

Leveraging UBL for Developing Justice XML (GJXDM) Reference Documents

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Global Justice XML Data Model (GJXDM) Guiding Principles:

- ***Standards-based*** – Adopt or adapt to common XML and data standards
- ***Model-based*** –Generate consistent XML schema and other presentations
- ***Requirements-based*** – Build content from existing data models, dictionaries, document specifications
- ***Object-oriented*** – To facilitate extension and reuse
- ***Extendable*** – Enable local additions and extensions of data components
- ***Expandable domain*** – To include courts, corrections, parole, juvenile, etc.
- ***Evolutionary design*** – For emerging technologies (e.g. RDF)
- ***Interchange and Application Use*** – GJXDM is intended for message interchange and application use
- ***Tool Use and Support*** – The design of GJXDM will not make any assumptions about availability of sophisticated tools for creation, management, storage, or presentation.



Observation #1

UBL and GJXDM share the same guiding principles but in different domains

- **UBL Domain: Business Commerce Exchanges**
- **GJXDM: Law enforcement and justice information exchanges**

UBL



GJXDM

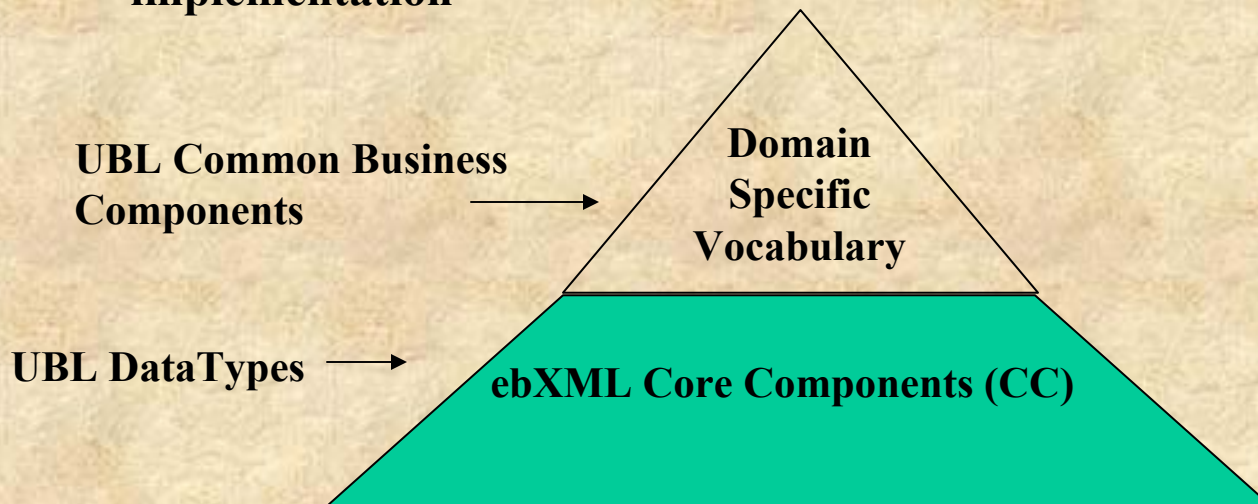




UBL Vocabulary Building Blocks

UBL is built upon adoption of ebXML Core Components

- A set of **Data Type** elements that capture information about a real world (business) concept
- Core components are business domain neutral
- Used in the notation for every kind of industry
- Used in the syntax for every kind of business document standard or implementation





ebXML Core Components and Secondary Types:

(GJXDM datatypes are based on ebXML Core Component Technical Specification v1.9 Reference: GTRI May 2004 Developer Workshop)

- **Amount**
- **Binary Object (secondary: Graphic, Picture, Sound, Video)**
- **Code**
- **DateTime (secondary: Date, Time)**
- **Identifier (authorized abbreviation: ID)**
- **Indicator**
- **Measure**
- **Numeric (secondary: Value, Rate, Percent)**
- **Quantity**
- **Text (secondary: Name)**

