UBL

UBL 2.0: The Standard for Government eProcurement

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XML Community of Practice

Lanham, 17 January 2007
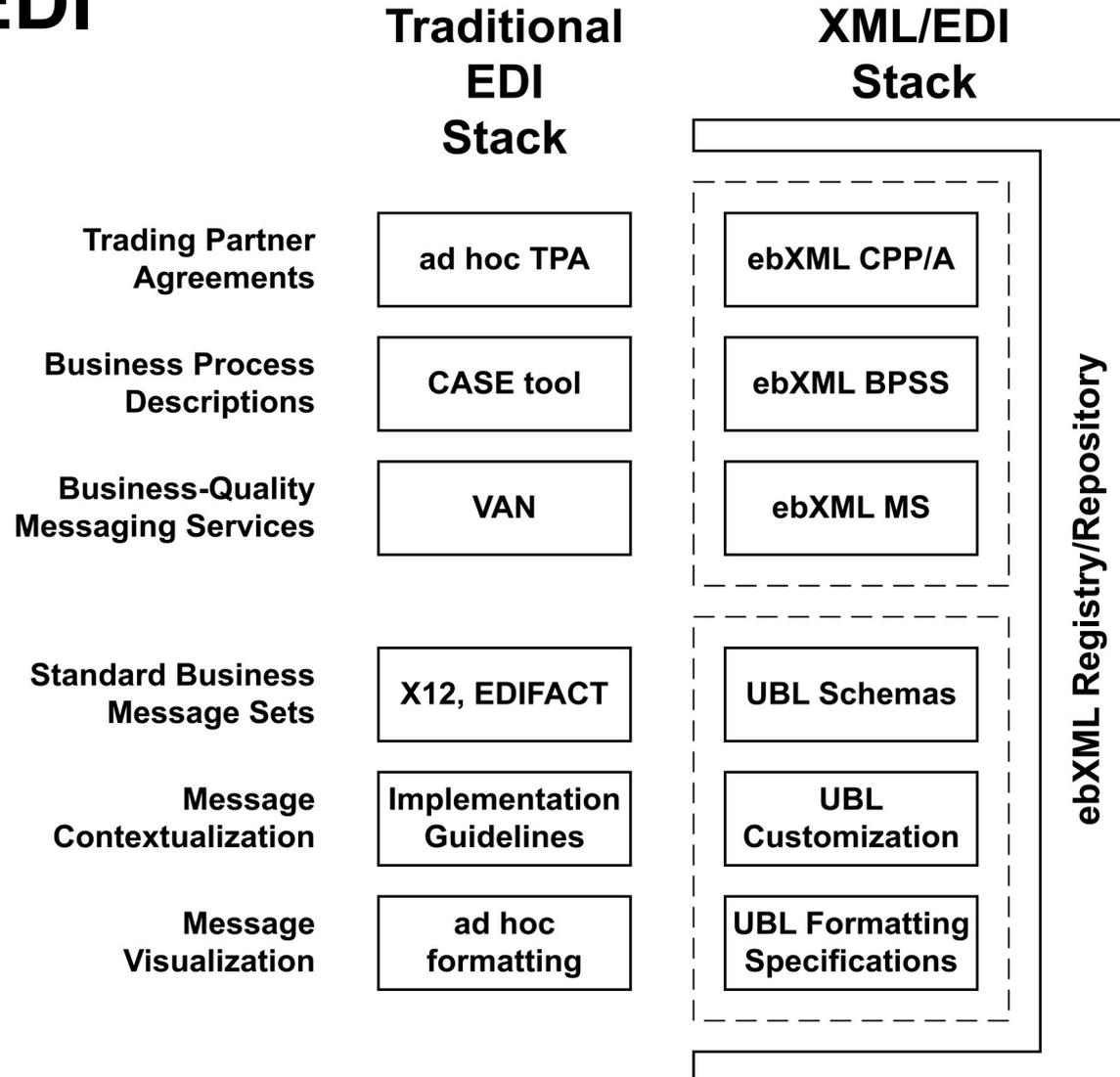
**http://
oasis-open.org/
committees/
ubl**

