to Location.		
DeliveryTerms	0..1	0..1	Invoice	An association to Delivery Terms.		
ID	0..1	0..1	Delivery Terms	Identifies the Delivery Terms.	CIF, FOB, or EXW from the INCOTERMS Terms of Delivery. (2000 version preferred.)	Values Controlled by Code Table
SpecialTerms	0..1	0..1	Delivery Terms	A description of special conditions relating to the Delivery Terms.	"DIGIT named location"	

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
PaymentMeans	0..n	0..n	Invoice	An association to Payment Means.		
PaymentMeansCode	1	1	Payment Means	The Payment Means expressed as a code.	"Bank Transfer"	Values Controlled by Code Table
PaymentDueDate	0..1	1	Payment Means	The date on which payment is due for the Payment Means.		
PaymentChannelCode	0..1	0..1	Payment Means	The Payment Channel, expressed as a code.	"SWIFT"	Values Controlled by Code Table
InstructionID	0..1	0..1	Payment Means	Identifies the Payment Instruction.	"++080/0304/39777++"	
InstructionNote	0..1	0..1	Payment Means	Free-form text applying to the Payment.	"Transfer"	
PaymentID	0..1	0..1	Payment Means	Identifies the Payment(s).	"080030439777310016390359+0001692372+"	
PayeeFinancialAccount	0..1	0..1	Payment Means	An association to the payee's Financial Account.		
CreditAccount	0..1	0..1	Payment Means	An association to Credit Account.		
PaymentTerms	0..1	0..1	Invoice	An association to Payment Terms.		

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
Note	0..1	0..1	Payment Terms	Free-form text applying to the Payment Terms. This element may contain notes or any other similar information that is not contained explicitly in another structure.	"60 days without deduction"	
ReferenceEventCode	0..1	0..1	Payment Terms	The event from which terms are offered for a length of time, identified by a standard code.	"30 days" (default)	Values Controlled by Code Table
PenaltySurchargePercent	0..1	0..1	Payment Terms	The penalty rate (percentage) charged for late payment.	10	
Amount	0..1	0..1	Payment Terms	The payment amount for the Payment Terms.		
SettlementPeriod	0..1	0..1	Payment Terms	An association to Settlement Period.		
PenaltyPeriod	0..1	0..1	Payment Terms	An association to Penalty Period.		
AllowanceCharge	0..n	0..n	Invoice	An association to Allowances and Charges that apply to the Invoice as a whole.		
ChargeIndicator	1	1	Allowance Charge	Indicates whether the Allowance Charge is a charge (true) or a		

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
				discount (false).		
AllowanceChargeReasonCode	0..1	0..1	Allowance Charge	The reason for the Allowance Charge, expressed as a code.		Values Controlled by Code Table
AllowanceChargeReason	0..1	0..1	Allowance Charge	The reason for the Allowance Charge, expressed as text.		
MultiplierFactorNumeric	0..1	0..1	Allowance Charge	The factor applied to the Base Amount to calculate the Allowance Charge.		
Amount	1	1	Allowance Charge	The Allowance Charge amount.		
BaseAmount	0..1	0..1	Allowance Charge	The amount to which the MultiplierFactorNumeric is applied to calculate the Allowance Charge.		
TaxCategory	0..1	0..1	Allowance Charge	An association to Tax Category.		
TaxExchangeRate	0..1	0..1	Invoice	An association to Exchange Rate between the Document Currency and the Tax Currency.		
SourceCurrencyCode	1	1	Exchange Rate	The reference currency for the Exchange Rate; the currency from which	"EUR"	Values Controlled by Code

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
				the exchange is being made (CC Definition).		Table
SourceCurrencyBaseRate	0..1	0..1	Exchange Rate	The unit base of the source currency for currencies with small denominations.	"1.4"	
TargetCurrencyCode	1	1	Exchange Rate	The target currency for the Exchange Rate; the currency to which the exchange is being made (CC Definition).	"USD"	Values Controlled by Code Table
TargetCurrencyBaseRate	0..1	0..1	Exchange Rate	The unit base of the target currency for currencies with small denominations.	"0.6"	
CalculationRate	0..1	0..1	Exchange Rate	The factor applied to the source currency to calculate the target currency.	"1.4"	
Date	0..1	0..1	Exchange Rate	The date of the Exchange.	2008-01-15	
TaxTotal	1..n	1..n	Invoice	An association to tax total for specific tax types/rates.		
TaxAmount	1	1	Tax Total	The total tax amount for particular tax scheme e.g. VAT; the sum of each of the tax subtotals for each	0	

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
				tax category within the tax scheme.		
TaxSubtotal	0..n	0..n	Tax Total	An association to Tax Subtotal.		VAT requirement (Tax amount per rate or exemption)
LegalMonetaryTotal	1	1	Invoice	An association to the total amount payable on the Invoice, including Allowances, Charges, and Taxes.		
LineExtensionAmount	1	1	Monetary Total	The total of Line Extension Amounts net of tax and settlement discounts, but inclusive of any applicable rounding amount.		
TaxExclusiveAmount	0..1	0..1	Monetary Total	The total amount exclusive of taxes.		
TaxInclusiveAmount	0..1	0..1	Monetary Total	The total amount inclusive of taxes.		
AllowanceTotalAmount	0..1	0..1	Monetary Total	The total amount of all allowances.		
ChargeTotalAmount	0..1	0..1	Monetary Total	The total amount of all charges.		

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
PayableRoundingAmount	0..1	0..1	Monetary Total	The rounding amount (positive or negative) added to the calculated Line Extension Total Amount to produce the rounded Line Extension Total Amount.		
PayableAmount	1	1	Monetary Total	The total amount to be paid.	3874,52	
InvoiceLine	1..n	1..n	Invoice	An association to one or more Invoice Lines.		
ID	1	1	Invoice Line	Identifies the Invoice Line.		Must be unique within a particular Invoice
Note	0..1	0..1	Invoice Line	Free-form text applying to the Invoice Line. This element may contain notes or any other similar information that is not contained explicitly in another structure.	"Standard PCs"	
InvoicedQuantity	0..1	0..1	Invoice Line	The quantity (of Items) on the Invoice Line.	4	
LineExtensionAmount	1	1	Invoice Line	The total amount for the Invoice Line, including Allowance Charges but	2136,52	

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
				net of taxes.		
AccountingCost	0..1	0..1	Invoice Line	The buyer's accounting code applied to the Invoice Line, expressed as text.	44450000	
OrderLineReference	0..1	0..1	Invoice Line	An association to Order Line Reference.		
Delivery	0..1	0..1	Invoice Line	An association to Delivery.		
AllowanceCharge	0..n	0..n	Invoice Line	An association to Allowance Charge.		
TaxTotal	0..1	0..1	Invoice Line	An association to Tax Total.		
Item	1	1	Invoice Line	An association to Item.		
Price	1	0..1	Invoice Line	An association to Price.		

Data Elements Table: Other Elements

Prior to looking at the table's content the reader should be familiar with the colour code used in their elaboration:

	First Level Complex element, parent of simple elements and/or complex elements
	Element containing other elements (a.k.a. complex element)
	Simple element
	These are the GAPS between the NES Basic Invoice and the Simple Invoice Profile. The Simple Invoice Profile is currently under elaboration jointly by the European Commission and the CEN BII workshop. These GAPS are currently under discussion.

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
Address			Address	Information about a structured address.		
ID	0..1	0..1	Address	An identifier for a specific address within a scheme of registered addresses.		
AddressFormatCode	0..1	0..1	Address	A code specifying the format of this address.		Values Controlled by Code Table

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
Postbox	0..1	0..1	Address	A post office box number.	"123"	
StreetName	0..1	0..1	Address	The name of a street.	"Rue de Loi 200"	Must be Present
AdditionalStreetName	0..1	0..1	Address	An additional name of a street used to further specify the street name.		
BuildingName	0..1	0..1	Address	The name of a building.	"B-28 06/164"	
BuildingNumber	0..1	0..1	Address	The number of a building.	"200"	
Department	0..1	0..1	Address	An addressable department of an organization.	"Accounts Payable"	
CityName	0..1	0..1	Address	The name of a city, town, or village.	"Brussels"	Must be Present
PostalZone	0..1	0..1	Address	The identifier for an addressable group of properties according to the relevant national postal service, such as a ZIP code or Post Code.	"B-1049"	Must be Present
Region	0..1	0..1	Address	An addressable region or group of countries.	"Brussels Capital"	
AddressLine	0..n	0..n	Address	An association to Address Line.		

