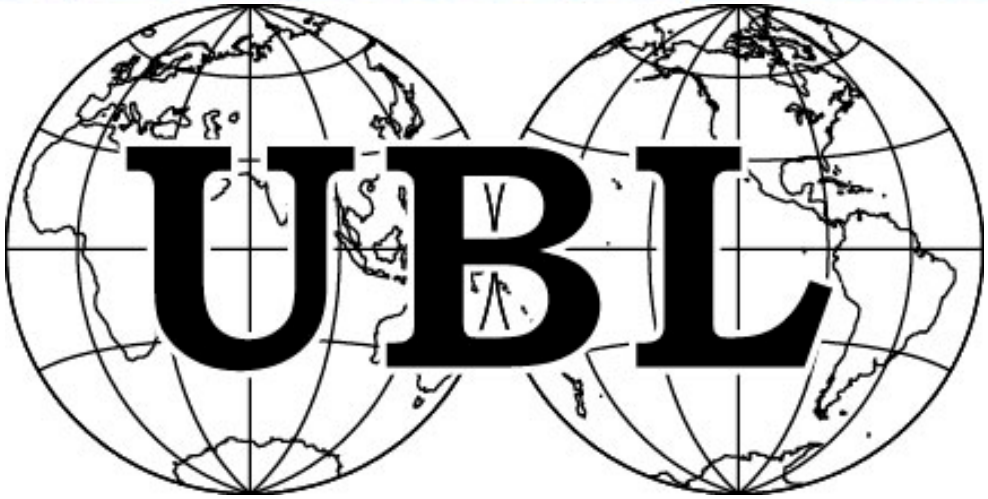



# Update to EWG

# 21 March 2002

Mark Crawford
Logistics Management Institute
Vice Chair - UBL

# OASIS UBL TC Is -

- Synthesis of existing XML B2B languages (xCBL, cXML, RosettaNet, OAG, etc.)
- Based on Standards Methodology:
  - –ebXML Core Components
  - –ebXML Context
  - –ebXML Business Process
  - –ebXML Architecture
  - –XSD Schema
- Applicable across any sector or domain
- Unencumbered by intellectual property claims
- Intended to become a legal standard for international trade

# A UBL Roadmap

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-processible formal business models

# Advantages of UBL

- Starts with existing vocabulary based on UN/EDIFACT and ANSI ASC X12
- Leverages ebXML solutions
- Decouples data from process to allow re-use of data
- Fits existing legal and trade concepts
- Gets small businesses on board
- Enables industry consortia to pool resources to develop interoperable business documents
- Defers the rocket science

# OASIS UBL Technical Committee

- First two meetings hosted by Sun Microsystems (October 2001 and January 2002)
- This meeting hosted by UN/EDIFACT Working Group
- Next meeting tentatively scheduled for Minneapolis in June
- Contributors of technical resources:

  US General Services Administration, Logistics Management Institute, Northrop Grumman, Boeing, Commerce One, Oracle, Sun, HP, Intuit, Sterling Commerce, US Department of the Navy, Contivo, Schemantix, KPMG, PriceWaterhouseCoopers, SAP, France Telecom, Danish Bankers Association, APACS
- UBL web site:
  http://oasis-open.org/committees/ubl/
- White Paper:
  http://oasis-open.org/committees/ubl/msc/200112/ubl.pdf

# UBL TC Subcommittees

- Technical
  - Naming and Design Rules
  - Context Methodology
  - Tools and Techniques
- Content
  - Library Content
  - Future domain-specific
- Administrative
  - Marketing
  - Liaison
  - Administration
  - SC Chairs

# UBL Naming & Design Rules SC

- **Chair:** Eve Maler <eve.maler@sun.com>
- **Vice Chair and Editor:** Mark Crawford <mcrawford@lmi.org>
- **Archive:** http://lists.oasis-open.org/archives/ubl-ndrsc
- **Web page:** http://oasis-open.org/committees/ubl/ndrsc/

