Universal Business Language: Realizing eBusiness XML

Mark Crawford, LMI

UBL Vice Chair

Why Are We Talking About UBL

- **UBL fulfills the promise of XML for business by defining a standard cross-industry vocabulary**

- **UBL is the ebXML missing link**

- **UBL plus ebXML enables the next generation of EDI**

  - **Cheaper, easier, Internet-ready**

  - **Extends benefits of EDI to small businesses**

  - **Fits existing legal and trade concepts**

  - **Allows re-use of data**

- **UBL can provide the XML payload for a wide variety of other web-based business frameworks**

Overview

Goals for Successful eBusiness Services

- **Web-enable existing fax- and paper-based business practices**

- **Allow businesses to upgrade at their own pace**

- **Preserve the existing investment in EDI**

- **Integrate small and medium-size businesses into existing EDI-based supply chains**

The standardization of XML business documents is the easiest way to accomplish these goals.

Can't We Just Do It?

W3C Specifications Documentation
Text Encoding Initiative (TEI)
Channel Definition Format, CDF (Based on XML)
RDF Rich Site Summary (RSS)
Open Content Syndication (OCS)
W3C Document Object Model (DOM), Level 1 Specification
Web Collections using XML
Meta Content Framework Using XML (MCF)
XML-Data
Namespaces in XML
Resource Description Framework (RDF)
Australia New Zealand Land Information Council (ANZLIC) - Metadata
Alexandria Digital Library Project
ATLA Serials Project (ATLAS)
XML Metadata Interchange Format (XMI)-Object Management Group (OMG)
OMG Common Warehouse Metadata Interchange (CWMI) Specification
Object Management Group XML/Value RFP
MDC Open Information Model (OIM)
Educom Instructional Management Systems Project (IMS)
    Metadata Specification
Structured Graph Format (SGF)
Legal XML Working Group and UELP
XML Court Interface (XCI)
Georgia State University Electronic Court Filing Project
Web Standards Project (WSP)
HTML Threading - Use of HTML in Email
Open Software Description Format (OSD)
XLF (Extensible Log Format) Initiative
Apache XML Project
WAP Wireless Markup Language Specification
HTTP Distribution and Replication Protocol (DRP)
Chemical Markup Language
Molecular Dynamics [Markup] Language (MoDL)
Bioinformatic Sequence Markup Language (BSML)
BIOpolymer Markup Language (BIOML)
Virtual Hyperglossary (VHG)
Weather Observation Definition Format (OMF)
Open Financial Exchange (OFX/OFE)
Interactive Financial Exchange (IFX)
FinXML - 'The Digital Language for Capital Markets'
Extensible Financial Reporting Markup Language (XFRML)
Open Trading Protocol (OTP)
Financial Products Markup Language (FpML)
Mortgage Bankers Association of America XML Workgroup
Digital Property Rights Language (DPRL)
XML Digital Signature (Signed XML - IETF/W3C)
Digital Receipt Infrastructure Initiative
Digest Values for DOM (DOMHASH)
Signed Document Markup Language (SDML)
FIXML - A Markup Language for the FIX Application Message Layer
Bank Internet Payment System (BIPS)
smartX ['SmartCard'] Markup Language (SML)
Real Estate Transaction Markup Language (RETML)
OpenMLS - Real Estate DTD Design
ACORD - XML for the Insurance Industry
Customer Profile Exchange (CPEX) Working Group
Customer Support Consortium
XML for the Automotive Industry - SAE J2008
XML.ORG - The XML Industry Portal
X-ACT - XML Active Content Technologies Council
Electronic Business XML Initiative (ebXML)
Portal Markup Language (PML)
EDGARspace Portal
DII Common Operating Environment (COE) XML Registry
Open eBook Initiative
Mathematical Markup Language
OpenMath Standard

OpenTag Markup
Metadata - PICS
MIX - Mediation of Information Using XML
CDIF XML-Based Transfer Format
Synchronized Multimedia Integration Language (SMIL)
Precision Graphics Markup Language (PGML)
Vector Markup Language (VML)
WebBroker: Distributed Object Communication on the Web
Web Interface Definition Language (WIDL)
XML/EDI - Electronic Data Interchange
XML/EDI Repository Working Group
European XML/EDI Pilot Project
EEMA EDI/EC Work Group - XML/EDI
ANSI ASC X12/XML and DISA
Information and Content Exchange (ICE)
CommerceNet Industry Initiative
eCo Interoperability Framework Specification
BizTalk Framework
eCo Framework Project and Working Group
Commerce XML (cXML)
RosettaNet
Open Catalog Protocol (OCP)
vCard Electronic Business Card
iCalendar XML DTD
XML Encoded Form Values
Capability Card: An Attribute Certificate in XML
Telecommunications Interchange Markup (TIM, TCIF/IPI)
aecXML Working Group - Architecture, Engineering and Construction
Product Data Markup Language (PDML)
Product Definition Exchange (PDX)
Electronic Component Information Exchange (ECIX) and
Pinnacles Component Information Standard (PCIS)
ECIX QuickData Specifications
ECIX Component Information Dictionary Standard (CIDS)
ECIX Timing Diagram Markup Language (TDML)
Encoded Archival Description (EAD)
UML eXchange Format (UXF)
XML Data Binding Specification
Translation Memory eXchange (TMX)
P3P Syntax Specification
Scripting News in XML
InterX.org Initiative
NuDoc Technology
Coins: Tightly Coupled JavaBeans and XML Elements
DMTF Common Information Model (CIM)
Universal Plug and Play Forum
Process Interchange Format XML (PIF-XML)
Ontology and Conceptual Knowledge Markup Languages
XOL - XML-Based Ontology Exchange Language
Procedural Markup Language (PML)
QAML - The Q&A Markup Language
LACITO Projet Archivage de données linguistiques
sonores et textuelles [Linguistic Data Archiving Project]
Astronomical Markup Language
Astronomical Instrument Markup Language (AIML)
GedML: [GEDCOM] Genealogical Data in XML
Newspaper Association of America (NAA) - Standard for
Classified Advertising Data 5.5
News Industry Text Format (NITF)
XMLNews: XMLNews-Story and XMLNews-Meta
NewsML and IPTC2000
Notes Flat File Format (NFF)
Java Help API
Cold Fusion Markup Language (CFML)
Document Content Description for XML (DCD)
XSchema

