Mid-Term Report
of the European Commission
Expert Group on e-Invoicing

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Dislaimer
All members of the Expert Group contributed as independent experts not representing their governments or organisations. The views expressed in this report are the views of the Expert Group and do not necessarily reflect the views of the European Commission or of the states and the organisations for which the members of the group work.

Executive Summary

1. E-Invoicing has great potential but is being held back by a number of barriers to the achievement of mass adoption. The Expert Group commenced its work in February 2008 and this Mid-Term Report sets out a number of initial recommendations to remove or reduce these barriers. Further work is required to elaborate these proposals – input would be welcome. The expected deliverables of the Group are summarised and will be completed by the end of 2009.

2. The first chapter records that there are many instances where progress has been made and there are a large number of success stories. The key benefits of e-Invoicing are reviewed ranging from efficiency arguments, cost benefits, the green agenda, improved supply chains and the liberation of resources for more productive work.

3. The Report sets out a vision for the European e-Invoicing environment, in which trading parties can inter-operate in an open ecosystem based on harmonised legal provisions and greater standardisation. The environment should in particular be attractive to small and medium-sized enterprises and offer the market a competitive array of service provider and other solutions. Public administrations should take a lead in helping to create the environment.

4. Key priorities for the Expert Group in 2009 are to promote the communication of the benefits and clarify the requirements, to support legal harmonisation, encourage interoperability and promote standardisation. A major barrier to adoption is the commitment of senior enterprise managements and the creation for them of a convincing business case.

5. The business requirements are listed and described as the need for a favourable cost/benefit, ease of use, reduction of manual work, harmonisation and clarity of legal and compliance requirements, the communication and sharing of best practice, trustworthiness and data protection, and the furtherance of competition among service providers.

6. The legal framework currently represents a barrier to adoption and for Single Market integration. The Expert Group proposes that there is complete equality of treatment of paper and electronic invoices and that the legal provisions be fully harmonised across all Member States of the European Union. This will require simplification and clarification of current legislation and it is proposed that consideration be given to the issuance of a European e-Invoicing Recommendation containing a Code of Practice for the guidance of trading parties, their service providers and tax authorities. Other legal issues are also under review and could also be dealt with by means of the Recommendation.

7. To achieve network effects encouragement should be given to the development of a network model which creates interoperability, a choice of services, and wide reach. Today's service providers often operate in 'silos' or so-called three-corner models, although various connectivity initiatives are being pursued and some four-corner models exist. But more is required, as without a more interoperable environment SMEs will have to make an exponentially growing number of connections to their trading partners; this is unsustainable. Collaboration is required to establish common rules, standards and practices. Stakeholder forums would assist this process. The Expert Group is still deliberating as to how to encourage such developments and is considering how a Framework for Interoperability could be created and what it should contain.

8. The Expert Group defines e-Invoice content standards as being "the actual data set that constitutes the e-Invoice message and business header". The long-term e-Invoice landscape needs to contain e-Invoice content standards, but in fewer formats and expressions than exist today as this is a barrier for mass adoption.

   However, it seems unlikely that the current e-Invoice landscape will see a common e-Invoice content standardised syntax in the short term, but having one semantic data model for e-Invoice content standards is important. It would be left to the market to utilise the data model and express it in different syntaxes and methodologies, but adhering to one semantic data model will facilitate interoperability. The Expert Group recommends and encourages UN/CEFACT and ISO as two global standards organisations to collaborate to develop an e-Invoice content standard that satisfies the overall business requirements. The standards area is not a showstopper but progress towards greater standardisation would be helpful.

9. In the Commission Decision dated 31 October 2007 setting out the tasks, membership and procedures for the Expert Group on e-Invoicing, the following reference is made to the proposed 'Framework' to be delivered by the Group: “The European e-Invoicing Framework is to establish a common conceptual structure, including business requirements and standard(s), and propose solutions supporting the provision of e-Invoicing services in an open and interoperable manner across Europe.” It is clearly important to develop a definition and clarify the scope of this key deliverable, so as to set expectations and ensure a common approach to its completion among members of the Expert group and a wider audience.

10. Based on the foregoing, the following recommendations for the content of the European e-Invoicing Framework are proposed:

    - The Framework will be primarily a set of actionable recommendations and proposals, for which the support of others will be sought.
    - It will be organised as a series of layers or pillars that need to be addressed and which all interrelate on a coherent basis.
    - It will not itself be a Scheme or contractual framework for others to formally adhere to
    - It will include the elements identified and set out below:

        - Definition and scope of the e-Invoicing Framework
        - An overall conceptual structure or vision
        - Business requirements for all market segments
        - Standards recommendations
        - The proposed network model, including the proposal for a framework for interoperability.
        - Legal and regulatory proposals
        - Recommendations for a communications plan.
        - Set out a Road-map for implementation
        - Glossary of terms
        - Others to be defined

1 Introduction and vision

A rapid migration from inefficient paper invoicing has been on the policy agenda of the European Institutions and a number of Member States for some years. Many enterprises have invested in the dematerialisation of their procurement processes and their supply chains to improve efficiency and cost-effectiveness. But enterprises seeking such productivity improvements and the opportunity to provide better services to their customers are still finding that the Single Market is not functioning as well as it could be.

Existing obstacles to pan-European electronic invoicing are not being dismantled fast enough, and the move to e-invoicing is often slowed down by regulatory demands that have not been applied to the much less secure paper invoicing method. As long as this is the case invoicing will not achieve mass adoption on a European scale and the benefits of a large unified EU market will not be fully reaped by enterprises of all sizes. Mass adoption of electronic data interchange between all links in the supply chain and the financial logistics chain supporting it (including e.g. e-Procurement, e-Invoicing and e-Payments) has now become a highly desirable objective

The Expert Group on e-Invoicing was appointed by the European Commission in December 2007 and started its work in February 2008 with the following tasks and mandate:

- Identify shortcomings in the regulatory framework for e-Invoicing
- Identify and validate e-Invoicing business requirements
- Identify and validate relevant e-Invoicing data elements and linkages
- Propose responsibilities to be assigned to standardisation bodies and a time schedule for the development of common standard(s).
- Propose the European e-Invoicing Framework to establish a common conceptual structure, including business requirements, standards and solutions

The Group has worked very actively and convened for a total of 10 days in physical meetings and conducted innumerable telephone conferences. It has become apparent that only extensive discussions and the related preparatory work will lead to the sharing of experience, a convergence of opinions and the creation of the necessary consensus on the way forward. Major progress has been made so far in this respect but in the remainder of its term the Group still needs to identify and communicate further steps to help the market move decisively and more rapidly into e-Invoicing.

The work of the Expert Group has been divided into three strands, with sub-groups for Business Requirements, Legal and Regulatory issues, and Network and Standards. In addition to the attendance of Expert Group Members a large number of additional experts have been invited to specific meetings to share views and perspectives.

1.1 Understanding the fundamental reasons for e-Invoicing

In order to introduce the required scale of change in commercial practices across Europe, it is important to continue to analyse and communicate the benefits of innovation. Benefits will accrue to some 24 million enterprises including large corporates and small and medium-sized enterprises, and in time to all Internet users among EU citizens.

The key benefits of e-Invoicing have been identified as:

- Across Europe, over EUR 200 billion of annual cost savings from the electronic processing of business-to-business invoicing alone (not to mention the enormous potential of business-to-consumer e-Invoicing).
- The potential to reduce CO^2 emissions by up to 3 million tons per year.
- Liberation of resources for more productive work as the need for increased productivity is accentuated by demographic trends (ageing population and reduced work-force).
- Electronic invoicing is not only a goal in itself – but a step towards digitizing further document layers in supply chain and procurement processes generally – as well as in promoting innovation.
- Electronic invoicing could also support the migration to SEPA (Single Euro Payments Area) based on further payments automation.
- Electronic invoicing has the potential to reduce fraudulent invoicing by improving VAT (Value-Added Tax) controls and allowing the use of up to date e-audit techniques, which themselves need promotion and wider adoption.
- Legal harmonisation will increase possibilities for skills transfer among Member States (where a person from one Member State can use the same skills in another Member State).
- Even though invoicing may seem a small process within a broader context, it is an essential part of the overall procurement chain and positive developments here will signal an overall trend towards furthering the Single Market.

Many of the above arguments can be considered powerful enough by themselves, but taken together it is clear that rapid mass adoption and migration towards e-Invoicing should receive the highest possible priority among all stakeholders.

1.2 Current progress1

E-Invoicing is growing fast both at a national and global level. Billentis (see footnote 1) estimates that e-Invoicing is achieving rapid growth in 2008 towards 50 % across Europe as a whole. Country penetration varies across the EU from less than 3 % to over 12 %, still a relatively low base but with much potential for growth.