**OASIS
STANDARD**

The Universal Business Language (UBL)

- International effort to define a royalty-free library of standard electronic business documents

- Designed in an open and accountable vendor-neutral OASIS Technical Committee

- Plugs directly into existing business, legal, auditing, and records management practices with minimum disruption

- Eliminates re-keying of data in existing fax- and paper-based supply chains

- Fills the "payload" slot in B2B web services frameworks

- Maintains close alignment with existing EDI systems

- Presents vendors with a standard target for cheap off-the-shelf business software

XML EDI

	Traditional EDI Stack	XML/EDI Stack	ebXML Registry/Repository
Trading Partner Agreements	ad hoc TPA	ebXML CPP/A	
Business Process Descriptions	CASE tool	ebXML BPSS	
Business-Quality Messaging Services	VAN	ebXML MS	
Standard Business Message Sets	X12, EDIFACT	UBL Schemas	
Message Contextualization	Implementation Guidelines	UBL Customization	
Message Visualization	ad hoc formatting	UBL Formatting Specifications	

UBL 1.0: the "Fifth Generation" B2B language (2004)

G1 (1Q 1998): CBL 1.0 (Veo/NIST public domain)

G2 (2Q 1999): CBL 2.0 (Commerce One)

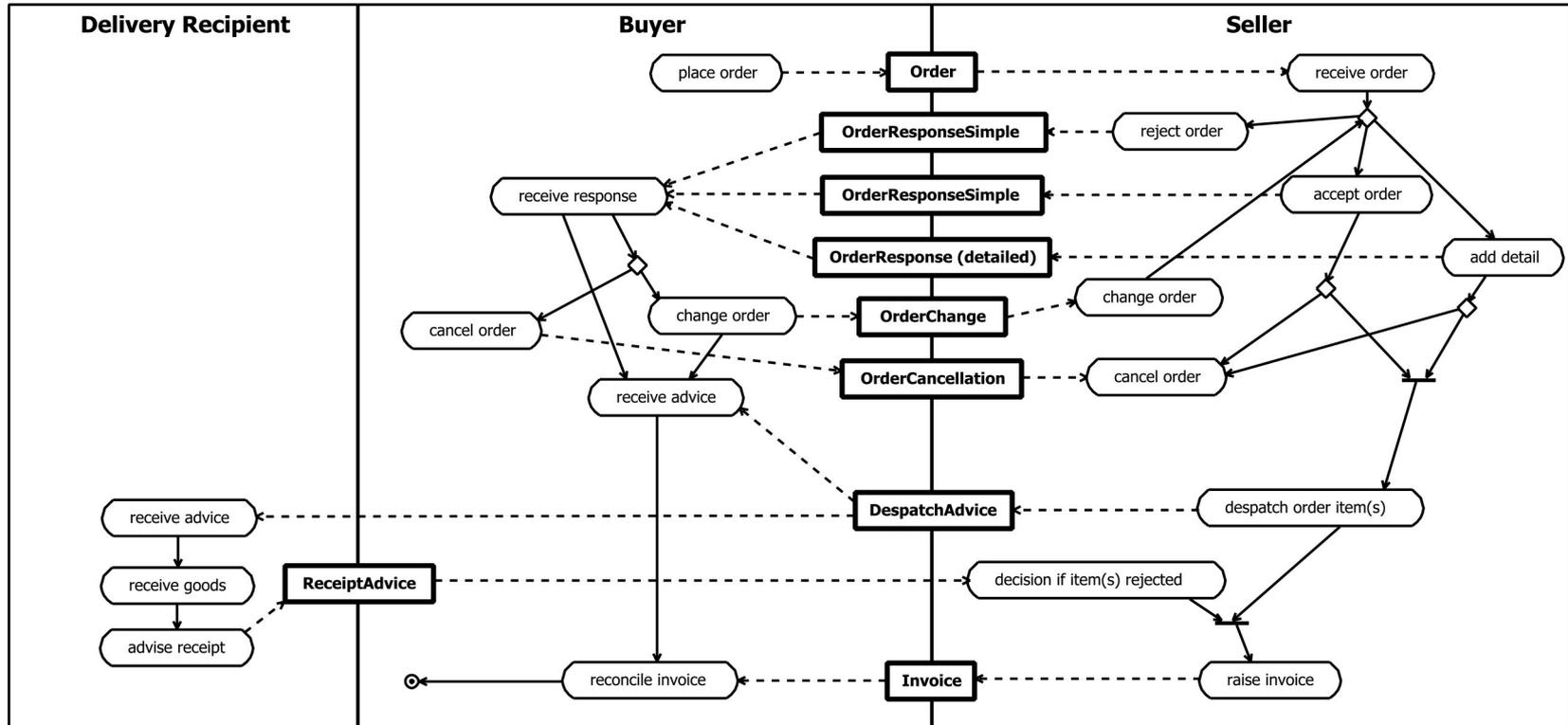**G3** (4Q 2000): xCBL 3.0 (Commerce One and SAP)

