

CEN

CWA 15236

WORKSHOP

February 2005

AGREEMENT

ICS 35.240.60

English version

Analysis of standardization requirements and standardization gaps for eProcurement in Europe

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

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

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

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

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



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

© 2005 CEN All rights of exploitation in any form and by any means reserved worldwide for CEN national Members.

Ref. No.:CWA 15236:2005 E/F

Dit document is een voorbeeld van NEN / This document is a preview by NEN

Dit document mag slechts op een stand-alone PC worden geïnstalleerd. Gebruik op een netwerk is alleen toestaan als een aanvullende licentieovereenkomst voor netwerkgebruik met NEN is afgesloten. This document may only be used on a stand-alone PC. Use in a network is only permitted when a supplementary license agreement for us in a network with NEN has been concluded.

Contents

| | |
|---|----|
| Foreword..... | 5 |
| Introduction..... | 6 |
| 1 Definition of an eProcurement Framework..... | 7 |
| 1.1 Organisational and Procedural aspects..... | 7 |
| 1.1.1 Organisational issues, differences and similarities between public and private procurement..... | 7 |
| 1.1.2 eTendering..... | 9 |
| 1.1.3 eOrdering..... | 10 |
| 1.1.4 eDespatching..... | 12 |
| 1.1.5 eInvoicing..... | 13 |
| 1.2 Technical aspects..... | 15 |
| 1.2.1 Introduction..... | 15 |
| 1.2.1.1 Hardware Technical Building Blocks..... | 16 |
| 1.2.1.2 Basic Software Technical Building Blocks..... | 16 |
| 1.2.1.3 Application Software Technical Building Blocks..... | 16 |
| 1.2.1.4 Typical Scenario of an eProcurement Environment..... | 16 |
| 1.2.2 Methodology..... | 17 |
| 1.2.3 Analysis..... | 19 |
| 1.2.4 Functional Requirements for Technical Building Blocks..... | 24 |
| 1.2.5 Summary..... | 26 |
| 1.3 Legal aspects..... | 28 |
| 1.3.1 Introduction..... | 28 |
| 1.3.2 Electronic public procurement in the new EU legislation..... | 29 |
| 1.3.3 Additional legal sources of electronic procurement regulation..... | 31 |
| 1.3.4 Standardization requirements for electronic public procurement..... | 32 |
| 1.3.4.1 Functional requirements of the eTendering and eAwarding phases..... | 33 |
| 1.3.4.2 Horizontal requirements..... | 35 |
| 1.3.4.3 Risk management..... | 36 |
| 1.3.4.4 Quality assurance..... | 36 |
| 1.3.4.5 Application centric approach..... | 36 |
| 1.3.4.6 Cross recognition and status information for electronic signatures..... | 37 |
| 1.3.4.7 Information security and application tokens..... | 40 |
| 1.3.4.8 Privacy..... | 41 |
| 1.3.4.9 Transaction policy..... | 41 |
| 1.3.4.10 Collaboration partner agreement..... | 42 |
| 2 Gap Analysis..... | 43 |
| 2.1 Organisational and Procedural aspects..... | 43 |
| 2.1.1 Member States programmes..... | 43 |
| 2.1.2 Broad Guidelines and Standards..... | 44 |
| 2.1.3 Gaps in Transaction Standards..... | 45 |
| 2.1.4 eCatalogue and eClassification..... | 47 |
| 2.1.5 Legacy differences EDI to XML..... | 47 |
| 2.1.6 ePayment and Remittance advice application..... | 48 |
| 2.2 Technical aspects..... | 49 |
| 2.2.1 Technical Architectures..... | 49 |
| 2.2.2 Relevant Standardization Organizations and Standards..... | 52 |