Document Definition Markup Language (DDML)
WEBDAV (IETF 'Extensions for Distributed Authoring and Versioning on the Web')
DAV Searching and Locating (DASL)
Graphic Communications Association - GCA 'Paper' DTD
DocBook XML DTD
Tutorial Markup Language (TML)
International Development Markup Language (IDML)
Call Processing Language (CPL)
Call Policy Markup Language (CPML)
VoiceXML Forum (Voice Extensible Markup Language Forum)
VoxML Markup Language
Telephony Markup Language (TML)
SABLE: A Standard for Text-to-Speech Synthesis Markup
Java Speech Markup Language (JSML)
SpeechML
TalkML
XML and VRML (Virtual Reality Modeling Language) - X3D
XML for Workflow Management [NIST]
SWAP - Simple Workflow Access Protocol
XML-Based Process Management Standard: Wf-XML
Theological Markup Language (ThML)
LitML: A Liturgical Markup Language
XML-F ('XML for FAX')
Extensible Forms Description Language (XFDL)
XML Forms Architecture (XFA)
Broadcast Hypertext Markup Language (BHTML)
IEEE LTSC XML Ad Hoc Group
IEEE Standard DTD
Open Settlement Protocol (OSP) - ETSI/TIPHON
Directory Services Markup Language (DSML)
WDDX - Web Distributed Data Exchange
Business Rules Markup Language (BRML)
Common Business Library (CBL)
Open Applications Group - OAGIS
Schema for Object-oriented XML (SOX)
XMLTP.Org - XML Transfer Protocol
The XML Bookmark Exchange Language (XBEL)
Simple Object Definition Language (SODL) and XMOP Service
Simple Object Access Protocol (SOAP)
XML and Music
Clinical Trial Data Model
Human Resource Management Markup Language (HRMML)
HR-XML Consortium
XML-HR Initiative - Human Resources
ECMData - Electronic Component Manufacturer Data Sheet Inventory Specification
Bean Markup Language (BML)
The Koala Bean Markup Language (KBML)
Jigsaw XML Format (JXML)
Chinese XML Now!
MOS-X (Media Object Server - XML)
FLBC (Formal Language for Business Communication) and KQML
ISO 12083 XML DTDs
Extensible User Interface Language (XUL)
User Interface Markup Language (UIML)
Process Specification Language (PSL) and XML
XML DTD for Phone Books
Using XML for RFCs
Schools Interoperability Framework (SIF)
Guideline XML (gXML)
Extensible Protocol
XML Belief Network File Format (Bayesian Networks)
Predictive Model Markup Language (PMML)
The Data Documentation Initiative (DDI)
XML and CORBA

The Problem Is

Bridgeman Art Library
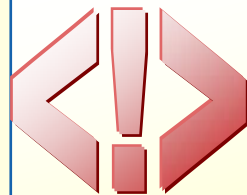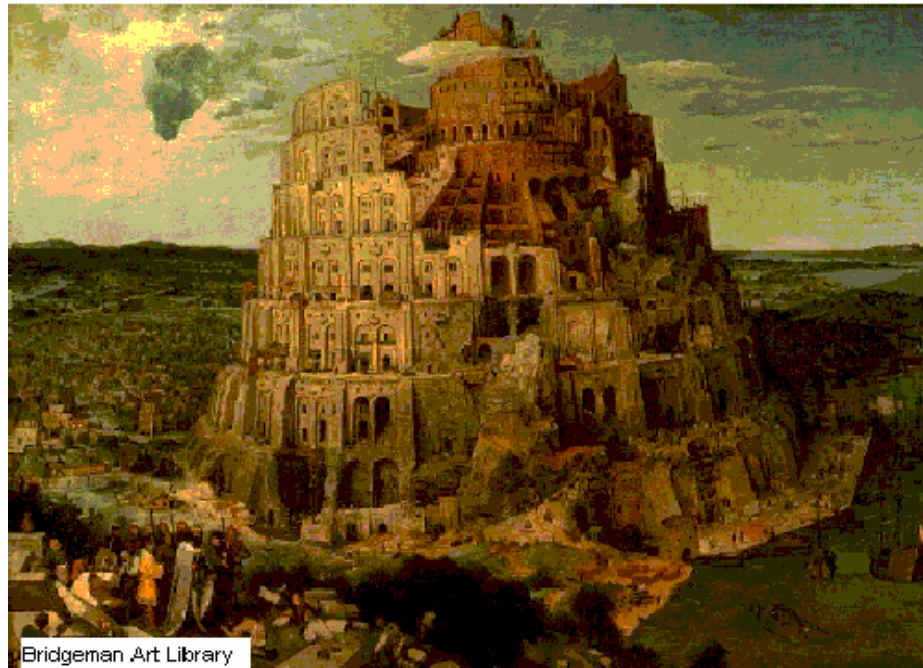
Repetition of „Tower of Babel" Same mistakes as EDI

Reengineering the Standards Process

TODAY
(informal description)
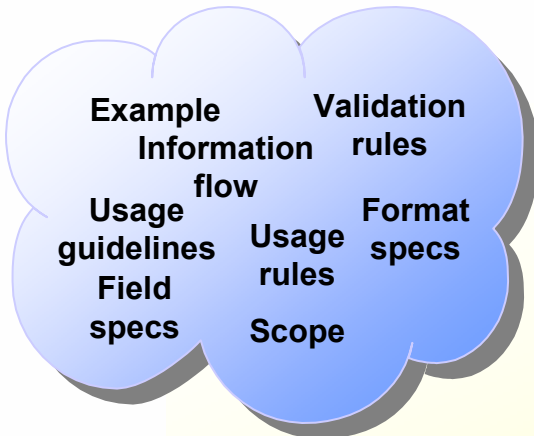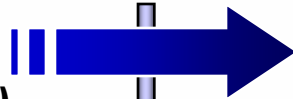
TOMORROW
(rigorous and formal description)

Cloud (TODAY):
- Example
- Validation rules
- Information flow
- Usage guidelines
- Usage rules
- Format specs
- Field specs
- Scope

Business Documents

Purchase Order
- Sender
- Recipient
- Position
- Account Summary

W H Y — Business Analysis / Requirements Analysis

W H A T — Logical Analysis / Message Design

H O W — Technical Design / Technical Implementation
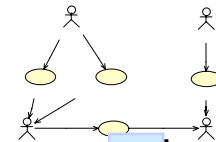
BUSINESS MODELS
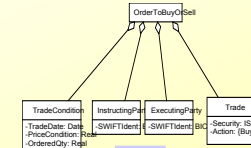
TRANS-ACTIONS