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
Country	0..1	0..1	Address	An association to Country.		
AddressLine			Address Line	Information about a line of address expressed as unstructured text.		
Line	1	1	Address Line	A line of address expressed as unstructured text.		
AllowanceCharge			Allowance Charge	Information about a charge or discount price component.		
ChargeIndicator	1	1	Allowance Charge	Indicates whether the Allowance Charge is a charge (true) or a discount (false).		
AllowanceChargeReasonCode	0..1	0..1	Allowance Charge	The reason for the Allowance Charge, expressed as a code.		Values Controlled by Code Table
AllowanceChargeReason	0..1	0..1	Allowance Charge	The reason for the Allowance Charge, expressed as text.		
MultiplierFactorNumeric	0..1	0..1	Allowance Charge	The factor applied to the Base Amount to calculate the Allowance Charge.		
Amount	1	1	Allowance Charge	The Allowance Charge		

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
				amount.		
BaseAmount	0..1	0..1	Allowance Charge	The amount to which the MultiplierFactorNumeric is applied to calculate the Allowance Charge.		
TaxCategory	0..1	0..1	Allowance Charge	An association to Tax Category.		
BillingReference			Billing Reference	Information directly relating to a related document.		
InvoiceDocumentReference	0..1	0..1	Billing Reference	An associative reference to Invoice.		
CreditNoteDocumentReference	0..1	0..1	Billing Reference	An associative reference to Credit Note.		
BillingReferenceLine	0..1	0..1	Billing Reference	An association to Billing Reference Line.		
BillingReferenceLine			Billing Reference Line	Information about a Billing Line.		
ID	1	1	Billing Reference Line	An identifier for the Billing Line.		
Amount	0..1	0..1	Billing Reference Line	The amount of the Billing Line, including Allowance Charges but net of taxes.		

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
Branch			Branch	Information about a branch or division of an organization.		
ID	0..1	0..1	Branch	An identifier for a branch or division of an organization. (e.g. 3 characters - branch code)	BRU	
FinancialInstitution	1	1	Branch	An association to Financial Institution.		
CommodityClassification			Commodity Classification	Information about Commodity Classification.		
CommodityCode	0..1	0..1	Commodity Classification	The harmonized international commodity code for regulatory (customs and trade statistics) purposes.	"1102222883"	Values Controlled by Code Table
ItemClassificationCode	0..1	0..1	Commodity Classification	The trade commodity classification, expressed as a code.	"Good"	Values Controlled by Code Table
Contact			Contact	Information about a contactable person or organization department.		
ID	0..1	0..1	Contact	An identifier for the Contact.	"Sales Manager"	

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
Name	0..1	0..1	Contact	The name of the Contact.	"Frederic Gimenez"	
Telephone	0..1	0..1	Contact	The telephone number of the Contact.	"+32 48569247"	
Telefax	0..1	0..1	Contact	The fax number of the Contact.	"+32 48569777"	
ElectronicMail	0..1	0..1	Contact	The email address of the Contact.	"FG@None.com"	
Country			Country	Information about a geopolitical country.		
IdentificationCode	1	1	Country	An identifier for the Country.		Values Controlled by Code Table
CreditAccount			Credit Account	Information about a Credit Account (for sales on account).		
AccountID	1	1	Credit Account	Identifies the Credit Account. (e.g. IBAN)	"BE69310015994578"	
Delivery			Delivery	Information about Delivery.		
ActualDeliveryDate	0..1	0..1	Delivery	The actual Delivery date.		
DeliveryLocation	0..1	0..1	Delivery	An association to Location.		
DeliveryTerms			Delivery Terms	Information about		

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
				Delivery Terms.		
ID	0..1	0..1	Delivery Terms	Identifies the Delivery Terms.	CIF, FOB, or EXW from the INCOTERMS Terms of Delivery. (2000 version preferred.)	Values Controlled by Code Table
SpecialTerms	0..1	0..1	Delivery Terms	A description of special conditions relating to the Delivery Terms.	"DIGIT named location"	
DocumentReference			Document Reference	Information about a document referred to in another document.		
ID	1	1	Document Reference	Identifies the document being referred to.	Originator document reference: "48130021/101617" Additional document reference: 2007-18202	
IssueDate	0..1	0..1	Document Reference	The date, assigned by the sender of the referenced document, on which the referenced document was issued.	2008-01-04	
DocumentTypeCode	0..1	0..0	Document Reference	The document type, expressed as a code.		Values Controlled by Code Table

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
DocumentType	0..1	0..1	Document Reference	The document type, expressed as text.	"Invoice"	
Attachment	0..0	0..1	Document Reference	An attached document, externally referred to, referred to in the MIME location, or embedded.		
ExternalReference			External Reference	Information directly relating to an external reference i.e. a document stored at a remote location.		
URI	1	1	External Reference	The Uniform Resource Identifier (URI) that identifies where the external document is located.	www.nes.eu	
FinancialAccount			Financial Account	Information about a Financial Account.		
ID	1	1	Financial Account	The identifier for the Financial Account; the Bank Account Number.	012596 4466 4564544	
AccountTypeCode	0..1	0..1	Financial Account	The type of Financial Account, expressed as a code.		Values Controlled by Code Table

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
CurrencyCode	0..1	0..1	Financial Account	The currency in which the Financial Account is held, expressed as a code.	EUR	Values Controlled by Code Table
PaymentNote	0..1	0..1	Financial Account	Free-form text applying to the Payment to the owner of this account.		
FinancialInstitutionBranch	0..1	0..1	Financial Account	An association to Financial Institution Branch.		
FinancialInstitution			Financial Institution	Information about a Financial Institution.		
ID	1	1	Financial Institution	The identifier for the Financial Institution expressed as a code; ISO 9362 BIC (Bank Identification Code) is recommended.	BBRUBEBB	
Name	0..1	0..1	Financial Institution	The name of the Financial Institution.	ING	
Item			Item	Information directly relating to an item.		
Description	0..1	0..1	Item	Free-form field that can be used to give a text description of the item.	"Standard PC Esprimo E"	

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
Name	1	1	Item	A short name optionally given to an item, such as a name from a Catalogue, as distinct from a description.	"Personal Computer"	
BuyersItemIdentification	0..1	0..1	Item	Associates the item with its identification according to the buyer's system.		
SellersItemIdentification	0..1	0..1	Item	Associates the item with its identification according to the seller's system.		
StandardItemIdentification	0..1	0..1	Item	Associates the item with its identification according to a standard system.		
OriginCountry	0..1	0..1	Item	Associates the item with its country of origin.		
CommodityClassification	0..1	0..1	Item	Associates the item with its classification(s) according to a commodity classifying system.		
ClassifiedTaxCategory	0..n	0..n	Item	Classifies the item using one or more categories of taxes.		

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
AdditionalItemProperty	0..n	0..n	Item	Associates the item with a set of additional properties.		
ItemInstance	0..n	0..n	Item	An association to Item Instance.		
ItemIdentification			Item Identification	Information about item identification.		
ID	1	1	Item Identification	An identifier for an item.	"CUST001" "3333-44-123"	
ItemInstance			Item Instance	Information about a specific instance of an item.		
ProductTraceID	0..1	0..1	Item Instance	An identifier used for tracing the item, such as the EPC number used in RFID.		
ManufactureDate	0..1	0..1	Item Instance	The date of manufacture of the Item Instance.		
ManufactureTime	0..1	0..1	Item Instance	The time of manufacture of the Item Instance.		
RegistrationID	0..1	0..1	Item Instance	The registration identifier of the Item Instance.	car registration or licensing number	
SerialID	0..1	0..1	Item Instance	The serial number of the Item Instance.	chassis number of a car	

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
LotIdentification	0..1	0..1	Item Instance	Associates the item instance with its lot identification (the identification that allows recall of the item if necessary).		
ItemProperty			Item Property	Information about specific Item Properties.		
Name	1	1	Item Property	The name of the Item Property.	"Energy Rating", "Collar Size", "Fat Content"	
Value	1	1	Item Property	The Item Property value.	"100 watts", "15 European", "20% +/- 5%"	
UsabilityPeriod	0..1	0..1	Item Property	The period for which the Item Property is valid.		
ItemPropertyGroup	0..n	0..n	Item Property	An association to Item Property Group.		
ItemPropertyGroup			Item Property Group	Information about sets of classifications (or groups) of Item Properties.		
ID	1	1	Item Property Group	An identifier for the Item Property Group.	"233-004"	
Name	0..1	0..1	Item Property Group	The name of the Item Property Group.	"Electrical Specifications", "Dietary Content"	
Location			Location	Information about a location.		