# Role of the NDR SC

- *"Recommend to the TC rules and guidelines for normative-form schema design, instance design, and markup naming, and write and maintain documentation of these rules and guidelines"*
- For the benefit of the modelers/coders of UBL libraries, developers of UBL-aware software, designers of extensions to UBL, and readers of UBL messages

# NDR Deliverable – Design Rules Document

- **Document is based on in-depth analysis of XSD features for applicability to transactional exchanges**
  - **Research**
  - **Position Papers**
  - **Discussions**
- **Key decision points –**
  - **XSD will be canonical form**
  - **Will use ebXML naming rules (ISO 11179 based) as basis for core components, business information entities and markup**
    - **Dictionary Names**
    - **Instance names**

# Draft Positions

- Schema modularity, namespace strategy, and versioning strategy
- Relationship and naming of XML elements and attributes and XSD types
  - Always with reference back to CC semantics
- Choosing elements vs. attributes
- How to define and handle code lists
  - Particularly external ones (most/all of them)
- Strategies for XSD type derivation
  - Largely invisible in XML messages, but important for efficient tools support

# UBL Context Methodology SC

- **Chair:** Matthew Gertner

  <matthew.gertner@schemantix.com>

- **Archive:**

  http://lists.oasis-open.org/archives/ubl-cmsc

- **Web page:**

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

# Deliverable – Context Methodology

- Define how document formats can be extended based on specific trading partner characteristics
- Takes ebXML context rules as starting point
- 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
- Close relationship with UN/CEFACT CC Project Team

# Status - Context Methodology SC

- Reviewed ebXML Methodology and considering proposed changes

- Reviewed existing context drivers and considering proposed additions

# UBL Library Content SC

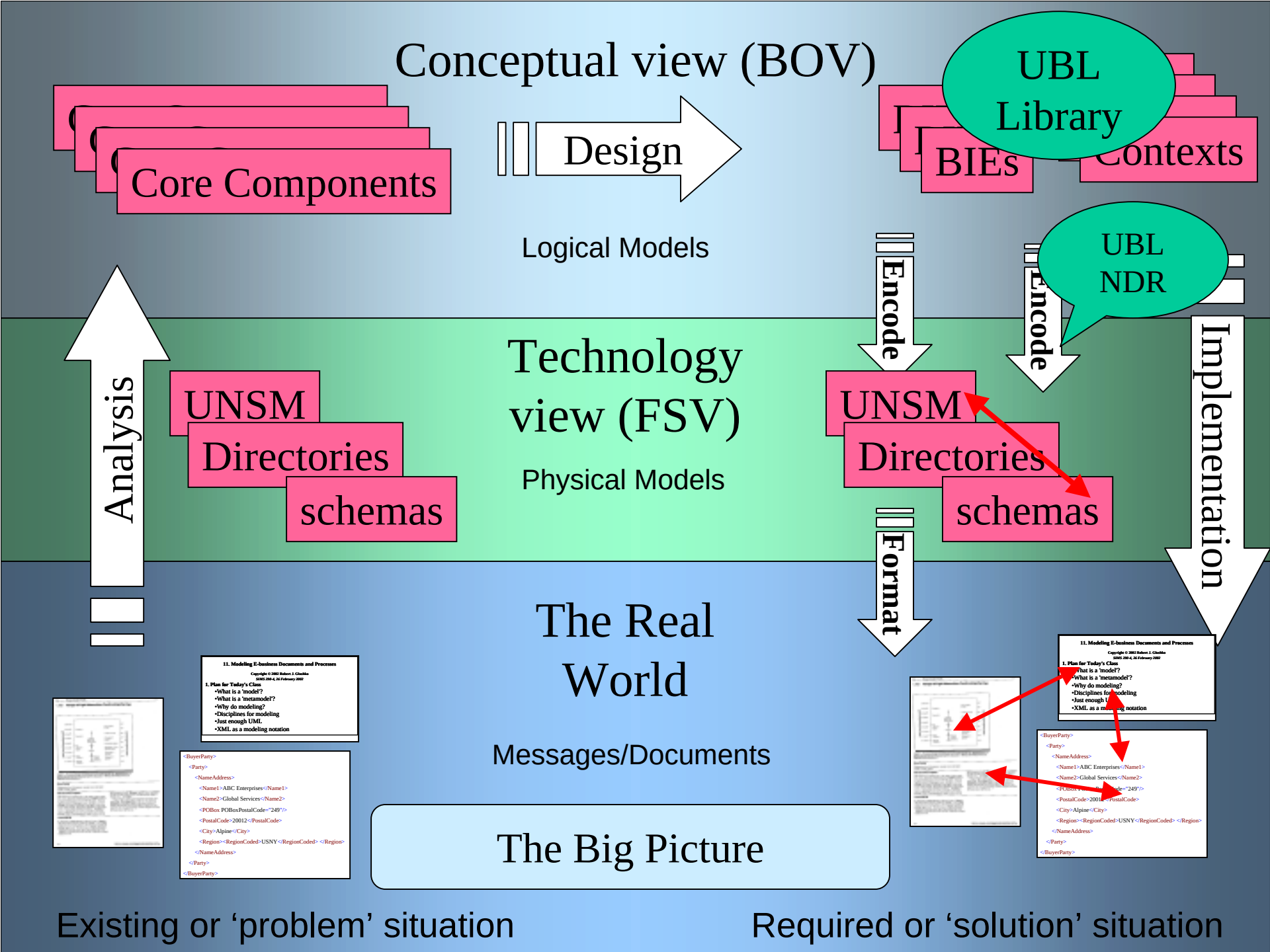
- **Chair:** Tim McGrath <tmcgrath@portcomm.com.au>
- **Vice chair:** Marion Royal <marion.royal@gsa.gov>
- **Archive:**
  http://lists.oasis-open.org/archives/ubl-lcsc
- **Web page:**
  http://oasis-open.org/committees/ubl/lcsc/