COMPONENTS

DOCUMENTS

Purchase Order
- Sender
- Recipient
- Position
- Account Summary

XML CODE

UBL

The Success of XML Business Standardization
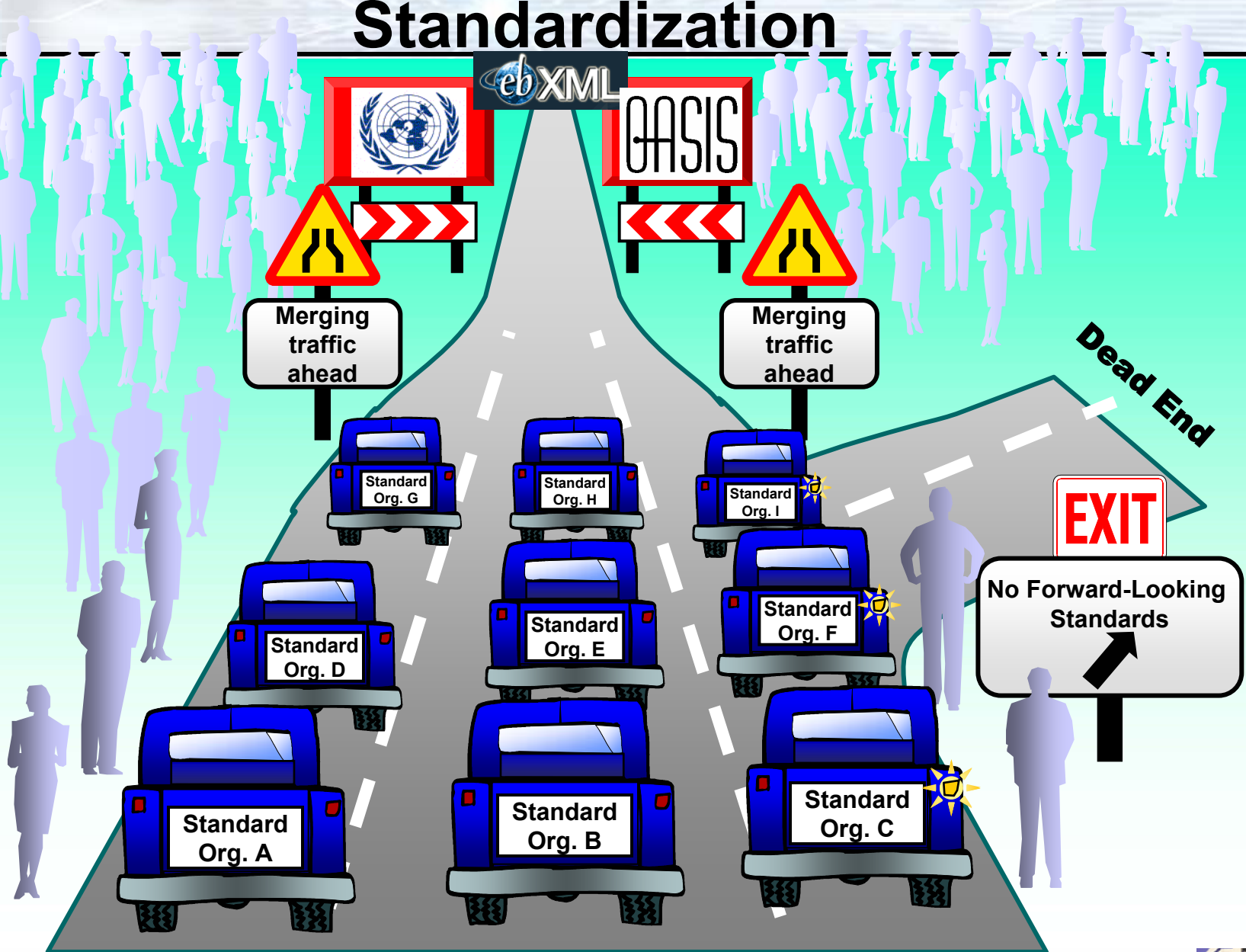
Criteria For Successful XML Business Standardization Efforts

- **User-driven**
- **Focused on global requirements**
- **Clear development process and high quality documentation**
- **Reuse of existing standards**
- **Modularized structure**

So – What Is The Answer?
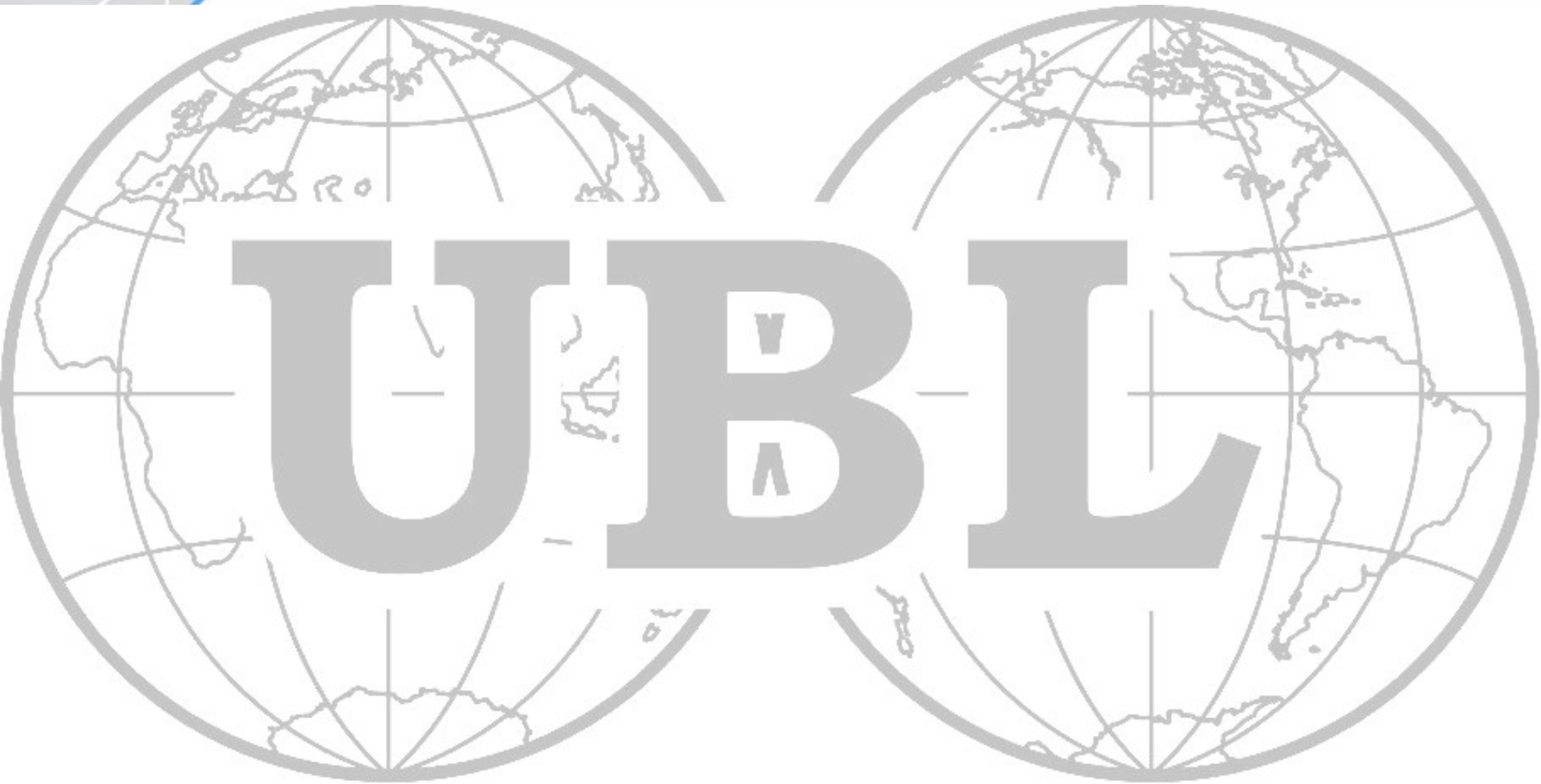
Overview

1 *Evolution & Success of Business Standards*

2 *The Role of ebXML*

3 *Relationship with ebXML Core Components*

4 *UBL Overview*

5 *The XML Stuff*

6 *The Business Standards Stuff*

7 *Working with Liaisons*

8 *Summary*

The ebXML Initiative

- **A joint UN/CEFACT and OASIS 18-month effort, concluding in May 2001**
- **Over 1000 international participants from both XML and Business Communities**
- **The vision: a global electronic marketplace where enterprises of any size, anywhere, can:**
  - **Find each other electronically**
  - **Conduct business by exchanging XML messages**
- **Initial product is a technical framework that enables XML and other payloads to be utilized in a consistent manner for the exchange of all electronic business data**
- **ebXML work continues in OASIS and UN/CEFACT**

The ebXML Construct

ebXML Phase II

OASIS	Initiated →	**ebXML**	← Initiated	**UNICEFACT**

Technical Committee — UBL — **XML based Syntax Rules** →

ebXML CCTS
Core Components
Technical Specification

Working Group TMG

ebXML BPSS
Business Processes
Schema Specification

Working Group TMG

Technical Committee

ebXML RR
Registry & Repository

ebXML EBA
Electronic Business Architecture

Working Group TMG

Technical Committee

ebXML CPP
Collaboration Partner Profile

ebXML CPA
Collaboration Partner Agreement

ebXML CPP
Collaboration Partner Profile

Technical Committee

ebXML MSG
Messaging Protocol

System ← HTTP/SMTP/FTP → System

UBL

So What About Standard Payloads?