| | | |
|-------|---|----|
| 2.2.3 | Recommendations | 56 |
| 2.3 | Legal aspects..... | 59 |
| 2.3.1 | European Electronic Signatures Standardization initiative | 59 |
| 2.3.2 | CEN/ISSS WS on eAuthentication (WS/eAUT)..... | 61 |
| 2.3.3 | CEN/ISSS WS on eInvoicing (WS/eINV) | 61 |
| 2.3.4 | CEN/ISSS WS/ Data Protection and Privacy (WS/DPP)..... | 61 |
| 2.3.5 | Network and Information Security Steering Group | 62 |
| 2.3.6 | CEN/ISSS European eBusiness Interoperability Forum (eBIF)..... | 62 |
| 2.3.7 | Standardisation recommendations for electronic public procurement | 63 |
| 3 | Dissemination | 65 |
| 4 | Conclusions | 66 |
| 5 | References | 70 |
| | Annexes..... | 72 |
| | Annex A: e-GIF Technical standards catalogue..... | 73 |
| | Annex B: Legal framework of public procurement..... | 81 |
| | Annex C: Relevant European specifications and reports | 82 |
| | Annex D: General legal framework for public eProcurement..... | 84 |
| | Annex E - Presentation on CEN/ISSS eProcurement Workshop..... | 93 |

OrbEol
Preview

Figures

Figure 1: Technical Building Block Layering15

Figure 2: A typical eProcurement Scenario16

Figure 3: Reference eProcurement process of WS/ePro19

Figure 4: Client-Server Architecture versus Service trading model20

Figure 5: Technical Building Blocks of eProcurement systems21

Figure 6: eTendering process (CA: Contracting Authority)24

Figure 7: eAwarding process (CA: Contracting Authority)25

Figure 8: Layered approach towards interoperability requirements for eProcurement.....29

Figure 9: Regulatory blocks in electronic transactions31

Figure 10: Standardisation requirements33

Figure 11: Recommended actions33

Figure 12: W3C Web Service Architecture Stack versus ebXML49

Figure 13: Basic profile of WS-I for web services51

Figure 14: Order-to-Invoice Business Process of UBL56

Orb ePro
Preview

Foreword

This CWA covering the analysis of standardization requirements and standardization gaps for eProcurement in Europe has been prepared by a project team reporting to the CEN/ISSS Workshop on eProcurement (WS/ePRO) in the period December 2003 to December 2004. The decision to produce this CWA was taken at the Workshop kick-off meeting on 14 October 2003. The content of the CWA was defined in the Workshop work plan approved in May 2004.

The draft CWA was published on the CEN web site for public comments and sent to relevant CEN/ISSS electronic lists from 29 September 2004 to 29 November 2004.

The CWA was endorsed by the CEN/ISSS Workshop eProcurement members in January 2005. The final endorsement round ran from 24 December 2004 to 20 January 2005. The list of experts who formally supported the CWA contents may be obtained from the CEN/ISSS Secretariat.

Aim of the CWA is to help policy makers, business men, researcher and anybody interested to have an overview of the state of art, activities and possible actions to undertake to promote and facilitate the use of inter-operable private and public eProcurement solutions in Europe, based on recognized standards.

The CWA focuses on the following aspects:

- a) the framework for procuring electronically

The following aspects are considered:

- organizational and procedural issues, business processes and related issues
- technical issues, technologies used to implement eProcurement
- legal issues

In particular, the CWA analyses which are the differences in doing eProcurement in the public and private sector and between large companies and SMEs and which are the resulting different requirements.

- b) standardization gap analysis

The CWA contains an analysis of existing standards/specifications for each stage of eProcurement. It focuses on the differences between Member States in the European Union that could cause problems for cross-border eProcurement.

The CWA contains recommendations related to further actions to be taken in specific regarding standardization.

- c) dissemination

The CWA examines if there is a case for raising awareness on standards and standardization activities in the field of eProcurement. Some suggestions of how this should be done are put forward.

This CEN Workshop Agreement is publicly available as a reference document from the National Members of CEN: AENOR, AFNOR, BSI, CSNI, CYS, DIN, DS, ELOT, EVS, IBN, IPQ, IST, LVS, LST, MSA, MSZT, NEN, NSAI, ON, PKN, SEE, SIS, SIST, SFS, SN, SNV, SUTN and UNI.