Over 300 service providers are said to be active in Europe as are a number of industry platforms for supply chain integration. Service Providers are increasingly cooperating through 'roaming agreements' and ventures such as the Hub Alliance. Large corporates have rolled out important initiatives often in partnership with a service provider to automate their procurement and accounts payable management. In the Nordic area, in particular, banking led initiatives have complemented those of other service providers, especially to support SME and consumer services through electronic (Internet) banking.

1 For recent information about current E-invoicing activities across Europe, *E-invoicing 2008* published by the Euro Banking Association and Innopay (www.abe-eba.eu; www.innopay.com); *Electronic Invoicing as a 'keystone' in the collaboration between companies, banks and PA* by the Politecnico di Milano (http://131.175.28.103/web/einvoice/einvoice.htm); *Study on the Invoicing Directive* by PriceWaterhouseCoopers (http://ec.europa.eu/taxation_customs/taxation/vat/traders/invoicing_rules/index_en.htm); the Bruno Koch Billentis web-site (www.billentis.com) provide useful facts, figures and analysis; and the Gateway of CEN on e-invoicing (www.e-invoice-gateway.net).

As for the public sector, in Spain e-Invoicing to Public Administration will be mandatory for all suppliers, irrespective of size or turnover, by November 2010. For this purpose, a national structured format called 'Facturae' has been defined in cooperation with the Spanish Banking Association.

The Finnish Government has announced that it will accept only e-invoices from 1 January 2010. All government agencies will be ready to send e-invoices at the latest by end of 2010. It is proposed to use generally market solutions for e-invoicing (standards, network and service providers). The programme is part of the Finnish government's SEPA migration plan.

In Italy, e-Invoicing for the supply of goods and services to the public sector has started to become mandatory under a phased timetable. The Danish government and its suppliers have already acquired substantial experience in the conduct of e-Invoicing, estimating savings to society of upwards of EUR 100 million annually. Other governments are working on similar initiatives, often led by autonomous agencies such as health service providers.

In overall terms it is reasonable to argue that given the time it took to achieve transposition of the Invoicing Directive and for practitioners to respond, progress to date is quite respectable but, of course, so much more can be done.

1.3 The vision

The vision for European E-Invoicing (EEI) should be of an ecosystem where any enterprise or individual can use electronic invoicing as a commonly accepted and trusted business tool with any trading party in Europe.

The EEI ecosystem would ideally be an open environment where current networks and multiple operators interoperate, compete and coexist with other environments where bilateral exchange takes place. It would be an open ecosystem, supporting the exchange of structured e-Invoices between participants and where universal reach would be enabled through ubiquitous and global networking, based primarily on Internet Protocol (IP) networks and related technologies.

Facilitating European mass-market adoption should be the primary objective of the ecosystem's development and, therefore, the needs of SMEs in particular give important guidance for developing the right environment. Faster adoption and trustworthiness in the ecosystem would be more easily achieved if EU governments involved in e-invoicing projects could cooperate with relevant stakeholders, preferably within an overall coordinated environment.

In order for this initiative to succeed, the European community needs full harmonisation and simplification of the legal provisions governing invoicing reflecting a commonly agreed set of business requirements. The legal basis should not be prescriptive of any specific technology. It should embrace the principle of equal treatment of paper and electronic invoices with no distinction between invoicing carried out on a domestic or on a cross-border basis within the EU.

An open ecosystem will allow EU-wide interoperable electronic invoicing and transmission solutions, independent of any single infrastructure or technology. Each user should be addressed using commonly accepted identifiers allowing for portability between service providers. Security of the e-invoice and related data must be provided.

It should support existing international standards and thereby ensure effective, reliable and efficient semantic interoperability between communities of users exchanging e-Invoices and related data. In order to form a common business language and its grammar, methodologies for describing the semantic data model, message workflow, the underlying business processes and the use of a number of syntaxes, are essential.

The end users and, SMEs in particular, require low cost user-friendly solutions and services that can be easily accessed or integrated with internal systems so that additional IT skills and resources do not act as a roadblock to e-invoicing adoption. This is extremely relevant as the entire initiative, especially the work on interoperability and legal harmonisation, will be in vain if users do not find e-invoicing easy to adopt. Users should be able to reuse investments and currently catered for user habits to the maximum degree possible. Access to the ecosystem must not require users to enter into multiple legal agreements with service providers.

The open ecosystem must be sufficiently flexible to evolve, as the market develops, supporting other business documents and processes beyond e-invoicing and integrating with relevant public procurement systems. In this manner, the open European e-Invoicing ecosystem can be fully integrated with international supply chains creating a first class business exchange environment to the benefit of all participants and the European business environment, overall.

It is vital that this vision be aided by crystal clear communications of requirements by tax authorities and other stakeholders and by a process of education and training. It should lead to e-invoicing being the default option and dominant invoicing modality in the period 2012–2015.

It will, of course, take time to realise all these elements on a European-wide scale. In the meantime it is essential to move forward with small incremental steps and to see the growth of solutions in industry sectors, in the public sector and in local markets.

1.4 Progress to be made by the Expert Group in key areas

The most important aspect now is to create a very clear mindset: 'Paper invoices have no future'. When this reality is taken on board, individuals and organisations will start to take real action in relation to their trading partners and also turn to competing service providers for improved concepts and to regulators for faster harmonisation of rules. The Expert Group sees the following as its key priorities in 2009:

1. Promote the communication of the benefits and market requirements: If the fundamental reasons for rapid adoption are well communicated it will be easier for invoice receivers to demand electronic invoices and for invoice senders to migrate away from more costly paper invoicing. Users need to be well supported by service providers and solutions of all kinds, which should make available attractive value propositions based on competition. Business requirements should be well articulated and fully understood. In the latter area the Expert Group will continue to refine its initial proposals.

   There should be absolute clarity on today's legal requirements for e-Invoicing, spelt out in accessible form by tax authorities and others involved. This is not happening sufficiently at the moment. Any new and evolving requirements should also be well communicated. It is clear that one of the most significant barriers to adoption is the overcoming of a lack of confidence among enterprise managements, who need to be convinced of the benefits, make their business case and be persuaded to take concrete implementation steps. Encouragement to enterprises should also extend to public administrations, who should act to accelerate widespread adoption.

2. Support legal harmonisation: The Expert Group will continue to encourage the direction currently being discussed by the Commission, Member States and other stakeholders – equal treatment of paper and electronic invoices. It is not reasonable to place additional demands on electronic invoices as they generally are more secure and less prone to fraud than paper invoices. The threshold to electronic invoicing must be lowered and be unified especially in the VAT auditing dimension.

3. Encourage interoperability: Much work remains to be done in the network and interoperability domain. Service providers and users alike should actively work together to create an environment where electronic reach to their trading parties is provided on a secure, reliable and easy to use basis. At a minimum, users should be able to operate through one channel with one service agreement or self-administered capability. This concept demands common rules/standards and similar multilateral arrangements as is found in other network environments such as telecommunications and payments.

4. Promote standardisation: At the first meeting of the Expert Group the Commission added its support to the idea that it is important that the EU is at the forefront of global standardisation efforts. This is now a distinct possibility in the e-invoicing and procurement process field as the Expert Group encourages implementation of the UN CEFACT Cross Industry Invoice as a reference semantic model that supports convergence with UBL, the Northern European Sub-set and with ISO20022. The migration towards fewer standards will take time and in the meantime it is necessary for service providers and ERP suppliers to support multiple formats with a reformatting capability as well as assist in the longer term standardisation process.

2 Business requirements

The stakeholders of e-Invoicing are many, mainly trading parties of all sizes, service providers, and tax authorities.

The following business requirements have been gathered and developed with a priority focus on SMEs and their relationships with trading partners such as public authorities, large corporates and consumers. This is because SMEs will eventually drive mass adoption as they work with each other and with larger organisations and their consumer customers. The requirements of other market segments of course have been understood and recognised.

At the same time, the needs of the public sector have also been taken into account, in recognition that in a number of EU countries e-Invoicing has been declared mandatory for dealings with public administrations.

The key business requirements for widely used e-Invoicing are as follows:

2.1 Favourable cost/benefit and ease of use

Cost benefit effectiveness means that the use of e-invoicing reduces the total cost for all participants compared with paper invoicing. Business process analysis has shown that reductions in cost are often higher on the side of the receiver of an invoice compared with the sender. Nevertheless business models and their implementation should be designed so as to provide benefits to all participants (sender, receiver, service provider etc).

The implementation of e-invoicing solutions should provide a favourable return on investment. For SMEs, the investment in IT-infrastructure and IT-skills should have a low threshold and this requirement must be recognised by all service providers and the trading partners of SMEs.