- **Not Part of Phase 1**
- **No mention in Phase 2**
- **Core Components provide a basis for standardization, but not syntax specific expressions**

So – What Is The Answer?

Why UBL?

**ebXML Core Components are „syntax neutral",
it will be a basis for multiple business document dialects and standards**

```
          ┌────────────────────┐
          │      ebXML         │
          │  Core Components   │
          └─────────┬──────────┘
                    │
   ┌────────────────────────────────────────┐
   │  ebXML compliant syntax-implementations │ ......
   └──┬───────┬───────────┬──────────┬───────┘
      │       │           │          │          │
  ┌───────┐┌───────┐  ┌───────┐  ┌───────┐  ┌───────┐
  │  XML  ││  UN/  │  │ X.12  │  │  UN   │  │  etc. │
  │       ││EDIFACT│  │       │  │Layout │  │       │
  └───────┘└───────┘  └───────┘  └───────┘  └───────┘
```
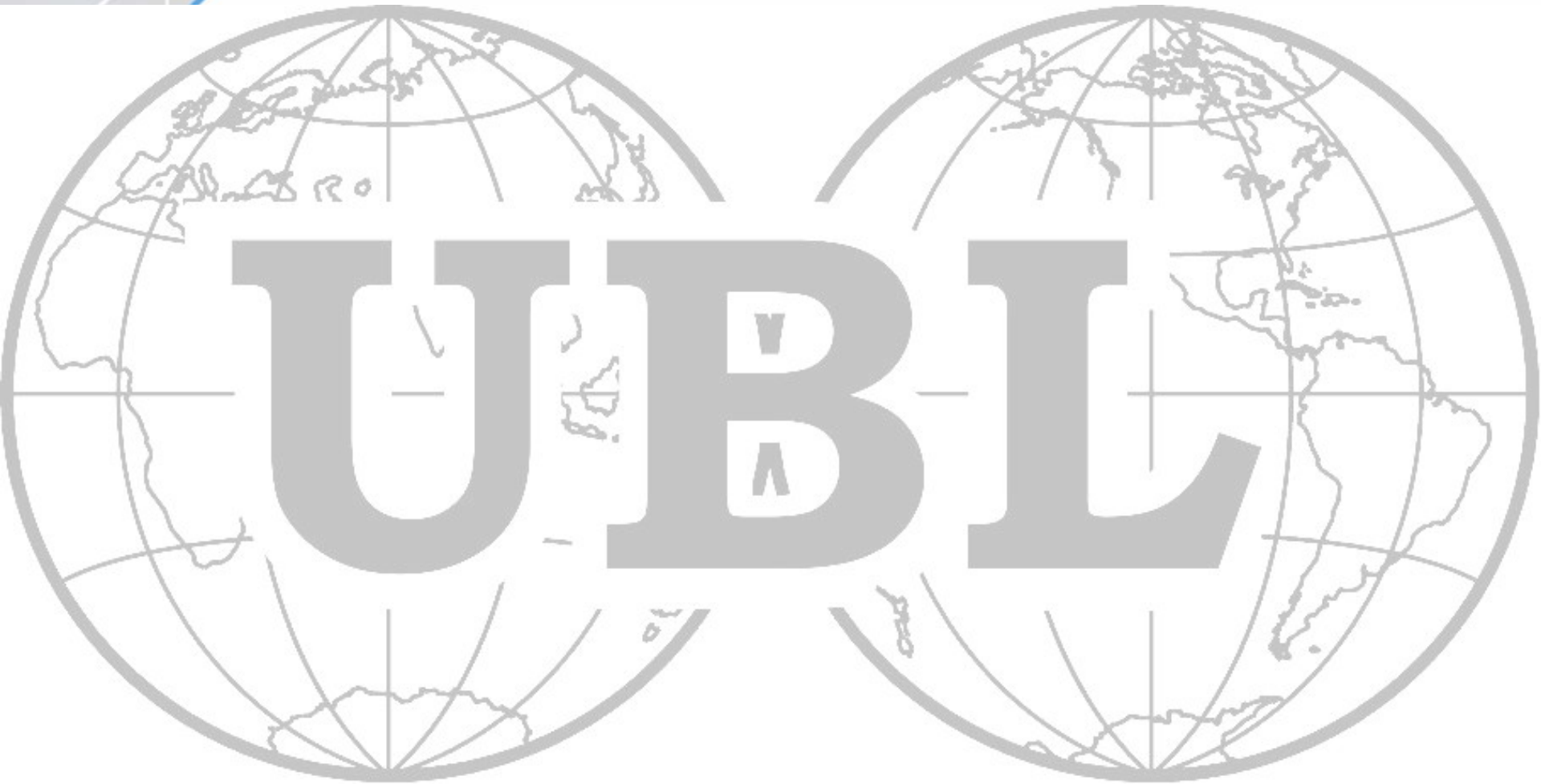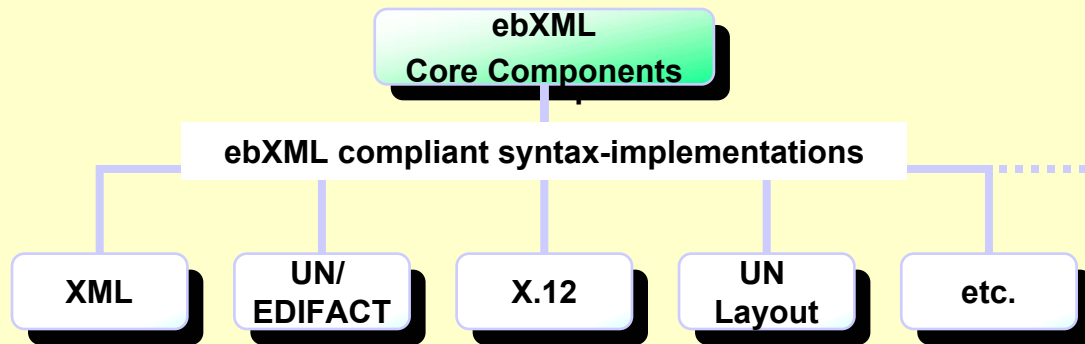
- **But we must have concrete standard XML syntax to enable wide use and cheap commercial software**
- **Given a concrete XML syntax for business, users will adopt it**

UBL is developing XML business document design rules, XML syntax core component (CC) structures and ebXML (UN/CEFACT) CC compliant XML document schemas

UBL's Relationship with ebXML

- **UBL is committed to international semantic standardization**
- **UBL is committed to, and fully conformant with, the CCTS**
- **UBL is not actually an ebXML deliverable – Yet!**
- **UBL does not mandate a particular framework, but is built to support ebXML**