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

Introduction

The issue of electronic procurement has been identified by the CEN/ISSS e-Business Focus Group, as being one of key topics requiring more coherent standardization activity over the 2003-2005 timeframe. There has been support for dedicated activities from other CEN/ISSS groups and stakeholders.

EDI, now e-Business or B2B, was and is still used where there is a regular exchange between buyer and seller. But there have been no recent overviews of procurement requirements, in the context that procurers are moving towards eProcurement in a more general way, with the use of the Internet, or use of electronic auctions or a fully-electronic tendering process.

“Procurement” covers a very wide range of different standards issues in different Groups. At one end of the chain are the principles of e-cataloguing and product classification, then moving into issues related to the business transaction process – seeking bidding document/offer/selection of bidders/transaction/delivery/invoicing, etc. Lying underneath are horizontal aspects such as data privacy and security.

Of course, most of these issues are already being standardized, often in multiple groups. It is important to encourage the use of compatible systems for public procurement as well as for private procurement. This will help SMEs to access eProcurement processes, it will facilitate service provision, and it will avoid problems for companies selling to multiple customers.

1 Definition of an eProcurement Framework

Under the Clinton administration, one of the main US Government programmes was to introduce commercial behaviour in public procurement. An important item in the programme was to prefer the purchase of COTS, Commercial Of The Shelf items (and services), rather than procuring unique government-specified items that needed to be manufactured and where the final price tag would be factors of a hundred if not more. The major benefits have included:

- Lower product prices
- Use of purchasing cards to pay for the bought items
- Use of standard "content" vehicles for e-transactions (ANSI-X12, EDIFACT, XML)
- Use of standard technical architectures for messaging and web services
- Fewer stringent legal obligations than previously required in public procurement attracted more manufacturers and sellers to supply the public sector
- Others

1.1 Organisational and Procedural aspects

1.1.1 *Organisational issues, differences and similarities between public and private procurement.*

Leaving the eProcurement aspect aside, there are differences of principle in the business issues between public and private procurement. Private procurement is geared to provide the best costs-benefits balance. This is not always the case for public procurement where transparency and openness are paramount. However, large public eProcurement initiatives may have a clear goal to drastically cut costs. Public procurement is governed by legislation, which does not apply to private procurement. In both sectors, eProcurement is deployed to provide a better and more efficient service to the organization/community and to reduce costs.

Private sector e-Business developments from the very outset have been based on agreements achieved by industry and trade sectors. Buyers, sellers, manufacturers, transporters, banks and others grouped their efforts to develop e-business standards and transactions through EDI (e.g. ANSI-X12, UN/EDIFACT).

While the US developments were predominantly for the US, the later European developments were based on international principles that also included US requirements. Good examples are to be found in the automotive industry (ODETTE) or retail and distribution (EANCOM). In the case of the European Article Numbering organization, today known under the joint name EAN.UCC¹, a body of some 800 000 members, including the US Uniform Code Council, have been prominent in the development of e-business standards (EDI), as part of UN/EDIFACT, and now are basing their new developments on ebXML technology and UN/CEFACT Core Components.

The developments of guidelines, standard transactions, procedures, coding, etc. are implemented world-wide. In Europe, the EAN.UCC member organizations are very much involved in the

¹ EAN International was renamed GS1 and UCC GS1 US in January 2005.
<http://www.ean-int.org/>

facilitation of implementation at national level and where the items in question are very much part of the product range required by the different public sector groups, e.g. health service, office equipment and furniture, food, etc. [25]

With the advent of Internet technology, new approaches based on XML are being developed to make possible to migrate existing EDI transactions and to extend the application into new areas to use eCatalogues. A further aim is to attract SMEs and trading partners who had declined to implement EDI because it is too complex and not cost justified. Established organizations such as EAN.UCC are active in international developments and deployment of e-business applications².

Through critical re-thinking of business processes in the private sector, buyers, suppliers, transporters... are managing to make procurement more responsive, flexible and resilient. In the case of assembled products, suppliers are organising their operation to assemble products only when they are ordered – and deliver literally "on demand," with a high level of customization.

