

# The Universal Business Language

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# Promises, Promises

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## The promise of XML for e-business

- Plug 'n play electronic commerce
- Spontaneous trade with anyone, any time
- No ugly EDI binary syntax
- No expensive custom programming
- Ubiquitous Internet presence
- Cheap tools
- Complete platform independence

## Why it's not that simple

- This is not how we actually do business
  - Most businesses trade with a small number of customers and suppliers
  - Most business relationships are based on trust
  - Competitive advantage relies on human judgement
  - The hard part of business is exception handling
- XML is not a language; it's a metalanguage
  - XML tags have no predefined meaning
  - XML by itself conveys only content and structure, not behavior or meaning
  - But seamless communication depends on shared meaning
  - Shared meaning requires semantic standardization across whole industries
  - UBL will define a standard XML language for business

## The Universal Business Language

- Synthesis of existing XML B2B languages (xCBL, cXML, RosettaNet, OAG, etc.)
- Applicable across any sector or domain of electronic trade, transport, and administration (purchasing, payments, logistics, transportation, statistical reporting, social administration, healthcare, etc.)
- Interoperable with existing EDI systems
- Based on a core library plus a context-sensitive extension mechanism
- Unencumbered by intellectual property claims
- Intended to become a legal standard for international trade

## Some different promises

The standardization of a common XML business language will yield a number of genuine advantages over existing EDI and proprietary XML-based B2B systems.

- Lower cost of integration (both among and within enterprises)
- Lower cost of commercial software
- Easier learning curve
- Lower cost of entry
- Quicker adoption by small and medium-size enterprises (SMEs)
- Standardized training
- Universally available pool of skilled workers
- More fluid job market

# Problems, Problems

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## Economic barriers to UBL

- There are already several competing (but incomplete) proprietary XML business languages
- Some companies have already made substantial investments in nonstandard solutions and don't want to change
- Some industrial consortia have made substantial investments in industry-specific XML languages and don't want to change
- Some big vendors derive substantial income from integrating systems built on different business languages
- Some big vendors have built expensive solutions around proprietary XML languages

The economic advantages of complete interoperability will outweigh all these considerations in the long run.

## Technical barriers to UBL

The basic problem: every company has a slightly different way of doing business.

So every business relationship exhibits a unique set of data exchange requirements.

- Traditional EDI solution
  - Standardize the union set of all possibly required data structures needed for anyone's version of a given transaction type
  - For each trading relationship, define the subset that fits the requirements of particular trading partners using "implementation guidelines"
- This works, but everyone agrees there has to be a better solution

## The general problem: context

"Standard" business document components are different when used in different business contexts.

- Example: shipping addresses
  - Addresses in Japan are different from addresses in the United States
  - Addresses in the auto industry are different from addresses in other industries
- Example: invoice items
  - An invoice for shoes needs item fields for color; an invoice for gourmet coffee needs item fields for grind
  - Invoices for microprocessor boards have to contain serial numbers for the processor chips to detect substitution in shipment

## Context drivers

Analysis has identified the most important "context drivers":

- Business process
- Industry classification
- Product classification
- Geopolitical region
- Official constraints
- Primary business role (vendor, customer, etc.)
- Supporting business role (shipper, insurer, etc.)
- System capabilities

## An approach to business standardization

1. Identify the largest data structures (business information entities) that are shared across related business document types and standardize those structures in an agreed-upon XML syntax to form a core library.
2. Devise a mechanism for extending or modifying the business information entities to reflect the requirements of any given business context (any set of context drivers).
3. Generate standard context-specific XML versions of basic business documents and store them in a public registry.
4. Point to the appropriate document types for a specific context and do business.