Overview
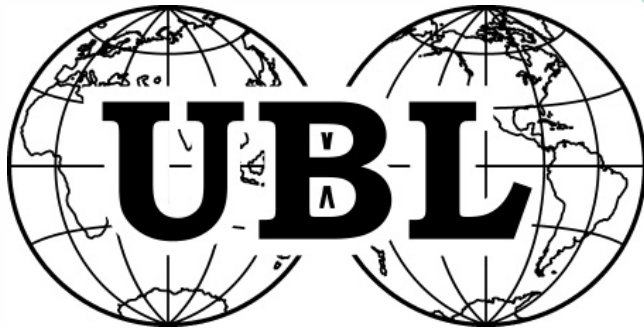
ebXML Core Components

- **A set of the lowest common denominator that captures information about a real world (business) concept**

- **Core Components are neutral**
  - **in the notation for every kind of industry**
  - **in the syntax for every kind of business document standard or implementation**

ebXML Core Components

- **Reusable pieces (objects) of contents that can be atomic or aggregate**
  - Enables interoperability among different industry domains and areas
  - Are using common semantic units at any level consistent across context
  - Hold any related information together and avoiding fragmented semantic dispersal
  - Facilitate multilingual support
- **Accompanied by methodology for extensibility**
  - Enable users to define meaningful business and process data
  - Ensure maximum interoperability

The Core Components Specification Follows ISO 11179

Object class
_____

Property 1: representation 1
Property 2: representation 2
Property 3: representation 3
Property 4: representation 4

Address
_____

Street: text
Post code: text
Town: text
Country: identifier

ISO 11179 governs data dictionaries:
defines the notions of object class, property, and representation term

- **This is basic object-oriented "good stuff"**

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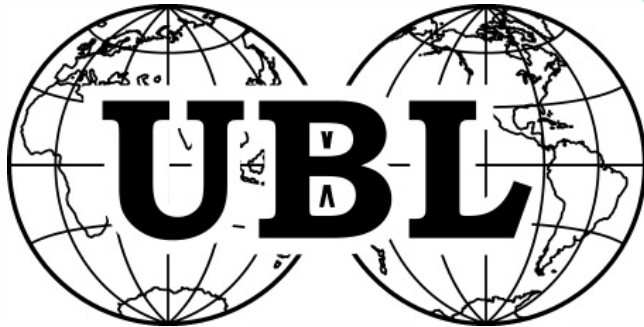
So What is UBL?

- **UBL is:**
  - **Jon Bosak's brainchild**
  - **An OASIS Technical Committee**
  - **An implementation of ebXML Core Components**
  - **An XML-based business language standard-in-progress**
  - **A cross-sector XML solution**
  - **A Non-proprietary solution that is committed to freedom from royalties**
  - **A future legal standard for international trade**
  - **The ebXML missing link**

UBL's Benefits

- **Transparent and efficient interface naming and design rules**

- **Harmonization and standardization of business objects**

- **Transparent rules for customer specific interface modifications**

- **Plugs directly into existing traditional business practices**

- **Interoperable with existing EDI systems**

UBL Development Strategies

- **Start with the low-hanging fruit**
  - **The 20% of documents and business objects actually used by 80% of electronic business partners**
- **Defer the rocket science to later phases**
  - **Produce useful, concrete outputs ASAP**
- **Don't start with a blank slate**
  - **We are working from xCBL 3.0**
  - **But with no expectations of backwards compatibility**
- **Take advantage of domain expertise**
  - **Get XML experts and business experts together and form liaisons**

UBL Deliverables

- **Naming and design rules for UBL XML schemas**

- **Library of standard XML business information entities (BIEs)**

- **Set of standard XML business documents (purchase order, invoice, shipping notice, price catalogue, etc.)**

- **Context methodology to make the standard documents interoperate across industries**

- **Timeline:**

  - **NDR, CC/BIE library, and basic documents: early 2003**

  - **Context methodology and assembly: Fall 2003**

Basic UBL Documents

- **Procurement**
  - **Purchase Order, P.O. Response, P.O. Change**
- **Materials management**
  - **Advance Ship Notice, Planning Schedule, Goods Receipt**
- **Payment**
  - **Commercial Invoice, Remittance Advice**
- **Transport/logistics**
  - **Consignment Status Request, Consignment Status Report, Bill of Lading**
- **Catalogs**
  - **Price Catalog, Product Catalog**
- **Statistical reports**
  - **Accounting Report**

Some UBL Participants

APACS

Aeon Consulting

ACORD

Boeing

Commerce One

Danish Bankers Association

France Telecom

General Electric

Government of Hong Kong

Government of Korea

HP

IBM

KPMG

LMI

Northrop Grumman

Ontogenics

Oracle

PricewaterhouseCoopers

SAP

SeeBeyond

Sterling Commerce

Sun Microsystems

U.K. Cabinet Office

United Parcel Service

U.S. General Services Administration

U.S. Navy

Visa International

UBL Subcommittees

NDRSC

Naming and Design Rules SC

Develops guidelines for normative-form schema design, instance design, and markup naming,

CMSC

Context Methodology SC

Develops a methodology and tools for applying context.

CDSC

Context Drivers SC

Works on improvement and further development of the context drivers.

TTSC

Tools and Techniques SC

Evaluates and recommends the tools and techniques for development, maintenance and revision

LCSC

Library Content SC

Defines business documents and a library of XML and ebXML CCTS based building blocks

ASC

Administration SC

Administrates and coordinates the UBL efforts

MSC

Marketing SC

Does marketing and promotion for the UBL effort

LSC

Liaison SC

Organizes liaisons with other organizations.

UBL

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UBL Naming and Design Rules Subcommittee

- **Chairs:**
  - Mark Crawford <mcrawford@lmi.org>
  - Lisa Seaburg <lseaburg@midsouth.rr.com>
  - Mavis Courname < mavis.cournane@cognitran.com>
- **Archive: http://lists.oasis-open.org/archives/ubl-ndrsc**
- **Web page: http://oasis-open.org/committees/ubl/ndrsc/**

NDR Requirements

- **Leverage XML technology, but keep it interoperable**

- **Achieve semantic clarity through a binding to the Core Components model**

- **Support contextualization (customization) and reuse**

- **Selectively allow "outsourcing" to other standard schemas**

Some Major Design Rules Developed So Far

- **The choice of normative schema language - XSD**

- **Garden of Eden design approach**

- **Naming and construction of elements, attributes, and types**

- **Modularity, namespaces, and versioning**

- **Embedded schema documentation**

- **Handling code lists**

A Taste Of The Naming Rules

- **Dictionary entry names are fully qualified with object class names**
- **But using these full names would result in hundreds of extra elements**
- **We get reusability by allowing properties (elements) to "inherit" parent object classes (types), XPath-style**
  - **Delivery schedule IDs and order IDs could both be called <ID>**
  - **Each would be identifiable by means of //Order/ID and //DeliverySchedule/ID respectively**

Encoding Code Lists

- **UBL will seek to import external datatype definitions in conventional XSD form**
  - **Validation**
  - **Clarity**
- **We are developing a schema for promotion as an international standard**
- **We hope to promote a global code list marketplace**

UBL Context Methodology Subcommittee

- **Chair: Matthew Gertner <matthew.gertner@schemantix.com>**
- **Editor: Eduardo Gutentag <eduardo.gutentag@sun.com>**
- **Archive: http://lists.oasis-open.org/archives/ubl-cmsc**
- **Web page: http://oasis-open.org/committees/ubl/cmsc/**

# The Special Requirement For Context

- **"Standard" business components need to be different in different business contexts**
  - Addresses differ in Japan vs. the U.S.
  - Addresses in the auto industry differ from those for other industries
  - Invoice items for shoes need size information; for coffee, grind information
- **UBL needs this kind of customization without losing interoperability**