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
Address	0..1	0..1	Location	Association to the address of the location.		
LotIdentification			Lot Identification	Information about a lot (of Item Instances).		
LotNumberID	0..1	0..1	Lot Identification	Identifies the lot.		
ExpiryDate	0..1	0..1	Lot Identification	The expiry date of the lot.		
OrderLineReference			Order Line Reference	Information about an Order Line Reference.		
LineID	1	1	Order Line Reference	Identifies the referenced Order Line assigned by the buyer.	1	
OrderReference	0..1	0..1	Order Line Reference	An association to Order Reference.		
OrderReference			Order Reference	Information about an Order Reference.		
ID	1	1	Order Reference	Identifies the referenced Order assigned by the buyer.	"SC 1243 DI 3410 2007-18202"	
IssueDate	0..1	0..1	Order Reference	The date on which the referenced Order was issued.	2008-01-04	
Party			Party	Information about an organization, sub-organization, or individual fulfilling a role		

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
				in a business process.		
WebsiteURI	0..1	0..1	Party	The Uniform Resource Identifier (URI) of the party.		
EndpointID	0..1	0..1	Party	Identifies the end point of the routing service, e.g., EAN Location Number, GLN.	5790002221134	
PartyIdentification	0..1	0..1	Party	An association to Party Identification.		
PartyName	1	1	Party	An association to Party Name.		
PostalAddress	0..1	0..1	Party	The party's postal address.		Must be Present
PartyTaxScheme	0..n	0..n	Party	An association to Party Tax Scheme.		Must be Present
PartyLegalEntity	0..1	0..1	Party	An association to Party Legal Entity.		
Contact	0..1	0..1	Party	An association to Contact.		
PartyIdentification			Party Identification	Information about a party's identification.		

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
ID	1	1	Party Identification	Identifies a party.		
PartyLegalEntity			Party Legal Entity	Information directly relating to the legal registration that is applicable to a party.		
RegistrationName	0..1	0..1	Party Legal Entity	The name of a party as registered with the legal (i.e. fiscal) authority.	"Siemens SA"	
CompanyID	1	1	Party Legal Entity	Identifies a company as registered with the company registration scheme (i.e. fiscal authority).	"SPFI 20 1321 06"	
RegistrationAddress	0..1	0..1	Party Legal Entity	Associates with the registered address of the party within a Corporate Registration Scheme.		
PartyName			Party Name	Information about a party's name.		
Name	1	1	Party Name	The name of the party.	Siemens SA	
PartyTaxScheme			Party Tax Scheme	Information about a party's Tax Scheme.		
RegistrationName	0..1	0..1	Party Tax Scheme	The official name of the party as registered with the relevant tax authority.	"Siemens SA"	

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
CompanyID	0..1	0..1	Party Tax Scheme	The identifier assigned for tax purposes to a party by the taxation authority.	"BE0404284716"	Must be Present
ExemptionReason	0..1	0..1	Party Tax Scheme	A reason for a party's exemption from tax, expressed as text.		
TaxScheme	1	1	Party Tax Scheme	An association to Tax Scheme.		
PaymentMeans			Payment Means	Information about Payment Means.		
PaymentMeansCode	1	1	Payment Means	The Payment Means expressed as a code.	"Bank Transfer"	Values Controlled by Code Table
PaymentDueDate	0..1	1	Payment Means	The date on which payment is due for the Payment Means.		
PaymentChannelCode	0..1	0..1	Payment Means	The Payment Channel, expressed as a code.	"SWIFT"	Values Controlled by Code Table
InstructionID	0..1	0..1	Payment Means	Identifies the Payment Instruction.	"++080/0304/39777++"	

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
InstructionNote	0..1	0..1	Payment Means	Free-form text applying to the Payment.	"Transfer"	
PaymentID	0..1	0..1	Payment Means	Identifies the Payment(s).	"080030439777310016390359+0001692372+" "	
PayeeFinancialAccount	0..1	0..1	Payment Means	An association to the payee's Financial Account.		
CreditAccount	0..1	0..1	Payment Means	An association to Credit Account.		
Period			Period	Information about a period of time.		
StartDate	0..1	0..1	Period	The start date of the period.	2008-01-05	
EndDate	0..1	0..1	Period	The end date of the period.	2008-01-10	End date must be bigger or equal to the start date
Price			Price	Information about the price.		
PriceAmount	1	1	Price	The price amount.	23.45	
BaseQuantity	0..1	0..1	Price	The actual quantity to which the price applies.	1	
AllowanceCharge	0..1	0..1	Price	An association to		

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
				Allowance Charge.		
TaxCategory			Tax Category	Information about a tax category.		
ID	1	1	Tax Category	Identifies the tax category.	"NotTaxable"	Values Controlled by Code Table
Percent	0..1	0..1	Tax Category	The tax rate for the category, expressed as a percentage.	0	
TaxExemptionReasonCode	0..1	0..1	Tax Category	The reason for tax being exempted expressed as a code.	BE01	Values Controlled by Code Table
TaxExemptionReason	0..1	0..1	Tax Category	The reason for tax being exempted.	"Exempt of Belgium VAT - Art. 15 - 10 of VAT directive CEE 77/388 and Art.42 Par. 3.23 of the BE VAT"	
TaxScheme	1	1	Tax Category	An association to Tax Scheme.		
TaxScheme			Tax Scheme	Information about a tax scheme.		
ID	1	1	Tax Scheme	Identifies the tax scheme.	"VAT"	Values Controlled by Code Table

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
Name	0..1	0..1	Tax Scheme	The name of the tax scheme.	"Value Added Tax"	
TaxTypeCode	0..1	0..1	Tax Scheme	An identifier for the tax type.	"Consumption"	Values Controlled by Code Table
TaxSubtotal			Tax Subtotal	Information about the subtotal for a particular tax category within a tax scheme, such as standard rate within VAT.		
TaxableAmount	1	1	Tax Subtotal	The net amount to which the tax percent (rate) is applied to calculate the tax amount.		
TaxAmount	1	1	Tax Subtotal	The amount of tax stated explicitly (for the given Tax rate).		
TransactionCurrencyTaxAmount	0..1	0..1	Tax Subtotal	The tax amount, expressed in the currency used for invoicing.		
TaxCategory	1	1	Tax Subtotal	An association to Tax Category.		
TaxTotal			Tax Total	Information about a total amount of a particular type of tax.		

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	UBL Definition	Examples	Business Rules
TaxAmount	1	1	Tax Total	The total tax amount for particular tax scheme e.g. VAT; the sum of each of the tax subtotals for each tax category within the tax scheme.	0	
TaxSubtotal	0..n	0..n	Tax Total	An association to Tax Subtotal.		

Data Elements Table: GAP between Simple Invoice and NES Basic Invoice

The Gaps marked in the data elements tables are listed below as well as their rational and context driver:

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	Business Rules	GAP Context Driver Value (Rational of Change)	GAP Context Driver
Invoice			Invoice			
CopyIndicator	0..0	0..1	Invoice		Confusing to the business	Business process
OriginatorDocumentReference	0..1	0..1	Invoice			
DocumentTypeCode	0..1	0..0	Document Reference	Values Controlled	Harmonisation of document references	System Constraint

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	Business Rules	GAP Context Driver Value (Rational of Change)	GAP Context Driver
				by Code Table		
Attachment	0..0	0..1	Document Reference		A separate message AttachedDocument has been introduced	System Constraint
ContractDocumentReference	0..1	0..0	Invoice		Framework contract reference	Business Process
DocumentTypeCode	0..1	0..0	Document Reference	Values Controlled by Code Table	Harmonisation of document references	System Constraint
Attachment	0..0	0..1	Document Reference		A separate message AttachedDocument has been introduced	System Constraint
AdditionalDocumentReference	0..n	0..n	Invoice			
DocumentTypeCode	0..1	0..0	Document Reference	Values Controlled by Code Table	Harmonisation of document references	System Constraint
Attachment	0..0	0..1	Document Reference		A separate message AttachedDocument has been introduced	System Constraint
Signature	0..0	0..n	Invoice		System is compliant with EDI concept of Directive	System Constraint
AccountingSupplierParty	1	1	Invoice			

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	Business Rules	GAP Context Driver Value (Rational of Change)	GAP Context Driver
CustomerAssignedAccountID	0..1	0..0	Supplier Party		Following the analysis of paper invoices, this attribute needs to be reintroduced in this node.	Business process
PayeeParty	0..1	0..1	Invoice			
PostalAddress	0..1	0..1	Party	Must be Present	VAT requirement	Official constraint
PartyTaxScheme	0..n	0..n	Party	Must be Present	VAT requirement	Official constraint
PaymentMeans	0..n	0..n	Invoice			
PaymentDueDate	0..1	1	Payment Means		This is normally set prior to the invoice submission	System constraint
InvoiceLine	1..n	1..n	Invoice			
Price	1	0..1	Invoice Line		VAT requirement Price unit	Official Constraint
Address			Address			
StreetName	0..1	0..1	Address	Must be Present	VAT requirement	Official constraint
CityName	0..1	0..1	Address	Must be Present	VAT requirement	Official constraint
PostalZone	0..1	0..1	Address	Must be Present	VAT requirement	Official constraint

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	Business Rules	GAP Context Driver Value (Rational of Change)	GAP Context Driver
DeliveryTerms			Delivery Terms			
ID	0..1	0..1	Delivery Terms	Values Controlled by Code Table	Control the values of the ID	Business process
DocumentReference			Document Reference			
DocumentTypeCode	0..1	0..0	Document Reference	Values Controlled by Code Table	Harmonisation of document references	System Constraint
Attachment	0..0	0..1	Document Reference		A separate message AttachedDocument has been introduced	System Constraint
Party			Party			
PostalAddress	0..1	0..1	Party	Must be Present	VAT requirement	Official constraint
PartyTaxScheme	0..n	0..n	Party	Must be Present	VAT requirement - depends if there is more than a single tax scheme	Official constraint
PartyTaxScheme			Party Tax Scheme			

UBL Name	CEN BII Simple Invoice	NES Basic Invoice	Object Class	Business Rules	GAP Context Driver Value (Rational of Change)	GAP Context Driver
CompanyID	1	0..1	Party Tax Scheme		VAT requirement Impact: In case the customer does not have a VAT number then it should be filed-out with "Not Applicable"	Official constraint
PaymentMeans			Payment Means			
PaymentDueDate	0..1	1	Payment Means		This is normally set prior to the invoice submission	System constraint
TaxCategory			Tax Category			
ID	1	1	Tax Category	Values Controlled by Code Table	Control the values of the ID	Business process
TaxScheme			Tax Scheme			
ID	1	1	Tax Scheme	Values Controlled by Code Table	Control the values of the ID	Business process

11. GLOSSARY

The glossary below provides the reader with an overview of terms used relevant to the project.