In contrast, public sector groups in the Member States were not very active during the first developments of EDI but are now reviewing their business processes in eGovernment to include eProcurement. Excellent examples are to be seen in OGC (UK), DPSM (France), an application of the city of Bremen (Germany), e-Handel and GAS (Norway).

While these public sector applications are developed as open, transparent and based on best practice guidelines, they differ from private sector applications because they are predominantly focused to their own country or to a region. The step to make them cross border transparent and interoperable in a single European electronic market has still to be achieved.

Member States' administrations are recognising that the IDA eProcurement programme, carried out by the European Commission/ DG Enterprise, is taking them in the right direction to implement the Public Procurement Directive with the correct level of interoperability across Member States' eProcurement applications. However, the IDA programme will have to be adapted to national complementary programmes related to eGovernment. These national programs are interfering with Procurement (for ePayment in particular), and adaptations will have to be defined to cope with the IDA proposed standards, which will have also to be revised.

Such alignment of standards will be necessary to avoid duplication of efforts and unnecessary conversions. An extract taken from an article written on the Bremen application: "Most importantly, Dr Hagen hopes that Bremen will profit from the European Commission's IDA Programme in the area of interoperability and support for standardisation, and he also believes that this can be true vice versa. In this context, interoperability tests with Swedish and British XML-standardisation efforts (e-GIF, e-LINK) are planned." These interoperability tests should have two facets: interoperability of the business processes and their associated documents on the one hand, interoperability of the business architectures on the other hand.³

As said earlier, this section of the report will deal with similarities and differences in ePublic procurement looking at the subject from the view of organizational issues. Out of the phases usually identified in the Public Procurement cycles, the following, agreed by the group, will be dealt with in the report:

² See www.ean-ucc.org/global_smp/gsmg_smp.htm

³ For eGIF see <http://www.govtalk.gov.uk/schemasstandards/egif.asp> and the e-GIF Technical standards catalogue in Annex A

- Tendering
- Ordering
- Despatching
- Invoicing

In presenting 'Differences' between private and public procurement, emphasis will be laid on differences that could be resolved:

- not necessarily by all member states because similarities may only be valid in the legal systems of some member states
- in time, through the deployment of new ePublic procurement applications.

Differences constrained by legal systems or otherwise, and therefore academic in nature, will not be developed.

1.1.2 eTendering

Complex tendering procedures as required in the public sector in Europe are not so common in the private sector. In the private sector there are no official thresholds above which a private enterprise would be required to proceed through a tendering process with its suppliers or service providers.

To limit expenses and yet arrive at an optimal response, procedures similar to 'Open', 'Restricted' and 'Negotiated' procedures with competitive dialogue may be used by private sector enterprises where necessary. These would be according to a company's own 'procurement regulation' e.g. IBM's blue book, or procedures set up by a contracting consortium.

An invitation to tender from the buying party is usually sent to parties known to them or their advising consultants. Electronic evaluation forms may be used in the private sector where it may facilitate the first round selection, but this is not often the case.

The final short listed parties are usually invited to face to face meetings to further detail their tenders with presentations, demonstrations and proving their case where the cost/price tag may not be the only criteria. Private sector checks on the solvability and status of the parties, both buyer and seller, would be carried out to the degree required by the size of the undertaking and commitment.

Rigorous checks as required in the public sector with company certification would not be required in the private sector.

Similarities and differences between the public and private sector:

- In simple 'Open' calls in the private sector, the buyer would use several channels to post their invitation to tender, but the call will be open for a few days depending on the responses obtained and importance of the call.
-
- Unless there were specific reasons, e.g. security, embargo, or other restrictions, there would be no reason to limit the parties invited in a private tender to suppliers from the home country. Suppliers may be selected from any country.