Context Methodology

- **Defines how document formats can be extended based on specific trading partner characteristics**
- **Takes ebXML context drivers (8 space) and context rules as starting point**
- **Builds 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 "eight-space"

- **UBL defines BIEs, not CCs – they have a bit of real context in them**
  - **Typically just the business process**
  - **Everything else should ideally be "zeroed out"**
- **A set of eight values identifies a unique business context**
  - **A trading community can associate their schema customizations with it**
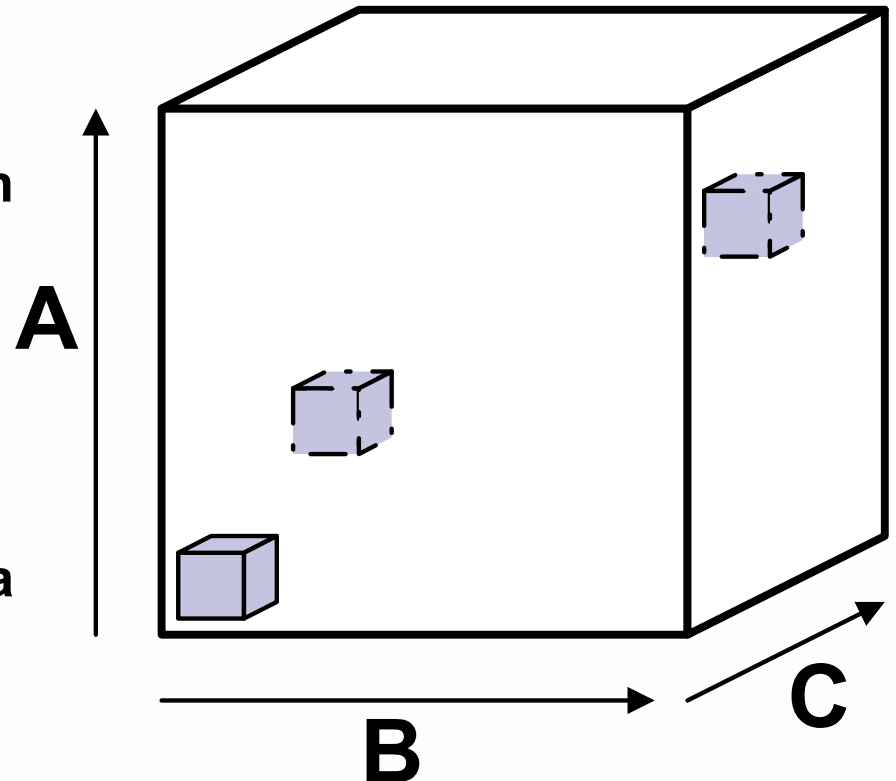
A

B

C

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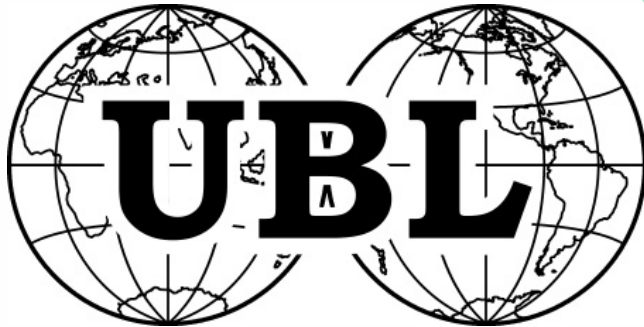
4 *UBL Overview*

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UBL Library Content Subcommittee

- **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/**

The Inputs

- **Documents/expertise from:**
  - The members of the Library Content SC
  - Organizations with a liaison to the UBL TC
  - Feedback from the general public
- **xCBL 3.0**
  - A working XML business vocabulary for several years
  - Has lots of EDI knowledge baked into it
- **ebXML CCs**
  - Ultimately, as many UBL constructs as possible will be mapped to the final form of CCs
  - Where there's no match, this will be fed back to the CC project

The Approach
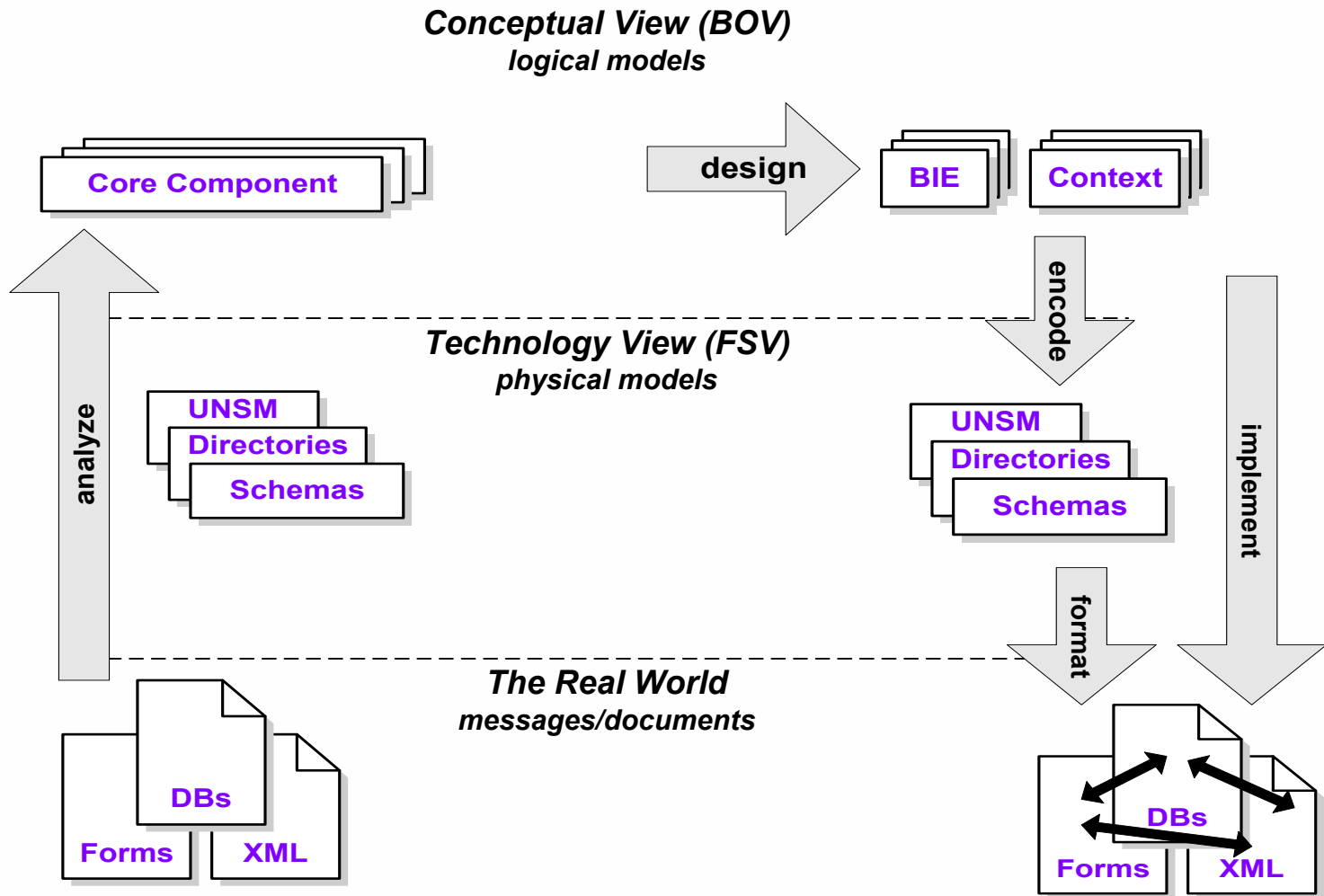
Core Components vs. Business Information Entities