Term	Description
Advanced Electronic Signatures	An Advanced Electronic Signature means an electronic signature which meets the following requirements (Council Directive 2001/115/EC, art 2(2)(c) and Council Directive 1999/93/EC, art 2) <ul style="list-style-type: none"> - it is uniquely linked to the signatory; - it is capable of identifying the signatory; - it is created using means that the signatory can maintain under his sole control; and - it is linked to the data to which it relates in such a manner that any subsequent change of the data is detectable.
AEAT-CCI	XML based e-Invoice format established by the Spanish Tax Agency in cooperation with the Centre for Inter-bank Cooperation, representing the Spanish financial sector.
AS1 (Applicability Statement 1)	Specification for Electronic Data Interchange (EDI) communications between businesses using e-mail protocols.
AS2 (Applicability Statement 2)	Specification for Electronic Data Interchange (EDI) between businesses using the Internet's Web page protocol, the Hypertext Transfer Protocol (HTTP).
AS3 (Applicability Statement 3)	Specification for Electronic Data Interchange (EDI) between businesses using the, using the File Transfer Protocol (FTP).
B2B (Business to Business)	Acronym defining the market between businesses.
B2C (Business to Consumer)	Acronym defining the market between businesses and consumers.
B2G (Business to Government)	Acronym defining the market between businesses and government agencies.
BEA	Company chosen by the European Commission to provide Enterprise Infrastructure solutions like Weblogic Application Server.
BEA ALSB (AquaLogic Service BUS)	BEA AquaLogic Service BUS is a BEA Systems product providing ESB features.
BEA WebLogic	BEA WebLogic is Java Enterprise Server from BEA Systems
BEA WLI (WebLogic Integration)	BEA WebLogic Integration is BEA Systems product providing application integration and process management features.

Term	Description
BMS (Business Message Standard)	Standard created by GS1 to ensure interoperability between data pools and the GS1 Global Registry.
CCI (Centro de Cooperación Interbancaria)	Center for Inter-bank Cooperation. A non-profit organization which is the initiative of the Spanish banking industry.
CD-WORM (Compact Disc - Write Once Read Many)	Compact disk that can be used to record information. Data can be written only once, but can be read as many times as needed.
CEN (European Committee for Standardization)	Non-profit technical organization contributing to the objectives of the European Union and European Economic Area with voluntary technical standards which promote free trade, the safety of workers and consumers, interoperability of networks, environmental protection, exploitation of research and development programmes, and public procurement.
CIP (Competitiveness and Innovation Program)	CIP aims to encourage the competitiveness of European enterprises. With small and medium-sized enterprises (SMEs) as its main target, the programme will support innovation activities (including eco-innovation), provide better access to finance and deliver business support services in the regions. It will encourage a better take-up and use of information and communications technologies (ICT) and help to develop the information society. It will also promote the increased use of renewable energies and energy efficiency. The programme will run from 2007 to 2013
Consolidator Platform	Community of various service providers and service subscribers. The consolidator model allows a large number of parties to exchange data by providing a common exchange format or by providing transformation services.
COTS (Commercial off-the-shelf)	Term for software or hardware that are ready-made and available for sale, lease, or license to the general public.
Credeuro	Standard for credit transfers, but only applicable to cross-border credit transfers up to a certain amount of money.
Credit Note	Form or letter sent by a seller to a buyer, stating that a certain amount has been credited to the buyer's account to correct a mistake during a business transaction.
Debit Note	Form or letter issued by a seller to advise the amount owed by the buyer.
DEDIP2	Norwegian message format based on EDIFACT.
DG DIGIT	The Directorate-General for Informatics is one of 37 Directorates General and specialised services which make up the European Commission. Its mission is to enable the Commission to make effective and efficient use of Information and Communication Technologies in order to achieve its organisational and political

Term	Description
	objectives.
DG MARKT	The Internal Market and Services Directorate General is one of 37 Directorates General and specialised services which make up the European Commission. Its main role is to coordinate the Commission's policy on the European Single Market, which aims to ensure the free movement of people, goods, services and capital within the Union.
DTD (Document Type Definition)	XML based language that defines the legal building blocks of an XML document by specifying a list of legal elements and attributes.
DVD (digital versatile disc)	High-density compact disk for storing large amounts of data.
EAN (European Article Number)	Barcode standard which is a superset of the original 12-digit Universal Product Code (UPC) system.
EANCOM	Subset of EDIFACT with expanded code lists covering specific vertical industries, maintained by GS1.
e-Archiving system	System (software and hardware) that allows suppliers or customers to archive and retrieve Invoices, copies of Invoices and related documents in an electronic way.
EBA (Euro Banking Association)	Association consisting of 190 European banks. It serves as a forum for the European payments industry and plays a major role in the development of payment infrastructure solutions at a pan-European level.
ebXML (Electronic Business using eXtensible Markup Language)	Modular suite of specifications sponsored by OASIS and UN/CEFACT that enables enterprises to conduct business over the Internet. Using ebXML, companies have a standard method to exchange business messages, conduct trading relationships, communicate data in common terms and define and register business processes.
EC	European Commission.
ECAS (European Commission Authentication Service)	The European Commission Authentication Service, providing common authentication services to Commission information systems. By using these services, information systems will benefit from secure user login and share a common login procedure that will reduce the number of times users have to enter their username and password.
ECSAs (European Credit Sector Associations)	Collective name for Europe's three credit sector associations being the Banking Federation of the European Union (EBF), the European Association of Co-operative Banks (EACB), and the European Savings Banks Group (ESBG). It represents the interests of the European banks from the countries of the European Union (EU), the European Economic Area (EEA), and the European Free Trade Association (EFTA).

Term	Description
EDI (Electronic Data Interchange)	Electronic Data Interchange is (Council Directive 2001/115/EC, art 2(2)(c) and Commission Recommendation 94/820/EC, art 2) <ul style="list-style-type: none"> - an electronic transfer; - from computer to computer; - using an agreed structured format; - that can be read by a computer; and - can be processed automatically and unambiguously.
E EI	European Electronic Invoicing.
E EI Framework	The EEI Framework establishes a conceptual structure that supports the provision of the e-Invoicing services in an open and interoperable manner. The Framework combines artefacts that together serve to specify a minimum basis by which an EEI Service can be deemed to be compliant with the Framework. These include legal and best practice guidelines, business/operational rules, and technical standards.
EFIS (ESA Financial and Invoicing System)	Internet based supplier portal that is designed by ESA to facilitate its contract management and invoicing processes.
Electronic Catalogue Also referred to as e-Catalogue	Online presentation of information on products and services that are offered and sold by an organisation.
e-Invoicing system	System (software and hardware) that allows business partners exchanging and archiving Invoices in an electronic way.
Electronic Invoicing Also referred to as e-Invoicing	Electronic Invoicing is the electronic transfer of Invoicing information (billing and payment) between business partners. Electronic Invoicing requires the sending of Invoices "by electronic means", i.e. transmission or making available to the recipient and storage using electronic equipment for processing (including digital compression) and storage of data, and employing wires, radio transmission, optical technologies or other electromagnetic means (Council Directive 2001/115/EC, art 2(2)(e)).
Electronic Ordering Also referred to as e-Ordering	Electronic Ordering is the electronic transfer of ordering information between business partners.
e-Ordering system	System (software and hardware) that allows suppliers and customers exchanging and archiving Orders in an electronic way.
Electronic Procurement Also referred to as e-	Electronic Procurement refers to the use of electronic means in conducting a procurement procedure for the purchase of goods, works or services, rather than using a paper ordering process.