# Deliverable – Component Library

- Shared library of basic XML building blocks (address, quantity, etc.)
- Provides shared basis for standard documents
- Takes established XML business library as a starting point
  - Covers a large set of document formats
  - Has component-based approach to document design
  - Widely deployed
  - Unencumbered IP (originally developed under government grant)
- Will not be backward-compatible with xCBL
- Will be aligned with (and feed back into) ebXML core components

# Deliverable – Standard Documents

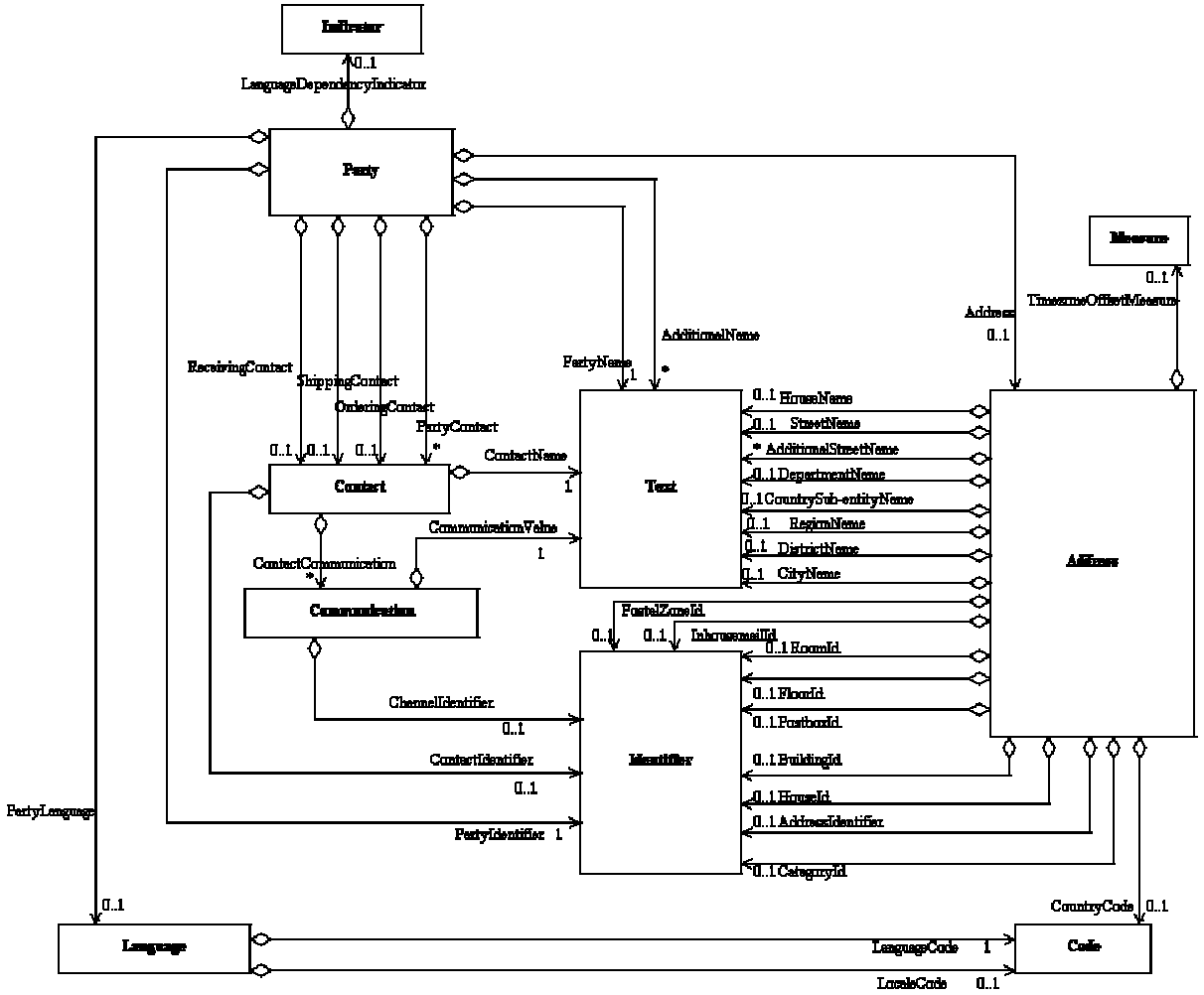
- Set of XML schemas for common business documents
- Common basis for ad hoc customization in advance of the UBL context methodology
  - **Core library** (modular building blocks)
  - **Procurement documents** (Purchase Order, Purchase Order Response, Purchase Order Change)
  - **Materials management documents** (Advance Ship Notice, Planning Schedule, Goods Receipt)
  - **Payment documents** (Commercial Invoice, Remittance Advice)
  - **Transport/logistics documents** Consignment Status Request, Consignment Status Report, Bill of Lading)
  - **Catalogs** (Price Catalog, Product Catalog)
  - **Statistical reports** (Accounting Report)


Conceptual view (BOV)
Core Components
Design
UBL Library
BIEs
Contexts
Logical Models
Encode
Encode
UBL NDR
Analysis
Technology view (FSV)
UNSM Directories schemas
UNSM Directories schemas
Implementation
Physical Models
Format
The Real World
Messages/Documents
The Big Picture
Existing or 'problem' situation
Required or 'solution' situation

# UBL Approach

- **Analyze the Order constructs to identify the Basic Information Entities (components):**
  - **Basic BIE (content component)**
  - **Aggregate BIE (instance of a structural component)**
- **Establish context and semantics:**
  - **Naming, context and definitions**
- **Establish cardinality/optionality**
- **Identify missing BIEs**
- **Develop a Library of re-usable types (structural components)**
- **Assemble new Order document**