E-invoicing solutions need to be easy to use, search within, maintain, and implement, and must work well both through integration with internal systems and with the systems of trading partners; otherwise they will not be adopted widely by millions of companies and tens of millions of households. Ease of use is thus one further important business requirement beyond pure cost/benefit effectiveness

2.2 Reduction of manual work for sender and receiver and automation of the whole supply chain

One of the main benefits of e-invoicing resides in the reusability of the information contained in its data elements, as received from the parties involved in business processes. In order to achieve this, the invoice has to be created in a structure, which is unambiguously intelligible to machines (and humans). This information structure should become interoperable and able to work for all parties (business, public sector, consumers, and service providers).

A balance as to the mix of data elements that are included in the e-Invoice must be found. As it is not possible to foresee all future data elements that may be required by current and future industries and applications, a flexible and extensible structure appears to be necessary.

The e-invoice should bring high automation rates for users and should have a compatible and standardised way of handling extensions. A standard invoice core with interoperable extensions in standardised formats could be the answer.

The e-invoice core should:

- be clearly defined as what minimum data requirements will constitute a valid VAT invoice based on a commonly respected data dictionary;
- be consistent and recognised in all countries and accommodate both domestic and cross border transactions.

Buyers and suppliers must be able to add to the core data, data specific to their industry or sector practices or as required under their contractual agreements, in accordance with standard rules and under clear implementation guidelines.

For best practice in the area of technical implementation, established standards and best practices providing authenticity, encryption and data integrity should be developed. Solution should support buyers with or without an ERP application, and enable suppliers with or without an automated invoicing application to take part. E-Invoices and related documents need to be humanly readable.

2.3 Harmonisation, simplification and clarity of legal requirements

There should be a fundamentally harmonised and consistent application of a simplified set of legal requirements covering invoicing across the EU, based on equality of treatment of paper and electronic invoices.

Users and service providers need clear laws and regulations that are easy to understand and which set out compliance requirements and how they may be achieved both in a domestic and EU-wide context. Contractual agreements for the usage of e-Invoicing services should be simple to understand from an SME perspective.

Every country should make its legal requirements publicly available on official websites, in order to provide certainty and reduce legal compliance costs. This information should be available in the national language and, ideally, in another commonly used EU business language.

It would be desirable to create an on-line database under the auspices of the European Commission, where interested parties can find detailed and up-to-date information about e-Invoicing related rules applicable in all EU Member states and their practical application.

Cross-border legal compliance is a critical issue for EU enterprises. Current service providers cannot easily guarantee compliance at a pan-European level and thus legal responsibility and exposure falls on users. Users need to have certainty with respect to VAT compliance throughout the Single Market.

A consistent national implementation of the Invoicing Directive (2001/115/EC) and any further evolution of this legislation is a pre-condition for the creation of a common legal framework across Europe. Member State governments should eliminate any national discrepancies with the harmonised provisions of European legislation.

Archiving requirements need to consider the existence of centralised IT infrastructures that may even be outside the EU. Integrity and accessibility of the archives need to be the focus, rather than location. A clear position must be reached as to what constitutes the 'original' (i.e. properly authenticated) invoice data set.

Although legal requirements should not mandate the use of electronic signatures (see below), greater standardisation of electronic signatures would be of value, enabling technical interoperability. Mutual recognition of Certification Authorities (CA) across the EU would also be valuable, making it possible for users of certificates from one Certificate Authority to apply them to all e-Invoices sent out to counterparties within EU Member States.

2.4 Communicating and sharing best practice

All involved parties in the e-Invoicing process should have the means to share their experiences and best practice. This would encourage uptake, clear away uncertainties, and help reduce risk. The European Commission should develop an up to date database, or an e-invoicing portal, to share best practices and national legal rules among users, as referred to above.

EU Governments who have made e-Invoicing mandatory for public administrations should be the first movers in providing legal clarity and awareness to their citizens and enterprises. The European Commission should also receive up to date information on such procurement programmes from the Member States concerned and make it available on a central database or e Invoicing portal.

Training for users and tax authorities is needed and should be available at minimal cost. In the current legal environment, many enterprises consider e-Invoicing to be too costly in terms of adapting internal systems for issuing, receiving and storing invoices and training staff to handle the process changes in accounting and other IT systems. Some tax authorities have no or little experience with the concept of e-Invoicing and have therefore been reluctant to give pre-approvals or advice in relation to e-Invoicing arrangements; this could be corrected.

Solution and service providers should make well structured supporting information (user manuals, legal documentation, implementation guidelines, sample files, responses to frequently asked questions, etc.) available on their websites and in the solution package.

2.5 A competitive market for service providers in all layers

Open competition is a fundamental factor in promoting European-wide e-Invoicing adoption. It must be supported and enhanced through the creation of a level playing field for supporting services that does not hamper the business activity of players of different sizes and from different countries. Proprietary solutions and dependency on a small number of vendors with consequent cost impacts must be avoided.

To realise the vision of an open and interoperable European e-Invoicing ecosystem, current networks and platforms will need to interoperate, compete and co-exist. The ecosystem should support non-proprietary, internationally established standards and ensure effective, reliable and efficient semantic interoperability between communities of users exchanging structured e-Invoices and related data.

To avoid locked-in solutions and enhance competition, portability of business identifiers in the ecosystem and its networks must be supported, so that users can easily switch providers without incurring high costs and complexity.

2.6 Trustworthiness and data protection

Trust is an important issue to address if e-Invoicing in Europe is to attain mass-adoption.

E-Invoices should be treated in the same way as paper invoices, as they have the same business functions. Businesses should have internal control checks for e-invoices in the same way as they do for paper invoices. An invoice is only processed and paid if it is in line with the contract, the purchase order and the price in the contract (two-or three-way match).

Privacy and data protection should be ensured at all levels in the end-to-end process. Invoice data is critical to any enterprise and important information about the trading parties and their supply chains are an integral part of the transmitted data.

In cross border e-Invoicing, the perception of risk is higher than in a domestic scenario, as the sender is typically not so aware of the receiving environment and definitions in use, and vice versa. It should be possible for the user to obtain status information on the progress of a transaction from their solution/service provider. E-invoice data should be delivered in a timely fashion from end to end.

3 Legal and regulatory proposals

The Expert Group supports the vision of a harmonised, simplified and clear legal framework for e-Invoicing.

The principal work of the Expert Group to date has centred on issues relating to VAT requirements. Early on in its deliberations, the Expert Group was informed of the Commission's intention to complete a review of the current legislative framework for Invoicing, as set out in the Invoicing Directive (2001/115/EC resp. 2006/112/EC), by the end of 2008 and the Group was therefore encouraged to give this area its initial attention.

Article 233 of the Directive (2006/112/EC) states that 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:

1. by means of an advanced electronic signature within the meaning of point (2) of Article 2 of Directive 1999/93/EC of the European Parliament and of the Council of 13 December 1999 on a Community framework for electronic signatures
2. by means of electronic data interchange (EDI), as defined in Article 2 of Commission Recommendation 1994/820/EC of 19 October 1994 relating to the legal aspects of electronic data interchange, provided that the agreement relating to the exchange provides for the use of procedures guaranteeing the authenticity of the origin and integrity of the data.

Invoices may, however, be sent or made available by other electronic means, subject to acceptance by the Member States concerned. Within the two methods above a number of different implementations exist among Members States.

In reviewing the current legislative framework, the Expert Group has therefore noted the present disharmonised European landscape and the variety of Member State legal requirements facing trading parties, who often experience difficulty in finding the right degree of clarity to encourage adoption of e-Invoicing. In situations where the currently prescribed options for EDI or 'Other electronic means' are not suitable or unavailable, the use of electronic signatures is effectively mandatory. Whilst this technology is of considerable value, its usefulness does not extend beyond providing a 'seal' for an original electronic document, and suffers from variability in implementation across Member States.

The other key aspect of invoice auditability relating to semantic content and process control receives insufficient attention in the current legislative framework. This is unfortunate because such process controls are essential to all invoicing processes and, for many, whose systems are mature and robustly auditable, can actually provide the necessary assurances as to authenticity and integrity by themselves. On the other hand, this should not prevent the use of electronic signatures and other techniques to give an assurance of originality over an invoice's whole life cycle

The Expert Group's discussion of the current provisions set out in the Directive led to an initial conclusion that considerable benefits could be obtained from the creation of a European e-Invoicing Recommendation (EEIR). A set of Guiding Principles for incorporation in the Recommendation have been developed.

More recent discussions have concerned the principle of equality of treatment between paper and electronic invoices and what this could mean in practice. The concept of equality of treatment has been endorsed by the Expert Group on the basis that its practical ramifications are well articulated and understood, and reflect, as appropriate, the differences between the two media. Papers on the subject have been prepared by members of the Group. The Group has also reviewed the recently drafted CEN/Fiscalis guidelines

A number of other legal and regulatory issues have been identified for review in the period ahead.