Term	Description
Procurement	
Electronic Purchasing Also referred to as e-Purchasing	See Electronic Procurement.
EPC (European Payments Council)	Decision-making and coordination body of the European banking industry in relation to payments.
EPC (Electronic Product Code)	Family of coding schemes created as an eventual successor to the bar code. EPC tags were designed to identify each item manufactured, as opposed to just the manufacturer and class of products, as bar codes do today.
Enterprise Resource Planning System (ERP)	System to integrate several data sources and processes of an organization into a unified system in order to help companies manage the important parts of their business.
Electronic Signature	An electronic signature can be used to authenticate the identity of the sender of a message or the signer of a document, and possibly to ensure that the original content of the message or document that has been sent is unchanged.
ESB (Enterprise Services Bus)	Message broker that supports Web services. An open standards-based distributed synchronous or asynchronous messaging middleware that provides secure interoperability between enterprise applications via XML, Web services interfaces and standardized rules-based routing of documents
Excel	Spreadsheet program by Microsoft.
FIA	Financial Initiating Agent
Financial Officer	Role that performs administrative tasks regarding financial items such as budgets, invoices, costs etc.
FMCG (Fast Moving Consumer Goods)	Products that are sold quickly at relatively low cost.
Freight Bill	Carrier's invoice for freight charges applicable to a shipment of goods.
FTP (File Transfer Protocol)	Bulk, TCP-based, transaction-oriented file transfer protocol used in TCP/IP networks, especially the Internet
FTPS	Secure version of the FTP protocol. An SSL/TLS layer is used below the standard FTP protocol to encrypt the control and/or data channels
GDSN (Global Data Synchronisation Network)	Automated, standards-based global environment that enables secure and continuous data synchronisation, allowing all partners to have consistent item data in their systems at the same time.
General Ledger	Accounting term which is a summary of all of the transactions that occur in a company.

Term	Description
GLN (Global Location Number)	Thirteen digit number used to identify parties and physical locations. The GLN is generally used in electronic commerce transactions and it is encoded in a barcode, generally GS1-128. Its basic components are an EAN UCC company prefix, a Location Reference and a check digit.
GPC (Global Product Classification)	Set of common categories to group products globally, part of the GS1 System and a key enabler for the Global Data Synchronisation Network (GDSN) and category management.
GTIN (Global Trade Item Number)	GTIN describes a family of GS1 global data structures that employ 14 digits and can be encoded into various types of data carriers. Currently, GTIN is used exclusively within bar codes, but it could also be used in other data carriers such as radio frequency identification (RFID).
HTTP (Hyper Text Transfer Protocol)	TCP-based application-layer protocol used for communication between Web servers and Web clients
HTTPS	Secure version of the HTTP protocol. A different default port and an additional encryption/authentication layer between HTTP and TCP are used
IBAN (International Bank Account Number)	International standard for identifying bank accounts across national borders.
IDABC (Interoperable Delivery of European Government Services to public Administrations, Businesses and Citizens)	IDABC stands for Interoperable Delivery of European e-Government Services to public Administrations, Businesses and Citizens. It uses the opportunities offered by information and communication technologies to encourage and support the delivery of cross-border public sector services to citizens and enterprises in Europe, to improve efficiency and collaboration between European public administrations and to contribute to making Europe an attractive place to live, work and invest.
IPCIS	Interoperability Platform for the Commission's Information Systems.
ISO 20022	ISO 20022 is the international standard that defines the ISO platform for the development of message standards. Its business modelling approach allows users and developers to represent financial business processes and underlying transactions in a formal but syntax-independent notation. These business transaction models are the "real" business standards. They can be converted into physical messages in the desired syntax. The first application of ISO 20022 is in the development of UNIFI message, the core messages that support the introduction of SEPA.
JAR (Java Archive)	Container used for aggregating many files into one. It is generally used to distribute Java classes and associated metadata

Term	Description
JDBC	Java Data Base Connectivity is a Java programming interface to access to data base.
JMS (Java Message Service)	Messaging standard that allows application components based on the Java 2 Platform, Enterprise Edition (J2EE) to create, send, receive, and read messages.
Kerberos	Network authentication protocol designed to provide strong authentication for client/server applications by using secret-key cryptography
LAN (Local Area Network)	Computer network covering a small geographic area, like a home, office, or groups of buildings e.g. a school. The defining characteristics of LANs, in contrast to Wide Area Networks (WANs), include their much higher data transfer rates, smaller geographic range, and lack of a need for leased telecommunication lines.
MITYC (Ministerio de Industria Turismo y Comercio)	Spanish Ministry of Industry, Tourism and Commerce.
MoU (Memorandum of Understanding)	Legal document describing a bilateral or multilateral agreement between parties.
NES (Northern European Subset)	As part of the Northern European cooperation on e-Commerce and e-Procurement, representatives from Denmark, Sweden, Norway, Finland, UK and Iceland have set up a working group for developing a Northern European subset of UBL 2.0 documents. The main focus of NES is to define the semantic use of UBL 2.0 as applied to specific business processes. To achieve this the UBL 2.0 standard is restricted on additional levels by using profiles that apply to defined business situations and the use of individual elements is specifically described to avoid conflicting interpretation.
OAG (Open Applications Group)	Non-profit consortium of enterprise application software developers that creates common standards for the integration of enterprise business applications.
OASIS (Organization for the Advancement of Structured Information Standards)	Non-profit consortium that drives the development, convergence and adoption of open standards for the global information society.
OCI (Open Catalog Interface)	Open and standardised interface that ensures the trouble-free communication between a SAP Internet-based procurement system and an external catalogue.
OCR (Optical Character)	OCR is the recognition of printed or written text characters by a computer. This involves photo scanning of the text character-by-

Term	Description
Recognition)	character, analysis of the scanned-in image, and then translation of the character image into character codes commonly used in data processing.
OIA	Operational Initiating Agent.
OIOUBL	A customization for Danish business requirements of the international UBL 2.0 standard from OASIS.
Open Source	Open source software is available to the general public with low or non-existing intellectual property restrictions. This allows users to create software content through incremental individual effort or through collaboration.
Oracle	Company chosen by the European Commission to provide Database and storage applications.
Oracle AQ	Oracle Advanced Queuing is a message oriented middleware product from Oracle company.
OTP (One Time Password)	Password that can only be used once and continually changes in order to make it more difficult to gain unauthorized access to restricted resources.
PDF (Portable Document Format)	Data Format for representing documents in a manner that is independent of the original application software, hardware, and operating system used to create those documents.
PE-ACH (Pan-European Automated Clearing House)	Automated clearing house designed to facilitate SEPA compliant cross-border payments within the Euro zone.
PEDD (Pan-European Direct Debit)	Instrument governed by the rules of the PEDD scheme for making payments in euro throughout the SEPA from bank accounts allowed supporting Direct Debits.
PEGSCO (Pan-European eGovernment Services Committee)	Management committee chaired by the European Commission. Its members are appointed by the EU Member States, with representatives from the Candidate Countries and EEA countries participating as observers. The PEGSCO reviews the IDABC Work Programme before its adoption by the European Commission and oversees its implementation. It has a strong policy-oriented role and contributes to setting the overall strategic direction within the IDABC legal framework.
PKI (Public Key Infrastructure)	Framework for creating a secure method for exchanging information based on public key cryptography. The foundation of a PKI is the certificate authority (CA), which issues digital certificates that authenticate the identity of organizations and individuals over a public system such as the Internet. The certificates are also used to sign messages in order to ensure that messages have not been tampered with
PO (Purchase	Commercial document issued by a buyer to a seller , indicating the

Term	Description
Order)	type, quantities and agreed prices for products or services that the seller will provide to the buyer.
Pre-payment invoice	Document to pay amounts for goods in advance. These amounts will be subtracted from the final invoice.
Prieuro	Service for same-day value payments in order to achieve a level of service at least on a par with that of the best-performing national markets today.
Pro-forma Invoice	Document serving as a preliminary invoice, containing on the whole the same information as the final invoice, but not actually claiming payment. Pro-forma invoices are typically used in a cross-border shipment for customs purposes.
PSD (Directive on Payment Services)	The Directive on Payment Services provides the legal foundation for the creation of an EU-wide single market for payments. The PSD aims at establishing a modern and comprehensive set of rules applicable to all payment services in the European Union. The Directive provides the necessary legal platform for the Single Euro Payments Area (SEPA).
Public Administration Back-office (or Back-end)	System that keeps record of the company's purchase transactions, in this context also referred to as "accounts payable" (AP)
Qualified Electronic Signature	Advanced electronic signature based on a qualified certificate and created by a secure signature creation device
Rational RequisitePro	Integrated tool for managing the requirements created during the software engineering process.
RFID (Radio-frequency identification)	Data collection technology that uses electronic tags for storing data. Like bar codes RFID tags used to identify items but they offer the advantage that they do not require line of sight and can be embedded within packages.
RFP (Request For Proposal)	Invitation for suppliers, through a bidding process, to submit a proposal on a specific commodity or service.
RUP (Rational Unified Process)	The Rational Unified Process is a System Development Lifecycle methodology originally developed by Rational Software (today part of IBM). RUP@EC is a customised version of the RUP® (IBM Rational Unified Process®) methodology for use within the Commission. This first version of this methodology consists of customised methodology disciplines, Eurolook templates, etc. and fully embeds the provisions laid down in the IT Governance communication, the Information System Security Policy, the Commission Enterprise Architecture Framework and includes guidelines for Data Protection.
SAML (Security Assertion Markup)	XML-based framework for ensuring that transmitted communications are secure. SAML defines mechanisms to exchange authentication, authorization and non repudiation