# UBL and ebXML

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## The ebXML initiative

- Joint 18-month effort of OASIS (the Organization for the Advancement of Structured Information Standards) and UN/CEFACT (United Nations Centre for Trade Facilitation and Electronic Business)
- Over 1000 participants from all over the world
- The vision: A global electronic market place where enterprises of any size, anywhere can:
  - Find each other electronically
  - Conduct business through the exchange of XML based messages
- <http://www.ebxml.org/>

## ebXML achievements

- Basic XML support infrastructure: **DONE**  
(maintained in OASIS)
  - Standard business messaging extensions to SOAP
  - Standard protocols for trading partner agreements
  - Standard registry for schemas, business models, and partner profiles
- Preliminary analysis of context drivers: **DONE**
- Core Component definition methodology: **DONE**
- Core Component catalog compilation: **CONTINUING** (UN/CEFACT)
- Business process methodologies: **CONTINUING** (UN/CEFACT)

## Implementing ebXML with UBL

The arrival of UBL will kick-start ebXML for small and medium-size businesses.

### 1. Basic UBL

- Standard context-sensitive XML document types
- Secure messaging (SOAP + ebXML extensions)

### 2. Intermediate UBL

- Add ebXML CPP/CPA for trading partner agreements
- Add ebXML Reg/Rep for CPPs and document formats

### 3. Advanced UBL

- Integrate UBL with machine-processable ebXML business models



## Advantages of the UBL approach

- Starts with the low-hanging fruit
- Provides easily understood transition from traditional EDI and paper-based business practices
- Gets small businesses on board
- Fits existing legal and trade concepts
- Defers the rocket science for later

## The UBL potential

The World Wide Web took off when a simple, standard tag language (HTML) was combined with a simple, ubiquitous transport mechanism (HTTP).

I believe that UBL + secure messaging (SOAP with ebXML extensions) can do for electronic commerce what HTML + HTTP did for web publishing.

# UBL Deliverables

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## Deliverable 1: Component library

- Shared library of basic XML building blocks (address, quantity, etc.)
- Provides shared basis for standard documents
- Based on xCBL 3.0 (donated by Commerce One and SAP)
  - Covers a large set of document formats
  - Has component-based approach to document design
  - Widely deployed
  - Unencumbered IP
- But the UBL library will not be backward-compatible with xCBL (and may not even strongly resemble it)

## Deliverable 2: Standard documents

- Set of XML schemas for common business documents
- Common basis for ad hoc customization in advance of the UBL context methodology
  - Core library itself
  - Trade/procurement category (Purchase Order, Purchase Order Response, Purchase Order Change)
  - Materials Management Category (Advance Ship Notice, Planning Schedule, Goods Receipt)
  - Trade/payment category (Commercial Invoice, Remittance Advice)
  - Transport/Logistics category (Consignment Status Request, Consignment Status Report, Bill of Lading)
  - Catalog category (Price Catalog, Product Catalog)
  - Statistical Reports category (Accounting Report)

## Deliverable 3: Context methodology

The context-sensitive extension methodology will define how document formats can be extended based on specific trading partner characteristics.

UBL context extension will build on experience with OO extension methodology, but will be

- More structured
- More consistent
- Easier to track
- Easier to automate
- Require a lower level of skill

The UBL extension methodology will take the ebXML context rules as its starting point.

# The UBL TC

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## Preparation: the UBL Group

The UBL Group performed preliminary committee work (July-October 2001).

**Schema Committee:** investigated normative schema languages for UBL

**Planning Committee:** laid out preliminary plan of work

**Mapping Committee:** investigated mapping between UBL and the ebXML Core Components

**Intellectual Property Rights Committee:** examined and explained the OASIS IPR policy

**Liaison Committee:** explored issues of scheduling and collaboration with other organizations (X12/EWG JCC, RosettaNet, OAGI, EIDX, XBRL)

Reports of the UBL Group committees are at <http://oasis-open.org/committees/ubl/200110/grprpts.htm>

## Why UBL chose OASIS

- Nonprofit corporation dedicated to XML standards development
  - Any interested party can join OASIS, and the TC process is completely democratic
  - All OASIS mail lists are publicly visible
  - All OASIS Technical Committees provide a freely subscribable mail list for public comment
- Positioned for international trade
  - OASIS has extensive connections with the international EDI community through two years of ebXML partnership with UN/CEFACT
  - OASIS is a continuing partner with the UN in ebXML
  - OASIS has been invited to join the group that coordinates the legal standards bodies for international trade (ISO, IEC, ITU, UN/CEFACT)