3.1 European Electronic Invoicing Recommendation

The Expert Group has proposed that the consideration be given to adoption of a European Electronic Invoicing Recommendation by the European Commission. The initial proposal for an EEIR has been set out in a letter to the Commission dated 3 July 2008 and signed by the Chairperson of the Expert Group.

A similar Recommendation had been adopted in the past to set out a definition of and requirements for Electronic Data Interchange (EDI), and this approach seemed to the Expert Group as a pragmatic way of replacing the prescriptive options set out in Article 233 of the Invoicing Directive and of capturing in a harmonised way not only VAT requirements but also other legal and regulatory provisions, which could benefit from a harmonised approach in an environment of technology evolution. If adopted by Member States and used in practice, the EEIR could provide the basis for this harmonisation and provide a flexible forward-looking framework. It would give trading parties clarity and could include a 'Code of Practice' for the implementation of practical e-Invoicing procedures and refer as necessary to agreed standards.

A set of Guiding Principles set out below has been developed for inclusion in the EEIR. As a summary, the proposed Guiding Principles follow the concept of equality of treatment and stresses the importance of the audit-ability of the internal business control processes used by trading parties. Auditability needs to take into account the requirement to establish the 'originality' of an invoice, as well as the need to ensure that the invoice content can be properly validated.

The concept of 'originality' of the invoice (including the data elements of which it is composed) is therefore integral to the proposed approach, including the essential qualities of authenticity of origin and integrity of content, as is also the requirement to validate invoice content as part of business processes and reconciliation routines However, it should be left to the discretion of trading parties as to how to address these issues in numerous ways.

A Code of Practice to form part of the EEIR is envisaged to describe a number of best practices and is discussed below under the heading of implementation. Further work on the careful drafting of the EEIR will follow including the draft Code of Practice. It will then need to be submitted to a wide consultation process.

It is felt that the issuance of an EEIR reflecting the principle of equality of treatment of electronic and paper invoices will measurably improve the climate for the widespread growth of e-Invoicing and e-business generally and support the development of the Single Market. This development would, of course, need to be accompanied by a general programme of encouragement and the communication of clear requirements, all supported by the parallel developments in standards and interoperability covered in other parts of this document.

3.2 Proposed Guiding Principles

1. Paper invoices and electronic invoices should receive equal treatment under the law.
2. Full Harmonisation of provisions governing invoicing within the EU27 should be a key objective in the interests of the Single Market and ease of use for trading parties across Europe. There should be no distinction between invoicing carried out on a domestic basis or on a cross-border basis within the EU. There should be no provisions applied at national level in addition to the harmonised provisions.
3. The prime means of providing assurance should be the internal business control processes of the trading parties, as based on longstanding paper invoicing processes and which include the matching of relevant documents and data throughout the invoicing process, accounting including archiving procedures, and audit-ability by internal and external auditors.
4. The means of transmission of invoices should not be the critical or primary factor in governing invoicing, although precautions appropriate to the relevant transmission method i.e. paper or electronic, should be observed by trading parties.
5. The invoicing process should be supported by audit guidelines issued and agreed at a pan-European level between the private sector and the public authorities.
6. Technological neutrality should be maintained in order to provide trading parties with choice over current and future solutions and to ensure the integrity of their processes.
7. It is important that such provisions apply equally to trading involving both the private and public sectors and facilitate the whole procurement process and the data exchanged in the process.
8. In the interests of protecting and re-assuring trading parties, it is important to develop a common set of provisions and recommendations for uniform implementation across the EU27 and not allow a disharmonised and uncertain environment to develop in the future.

3.3 Implementation of the Guiding Principles

Appropriate amendments to European and Member State legislation should be made, in particular to Articles 232–237 of the current Directive on the Common System of Value Added Tax (2006/112/EC). However, measures taken should not only focus on tax issues but include a range of other issues discussed below, which currently give rise to uncertainty and lack of harmonisation.

The proposed guiding principles could be incorporated in a European Electronic Invoicing Recommendation (EEIR). The EEIR would include a Code of Practice recommended to all trading parties and recognised by tax authorities as a statement of good practice.

The EEIR and the Code of Practice could encourage and remove barriers to the mass-adoption of e-Invoicing in contrast to the way that in the opinion of many the current legal environment deters adoption.

In implementing the proposals recognition should be given to existing legacy applications, except in so far as they are fundamentally incompatible with the guiding principles.

The provisions of the Code of Practice would be considered as advisable for implementation by trading parties in a number of ways, as follows:

1. The provisions of the Code of Practice could be incorporated in a bilateral agreement entered into between trading parties on a voluntary basis.
2. The provisions could be incorporated in an organisation's general terms and conditions and placed on record to its trading parties.
3. Service Provider Agreements could contain the same provisions, which become binding for its users.
4. In all cases, the trading parties are responsible for taking the necessary practical steps to give effect to the recommended practices, cooperating as required with its trading parties as part of its normal commercial relations.

In the final analysis each trading party is responsible for the integrity of its own control systems and in its role as a taxpayer for the validity of its returns and claims.

It is a key requirement that provisions impacting e-Invoicing demonstrate a 'light touch' and meet the needs of businesses of all sizes, but especially an 'SME test' – ease of use and cost effective for small and medium-sized business.

3.4 Other legal issues

As referred to above, other legal issues are also to be examined and will be the subject of proposals. Although VAT is an important issue for companies and tax authorities throughout Europe, electronic invoicing is embedded in numerous e-business processes within and across companies. The Expert Group has started to identify further legal and regulatory issues relating to e-Invoicing beyond VAT. In terms of legal reality, the invoice is the most important document in most if not all business processes: It holds references relating to the customer, products and services delivered; it must be archived and presented to auditors to support balance sheet entries and provides an internal record of transactions; and the invoice is not a stand-alone document – it must be integrated with other processes to guarantee that business operations can be streamlined and automated.

Taking a broader perspective of the legal relevance of the invoice, the Expert Group has therefore decided to focus in particular on archiving, accounting, e-commerce legislation, legal evidence of invoices in dispute resolution and customs regulations in the European Union.

Many of the provisions covering these areas are not harmonised and most of the applicable legislation is based on national, regional or even local legal and regulatory practices. This potentially escalated legal complexity for enterprises.

Where desirable, the Expert Group will base its future work on already existing work e.g. the various studies which have been undertaken by the European Commission and by the CEN Workshop on electronic invoicing. The objective is to integrate the recommendations resulting out of this legal work into the proposed EEIR and thereby help to create a harmonised legal approach.

3.5 'CEN/Fiscalis Guidelines'

To inform its work, the Expert Group is reviewing the Good Practice Guidelines (http://www.e-invoice-gateway.net), which have been developed by the CEN Workshop on Electronic Invoicing in the European Union, in association with Fiscalis, which brings together tax authorities from across Europe.

This Workshop is a recognised European standardisation activity and supported by more than 60 companies and 10 tax authorities. The Guidelines provide Good Practices for Service Providers and e-invoice solutions, as well as a proposed framework for tax authorities to audit VAT invoice solutions. They are presented in the form of a Microsoft Excel spreadsheet and have been drawn up as a CEN Workshop Agreement awaiting formal approval. Such guidelines could form the basis of an approach to both auditing and compliance checking for e-invoicing trading parties and their service providers.

While there are many companies that carry out their e-invoicing in their own in-house systems and data processing centres, the tendency is growing for companies to outsource all or part of their business processes including invoicing to various types of service provider. In the Guidelines, both in-house and outsourced e-invoicing operations are considered.

Businesses that implement electronic invoicing are often faced with thousands of technical and process implementation options along the way. In the absence of implementation-relevant rules emanating from tax administrations or standards bodies, the uncertainty surrounding these many choices creates a significant barrier to investment in electronic invoicing. As a result, for those vendors and users that choose to invest nevertheless, it is hard to make any value judgment as to how 'compliant' their services and solutions are. Corporate e-invoicing users, service providers and solution vendors that are taking steps to develop and maintain compliant services naturally have a desire to have to a concrete yardstick against which to measure and with which to demonstrate their compliance.

Today, most tax administrations do not provide accreditation services or self-assessment programmes to assist e-invoicing users or their Service Providers to ascertain that e-invoicing systems are VAT-compliant. Tax administrations' audit methodologies and tools are often developed based on the experiences of law enforcement and not widely propagated to businesses as compliance checklists.

The Guidelines seek to reduce some of the principal areas of uncertainty and resulting inefficiencies in the e-invoicing market with one single set of good practice Guidelines for both businesses and tax administrations. The Guidelines aim to ensure to be recognised as good practice in as many jurisdictions as possible, while at the same time striving to make the Guidelines meaningful for businesses that, above all, need legal certainty and predictability for making investments into e-invoicing. Not all businesses will wish to follow such an approach, but many could benefit from it. It has been the explicit intention and ambition of the CEN Workshop to create a set of voluntary rules that could contribute to greater certainty and a fair distribution of compliance/law enforcement costs between companies and tax administrations that should be valuable regardless of regulatory evolution and would need to be further developed in the light of likely changes in the legal framework.