- In Public Procurement in the European Union, under the present legislative set up of the Directive 2004/18/EC and 2004/17/EC [21] and [22], tenders above the threshold are required to be informed through OJEU to all Member States. In the private sector, usually there are not similar requirements, nor are there channels to place notices are similar to Tender Electronic Daily (TED).
- Public authorities are developing applications and several are already in place to assist contracting authorities in the specification of invitations to tender. The IDA programme has made proposals aiming at providing a framework which could be recommended, thus preventing the design of too many different specifications of electronic eProcurement systems. IT Service providers have also been engaged by public authorities, both at national level and regional level, to develop and operate eTendering applications for contracting authorities. Such application services are being used by the private sector to submit tenders to the public sectors and other sectors falling under the directive, such as the utilities sector, where there is a legal requirement. eTendering applications are not usually being used for private sector tendering, but there are suggestions to open these applications for both the public sector and private sector.
- The pre-qualification process in the public sector is rightly prescriptive both at EU level and the different levels in Member States. The pre-qualification process also provides exceptions to deal with SMEs and newly formed companies. These exceptions may be taken into account but are not requirements. In the private sector, large companies and consortia would have their own pre-qualification procedures which would be used as required.

1.1.3 eOrdering

eOrdering applications in the private sector were first deployed in the private sector in the sixties, as soon as remote terminals could be linked to host computers. In the late seventies, industry and trade sector organizations were the motor in the development of e-standards to permit a wider deployment of trade transactions.

Standards development evolved from sector standards within a country such as Tradacom (UK), GENCOD (FR), VDA (DE), to more European or international sector standards ODETTE (automotive), EDIFICE (electronics), Eurofer (steel), and GS1.

The development and deployment of international based standards for e-trade has been very much enhanced by the acceptance of the recommendations made by UN/EDIFACT, now known as UN/CEFACT. On the important question of the legal base to do EDI, these same organizations and the ICC (International Chamber of Commerce) developed EDI interchange agreements to overcome shortcomings in national law and international law on e-Business.

This resulted in the recognition of e-Business in several European Commission Recommendations and Directives: Recommendation 1994/820/EC for interchange agreements, the VAT Directive 2001/115/EC, Procurement Directive 2004/18/EC, Directive on e-signature, e-commerce, etc.

In the EDI era (1980-1995), the deployment of the order transaction in the public procurement sector was limited. For example, the UK National Health Service did implement EDI, the same was most probably the case in several other MS, but there were no programmes similar to TEDIS

or IDA eProcurement at that time to coordinate and promote the deployment of EDI in the public procurement sector in Europe.

When moving to Internet technology, the public sector seems to have also taken national paths for the development and deployment of eOrdering, some may be based on UBL (Universal Business Language) or BASDA (Business Application Software Developers Association) in the UK. In some countries, these implementations can be quite extensive, but unfortunately the transaction standards they are based on are limited to national use. The Danish reference to the UBL pre-standard is still an exception, and the proposed IDA set of eOrdering standards do not truly recommend UBL, which itself is pre-standardisation.

Similarities and differences between the public and private sector:

- Except where there may be some legal constraints or restrictions, ordering of goods is not limited in the private sector to a country and eOrdering procedures are available based on European or international industry and trade sector agreements.
- To maintain a reasonable level of cross industry compatibility and interoperability, European private sector user groups agreed to develop core guidelines on which to base their own industry and trade sector guidelines. These user groups are often themselves the European chapter of larger international user groups such as chemical or petroleum industry. Such initiatives are important and are only now starting to be introduced in the public sector through the IDA programme.
- Removing paper from the order cycle made it possible to re-think the business processes linking the application systems (ERP) of the parties, buyers, suppliers, transporters, banks, market places, etc. For example in some industry and trade sectors, there are processes in place to exchange inventory levels or sales reports between the buyer and seller to trigger deliveries without requiring the placement of orders. The internal processes generating the information or processing the received information are linked in a simpler manner avoiding the necessity to process orders. Although there are restrictions for public administration to couple their business process to an individual supplier, it should be possible to implement open sector agreements developed by groups such as GS1 or national associations, such as EAN France, CCG in Germany, etc.
- Ordering through electronic catalogues, or through processes based on them, although simplifying the work of buyers, is becoming more time consuming because data in catalogues is not standardised, and there is a need of a more complete and granular classification system for products. On these issues there are international committees, with European industry participation, to develop standards for eClassification, and eCatalogue. To be effective, European public sector requirements should be channelled through to these working committees, preferably through participation. The private sector is already involved. CEN/ISSS has a Workshop on multilingual electronic cataloguing and classification in eBusiness (WS/eCAT), with extensive international participation and liaison.
- The public sector may be more successful at:
 - o Requiring suppliers to develop and maintain a 'Common Supplier Catalogue' of products procured, e.g. health sector, office supplies...
 - o Common requisition processes for a country, region or sector specific
- With the implementation of ERP systems in the private sector, the function of 'Ordering' is very much assisted by the application system, both for direct and indirect material. This leads to a greater centralisation of the work carried out by procurers, e.g. more specialised along product or technology lines. The function of ordering is being