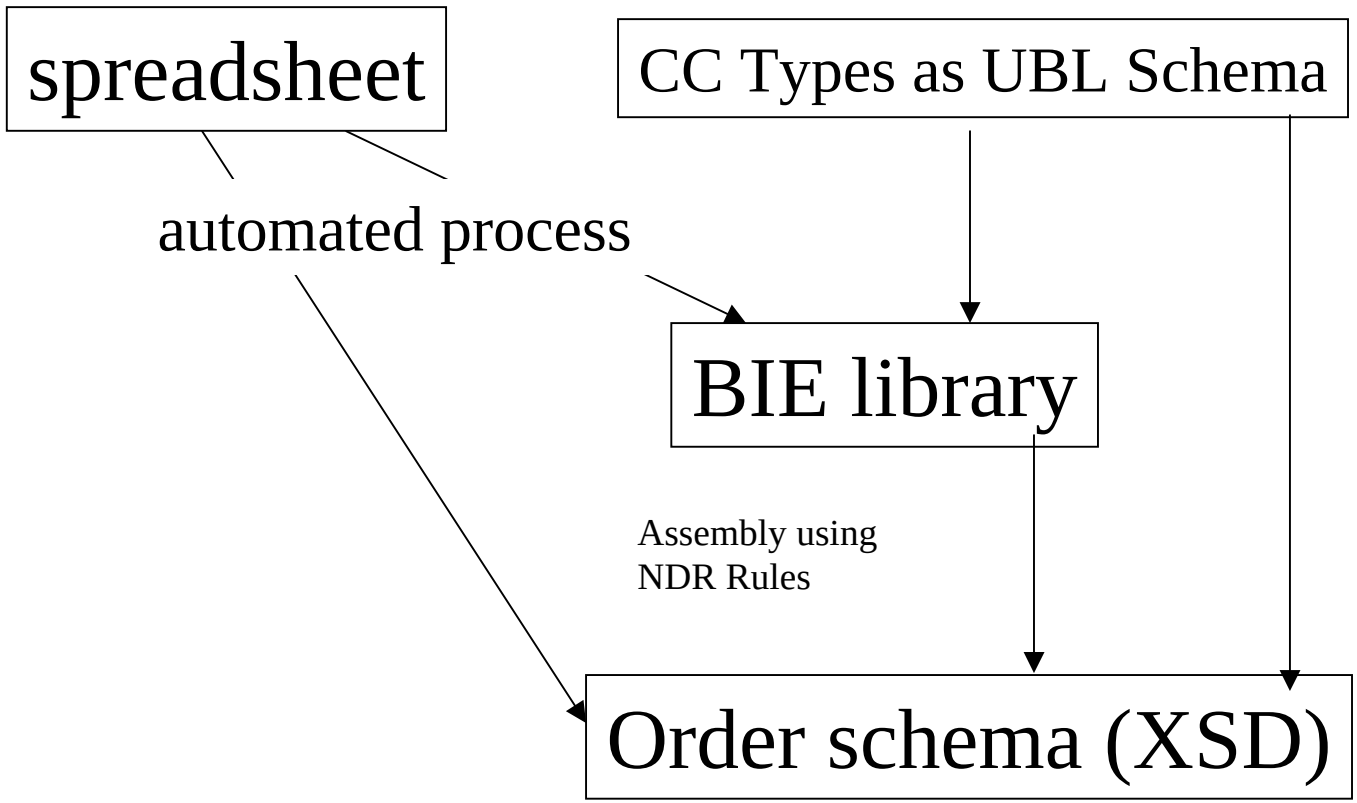
# Party UML Class diagram



# UBL MetaModel

| UBL Name | BIE Dictionary Entry Name | Object Class | Property Qualifier | Property Term | Representation Term | Type | Occurrence | Basic/Aggregate | UBL Definition |
|---|---|---|---|---|---|---|---|---|---|
| OrderHeader | OrderHeader. Details | OrderHeader | | | Details | OrderHeader | | | contains the header information of the order |
| IssueDateTime | Order. Issue. Date Time | Order | | Issue | Date Time | DateTime | 1..1 | Basic | OrderIssueDatetime holds a time stamp provided by the application that issued the Order document. |
| Identifier | Order. Identifier | Order | | Identifier | Identifier | Identifier | 0..n | Basic | The OrderId element is a unique number assigned to the Order |
| BuyerIdentifier | Order. Buyer. Identifier | Order | Buyer | Identifier | Identifier | Identifier | 0..1 | Basic | The unique number assigned by the buyer to the Order. |
| SellerIdentifier | Order. Seller. Identifier | Order | Seller | Identifier | Identifier | Identifier | 0..1 | Basic | The unique number assigned by the seller to the Order. |
| BuyerAccountId | Order. Buyer Account. Identifier | Order | Buyer | Account | Identifier | Identifier | 0..1 | Basic | BuyerAccountId is the unique identification assigned to the buyer |
| Quote | Order. Quote. Details | Order | | Quote | Details | Quote | 0..n | Aggregate | Provides the details of any quotes relevant to the Order |
| Contract | Order. Contract. Details | Order | | Contract | Details | Contract | 0..n | Aggregate | Provides the details of the purchase contract between trading partners. |

# Putting together the pieces



# Workplan

- Develop UBL logical library of BIEs
  - ebXML CCTS
- Encode these into physical models
  - XML Schema
  - UBL Naming and Design rules
- Assemble the BIEs necessary for an Order
- Invite liaison group input
  - EWG
- Repeat the process for other documents

# Library Review

- Announced 14th March
- UBL-comment and UBL Liaisons
- Closes 8th April
- Review methodology and artifacts

# Review Distribution Pack

- Model as spreadsheet
- Model as XSD
- Order document XSD
- Sample Instances of Order
- Stylesheet?
- Methodology Document
- Review Guide
- Comment and Disposition Form