The key principles are:

- Technology neutrality, user choice and competition
- Specificity, certainty and predictability
- Affordability
- Supportive to SMEs

The Guidelines have been referred for consultation to many stakeholders and after the present review period, the intended deadline for publication will be June 2009. The Expert Group views this initiative as of potential help in developing the proposed EEIR and Code of Practice.

3.6 Alternative approach

In the discussions of the Expert Group, it has become clear that there are views held by one member of the Expert Group, that are not entirely aligned with the approach set out above . His priorities are somewhat different from others in the Expert Group and so are some of his recommendations to reach the common objectives, one area being the need to define a different model of governance 'co-regulation' to define, test and adopt standards, business rules and legislation, with a much greater involvement of end-users. He maintains that his views are well supported by other market practitioners and end- user communities not represented in the Expert Group and believes that more discussion is needed on the legal provisions before he can subscribe to the concept of the EEIR.

As the Expert Group is still at a Mid-Term Report stage, it is recognised that these complex areas including the points made in the preceding paragraph, will require a great deal of further work and discussion, before final proposals are framed which enjoy the full support of the market.

4 Network and Interoperability

The Expert Group will continue to develop its recommendations for the encouragement of more accelerated network effects to encourage mass-adoption of e-Invoicing. Based on a monitoring of progress, measures to improve the pace and intensity of these developments will be further developed.

As trade involves all categories of trading party (e.g. businesses of all sizes, consumers and government agencies) trading with all other categories of trading party, the present tendency towards separation and segmentation of models for the electronic exchange of trade information is inhibiting participation by important market segments especially small businesses, who are currently forced to connect to multiple solutions usually promoted by larger private and public entities.

Current models are predominantly deployed by service providers – acting as intermediaries between trading parties. Each service provider creates its own technical framework and acts in a largely isolated 'silo' (often reflecting differing legal requirements imposed by respective Member States) leading to barriers to 'reach', the ability of one entity to forward documents to another in a predictable and ubiquitous manner across the whole market.

By addressing cooperation to create interoperability, all trading parties (sellers and buyers) and service providers could be better able to reach their counter-parties. The community would benefit from the results of the standardisation supporting this interoperability, but at the same time could also benefit from a vigorous competitive market for e-Invoicing solutions. Such an environment could also create the conditions for wider adoption of e-Invoicing particularly by SMEs.

4.1 Current market reality

It is clear that the following is the current market reality in the landscape for e- Invoicing services:

- The market is young and service providers are in a market-share building phase
- The trust equation for electronic business between trading parties and service providers is still emerging and fragile
- Business models on the part of service providers are still developing
- 'Three-Corner' models in which buyers and sellers are connected to a number of separate platforms predominate in an early-phase stage of the industry
- If, as at present, SMEs were to engage in bilateral agreements with each of their suppliers and/or service providers directly, then the cumulative number of agreements would rise exponentially with the number of parties involved; this is unsustainable.
- Roaming and interoperability agreements among operators are becoming more common, usually bilateral but some collective activity is developing.
- Four-Corner network models (often involving banks working with Service Providers) are being actively deployed or discussed.
- There is a direction towards using public IP networks for transmission of invoices among trading parties, but it is currently hampered by legal uncertainty and inconsistency (especially within the context of multiple Member States and when dealing with legal requirements for authenticity and integrity).

- There are differences between models, where both buyer and seller exchange trade documents directly between (ERP-)systems, and where human interaction is required, as in ordering or obtaining invoice(-information) via a web-portal.
- Given the legal complexity and basic unfamiliarity, trading parties often struggle with using the Internet on a direct basis beyond the forwarding of simple PDF documents or interacting with a web-portal, for example for forwarding structured data messages.
- Feedback from an informal survey carried out by a number of members of the Expert Group in four European countries (Finland, Austria, Italy and Spain) shows that a large number of European SMEs currently use or plan to use PDF files to exchange invoices via email, and/or e-invoices generated directly from their accounting systems.
- Large corporations who wish to centralise invoicing and treasury functions are forced to support many differing local arrangements. In- country rather than pan- European solutions predominate.
- The use of multiple formats for invoice content predominates adding further to complexity. Format conversion services provided by service providers mask the underlying problem from the ultimate trading parties.

Based on these trends, a number of interoperability initiatives are currently observable in terms of the development of network models:

- The as yet rather limited growth of 'roaming' and interoperability agreements between service providers
- Banks providing channels and linking to other service providers in a number of markets and potentially on a pan-European basis
- Public initiatives such as PEPPOL and the Commission procurement programmes and initiatives among various Member States.
- The CEN Workshop Agreement that is being worked on in the CEN-eInvoice/2 Workshop.
- The issue of addressing is receiving increased attention, especially where messages need to be transferred between environments and as evidenced by recent announcement by a number of service providers of an intention to form a trade association to design and deploy directory services in support of e-Invoicing.

The PEPPOL initiative (Pan-European Public Procurement On-Line) is being progressed by nine Member States to link and enable online procurement including e-Invoicing for private sector suppliers to public sector buyers. It is noted that the project has a EUR 20 million budget and that work on the design and implementation of a European-wide e-business transport infrastructure in support of public procurement is being undertaken.

In summary, there is no evidence of a general market failure, simply of early-stage development. Consequently there is no obvious case for public intervention at this stage outside the promotion and adoption of direct procurement initiatives.

4.2 Service provider interoperability needs to be addressed from both sides

Increasing interoperability between service providers needs to be addressed from both sides:

1. Increasing demand for interoperability: Excluding regulation, the key driver for service providers to interoperate is customer demand. The current market reality is that only the largest corporate entities are able to influence service providers to interoperate and even then one voice doesn't carry enough weight. The voice of e-invoice users needs to be amplified. It should be acknowledged that the adoption of e-invoicing will increase the demand for service provider interoperability. Therefore all initiatives which promote e-invoicing in general will also indirectly impact the demand for interoperability.
2. Lowering barriers to interoperability: The main barriers for service provider interoperability are business model and operational compatibility and technical compatibility. The latter includes technical standards (content, communication, addressing) which will improve service provider interoperability. A number of initiatives are already considering these issues, but their scale and intensity could be increased.

It is clear that such important tasks would benefit from closer collaboration between service providers in the industry working together to develop and promote common practices, standards and rules, in conjunction with users. The demand and supply sides of the industry should have an equal voice in the development of the ecosystem.

Before going further into these areas, let us consider the basic principles involved.

4.3 Collaboration and competition

The network domain, which could also be termed the 'exchange' or 'distribution' domain could be defined and treated as a collaborative space. The key components need to include a defined universal address space to cover both network address and entity identifier and an open and technology neutral network model. Re-use of existing models and infrastructures is likely to be the best way forward to create this network domain.

Collaborative activities are often carried out by industry participants and stakeholders to create a platform of common practices, standards and procedures which facilitate the smooth operation of a competitive market. In a network industry they create network externalities and promote virtuous network effects. Such activities are usually devoted to the creation of standards and accepted industry practices in the broadest sense. Examples of network industries, which deploy collaboration in such a way, include telecommunications, payments and transport. E-invoicing could be said to reflect some of the characteristics of these network industries, especially if it is felt important to go beyond bilateral and three-corner models.

Competition in business has been defined as "the effort of two or more parties acting independently to secure the business of a third party by offering the most favourable terms". Competitive activities includes everything which falls outside the collaborative space such as pricing, promotion, value propositions and the internal processes of individual competitors and users.

It is clearly important to set the boundaries between any collaborative activity and competitive activity within the strict framework of applicable competition law. There should be sufficient collaboration to drive a clear business rationale to promote and realise the required network effects, while not inhibiting competition and innovation.

The collaborative space should be independent of the entity domain by which is meant the internal space of sellers, buyers, service providers and all other entities. The network domain needs to be agnostic as to the categories of trading entities that form part of it, and their capabilities and internal processes. The entity domain is competitive and should be open (on the basis of a level playing field) for actors to craft their own distinctive value propositions without excessive intrusion beyond an accepted minimum set of standards requirements to permit interoperability. Such generic requirements should be minimum in the sense of 'just enough' to support interoperability without pulling in value added features.

Creating an accepted set of minimum common requirements for interoperability requires that stakeholders work on three principal aspects:

1. First is the technical exchange environment.
2. Second is the functional/content aspect, which is well covered by current work being done by various standardisation groups on data semantics and syntactical components.
3. Third is the aspect of the appropriate business and governance model (clear roles and responsibilities and items such as schemes and rulebooks). Solving these issues will inevitably be challenging in such a heterogeneous environment.