G4 (1Q 2003): UBL 0.7 (OASIS)

G5 (4Q 2004): UBL 1.0 (OASIS)

UBL 1.0 represents seven years of continuous development in the creation of a standard XML business syntax based on EDI and electronic marketplaces.

To foster global adoption, the UBL 1.0 International Data Dictionary contains translations of the more than 600 standard UBL business data definitions into Chinese (Traditional and Simplified), Japanese, Korean, Spanish, and Italian.

UBL 1.0 order-to-invoice

This model describes a very large class of use cases.

UBL 1.0 and the UN Layout Key

- The UN Layout Key has for more than 40 years served as the standard for paper documents used in international trade

- A mapping of all the UBL 1.0 documents to their equivalent UN Layouts is provided as part of the UBL 1.0 release

- Free XSL-FO stylesheets are available to convert UBL 1.0 documents to HTML and PDF versions of their UN Layout Key (UNLK) equivalents

- A free transformer is available to convert UBL 1.0 documents to UNLK HTML

- A free formatter is available to convert UBL 1.0 documents to UNLK PDF

- Thus UBL 1.0 is a *standard machine-processable data format* from which at any moment you can automatically generate an *internationally standardized paper representation*
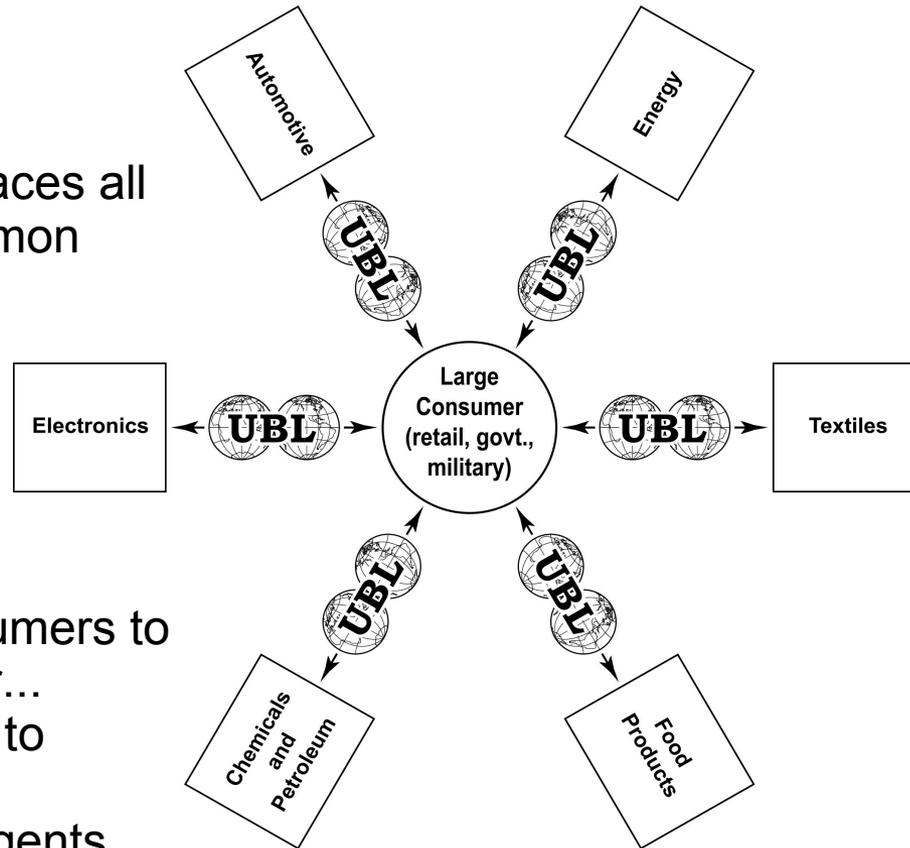
Example instance: Office supply Order

```xml
<?xml version="1.0" encoding="UTF-8"?>
<Order xmlns:res="urn:oasis:names:specification:ubl:schema:xsd:codelist:AcknowledgementResponseCode-
1.0" xmlns:cbc="urn:oasis:names:specification:ubl:schema:xsd:CommonBasicComponents-1.0"
xmlns:cac="urn:oasis:names:specification:ubl:schema:xsd:CommonAggregateComponents-1.0"