## OASIS UBL Technical Committee

- First meeting 29 October through 1 November 2001
- Hosted by Sun Microsystems in Menlo Park
- 30+ participants from Sun, Commerce One, SAP, Oracle, HP (and RosettaNet), KPMG (and XBRL), General Electric, U.S. Navy, U.S. GSA (and CIO Council), and a number of others
- Formed the TC
- Accepted the work of the UBL Group as input
- Adopted rules for subcommittees
- Approved subcommittee memberships and charters
- Did two days of subcommittee work
- Heard subcommittee reports

Reports of the UBL SCs can be found at <http://oasis-open.org/committees/ubl/200110/reports.htm>

## UBL TC Subcommittees

- Library Content SC
- Context Methodology SC
- Context Drivers SC
- Naming and Design Rules SC
- Tools and Techniques SC
- Liaison SC
- Marketing SC
- Administration SC

Any OASIS member can become a voting member of a UBL subcommittee. Contact the appropriate chair (coming up) if you're interested.

## UBL Library Content SC

**Charter:** To rapidly develop standard XML business library content by taking an existing library as a starting point and modifying it to incorporate the best features of other existing business and core component libraries.

**Chair:** Tim McGrath <tmcgrath@portcomm.com.au>

**Vice chair:** Marion Royal <marion.royal@gsa.gov>

**Archive:** <http://lists.oasis-open.org/archives/ubl-lcsc>

**Web page:** <http://oasis-open.org/committees/ubl/lcsc/>

## UBL Context Methodology SC

**Charter:** To develop a methodology and tools for applying context to the core library of generic business information entities (BIEs) in order to produce contextualized BIEs, and develop initial machine-readable descriptions of context rules, in the service of helping the Library Content SC do its work.

**Chair:** Matt Gertner  
<matthew.gertner@schemantix.com>

**Editor:** Eduardo Gutentag  
<eduardo.gutentag@sun.com>

**Archive:** <http://lists.oasis-open.org/archives/ubl-cmsc>

## UBL Context Drivers SC

**Charter:** To work on improvement and further development of the context drivers and their values.

**Chair:** Sue Probert <sue.probert@commerceone.com>

**Archive:** <http://lists.oasis-open.org/archives/ubl-cdsc>

## UBL Naming and Design Rules SC

**Charter:** To recommend to the TC rules and guidelines for normative-form schema design, instance design, and markup naming, to write and maintain documentation of these rules and guidelines, and to be responsible for further maintenance of the design principles that were specified in the report of the UBL Group Planning Committee.

**Chair:** Eve Maler <eve.maler@sun.com>

**Editor:** Mark Crawford <mcrawford@lmi.org>

**Archive:** <http://lists.oasis-open.org/archives/ubl-ndrsc>

**Web page:** <http://oasis-open.org/committees/ubl/ndrsc/>

## UBL Tools and Techniques SC

**Charter:** To evaluate and recommend to the TC the tools and techniques to be used in the development, quality assurance, documentation, maintenance, and revision of the UBL XML data formats, and write and maintain guidelines reflecting these recommendations.

**Chair:** Arofan Gregory  
<arofan.gregory@commerceone.com>

**Archive:** <http://lists.oasis-open.org/archives/ubl-ttsc>



## UBL Liaison SC

**Charter:** To receive requests for input from SCs, negotiate review schedules with cooperating organizations, collect and organize formal input from cooperating organizations, convey input to the requesting SCs, and propose policies regarding the relationship of the UBL TC to other organizations for consideration by the TC.

**Chair:** Jon Bosak <jon.bosak@sun.com>

**Archive:** <http://lists.oasis-open.org/archives/ubl-lsc>

The members of the Liaison SC are persons formally appointed to this role by cooperating organizations.