It is a pre-condition that such arrangements are underpinned with a consistent and unambiguous legal framework.

4.4 Schemes, rulebooks and frameworks

Under the heading of governance is the concept of schemes and rulebooks for interoperability. A scheme typically represents a collaborative agreement in which participants agree to a set of responsibilities and liabilities covered by a 'rulebook' and enter into a contractual arrangement with all other users of the scheme. Such an arrangement may be relatively onerous or rather light depending on business requirements. A scheme would typically have a governance model (ruling body) and redress/dispute handling procedures.

In the present and likely future e-Invoicing landscape, there are and will be a number of schemes or 'scheme-like' arrangements, for example:

1. Bilateral arrangement but in which reference is made to an over-arching business process and related rules brought into existence collaboratively. Other purely bilateral arrangements can be defined on a commercial basis between the parties.
2. Three Party models where a service provider acts as a service hub and connects buyers and sellers together. In effect this is a 'scheme' in its own right with the service provider acting as organiser and setter of the standards and procedures to be used and in which parties collaborative through the intermediation of the service provider.
3. Four Party schemes where trading parties connect to their own service provider, who may then be connected through a network to provide an interoperable environment. This model is typically used by the banking sector in creating payment networks, some of which have been adapted to support e-Invoicing. The telecommunications industry also uses a four-party model.

It would appear logical that such schemes, solutions and their formation continue to be left to competition as is the case today and it is likely that this pattern of diversity will continue.

But given the current lack of interoperability coupled with a need for fast efficiency gains, should the e-Invoicing community go further and promote the creation of an overarching framework for interoperability, in which trading parties and their service providers could interoperate with each other across Europe in an open and standardised way? The scope of such a Framework is discussed in the following paragraph.

4.5 A Framework for Interoperability

A framework for interoperability could include a definition of interoperability, a Network Model description, scenarios for its use and adoption, some basic rules and obligations, ongoing responsibilities for development and maintenance etc. The framework could create a universally accessible exchange or transport environment belonging in the collaborative domain and could meet the following objectives:

- Enable electronic exchange of e-Invoices and related data between participants;
- The Network Model will itself be business content and standards neutral and could support other document exchanges beyond e-Invoicing.
- Content standards recommendations will fall outside of the Network Model as a separate activity;
- Be compatible with the legislative and regulatory requirements for the exchange of e-Invoices and related data;
- Accommodate a set of commonly identified business requirements;
- Enable vigorous competition between service providers and facilitate innovative service offerings;
- Enable electronic delivery of e-Invoices and related data to facilitate Straight-Through-Processing by the key actors in the supply chain (Buyers, Suppliers, Tax Authorities, Agents, Banks, and Service Providers etc.)
- Be capable of supporting common business processes and modes of operation;
- Specify a minimum basis for technical, semantic and business interoperability and related service levels;
- Provide a scalable solution that can expand its capacity as the market and requirements develop;
- Would provide a migration path for current and planned ‘bilateral and multilateral service provider agreements’, schemes and solutions in place between service providers;
- Enable European supply chains to remain an integrated and competitive part of the global economy and intercontinental value chains.

Existing electronic invoicing initiatives tend to be in 'managed networks', for instance Value Added Networks for EDI, and service providers are using these models. On the other hand an open, technologically neutral, approach should allow room for other approaches, for example with trading parties communicating on a direct bilateral basis over the Internet.

To bring the framework for interoperability to life, active promotion and sponsorship would be required. It could be a critical success factor for the Expert Group and other supportive organisations to actively advocate the need for such an essential facility in the development of the e-economy as one key component of the road to mass-adoption.

The creation of a well functioning network domain could provide reach and interoperability whilst preserving a pro-competitive environment for all market players. Such an environment could stimulate important network effects and support the further exchange of other trade information and related documents in the supply chain. It is recognised that other models would continue to compete with any such facility.

Given the temporary nature of the Expert Group, the final detail and maintenance of a framework for interoperability probably needs to be the ongoing responsibility of a new or existing permanent vehicle organisation in which industry participants and stakeholders would need to be represented. The reason for involving market participants is to give an incentive to their taking part and adopting the framework. Such concepts cannot easily be legislated into existence.

Many challenges would need to be addressed such as the network topology, the standards to be supported, the need for format conversion as a related activity in the competitive domain, the ongoing 'governance' model, requirements for interoperability rules, the coexistence of proprietary solutions, etc. Finally there is the fundamental issue of its likely success and therefore the business case for those cooperating in its establishment. There are bound to be both enthusiasts and detractors.

4.6 Proposed activities for the Expert Group in 2009

- Describe minimum and sufficient requirements for interoperability for the transport aspects and layers of the ecosystem.
- Produce a blueprint including an overall description, a set of requirements and recommendations for the transport of e-invoices.
- Make recommendations concerning the development of collaborative governance for interoperability initiatives.
- Communicate positive market success stories that contribute to the Expert Group’s objectives.
- Take into account the emerging legal and Equality of Treatment proposals.

5 Standards

In terms of what is meant by standards, the Expert Group defines e-Invoice content standards as being "the actual data set that constitutes the e-Invoice message and business header". The function of the business header is a network independent solution that provides business applications with the necessary data to support high-level decisions, for example concerning the acceptance and routing of the E-invoice message while the e-invoice message contains the actual business data required between the parties in the invoicing process.

The data structure of the content standard is described by a **methodology** and expressed in a **semantic data model**[2]. The methodology may also describe the wider workflow of messages and the way in which they enable business processes like the life-cycle of the e-Invoice transaction. The semantic data model is represented in a syntax that presents the physical representation of the data model. These parts together are termed a **standard format**.[3]

5.1 E-invoice content standards landscape today

One of the key pillars of doing business electronically in an effective and efficient manner is standards. An invoice is one of the most communicated documents and one that is basic to all trading processes, and therefore the electronic version of an invoice needs a clear and acceptable format, based on standards.

The diversity of each industry sector's data and usage requirements, and very different approaches to their implementation in many areas have led to a large and fragmented number of data models and syntax expressions. Some of these come from an international background, some are national. Their usage varies from bilateral company, to widespread usages in sectors or internationally. There are some international standards, but the largest number of e-Invoice formats is proprietary. In some cases also national legislation and policies have played a role in their development.

None of the existing formats has so far reached a dominant status across all sectors – indeed this is a reason why e-Invoicing as such has not yet penetrated across all industries or all sizes of enterprise. Consequently, enterprises, ERP-suppliers, banks, etc. have to support multiple formats, and huge mapping and conversion exercises take place to cope with different data expressed in different syntaxes in order to secure some form of integration and interoperability.

Thus while traditional EDI (usually based on standards from UN/EDIFACT and (in the USA) the ANSI X.12 standard) is still used by many multinational corporates, it hardly touches the SME market. Likewise many proprietary formats have either only reached one multinational corporate or their suppliers. Where a good number of SMEs are involved, this is on a national basis in a specific context for instance governmental supply.

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2 Semantics – way of linking the entity (datum) and the information we have about the entity (data) to help us get a good understanding of the system at different levels of abstraction.
Data Models are made up of structures used to create the model (building blocks), operators we can use on the structures and integrity rules, both explicit and implicit.

3 Examples of methodology are UN/CEFACT Modelling Methodology (UMM) and an example of a semantic data model is ISO 20002 Customer Credit Transfer initiation. UN/CEFACT Naming and Design Rules and ISO 20022-4 XML design rules are examples of real life syntaxes.

5.2 E-invoice content standards challenge

Given the current landscape, in reality the legacy of existing formats and implementations will remain for years to come. The Expert Group should not develop the content standard in itself. The important issue is though for the Expert Group on content standards to facilitate a development that will aid the move to an open and interoperable standards environment, but at the same time not completely preventing current e-Invoice implementations and investments from continuing.

Although the primary target of the Expert Groups work is the SME sector the e-Invoice content standard solution has to fulfil broader requirements also. The Expert Group has identified that the content standard solution needs to:

- fulfil sufficient cross domain e-Invoice data requirements to present the core functionality to all industry and sectors in their supply chain process;
- secure interoperability across industries and sectors;
- bridge between the requirements of the private and public sector but also between SME and larger corporate usage;
- incorporate legal and VAT requirements;
- integrate to the financial world enabling automatic initiation of payment services, invoice financing, end-to-end Straight Through Processing (STP) and reconciliation,
- integrate to the wider supply chain business process and provide possibility for extension to fulfil specific sector and usage requirements,
- be simple and adequate enough to secure easy integration by service providers and mass adoption by the users,
- support requirements of different models of data usage such as invoice presentment, and process integration,
- have a robust foundation and quality enabling global reach and future maintenance

The Expert Group has collected these business requirements in relation to content standards. While some of the above requirements may be conflicting the challenge is to maintain a balance that best answer these requirements.