# UBL Liaison SC

- **Chair:** Jon Bosak <jon.bosak@sun.com>
- **Archive:** http://lists.oasis-open.org/archives/ubl-lsc
- Members formally appointed by cooperating organizations
- Initial liaisons include:
  - ARTS (retail industry)
  - EIDX (electronics industry)
  - RosettaNet (information technology)
  - XBRL (accounting and statistics)
- Pending liaisons include:
  - ANSI ASC X12
  - EWG
  - ISO TC 154

# Some Additional Thoughts

- Close relationship between Technical and Content SCs is critical
  - Neither the business or technical experts can do it alone
- We're trying to create an alliance of vertical industry standards organizations to define the XML schemas that they will be using in common
- UBL can serve as an additional bridge between these industry consortia and the standards organizations represented in the MoU/MG
- In particular, UBL can serve as a conduit for the submission of core components into CEFACT

# Summary

- "The real deal" -- actual standard XML business schemas
  - Grounded in solid design rules developed by XML and ebusiness experts
  - Based on ebXML content specifications
- Addressing cross-industry interoperability
- Committed to vendor neutrality, an open process, and international cross-industry semantic harmonization
- Distilling the experience of both vertical and horizontal industry standards organizations
- Intended as a long-term solution for business data

# Additional Information

# Approach to Document Standardization

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

# Economic challenges

- There are already several competing (but incomplete) proprietary XML business languages
- Some companies have already made substantial investments in nonstandard solutions
- Some industrial consortia have made substantial investments in industry-specific XML languages
- Some big vendors derive substantial income from the professional services needed to integrate systems using different business languages
- Some big vendors have built solutions around proprietary XML languages
- The economic advantages of complete interoperability will outweigh all these considerations in the long run

# Technical challenges

- 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 BIG 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