Term	Description
Language)	information, allowing single sign on capabilities for Web services
Scanning agencies	Companies that handle the conversion of paper invoices to a digitized format.
SEPA (Single Euro Payments Area)	The Single Euro Payments Area is an initiative of the European banking industry, the European Payments Council or EPC, aiming at making all electronic payments across the euro area – e.g. credit card, debit card, bank transfer or direct debit – as easy as domestic payments within one country are now. The proposed Payment Services Directive (PSD) is intended to provide the necessary legal framework for SEPA, as well as for better payments in all EU countries.
SFTI (Single Face To Industry)	Swedish initiative to establish a single set of specifications for the interchange of electronic commercial transactions with all public operators.
SLAs	Service Level Agreements.
SME	Small and Medium Enterprise.
SMPG (Securities Market Practice Group)	Tactical initiative sponsored by SWIFT focused on enhancing the current securities industry practices.
SMTP (Simple Mail Transfer Protocol)	Protocol for sending e-mail messages.
SOA (Service Oriented Architecture)	Architectural style where existing or new functionalities are accessible by means of services, without knowing the underlying technology
SOAP (Simple Object Access Protocol)	Lightweight XML-based messaging protocol used to encode the information in Web service request and response messages before sending them over a network
SSL (Secure Sockets Layer)	Protocol for transmitting private information via the Internet by means of a cryptographic system
SSO (Single Sign-On)	The ability for users to log on to a network and be able to access all authorized resources within the enterprise or at different Web sites on the Internet. A single sign-on program accepts the user's name and password and automatically logs on to all appropriate servers.
Supplier Back-office (or Back-end)	System that keeps record of the company's sales transactions, in this context also referred to as "accounts receivable" (AR)
Standard	Document, established by consensus and approved by a recognized body, that provides, for common and repeated use, rules guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context.

Term	Description
Standardization	Activity of establishing, with regard to actual or potential problems, provisions for common and repeated use, aimed at the achievement of the optimum degree of order in a given context.
SWIFT (Society for Worldwide Interbank Financial Telecommunication)	Global provider of secure financial messaging services established by and for the financial industry.
SWIFTNet TSU (Trade Services Utility)	Interbank centralized data matching and workflow engine designed to support matching of trade-related transaction data.
System Integrator	Individual or company that specializes in building complete computer systems by putting together off-the-shelf hardware and software components from different vendors.
Tax Exemption	Exemption from all or certain taxes of a state or nation in which part of the taxes that would normally be collected from an individual or an organization are instead foregone.
TEAPPS XML	Standard for e-Invoicing developed by TietoEnator.
TIFF (Tagged Image File Format)	File format for storing images. The TIFF format is widely supported by image-manipulation applications, by publishing and page layout applications, by scanning, faxing, word processing, optical character recognition and other applications.
UBL (Universal Business Language)	UBL is a library of standard electronic XML business documents such as purchase orders and Invoices. UBL was developed by an OASIS Technical Committee with participation from a variety of industry data standards organizations. UBL is designed to plug directly into existing business, legal, auditing, and records management practices. It is designed to eliminate the re-keying of data in existing fax- and paper-based business correspondence and provide an entry point into electronic commerce for small and medium-sized businesses. UBL version 2.0 was approved as an OASIS Committee Specification in October 2006 and has been publicly released. OASIS is currently working with UN/CEFACT to converge the UBL Components Library with the emerging UN/CEFACT Core Component library.
UDDI (Universal Description, Discovery and Integration)	Platform-independent, XML-based registry for businesses worldwide to list themselves on the Internet. UDDI is an open industry initiative, sponsored by OASIS.
UML (Unified Modelling Language)	<p>In the field of software engineering, the UML is a standardized specification language for object modelling. UML is a general-purpose modelling language that includes a graphical notation used to create an abstract model of a system, referred to as a UML model.</p> <p>UML is also used for business process modelling, systems</p>

Term	Description
	engineering modelling and representing organizational structures.
UMM (UN/CEFACT's Modeling Methodology)	Modelling standard for describing inter-organizational business processes from a global perspective. UMM enables to capture business knowledge independent of the underlying implementation technology, like Web Services or ebXML.
UN/CEFACT (The United Nations Centre for Trade Facilitation and Electronic Business)	UN/CEFACT, a United Nations body, encourages close collaboration between governments and private business to secure the interoperability for the exchange of information between the public and private sector. UN/CEFACT has developed a.o. UN/EDIFACT, an international standard for electronic data interchange (EDI), a first version of the Cross Industry (electronic) Invoice and provides recommendations for trade facilitation.
UN/EDIFACT (United Nations/Electronic Data Interchange For Administration, Commerce, and Transport)	Set of internationally agreed standards, directories and guidelines for the electronic interchange of structured data, and in particular that related to trade in goods and services between independent, computerized information systems.
UNeDocs (United Nations electronic Trade Documents)	Project that aims to become the world electronic trade document standard under UN auspices and will be developed into an official UN/CEFACT standard
UNSPSC (United Nations Standard Products and Services Code)	Coding system to classify both products and services for use throughout the global e-Commerce marketplace.
Use Case	Technique used in software and systems engineering to capture the functional requirements of a system. A use case is a description of a system's behaviour as it responds to a request that originates from outside of that system.
VAN (Value Added Network)	Private network provider that is hired by a company to facilitate electronic data interchange (EDI) or provide other network services
VAT (Value Added Tax)	General, broadly based consumption tax assessed on the value added to goods and services destined for use or consumption.
W3C (World Wide Web Consortium)	International consortium where organizations, a full-time staff, and the public work together to develop Web standards. W3C develops protocols and guidelines to ensure long-term growth for the Web.
WCO (World Customs Organization)	Intergovernmental organisation that develops standards and provides technical support for the harmonization of procedures governing the movement of people and commodities.
Web portal	Web portals provide a single point of access to a variety of content and core services. Ideally they offer a single sign-on point and

Term	Description
	present a managed online experience.
WS (Web Service)	Software system designed to support interoperable Machine to Machine interactions over a network. It is frequently just Web APIs that can be accessed over a network, such as the Internet, and executed on a remote system hosting the requested services.
WSDL (Web Services Description Language)	XML-based language for describing Web services and how to access them.
WS-Security (Web Services Security).	Communications protocol for applying security to Web Services. The protocol contains specifications on how integrity and confidentiality can be enforced on Web Services messaging.
X.509	Cryptographic standard for public key infrastructure (PKI). X.509 specifies, amongst other things, standard formats for public key certificates and a certification path validation algorithm
XAdES (XML Advanced Electronic Signatures)	Set of extensions to the XML-DSig recommendation into the domain of non-repudiation by defining XML formats for advanced electronic signatures that remain valid over long periods and are compliant with the European Directive 1999/93/EC.
XAdES-X-L	Electronic signatures standard which adds certification path data and revocation status data to XAdES.
XForms	XML-based format for the specification of a data processing model for XML data and user interface for the XML data, such as web forms.
XML (Extensible Markup Language)	XML is the standard messaging format for business communication, allowing companies to connect their business systems with those of customers and partners using the existing Internet infrastructure. Similar to HTML, XML uses tags (words bracketed by '<' and '>') and attributes (of the form name="value") to help place structured data into text files. XML is different from HTML in that it is a meta-language (a language for describing languages) and, therefore, does not define specific tags and attributes.
XSD (XML Schema Definition)	XML-based language used to describe and control the structure, content and semantics of XML documents.
XSL (eXtensible Stylesheet Language)	Family of transformation languages which allows describing how files encoded in the XML standard are to be formatted or transformed.
XSLT (XSL Transformations)	XML language for transforming XML documents.

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13. APPENDIX

13.1. Business Annex

13.1.1. Introduction to the Core Components Technical Specification

13.1.1.1. Core Components

A Core Component is a semantic building block used for all aspects of data and information modelling and exchange. The official language for UN/CEFACT CCs is English.