Core Component (CC)	apply business context:	Business Information Entity (BIE)
A building block for the exchange of semantically correct and meaningful information	*business process* *product classification* *industry classification* *geopolitical region* *official constraint* *business process role* *supporting role* *system capabilitites*	*A CC to which a business context has been applied*

- **An address might be a generic CC**
- **A U.S. address has (at least) the geopolitical region set as its business context, making it a BIE**
- **UBL, by its nature, deals only in BIEs**

The Modeling Steps

- **Working from an xCBL document type, analyze its constituent constructs to identify BBIEs and ABIEs**

- **Establish each BIE's dictionary name, UBL name, definition, and business context**

- **Establish its cardinality/optionality within its object class**

- **Identify missing BIEs**

- **Identify which BIEs are reusable**

- **Assemble an appropriate UBL document type from the BIEs**

The Formalism

- **Initially –**
  - **A spreadsheet with carefully designed columns**
- **Ultimately –**
  - **ebXML registered objects**

A tiny sample data dictionary

Person
_____

Name: text
Birth: date
Residence Address: Address
Official Address: Address

Address
_____

Street: text
Post Code: text
Town: text
Country: identifier

Key:
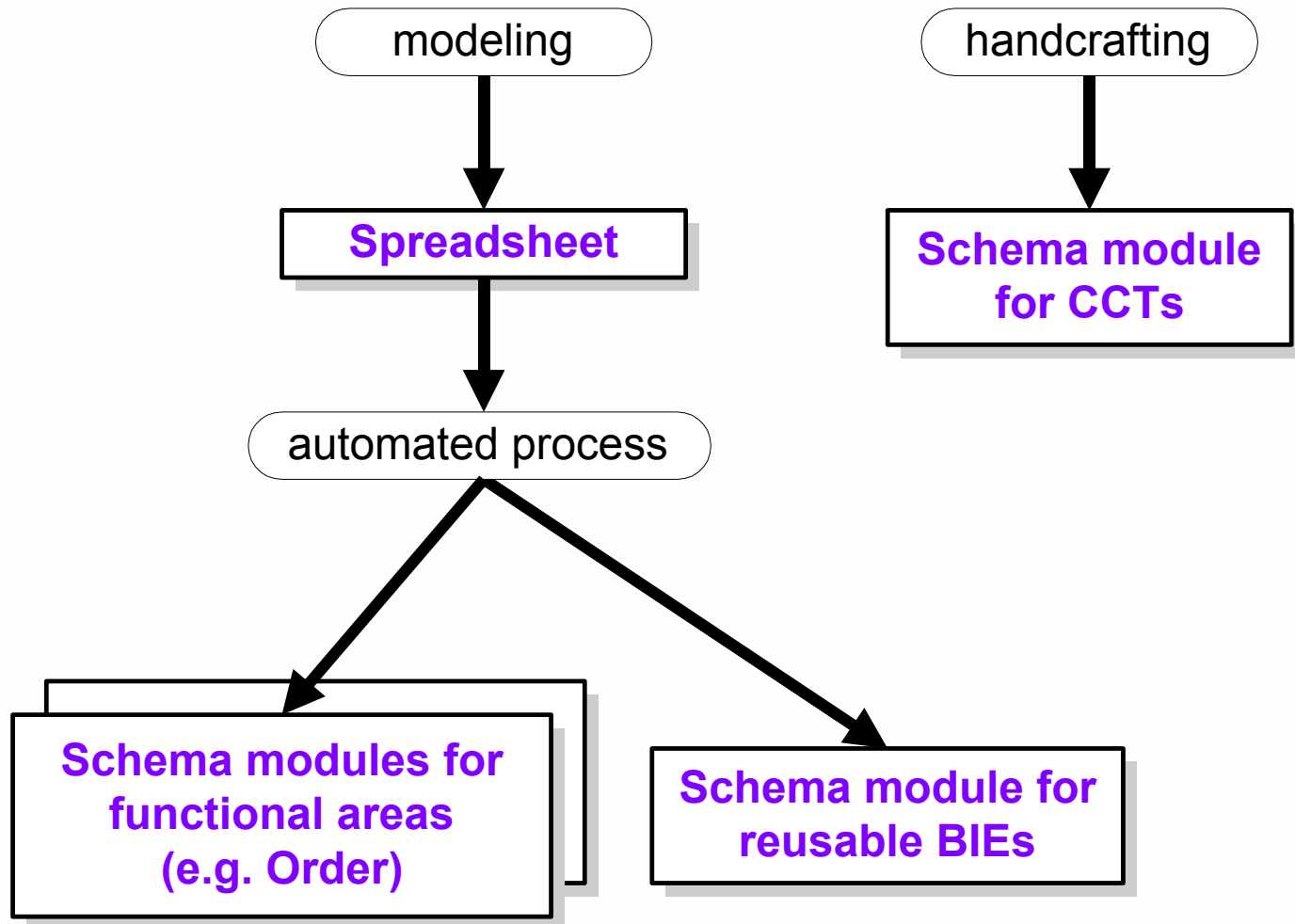Object class (aggregate BIE)   Property (basic BIE)
Property (association BIE)   Representation term (CCT)

- **This leaves out cardinality considerations for simplicity**

The Back End

modeling   handcrafting

Spreadsheet

Schema module for CCTs

automated process

Schema modules for functional areas (e.g. Order)