- The ebXML analysis 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

# Library Content sub-committee

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.**

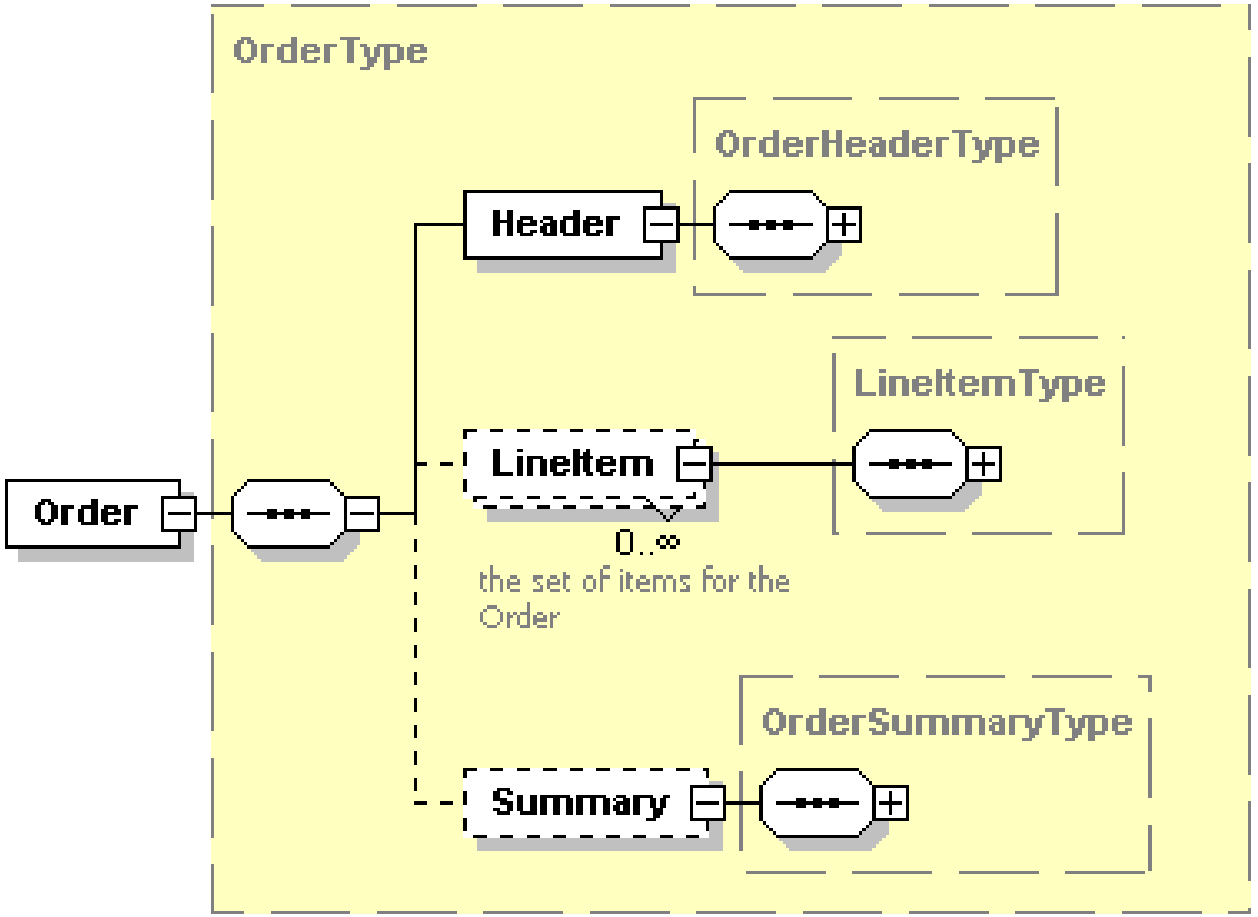
# UBL Approach

- Analyze the Order constructs to identify the Basic Information Entities (components):
  - Basic BIE (content component)
  - Aggregate BIE (instance of a structural component)
- Establish context and semantics:
  - Naming, context and definitions
- Establish cardinality/optionality
- Identify missing BIEs
- Develop a Library of re-usable types (structural components)
- Assemble new Order document