5.3 E-invoice Content Standards – proposition

The Expert Group agrees that in order to meet the challenge, the long-term e-Invoice landscape needs to contain e-Invoice content standards, but in fewer formats and expressions than exist today as this is a barrier for mass adoption. However it seems unlikely that the current e-Invoice landscape can merge into one common e-invoice content standard syntax on a shorter term.

Having one semantic data model for e-Invoice content standards has however been determined as critical, to be able to fulfil the higher level business requirements identified above. It is left to the market to utilise the data model and express it in different syntaxes as well as methodologies, but adhering to one model will facilitate interoperability. That means that data without supplement and transformation can travel between formats as the data model is technology-neutral.

Having such a core data model also allows partial migration to it by various communities either within existing solutions or by converging on new ones. On the other hand the issue of multiple methodologies and syntax expressions is a cost burden, and therefore the Expert Group also recommends standards convergence in this area. While the ultimate goal should be a single format, in the interim more than 2 or 3 mutually interoperable formats would not be desirable from a mass adoption and efficiency point of view.

From the points of view of accessibility, stability in terms of maintenance and quality the Expert Group recommends that the reference e-Invoice semantic data model is anchored in a global standard from an international recognised organisation. This should reflect different market needs, facilitate market/vendor support as well as provide an open and transparent development process.

The Expert Group therefore recommend and encourage UN/CEFACT and ISO as two global standards organisations that should collaborate to develop an e-Invoice content standard that satisfies the overall Business Requirements identified by the Expert Group and which constitutes the core reference semantic model for the European e-Invoicing Framework.

With an e-Invoice semantic data model that is developed and supported by requirements from government, industry/supply chain and finance, a number of the basic business requirements, including standards convergence that the Expert Group requires for EEI, would be fulfilled. The reference semantic data model that currently is developed to meet this is the UN/CEFACT Cross Industry Invoice (CII).

To foster end-to-end STP and to support migration to SEPA, the integration to financial transactions and mass adoption realisation of CII by both the UN/CEFACT and ISO communities is commercially desirable. This will simplify message conversion and integration where e-Invoices are used, and simplify the basis for communication exchanges. It will also help to minimise implementation costs for SMEs by leveraging existing networks.

5.4 E-invoice Content Standards – next steps

As soon as the e-Invoice semantic data model is available, the Expert Group needs during 2009 to take a number of steps to refine the EEI high-level business requirements in further detail to make the Expert Groups recommendations more specific. Among these are

- Evaluate if the e-Invoice semantic data model fulfils the EEI requirements;
- Identify if further requirements are missing and report to standardisation organisations;
- Identify if the Cross Industry Invoice is identical to the core e-invoice of EEI;
- Validate if further guidance on content standards is needed from the Expert Group like for instance implementation guidelines or conversion tables from existing solutions to new in order to facilitate migration;
- Decide EEI governance of the content standard implementation including ensure sufficient ongoing commitment of multiple stakeholders in implementing the first version of this standard as well as subsequent upgrades.

6 Definition and scope of the European e-Invoicing Framework

In the Commission Decision dated 31 October 2007 setting out the tasks, membership and procedures for the Expert Group on e-Invoicing, the following reference is made to the proposed 'Framework' to be delivered by the Group:

"The European e-Invoicing Framework is to establish a common conceptual structure, including business requirements and standard(s), and propose solutions supporting the provision of e-Invoicing services in an open and interoperable manner across Europe."

It is clearly important to develop a definition and clarify the scope of this key deliverable, so as to set expectations and ensure a common approach to its completion among members of the group.

Already during the first meetings of the Expert Group, the term 'Framework' has been used in different ways to convey different conceptions of what it might be e.g.

1. Taking the above definition, it could be the final encapsulation or summary of the recommendations of the Expert Group within a conceptual structure together with a set of proposals.
2. It could be a vision or model setting out a number of layers of elements that need to be defined and which all mutually support each other.
3. It could be an 'eco-system' in which players come together both in cooperation and in competition to deliver solutions.
4. It could be a declaration or a set of policy provisions to which industry players sign-up or adhere.
5. Some have referred to it as broadly synonymous with a Network Model.

All the above testifies to a certain level of confusion and a lack of clarity, which is perfectly natural and desirable during the creative process.

6.1 Deliverables

Based on the work of the Expert Group so far, and the current Work Plan of each Sub-Group, the following are the already identified components of the Expert Group's deliverables:

1. A set of high level business requirements, with reference to the key segments and the benefits for all involved parties including small, medium, and large business, the public sector and consumers.
2. An approach to standards and data elements to be included in the content of e-Invoices, based on giving guidance to a number of selected standards bodies in order to achieve greater convergence and ease of use (such work to address core versus requirements for extensions, compatibility with the total supply chain, VAT requirements etc.)
3. A set of proposals to create possibilities for interoperability between users and service providers in the process of exchanging e-Invoices and potentially other supply chain documents – the so-called Network Model, including requirements for a 'framework for interoperability' and for a 'rulebook'.

4. A set of legal recommendations directed at the European Commission and the Member States aimed at clarifying and simplifying the legal and VAT-related provisions for e-Invoicing.

In addition, the following items have been mentioned as other possible deliverables:

1. A way of encapsulating an overall conceptual structure and vision to provide a context for the Group' activities and recommendations.
2. Specifications for a set of communication materials setting out the benefits, business case, incentives, available support and required actions for potential users. Ideally the materials setting out in an easy to use way the basic features of e-Invoicing should be endorsed by the relevant authorities country by country. A communications plan is also required.
3. The establishment of an implementation plan or road-map for putting into practice the European e-Invoicing Framework, including steps that could be taken by public authorities to encourage its adoption.
4. A clear definition of the boundaries between collaboration and competition in the new landscape for e-Invoicing in Europe.
5. The possibility of creating an environment in which schemes and solutions preferably acting within a Framework for Interoperability are created on a pan-European basis.

6.2 Content of the European e-Invoicing Framework

Based on the foregoing, the following recommendations for the content of the European e-Invoicing Framework are proposed:

- The Framework will be primarily a set of actionable recommendations and proposals, for which the support of others will be sought.
- It is organised as a series of layers or pillars that need to be addressed and which all interrelate on a coherent basis.
- It is not itself a Scheme or contractual framework for others to formally adhere to
- It will include the elements identified and set out in the headings below:

    1. Definition and scope of the Framework
    2. An overall conceptual structure or vision
    3. Business requirements for all segments
    4. Standards recommendations
    5. The proposed network model, including the proposal for a framework for interoperability.
    6. Legal and regulatory proposals
    7. Recommendations for a communications plan.
    8. Road-map for implementation
    9. Glossary of terms
    10. Others to be defined

Conceptually, the EEI Framework could be considered as a layered model where the layers are:

Layer 1: The EEI Framework: defined as the conceptual structure that supports the provision of the e-Invoicing services in an open and interoperable manner.

Layer 2: The EEI Regulatory Environment: including relevant laws and regulatory provisions and their implementation within the EU Member States.

Layer 3: The EEI Network Model: specifying how interoperability and therefore connectivity, or reach, across Europe can technically and operationally be achieved.

Layer 4: The EEI Standards: defines the rules and requirements that must be met to ensure effective, reliable and efficient business semantic interoperability between communities of users exchanging e-Invoices.

Layer 5: The EEI Organisation: including proposals and recommendations for the organisational bodies required to support the environment.

It is important that consultation provides the Expert Group with feedback on what general expectations are proposed for the European e-Invoicing Framework.

Annexes

Communication

All activities that aim to promote the adoption of e-Invoicing will be ineffective if the opportunities for progress are not communicated effectively to those who must act.

If interested parties do not accept the business requirements, or understand the legal requirements, the standards recommendations, the implications of the network model and the general business arguments developed by the Expert Group, then its impact will be diminished.

Indeed it can be argued that one of the most important – if not the main – factors currently holding back the development of e-Invoicing is a lack of awareness, communication and dissemination of convincing information to market participants, so as to create the level of confidence required to go ahead and implement.

Thus there is an evident need for a major effort in making clear to potential users, service providers, regulatory bodies, government agencies and other stakeholders what (and often how surprisingly little) needs to be done and what (and often how surprisingly large) the gains will be.

In all communication on the subject, the following general good practices of communication need to be observed:

- A targeted choice of content and medium, based upon the needs of the target audience such as individual executives, technical experts, industries, country communities, consultants, corporate entities, public administrations etc.).
- The exploitation of the fully panoply of communication media: web, blogging, podcasts, press conferences, reports/publications, newsletters, interviews, trade shows/conferences etc.