Schema module for reusable BIEs

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2 *The Role of ebXML*

3 *Relationship with ebXML Core Components*

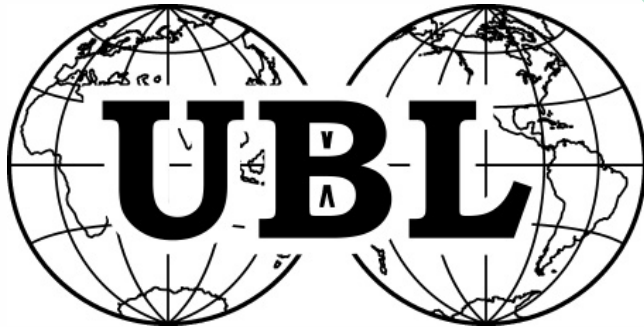**4** *UBL Overview*

5 *The XML Stuff*

6 *The Business Standards Stuff*

7 *Working with Liaisons*
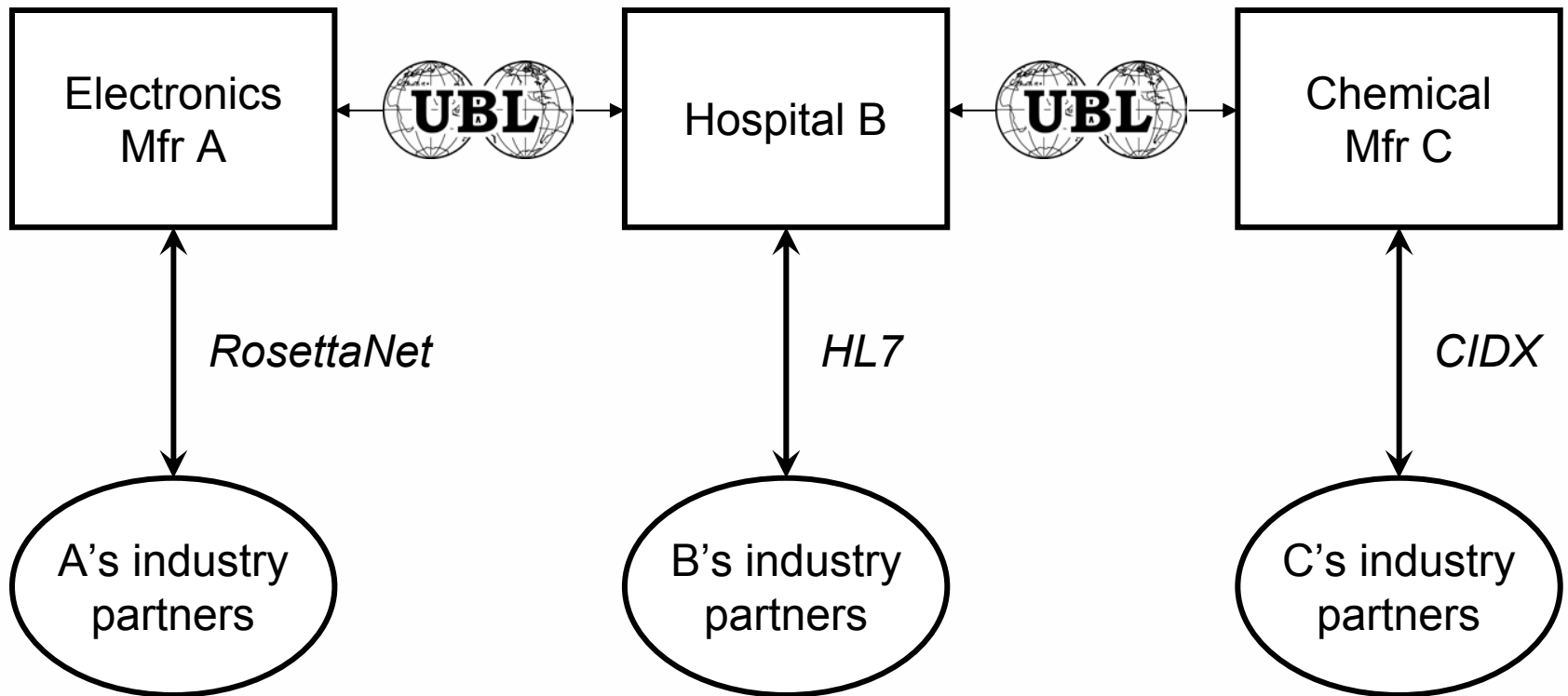
8 *Summary*

UBL Differentiators

- **Completely open, public, accountable standards process**
- **Non-proprietary and royalty-free**
- **Based on UN, OASIS, and W3C specifications**
- **Intended for normative status under international law**
- **Designed for B2B**
- **Intended for exchange of legal documents**
- **Human- and machine-readable**
- **Compatible with existing EDI systems**

Where UBL Can Fit Into Existing XML B2B

```
┌──────────────┐        ┌──────────────┐        ┌──────────────┐
│ Electronics  │◄─UBL─► │  Hospital B  │◄─UBL─► │   Chemical   │
│    Mfr A     │        │              │        │    Mfr C     │
└──────┬───────┘        └──────┬───────┘        └──────┬───────┘
       │                       │                       │
   RosettaNet                 HL7                    CIDX
       │                       │                       │
   ╭───┴────╮             ╭────┴───╮             ╭─────┴───╮
   │  A's   │             │  B's   │             │  C's    │
   │industry│             │industry│             │industry │
   │partners│             │partners│             │partners │
   ╰────────╯             ╰────────╯             ╰─────────╯
```

The Value of Joining Forces

- As a non-profit cross-industry effort, UBL depends on expert domain input to "get it right"

- We actively solicit industry and standards liaisons

- Organizations appoint representatives to the UBL Liaison Subcommittee

    - If the organization is not an OASIS member, an individual representative joins at USD 250/year

    - Telcons are held every two weeks

    - Liaisons arrange for specification reviews

Formal Liaisons So Far

- ACORD (insurance)
- ARTS (retail sales)
- e.centre (UK EAN.UCC)
- EIDX (electronics)
- HL7 (healthcare)
- NACS (convenience stores)
- RosettaNet (IT)

- SWIFT (banking)
- UIG (Utilities)
- VCA (optical supplies)
- XBRL (accounting)
- ASC X12 (EDI)
- ebXML Asia
- UN/CEFACT
  - TBG (Content)
  - ATG (XML Design)

ebXML CC and/or UBL Adoption Plans

- **Organizations & Government**
  - European Commission
  - US EPA
  - US DON
  - US GSA
  - Other US DoD
  - eBES (e-Business Board for European Standard by CEN/ISSS)
- **De jure standards organizations**
  - ANSI X12 UN/CEFACT

- **Software Vendors**
  - SAP
  - SUN Microsystems
  - Commerce One
  - Sterling Commerce
  - Oracle
  - SeeBeyond

Overview

1. Evolution & Success of Business Standards

2. The Role of ebXML

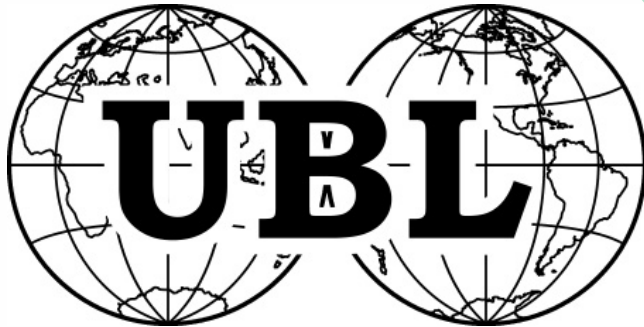3. Relationship with ebXML Core Components

4. UBL Overview

5. The XML Stuff

6. The Business Standards Stuff

7. Working with Liaisons

8. Summary

Summary

- **UBL is "the real deal" – actual standard XML business schemas**
  - Completes the ebXML stack
  - Combines the experience of XML and business experts
- **UBL is dedicated to vendor-neutral interoperability**
  - Open process
  - Unencumbered IP
  - Cross-industry semantic harmonization
- **UBL can enable the "B2B web"**
  - HTML + HTTP = web publishing
  - UBL + ebXML = web commerce

Where To Find More Information

- **OASIS UBL TC**
  - **www.oasis-open.org/committees/ubl/**
  - **www.oasis-open.org/committees/ubl/lcsc/**
  - **www.oasis-open.org/committees/ubl/ndrsc/**
  - **www.oasis-open.org/committees/ubl/cmsc/**
  - **White papers, presentations, and specifications are available**
  - **All mailing list archives are open to public view**
- **ebXML**
  - **www.ebxml.org**
- **Core Components**
  - **www.ebtwg.org**

How To Comment

- **The UBL comment list is open to all**
  - **Archive:**
    lists.oasis-open.org/archives/ubl-comment
  - **Signup:**
    lists.oasis-open.org/ob/adm.pl
- **The Library Content and NDR SCs have spreadsheet forms for providing feedback**

Thanks!
Questions?