## UBL Marketing SC

**Charter:** To work with TC members and the OASIS staff to generate publicity for the UBL effort and promote its adoption.

**Chair:** Jon Bosak <jon.bosak@sun.com>

**Archive:** <http://lists.oasis-open.org/archives/ubl-msc>

# UBL Status Report

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## Basic areas of activity

- Technical subcommittees:
  - Naming and Design Rules SC
  - Context Methodology SC
  - Tools and Techniques SC
- Content subcommittees:
  - Library Content SC
  - Future domain-specific SCs
- Administration:
  - Marketing
  - Liaisons

## Use cases

The technical SCs are being guided by the following use cases (in progress):

- Develop New UBL Document Type to Replace Paper Document
- Customize UBL Document Type
- Create UBL Document
- Edit UBL Document
- Display UBL Document
- Export UBL Document from Business Application
- Import UBL Document into Business Application
- Transform UBL Document into Other XML Format

## Schema design rules

Method of work: appoint individual champions to develop position papers.

Position papers so far:

- Tag structure
- Code lists
- Modularization, namespaces, and versioning
- Local vs. global elements
- Elements vs. attributes
- Extension (additive vs. subtractive)

For latest details, see the UBL Naming and Design Rules portal: <http://www.oasis-open.org/committees/ubl/ndrsc/>

## Schema issues

A preliminary decision has been made to use W3C XML Schema (XSD). However:

- No schema developed in one XSD tool works with any of the other XSD tools
- The notion of restriction is likely to be important for the context rules, but proper support is hard to find
- Namespace support tends to be flaky

The context rules will be designed to work with RELAX NG as well as XSD to take advantage of RELAX NG's ability to compute schema comparisons.

## Library content deliverables

The library content will be based on xCBL and the ebXML Core Components Technical Specification. The main deliverables will be:

- A BIE Catalog, identifying the BIE's out of the xCBL Library
- XML (XSD) Schemas for business document types
- Example instance for each schema
- Documentation for each schema
- Customization methodology
- Publication of schemas into public registries

## Library content workplan

The LCSC is beginning with the xCBL Order schema.

- Identify Basic Information Entities, Aggregates and Contexts used in xCBL Order
- Develop UBL conceptual library of BIEs incorporating input from other initiatives
- Assemble the BIEs necessary for an Order (based on core xCBL constructs and nominated contexts)
- Instantiate these in XML syntax according to the UBL Naming and Design rules
- Undertake implementation trials
- Document the methodology used
- Repeat the process for Invoice
- Continue through the list of common business documents

## Library content secondary deliverables

While developing schemas for the basic library, the LCSC will also

- Validate and contribute to the set of ebXML Context Drivers
- Apply and contribute to the ebXML Core Components

## Library content schedule

- Order document out February 2002
- Invoice document April 2002
- Core Library built throughout 2002

## UBL Marketing

- UBL White Paper will be published next week (for latest draft, see ubl mail archive)

## Organizational relationships

- Liaisons have been appointed from
  - EIDX (electronics manufacturing)
  - XBRL (accounting)
  - ARTS (retail industry)
  - RosettaNet
- Liaisons are in progress from the major EDI standards bodies
- UBL is on the agenda of the ISO IEC ITU UN/CEFACT Electronic Business MoU Management Group

## UBL TC meeting schedule for 2002

- 22-25 January 2002 in Menlo Park, California, hosted by Sun Microsystems
- 18-22 March 2002 in Barcelona, Spain, in conjunction with the EDIFACT Working Group
- June/July 2002: West coast U.S. (TBD)
- Sept/Oct 2002: East coast U.S. (TBD)

## Participation in UBL

To get more information about UBL: <http://oasis-open.org/committees/ubl>

To subscribe to the ubl-comment list: <http://lists.oasis-open.org/ob/adm.pl>

To join OASIS: <http://www.oasis-open.org/join>

To join a UBL SC: contact the subcommittee chair

To join the UBL TC: send a request to the TC chair,  
[jon.bosak@sun.com](mailto:jon.bosak@sun.com)