# BIE Metadata (Names)

- **Each BIE has both a UBL Name and a BIE Dictionary Entry Name**
  - **UBL Names are XML Tags**
  - **Dictionary Entry Names are CCTS BIE names**
- **A proper analysis of name components should allow us to say…**
- **"A [Representation Term] represents the [Property Qualifier, Property Term] of the Object Class"**
  - **'an Identifier represents the Identifier of the Party', or**
  - **'a Contact represents the Shipping Contact of the Party', or**
  - **'a Code represents the Identification of a Language'**

# ‘Order’ structure




Generated with XMLSpy Schema Editor www.xmlspy.com

# XML instance

```
<Order xmlns:cct="CoreComponentTypes.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="./UBL_Order-0p64.xsd">
  <Header>
    <IssueDateTime DateTimeFormatText="token">20020305</IssueDateTime>
    <Identifier>4500004875</Identifier>
    <CurrencyCode>GBP</CurrencyCode>
    <Language>
      <IdentificationCode>en-us</IdentificationCode>
    </Language>
    <BuyerParty>
      <Identifier IdentificationSchemeName="R3" IdentificationSchemeAgencyName="SAP" LanguageCode="en-
us">R300</Identifier>
      <Name LanguageCode="en-us">IDES Retail INC US</Name>
      <Address>
        <HouseId>3999</HouseId>
        <PostboxId>NJ 07054</PostboxId>
        <StreetName LanguageCode="en-us">West Chester Pike</StreetName>
        <CityName>Parsippany</CityName>
        <CountryIdentificationCode CodeListIdentifier="ISO 3166-1" CodeListAgencyIdentifier="ISO" CodeName="United
States" LanguageCode="en">US</CountryIdentificationCode>
      </Address>
</BuyerParty>
```

# Stylesheet to HTML view

# Stylesheet to EDIFACT view?!

UNB+UNOC:3+496227741862:12+16106611000:12+020314:2306+IntRef12345678'UNH+MsgRef12345678+ORDERS:D:01C:UN'BGM+220:::PurchaseOrder+4500004875'DTM+4:20020305:102'NAD+BY+R300:R3:SAP+IDESRetailINCUS++WestChesterPike:3999+Parsippany+US-NJ+07054+US'CTA+BJ+:RetailDepartment'COM+?+1-650-849-8888:TE'NAD+SE+R3002:R3:SAP+MeyerHardwareInc.++SouthHollowRoad:136+HotSprings++71901+US'CTA+OC+:PeterSmith'COM+?+1-501-321-3443:TE'RCS+26'FTX+AAG+++Writtenconfirmationofthispurchaseorderwillberequiredbeforetheorderisprocessed.+en'RCS+20'FTX+PMT+++OurtermsareNet20daysfordomesticordersandNet30daysforforeignorders.F.O.B.isAlbuquerque,NewMexicoUSA.Wewillship,prepay,andaddtotheinvoice.+en'LIN+10++R100009:BP'IMD+F++:::Screwdriver(cross-head)::en'QTY+21:20:CT'MOA+66:400.00:USD'PRI+NTP:20.00:::1'TAX+7+VAT++0'LIN+20++R100010:BP'IMD+F++:::Hammer,20ozframing::en'QTY+21:20:CT'MOA+66:2000.00:USD'PRI+NTP:100.00:::1'TAX+7+VAT++0'LIN+30++R100011:BP'IMD+F++:::Basketball?'Professional?'::en'QTY+21:20:CT'MOA+66:3232.40:USD'PRI+NTP:13.51:::1'TAX+7+VAT++0'LIN+40++R100012:BP'IMD+F++:::Skateboard?'HellsBells?'::en'QTY+21:60:PC'MOA+66:4020.00:USD'PRI+NTP:67.00:::1'TAX+7+VAT++0'LIN+60++R100016:BP'IMD+F++:::TunerX300::en'QTY+21:60:PC'MOA+66:9420.00:USD'PRI+NTP:157.00:::1'TAX+7+VAT++0'UNS+D'MOA+124:0.00:USD'MOA+128:19082.40:USD'CNT+2:5'CNT+8:60:CT'CNT+8:120:PC'UNT+50+MsgRef12345678'UNZ+1+IntRef12345678'