centralised to cover several countries or a region e.g. EMEA Europe, Middle East and Africa. The public sector ordering function is slowly undergoing a similar re-organization, e.g. the UK has a Central Buying Consortium based in Herefordshire and covering 16 County Councils.

In the ordering and other trade cycles, there are a few areas where several problems are similar and common to both the private and public sector, namely engaging SMEs in e-trade, resolving the question of trust, diversity of cultures and languages, trade across Member States borders, technical interoperability, etc.

1.1.4 eDespatching

Coupled to the ordering and scheduling transactions that precede the despatch, the despatch advice transaction provides information to the customer/consignee on the goods that have been shipped. The level of detail and accuracy of the information in the despatch advice transaction and the timeliness of the exchanges render this message extremely important in logistics and supply chain management in most industry sectors.

By means of open, non restrictive agreements reached between suppliers, transporters, warehouses, and cross docking centres the customer/consignee/public administration may be able to revise inventory levels of frequently ordered products and material and in some cases operate with zero inventory level.

In some trade sectors, buyers from public administration can impose stringent quality controls to be pushed up the supply chain to first and second tier suppliers to guarantee the quality of products. Under such conditions, material can be taken straight into use and consumption avoiding costly quality and quantity checks.

Although the eDespatch Advice transaction is very widely implemented in the private sector in manufacturing, retail and distribution, it is difficult to identify specific implementations in the public sector without a more detailed research.

Similarities and differences between the public and private sector are:

- Because in the private sector it is possible for trading partners, manufactures, suppliers, buyers, transporters, etc. to develop long term agreements, they are able to develop highly efficient and performant logistic processes. There are several examples in the retail and distribution sector that can give guidance for certain Public Sector applications to arrive at open industry and trade sector agreements that would not exclude suppliers.
- Products in the health sector with extremely short shelf life or life span may be delivered on demand. In that sector, it is worth mentioning that public and private procurement are done with almost the same suppliers and about the same products. Despite this fact, and to our knowledge, there is no widely implemented eProcurement system which would have the characteristics to apply to public and private buyers – with little specificity for the former - and following the same set of standards for the majority of EU countries. This report suggest that a study be done to determine the reasons why a Single European Electronic Market of healthcare products could not be realised in the past and under which conditions such a system could be deployed.

ALTIJD DE ACTUELE NORM IN UW BEZIT HEBBEN?

Nooit meer zoeken in de systemen en uzelf de vraag stellen:
'Is CWA 15236:2005 en de laatste versie?'

Via het digitale platform NEN Connect heeft u altijd toegang tot de meest actuele versie van deze norm. Vervallen versies blijven ook beschikbaar. **U en uw collega's** kunnen de norm via NEN Connect makkelijk raadplagen, online en offline.

Kies voor slimmer werken en bekijk onze mogelijkheden op www.nenconnect.nl.

Heeft u vragen?

Onze Klantenservice is bereikbaar maandag tot en met vrijdag, van 8.30 tot 17.00 uur.

Telefoon: 015 2 690 391

E-mail: klantenservice@nen.nl