xmlns:cur="urn:oasis:names:specification:ubl:schema:xsd:codelist:CurrencyCode-1.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns="urn:oasis:names:specification:ubl:schema:xsd:Order-1.0"
xsi:schemaLocation="urn:oasis:names:specification:ubl:schema:xsd:Order-1.0 ../../xsd/maindoc/UBL-
Order-1.0.xsd">
  <BuyersID>20031234-1</BuyersID>
  <cbc:IssueDate>2003-01-23</cbc:IssueDate>
  <cbc:LineExtensionTotalAmount amountCurrencyCodeListVersionID="0.3"
amountCurrencyID="USD">438.50</cbc:LineExtensionTotalAmount>
  <cac:BuyerParty>
    <cac:Party>
      <cac:PartyName>
        <cbc:Name>Bills Microdevices</cbc:Name>
      </cac:PartyName>
      <cac:Address>
        <cbc:StreetName>Spring St</cbc:StreetName>
        <cbc:BuildingNumber>413</cbc:BuildingNumber>
        <cbc:CityName>Elgin</cbc:CityName>
        <cbc:PostalZone>60123</cbc:PostalZone>
        <cac:CountrySubentityCode>IL</cac:CountrySubentityCode>
      </cac:Address>
      <cac:Contact>
        <cbc:Name>George Tirebiter</cbc:Name>
      </cac:Contact>
    </cac:Party>
  </cac:BuyerParty>
  <cac:SellerParty>
    <cac:Party>
      <cac:PartyName>
        <cbc:Name>Joes Office Supply</cbc:Name>
      </cac:PartyName>
      <cac:Address>
        <cbc:StreetName>Lakeshore Dr</cbc:StreetName>
        <cbc:BuildingNumber>32 W.</cbc:BuildingNumber>
        <cbc:CityName>Chicago</cbc:CityName>
        <cbc:PostalZone>60022</cbc:PostalZone>
        <cac:CountrySubentityCode>IL</cac:CountrySubentityCode>
```

Example UN Layout Key printout: office supply Order

Seller	Purchase order number	
Joes Office Supply 32 W. Lakeshore Dr Chicago, IL 60022	20031234-1	
	Date 2003-01-23	Seller's reference (Quote no.)
	Buyer's reference	Other reference (Contract no.)