The content to be communicated should focus on:

1. What is the current state of the market- key primer and background information as well as information about specific markets and sectors?
2. What are the current legal and regulatory requirements to be observed by all users?
3. What tangibly needs to be done to become enabled for e-Invoicing?
4. What resources and advice is available?
5. What should be done to improve the current environment and what the Expert Group is recommending?

With regard to the Expert Group proposals, first steps would be to communicate in the above sense what the Expert Group recommends and to show how easy it is to engage in e-Invoicing and how large the benefits are.

However, since the development of e-Invoicing is currently very heterogeneous in Europe (some countries are further ahead than others, some solutions are driven by banks, some by public administrations, some by other service providers, there are different business models, different regulatory environments, different penetration in B2B and B2C markets etc.) it will be necessary, beyond the broad pan-European principles and recommendations of the Expert Group to promote the preparation of specific market descriptions and recommendations.

In order to obtain good coverage and dissemination it will be found useful to employ key 'multipliers' (e.g. Commission and other press distribution networks, key report-writers and consultants, major conferences and trade events) In addition large corporates, service providers and public authorities who have demonstrated proven success in e-Invoicing should be encouraged to share their experiences publicly and assist in generating a positive climate and awareness of the benefits.

Communication initiatives should not be a one-off exercises but should be part of a regular plan and process to communicate regularly, both periodically (e.g. quarterly newsletter) and event-driven (e.g. when a new report is published, when major administrations commit to e-Invoicing, upon significant success stories from industry etc.).

Further proposals for key messages, media and timescales will be defined by the Expert Group in 2009.

Glossary

Authenticity of origin
The quality attaching to a document or dataset denoting that is the true original as created by its originator.

CEN
The European Committee for Standardization (ISO's counterpart and the European entry point to UN/CEFACT). CEN/ISSS is the marketing title for CEN's ICT activities, CEN/ISSS Workshops are open consensus building platforms for contributing to standards in the ICT area.

'CEN/FISCALIS GUIDELINES'
These Good Practice Guidelines provide an instrument to guide businesses – in the first place for self assessment – to ensure their e-invoicing solutions, in-house and at contracted third party service providers, can be audited and is under control. In 2009 these guidelines will be published as a CEN Workshop Agreement.

Certification Authority (CA)
An entity which issues digital certificates for use by other parties. CAs are characteristic of many public key infrastructure (PKI) schemes

Cross-Industry Invoice (CII)
The CII is the term for the UN/CEFACT standardised invoice, which is the standardised format proposed by the Expert Group for automated invoice exchange.

Digital certificate
A small set of structured data that has been electronically signed by a 'certification authority' to 'bind' the identity of a legal or natural person to a 'public key' that can be used e.g. to verify electronic signatures created by that person.

Digital signature
Data appended to, or a cryptographic transformation of, a data unit that allows a recipient of the data unit to prove the source of the data unit and protect against forgery, e.g. by the recipient

e-Invoicing Workshop
The CEN/ISSS Workshop providing consensus-based guidance for business on electronic invoicing.

Electronic invoice/e-Invoice
A generic term for a dematerialised invoice. See under Invoice.

Electronic Signature
Electronic signature means data in electronic form which is attached to or logically associated with other electronic data and which serves as a method of authentication

Advanced electronic signature (AES) 'means an electronic signature which meets the following requirements:

- it is uniquely linked to the signatory
- It is capable of identifying the signatory
- It is created using means that the signatory van maintain under its sole control
- It is linked to the data to which it relates in such a manner that any subsequent change of the date is detectable

A Qualified Electronic Signature is an Advanced electronic signature which uses in addition a Qualified Certificate issued by a Certification-Service-Provider (CSP)

Enterprise Resource Planning (ERP) system
ERP Systems are automated 'back office' systems used by enterprises that contain many of the tools and software to create, account for and manage invoices as wells as many other transactions and corporate processes.

European Electronic Invoicing
The European Electronic Invoicing concept is being drawn up by the European Commission Expert Group.

European Electronic Invoicing Framework
The Framework is the detailed set of arrangements that describes the EEI and enables the seamless processing of electronic invoices in Europe

Expert Group
The Group created under A Commission Decision of 31 October 2007 to make recommendations on e-Invoicing, jointly sponsored by DG Enterprise and DG Internal Market.

Four Corner Model
An exchange model where senders and receivers of invoice messages are supported by their own consolidator service provider (for the sender) and aggregator service provider (for the receiver). It is sometimes termed a four-party model.

An invoicing process set-up whereby each Trading Partner has contracted with one or several separate Service Providers, whereby the Service Providers ensure the correct interchange of invoices between the Trading Partners. The concept of the 4-Corner model originated in the banking sector

Integrity of content
The quality attaching to a document or dataset denoting that it is complete and unchanged since its creation

Invoice
The invoice is a document or a data set marked with the word ‘invoice’ formally specifying details of a (or part of a) trade and all settlement related information for the (or part of the) trade, explicitly and separately stating the applicable tax.

Invoicing Directive
The current EU legislation that requests Member States admit the use of electronic invoicing for VAT purposes in the EU. See VAT

IP Network
Internet Protocol is a series of standards from the Internet Engineering Task Force for exchanging data over the internet, a network of inter-communicating parties may agree to use it. Such networks may be publicly accessible or private.

ISO
The International Organization for Standards.

ISO develops International Standards and other types of normative documents. ISO's work programme ranges from standards for traditional activities, such as agriculture and construction, through mechanical engineering, manufacturing and distribution, to transport, medical devices, information and communication technologies, and to standards for good management practice and for services.

ISO Technical Committee 68 'Financial Services' is responsible for the ISO22022 standard.

ISO 20022
ISO 20022 is an International Standard from ISO. It constitutes the financial industries common platform for the development of messages in a standardised XML syntax, using a modelling methodology (based on UML) to capture in a syntax-independent way financial business areas, business transactions and associated message flows.

Northern European Subset (NES)
NES was formed in January 2006 with the objective to facilitate the establishment of a common platform for e-commerce in national and cross-border trade. Currently, the initiative comprises government representation from six countries: Norway, Sweden, Finland, Great Britain, Iceland and Denmark. The technical development of NES is now carried out in the CEN/ISSS Workshop BII.

OASIS
See UBL.

PDF
The Portable Document Format (PDF) is the file format created by Adobe Systems in 1993 for document exchange. PDF is used for representing two-dimensional documents in a device-independent and display resolution-independent fixed-layout document format. PDF is an open standard, and recently took a major step towards becoming ISO 32000. Check for updates

PEPPOL
Pan-European Public Procurement On-Line is a consortium project, with the objective to pilot solutions to make it easier for European economic operators, in particular SMEs, from one country to respond electronically and in an interoperable way to public procurement opportunities and carry out the subsequent business transactions, including invoicing.

ROAMING
Service providers describe the process of connecting to other service providers for the exchange of messages as 'Roaming'. Technical connectivity is usually provided bilaterally and there are requirements for the management of routing and addressing also agreed between the service providers.

SEPA
The Single Euro Payments Area or SEPA will be the area where citizens, companies and other economic actors will be able to make and receive payments in euro, within Europe, whether between or within national boundaries under the same basic conditions, rights and obligations, regardless of their location. It consists of the European Union Member States plus Iceland, Norway, Liechtenstein and Switzerland.

Service Provider
Entities that provide services to end-users offer wide variety of business services and models ranging from supply chain and procurement services, software and integration services, invoice and related document transmission and networks and integration with financial services.

SME(s)
Small and Medium-sized Enterprise(s).

Three Corner Model
An exchange model where senders and receivers of invoices are connected to a single hub for the dispatch and receipt of messages (sometimes called a Three-Party Model)

Universal Business Language (UBL)
UBL is a library of standard electronic XML business documents such as purchase orders and invoices. UBL was developed by a Technical Committee in OASIS (an industry standards consortium) with participation from a variety of industry data standards organisations. 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 e-commerce for small and medium-sized businesses. Under an agreement between UN/CEFACT and OASIS, UBL requirements will be taken up in modifications to the relevant UN/CEFACT standards documents, including the CII.

UN/CEFACT
The United Nations' Centre for Trade Facilitation and Electronic Business has a global remit to secure the interoperability for the exchange of information between private and public sector entities. It has developed the UN Layout Key for trade documents and developed UN/EDIFACT, the international standard for electronic data interchange together with supporting components and methodologies.

UN/EDIFACT
The United Nations/ Electronic Data Interchange for Administration, Commerce and Transport.

Value Added Tax (VAT)
VAT is imposed by the national taxation authorities with every transaction in the B2B and B2C markets in the European Union. Registration and administration of this tax is subject to overall European legislation and then local Regulations. The legislation constitutes a Common System of Value Added Tax under Directive 2006/112/EC.