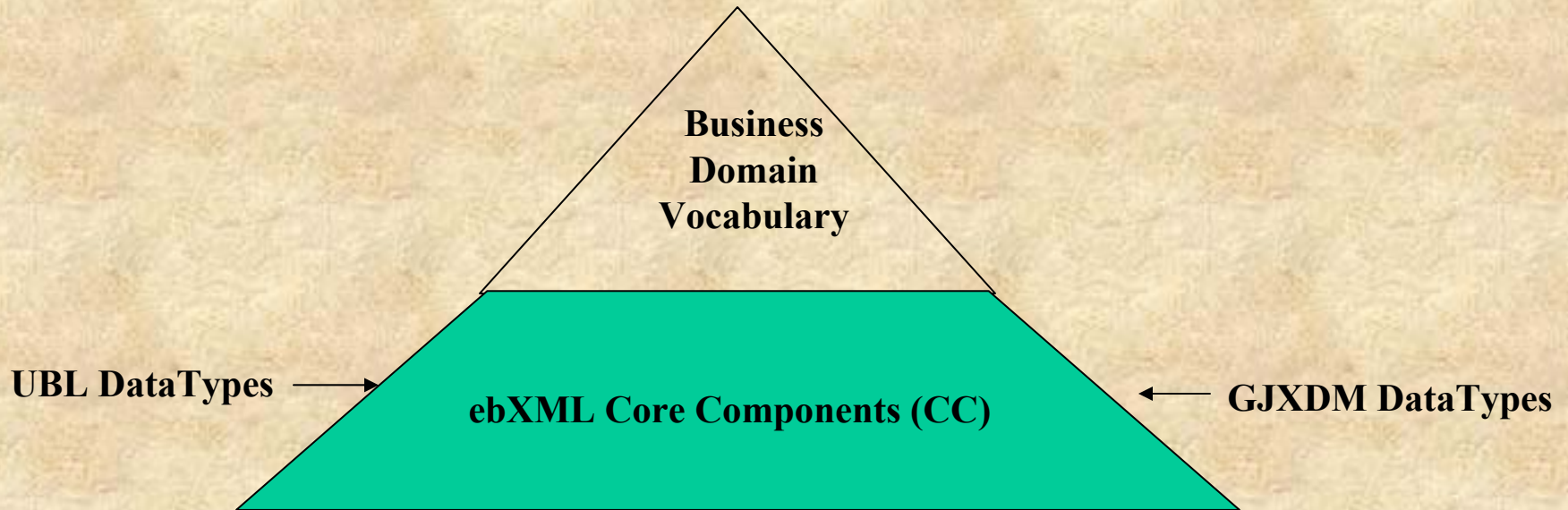
Benefits of Developing a Vocabulary from ebXML Core Components

- **Consistent DataTypes for basic vocabulary building blocks**
 - Reusable pieces (objects) of content that can be atomic or aggregate
 - Enables interoperability among different industry domains
 - Supports common semantics at any level consistent across context
 - Encapsulates related information together to avoid fragmented semantic dispersal
 - Facilitates multilingual support
- **Supports Design of a Business Vocabulary by extending ebXML Core Components**
 - Enable users to define meaningful business and process data
 - Ensures maximum interoperability



Observation #2

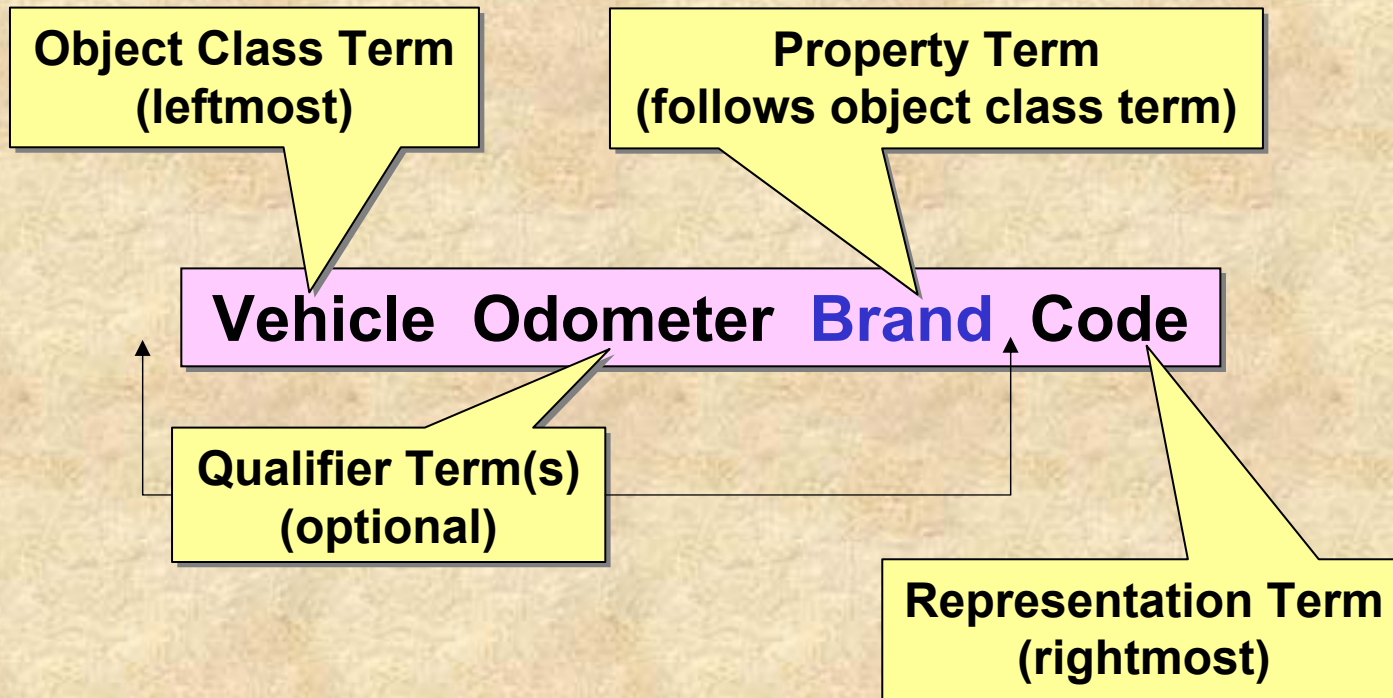
UBL and GJXDM both built their industry vocabulary by extending ebXML Core Components as their basic building blocks