Consignee	Buyer
Bills Microdevices 413 N Spring St Elgin, IL 60123	Bills Microdevices 413 Spring St Elgin, IL 60123

	Buyer bank
	Country of origin / Country of destination

Mode of transport	Date of despatch	Terms of delivery	Location
Means of transport	Place of despatch	Special terms Signature Required	
Vessel/flight No.	Port of loading	Terms of payment	Currency of payment
Port of discharge	Place of delivery		

Shipping marks; container number	No. and kind of packages; description of goods	Total gross weight (kg)	Total cube(m³)
		Total net weight (kg)	

Item / References	Description	Country of origin	Commodity code	Quantity	Unit price	Amount
1	Pencils, box #2 red			5	2.50	12.50
2	Photocopy Paper- case			10	30.00	300.00
3	Pens, box, blue finepoint			10	5.00	50.00
4	Tape, 1in case			3	12.50	37.50
5	Staples, wire, box			10	1.00	10.00
6	Pens, box red felt tip			5	5.00	22.50
7	Mousepad, blue			12	.50	6.00

Notes	Total amount
	438.50

Name of signatory
George Tirebiter

Place and date of issue
Elgin, IL   2003-01-23

Signature

CraneUBLOrder.xsl v2.20 2004-09-04 (common v2.14 2004-09-04)
CraneUN220Order.xsl v2.28 2004-10-06
http://www.CraneSoftwrights.com/links/res-ubrf.htm

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The role of a hub format

One adapter interfaces all suppliers to a common consumer...

as well as all consumers to a common supplier...
and *all businesses* to the tax authorities
and the customs agents
and the accountants
and the transporters ...

There appears to be no practical alternative to this plan.

UBL and government procurement

- The "hub format" concept lends itself perfectly to the public sector

- Government can solve interoperability problems through the power of the purse: "Use this format or *you don't get paid."*

- And it can back up its mandates with legislation

- The document-oriented UBL approach minimizes user resistance by transitioning from paper-based transactions to electronic transactions with a minimum of disruption to basic business processes

- European and Asian government procurement experts were the first to understand the potential of UBL....

Northern European Subset working group

Denmark
- Danish Ministry of Science, Technology and Innovation (VTU),
- Danish IT and Telecom Agency (ITST)

Norway
- Norwegian Ministry of Government Administration and Reform eProcurement Secretariat (www.ehandel.no)
- e2b Forum (an e-invoicing initiative in the private sector supported by the government - www.e2b.no).

Sweden
- Single Face To Industry (SFTI), the public sector initiative in Sweden to promote e-business by the Swedish National Financial Management Authority (ESV), Swedish Association of Local Authorities and Regions (Sveriges Kommuner och Landsting), and Swedish Administrative Development Agency (Verva)

England
- OGC buying solutions under Office of Government Commerce

Finland
- State Treasury
- Tieke Finnish Information Society Development Centre

Iceland
- The Financial Management Authority (Fjársýsla Ríkisins).
- Iceland Committtee on e-business and Trade Procedures (ICEPRO)

Expanded UBL 2.0 business processes

UBL has been extended to support government procurement.

Create Catalogue
Update Catalogue Item Specification
Update Catalogue Pricing
Delete Catalogue
Buyer-initiated Sourcing
Punchout Sourcing
Ordering
Fulfilment with Despatch Advice   } *Approximate scope*
Fulfilment with Receipt Advice   *of UBL 1.0*
Billing with Credit Note
Billing with Debit Note
Self Billing with Credit Note
Self Billing with Self Billed Credit Note
Freight Billing
Payment
Statement
Initiate Transport Services
Certification Of Origin Of Goods

Added documents in UBL 2.0

- New document types for sourcing

  CatalogueRequest, Catalogue, CatalogueItemSpecificationUpdate, CataloguePricingUpdate, CatalogueDeletion, RequestForQuotation, Quotation

- New document types for fulfilment

  ForwardingInstructions, PackingList, BillOfLading, Waybill, CertificateOfOrigin, TransportationStatus

- New document types for billing

  CreditNote, DebitNote, SelfBilledInvoice, SelfBilledCreditNote, FreightInvoice, Reminder

- New document types for payment

  RemittanceAdvice, Statement

- New supplementary document types

  Application Response, AttachedDocument

Other major additions in UBL 2.0

- Additional support for U.S. and European taxation requirements

- A simple method for extending the UBL standard schemas

- Flexible standardization of code lists using Schematron (ISO/IEC 19757-3) and XSLT (W3C)
  - Major technical breakthrough
  - See the OASIS UBL 2.0 Standard for details