13.1.1.2. Core Components Technical Specification (CCTS)

The Core Components Technical Specification is a guideline suited for defining data models and for creating data exchange standards for information flows amongst and between enterprises, governmental agencies, and/or other organizations in an open, global environment. This specification intends to be the basis for international cross-industry standards development. This is a syntax-neutral semantic based methodology. The CCTS data models are independent of any specific technology platform, operating system, or native language they are being employed on. The CC naming and definition conventions, used in the CCTS are derived from the guidelines and principles described in ISO 11179⁵⁴ Part 4 – Definitions and ISO 11179 Part 5 – Naming and Identification Principles. It should be noted that the core components specification is also part of the (larger) ebXML framework (presented next).

13.1.1.3. Core Components Library (CCL)

The aggregation of all UN/CEFACT compliant Core Components is the UN/CEFACT CCL. The current UN/CEFACT CCL represents the work of various organizations working in a joint endeavour to develop and publish semantically correct information. It can be accessed in http://www.unece.org/cefact/codesfortrade/codes_index.htm

UN/CEFACT maintains its Core Components Library in an ebXML compliant registry and makes its contents available to the entire core component community. It is strongly recommended that all users of this specification submit their components for inclusion in the UN/CEFACT Core Components Library: <http://www.untmg.org/>.

13.1.1.4. Core Components XML Naming and Design Rules (XML NDR)

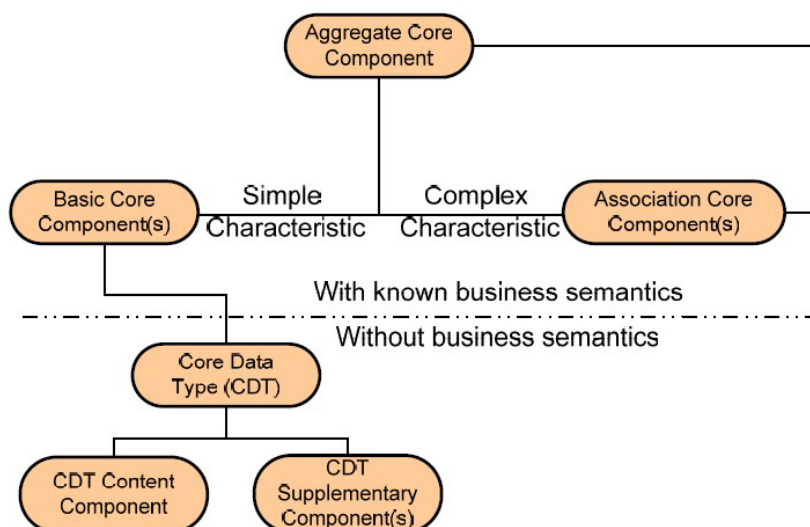
To enable the aggregation of Core Components into semantically correct XML messages, UN/CEFACT maintains the Core Components XML Naming and Design Rules⁵⁵ (XML NDR) Technical Specification specifies rules and guidelines to be applied when developing XML schemas and instantiating XML data (in accordance with ebXML). The current XML NDR version 2.0 (17 February 2006) is available in:

http://www.uncefactforum.org/ATG/atg_news_download.htm

⁵⁴ ISO/IEC 11179, Information Technology standard for Metadata registries (MDR).

⁵⁵ The UN/CEFACT Applied Technology Group (ATG) is responsible for the development and maintenance of XML syntax solutions to support the UN/CEFACT work program.

There are 3 categories of Core Components: Aggregate, Basic and Association. The term core component is used as a generic term that encompasses all of them and also their properties.



13.1.1.5. Aggregate Core Component (ACC)

An Aggregate Core Component is a collection of related pieces of business information that together convey a distinct real-world object with a specific business meaning, independent of any specific business context. Expressed in modelling terms, it is the representation of an object class

For example, the concepts of Party, Purchase Order, and Address are clearly three different concepts, and each is modelled as a separate Aggregate Core Component.

13.1.1.6. Basic Core Component (BCC)

BCC Property is reusable across object classes, but once it has been given the object class of a parent ACC, it becomes a BCC that is unique to the object class to which it is assigned. In data modelling terms, a BCC is the equivalent of a traditional entity attribute or class property. An Aggregate Core Component has at least one, and possibly more, Basic Core Components.

13.1.1.7. Association Core Component (ACC)

A Core Component constitutes a complex business characteristic of a specific Aggregate Core Component. An ASCC property consists of a property term plus a representation term. The BCC property represents a generic reusable data element independent of an object class.

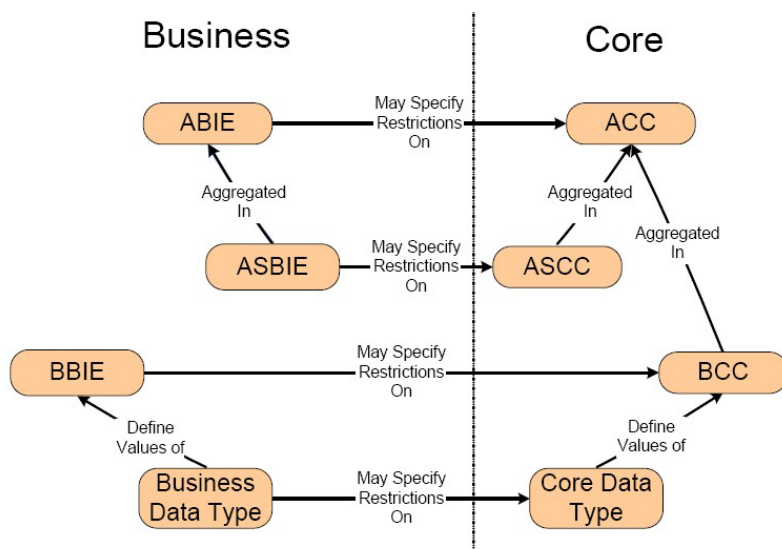
13.1.1.8. Core Data Type

A core data type defines the set of valid values that can be used for a particular BCC property. CDTs form the bedrock for interoperability of CCs, all CDTs are reviewed and approved at the point of use as part of the overall CCTS standards stack Core Data Types differ from primitive data types because they carry relevant characteristics, which further define and refine the CDT value domain. The Core Data Type library currently consists of 22 discrete types such as Amount. Type, Binary Object. Type, Code. Type, Date. CDTs do not have business semantics. A CDT consists of one and only one content

component plus one or more supplementary components) giving an essential extra definition to the CDT content component.

13.1.1.9. From Core Components to Business Components

Core Components (CCs) are concepts without a business context from which Business Information Entities (BIE) can be created. BIEs are created by introducing a Business Context to the CCs. Business Information Entities (BIEs) are Core Components within a particular business context. Therefore, Core Components are the conceptual models used to define Business Information Entities (BIEs). BIEs are the logical data model of a business context.



13.1.2. Aggregate Business Information Entity (ABIE)

An ABIE is an ACC in a specific business context. However, its content model may reflect restrictions on the content model of the ACC through:

- Restrictions on the cardinality of the BCCs and ASCCs
- Use and non-use of individual BCCs and ASCCs
- Qualification of individual ASCC and BCC properties
- Restrictions on the content model of an associated ACC for an ASCC
- Restrictions on the data type of the BCC
- Restrictions on the concept or conceptual domain of the ASCC or BCC property as reflected in the definition and usage rules.

13.1.2.1. Basic Business Information Entity (BBIE)

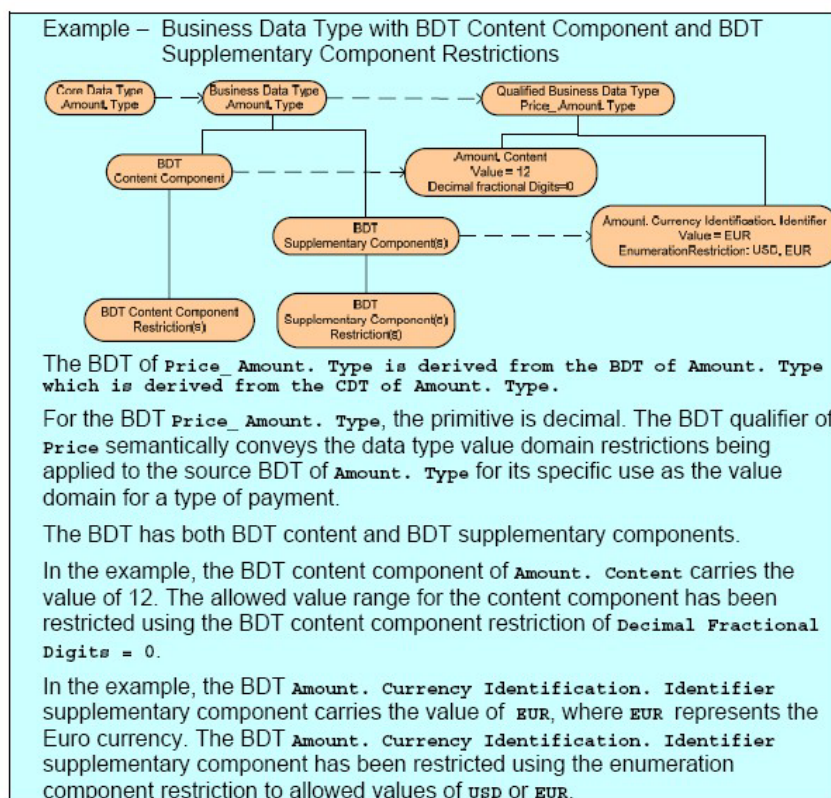
A BBIE is a BCC used in a specific business context. Multiple BBIEs can be derived from a single BCC. Each BBIE Property has a Business Data Type (BDT) that describes its value domain.