ISO/IEC Standard 11179

Data Element Naming Syntax

ISO/IEC 11179 Specification & Standardization of Data Elements
– standardizes data dictionary design, names, definitions.

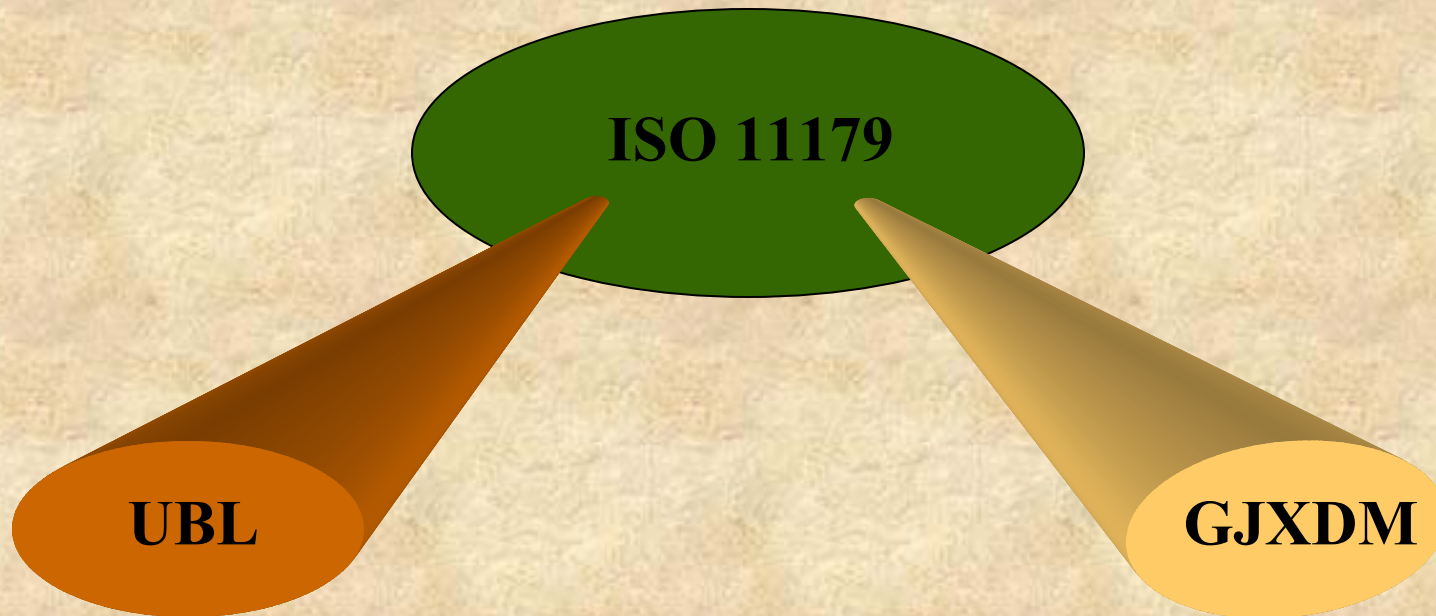




Observation #3

UBL and GJXDM both adopted ISO 11179 Element Naming Standards

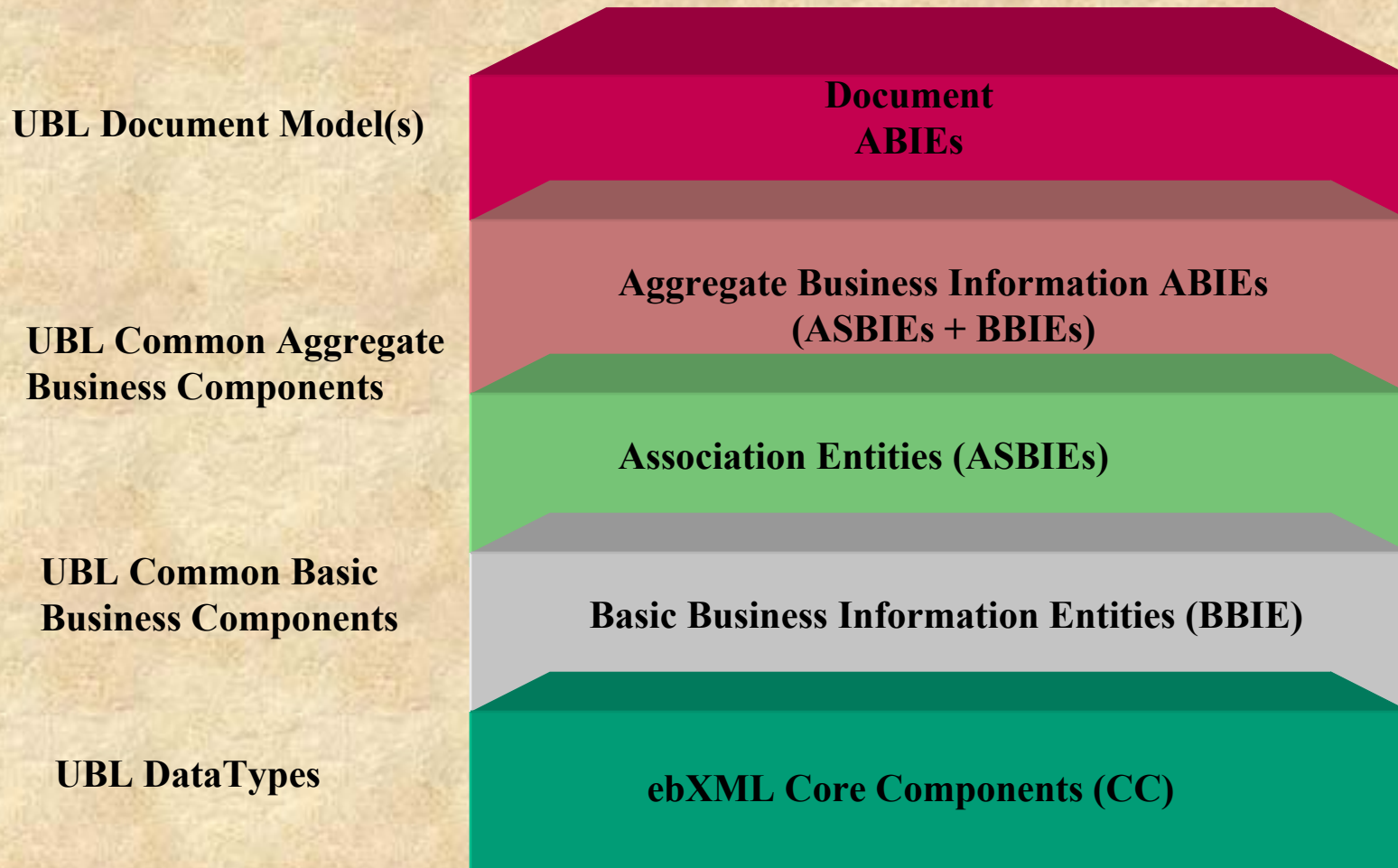
Common Standard for Element Names



UBL Naming & Design Rules cont'd

- **Achieve semantic clarity through a binding to the Core Components**
- **EbXML Core Components (CC) = Datatypes (non-domain specific)**
- **Basic Business Information Entities (BBIEs) = a CC to which a business context has been applied (Basic Business component)**
- **Aggregate Business Information Entities (ABIE) = A collection of BBIEs + Association BIEs (ASBIEs) (Aggregate Business component)**
- **Association ASBIE is a relationship-like element linking a parent ABIE to another child ABIE**