- A large body of supporting materials for developers is under development for 2007

- Software support is available from GEFEG, Justsystem, and others

Advantages of a *mandated* XML format

- Lower cost of integration through reuse of common code

- Lower cost of commercial software

- Easier learning curve

- Lower skill level required for everyday processing tasks

- Standardized training, many skilled workers, universally available pool of system integrators

- Lower cost of entry and therefore quicker adoption by small and medium-size enterprises (SMEs)

- Classic example: HTML

- The "network effect" results from standardization *per se*

- The economics of such standardization are direct and compelling....

Early adopters: Denmark and Sweden

- Since February 2005, UBL Invoice has been mandated by law for all public-sector business in Denmark

- 1.25 million UBL invoices are exchanged in the Danish public sector every month, with savings to the government conservatively estimated at 100 million euros annually

- This adoption of one UBL document by one government affects 440,000 businesses and is already in the process of forcing UBL support from every company that sells business software in Northern Europe

- Beginning in October 2005, "Swed-invoice" (a subset of UBL Invoice) has been recommended for all government use by the Swedish National Financial Management Authority

- The NFMA estimates that standardization on UBL Invoice will save the Swedish government SEK 4 billion (more than 500 million dollars) in the first five years of deployment

Expansion to the private sector

- Beginning in 2007, the Danish government is mounting a major national effort to deploy 12 UBL 2.0 documents into the Danish private sector

- Extensive supporting materials have already been released on the government web site [see brochure]

- The first UBL International Conference, hosted in Denmark November 2006, drew more than 100 participants, with sponsors that included Microsoft and Accenture

- When the program is fully deployed in 2012, it is expected to save Danish businesses *550-700 million euros annually*

- This is for a population of 5.5 million people -- about the same as the state of Tennessee

- The efficiencies gained by this transition will give Denmark *an enormous competitive advantage* over neighboring countries

USDOT Electronic Freight Management (EFM) pilot using UBL 2 Despatch Advice and Bill of Lading

Factory → Airport/Out-Bound Flight (Hong Kong) → Airport/In-Bound Flight (Columbus) → Warehouse/DC

Test Participants:

- Two Chinese apparel manufacturers
- Two freight forwarders
- Air cargo terminal operator
- Two charter air carriers
- Buyer
- US 3PL
- Import Broker

UBL and UN/CEFACT

- UN/CEFACT is the United Nations Centre for Trade Facilitation and Electronic Business, home of EDIFACT (EDI)

- UBL is the first standard implementation of the UN/CEFACT Core Components Technical Specification, ISO 15000-5

- UN/CEFACT has recognized UBL 2.0 as "appropriate first-generation XML documents for eBusiness"

- To promote convergence, UBL participants are working closely with relevant UN/CEFACT groups (TBG1, TBG3, ATG2)

For more information

UBL: http://oasis-open.org/committees/ubl

UBL Chair: jon.bosak@sun.com

UBL 1.0 International Data Dictionary:

  http://www.oasis-open.org/committees/download.php/15631/cd-UBL-1.0-IDD-1.ods

  http://www.oasis-open.org/committees/download.php/12242/cd-UBL-1.0-IDD-1.xls

UBL 1.0 UN Layout Key stylesheets: http://www.cranesoftwrights.com/u/

UBL 1.0 Layout Key Transformer: http://www.ambrosoft.com/

UBL 1.0 Small Business Subset: http://docs.oasis-open.org/ubl/cs-UBL-1.0-SBS-1.0/

UBL 2.0 Standard: http://docs.oasis-open.org/ubl/os-UBL-2.0.zip

UBL 2.0 Naming and Design Rules (public review):

  http://docs.oasis-open.org/ubl/prd-UBL-NDR-2.0.pdf

Public ubl-dev discussion list: http://www.oasis-open.org/mlmanage/