13.1.2.2. Association Business Information Entity (ASBIE)

An ASBIE is an ASCC on a business context.

13.1.2.3. Business Data Type (BDT)

For every approved CDT, a corresponding unrestricted business data type will be created. This business data type will have no restrictions of the set of values of its source CDT's content component or supplementary components. Additional business data types may also be created that include restrictions of the set of values of its source CDT's content component and/or Supplementary Component(s).



13.1.2.4. Conclusions on Core Components

The Core Components Library can be understood as the collection of UN/CEFACT Permissible Representation Terms, Core Data Types, and Business Data Types. Together with a Core Component Message Assembly (CCMA) methodology, expanding on the assembly principles contained in the CCTS and providing specific methodology for assembling higher level business information entities (BIEs) for the creation of electronic messages.

The CCL is dynamic but changes must be coordinated with UN/CEFACT

For more information on the CCL:

http://www.unece.org/cefact/forum_grps/tmg/CCTS-PublicReview.pdf

<https://www.sdn.sap.com/irj/sdn/go/portal/prtroot/docs/library/uuid/500db5c9-0e01-0010-81aa-d73cdd30df9a>

13.1.2.5. Core Components Specification Open Development Process (ODP)

UN/CEFACT uses its Open Development Process (ODP) for the evolution of the Core Components Technical Specifications. According to UN/CEFACT “the most unique

feature of this process is the use of iterative refinement and participation through the Internet, to build international consensus.” For more information:

www.unece.org/cefact/cf_plenary/plenary05/cf_05_05e.pdf

The ODP specifies the following steps as the lifecycle of a new UN/CEFACT specification:

Step 1. Proposing a new specification

Step 2. Compiling a requirements list

Step 3. Writing the first working draft

Step 4. Refining the first working draft

Step 5. Public review

- 2001 First public review period ended
- 2002 Second public review period ended
- 2005 CCTS version 3 is sent for public review (comment period already ended). This version is available in:

http://www.unece.org/cefact/forum_grps/tmg/CCTS-PublicReview.pdf

Step 6. Implementation verification

Step 7. Final Technical Specification release

Step 8. Maintenance

13.1.3. ebXML terminology

13.1.3.1. Registry

A Registry is a central server that stores a variety of data necessary to make ebXML work. Amongst the information a Registry makes available in XML form are: Business Process & Information Meta Models, Core Library, Collaboration Protocol Profiles, and Business Library. Basically, when a business wants to start an ebXML relationship with another business, it queries a Registry in order to locate a suitable partner and to find information about requirements for dealing with that partner.

13.1.3.2. Business Signal Definition (BSD):

A BSD can be best understood as an object that is transmitted back to the activity that initiated the transfer so that the state of a Business Collaboration can be known at run-time.

13.1.3.3. Collaboration Protocol Profile (CPP)

A CPP is a profile filed with a Registry by a business wishing to engage in ebXML transactions. The CPP will specify some Business Processes of the business, as well as its supported Business Service Interfaces.

13.1.3.4. Business Messages

The Business Messages are the actual information communicated as part of a business transaction. A message will contain multiple layers. At the outside layer, an actual communication protocol must be used (such as HTTP or SMTP). SOAP is an ebXML recommendation as an envelope for a message "payload." Other layers may deal with

encryption or authentication. Again, ebXML does not describe the XML payload to be used. It only describes how to construct it.

13.1.3.5. Collaboration Protocol Agreement (CPA)

In essence, a CPA is a contract between two or more businesses that can be derived automatically from the CPPs of the respective companies. If a CPP says "I *can* do X," a CPA says "We *will* do X together."

13.1.3.6. UN/CEFACT Modelling Methodology UMM

UMM is a useful tool in a development stage of an ebXML project for establishing a model of the processes involved. This model aims at being a facilitator in the understanding of the processes and business information flows, as well as further analysis and development of an ebXML project.

13.1.4. Introduction to the Single Euro Payment Area (SEPA)

The European Payments Council (EPC) was established in June 2002 as the platform mandated by the European banking industry, represented by the European Credit Sector Associations (ECSAs), to create the architecture, instruments and processes for a Single Euro Payment Area (SEPA). This development was the result of the SEPA Workshop, organised in March 2002 in Brussels by the ECSAs and some 40 European banks. The EPC has committed itself to establishing SEPA by 2010 with integrated payment infrastructures and payment products. The recently adopted Payment Services (PSD) Directive underpins this industry initiative. One main objective of SEPA is the use of the same instruments all over Europe (e.g. simplification of cash management, reduced cost of payments...) and a unique multi-message XML standard for the whole transaction life-cycle including E-Invoicing. ECB report states that 'a real SEPA' will have been achieved for citizens in the euro area "when they can make payments throughout the whole area from a single bank account, using a single set of payment instruments, as easily and safely as in the national context today." These would include the already established Credeuro (using IBAN), Prieuro (a priority payment scheme), a Pan-European Direct Debit (PEDD) and Cards. The ECB report notes that, early in 2004, the Eurosystem received signals from several bankers that support for the SEPA project and its objective had weakened. "According to these critics, the SEPA goal of a domestic payment area would have to be revisited in view of the transition costs," the report states. "Some bankers wished to limit the project to cross-border payments in order to avoid having to change national payment systems into a pan-European system." The ECB's response was unequivocal: "While the Eurosystem is open to a discussion of implementation problems, it cannot compromise on the final objective. Payment systems have to conform to the European people's desire for a single currency. If the EPC proves unable to deliver on the SEPA, alternative solutions will have to be explored. Therefore, in order to ensure European citizens the full benefits of the SEPA, the EPC is invited to reconfirm its commitment to the SEPA White Paper and to present a convincing project plan with realistic milestones."

http://ec.europa.eu/enterprise/ict/policy/standards/einvoicing_en.htm#top

13.2. Technical Annex

13.2.1. XML the portable representation of data

A well-formed XML guarantees some minimum standards for data quality:

1. Firstly the XML document has to contain one or more elements.
2. There is exactly one element, called the root, or document element, no part of which appears in the content of any other element. For all other elements, if the start-tag is in the content of another element, the end-tag is in the content of the same element. More simply stated, the elements, delimited by start- and end-tags, nest properly within each other.
3. It meets all the well-formed-ness constraints given in the W3 specification.
4. Each of the parsed entities which are referenced directly or indirectly within the document is well-formed.

However a well-formed XML document is only syntactically correct. An XML document is valid if it has an associated document type declaration (DTD) or XML schema definition (XSD) and if the document complies with the constraints expressed in it. E.g. the attribute must have been declared; the value must be of the type declared for it. The bases for the XML schemas are the World Wide Web Consortium (W3C) recommendations:

W3C XML Schema Definition Language (XSDL) 1.1 Part 1: Structures

30 August 2007, Version 1.1 - (Royalty-Free Commitments)

XML Schema 1.1 Part 2: Datatypes

17 February 2006, Paul V. Biron, David Peterson, C. M. Sperberg-McQueen, Ashok Malhotra - (Royalty-Free Commitments)

13.2.2. A bit more on XML Data Types

In October 2000 the World Wide Web Consortium (W3C) published a Candidate Recommendation for the datatyping of XML elements and attributes defined within XML Schemas (<http://www.w3.org/TR/xmlschema-2/>). This specification defines two main areas of data types:

- Primitive data types (string, binary, boolean, float, double, decimal, timeDuration, recurringDuration, uriReference, QName, ID, IDREF, ENTITY)⁵⁶
- Derived datatypes (CDATA, token, language, IDREFS, ENTITIES, NMTOKEN, NMTOKENS, Name, NCName, NOTATION, integer, nonPositiveInteger, nonNegativeInteger, positiveInteger, negativeInteger, long, int, short, byte, unsignedLong, unsignedInt, unsignedShort, unsignedByte, timeInstant, time, timePeriod, date, month, year, century, recurringDate, recurringDay)
- User-derived datatypes: In XML users to create complex datatypes that are composed of sets of primitive datatypes. User-derived classes can include enumerated lists of values, which can include values of different datatypes. For the string data type users can define patterns that the string must conform to. For numeric values maximum and minimum values can be specified (inclusively or

exclusively), as can scale and precision. Booleans can be represented as true or 0 and false or 1. Dates and time can be expressed using various ISO 8601-based formats. Datatypes can also be derived as the union of two other datatypes, as lists of values conforming to another data type, or as restrictions on an existing data type.