Core Components + Common Business Components are the Building Blocks for Business Document(s) & Messages

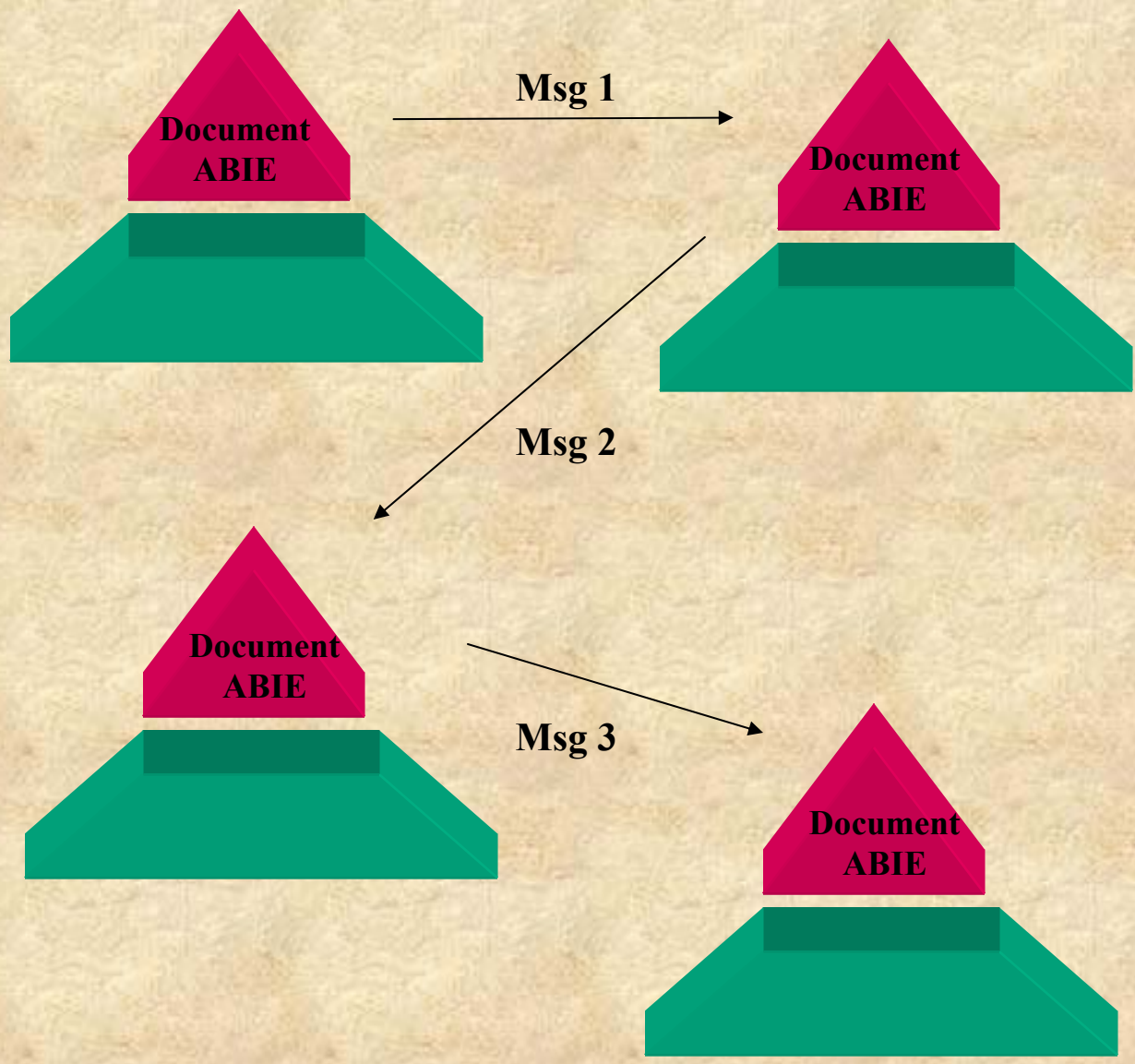


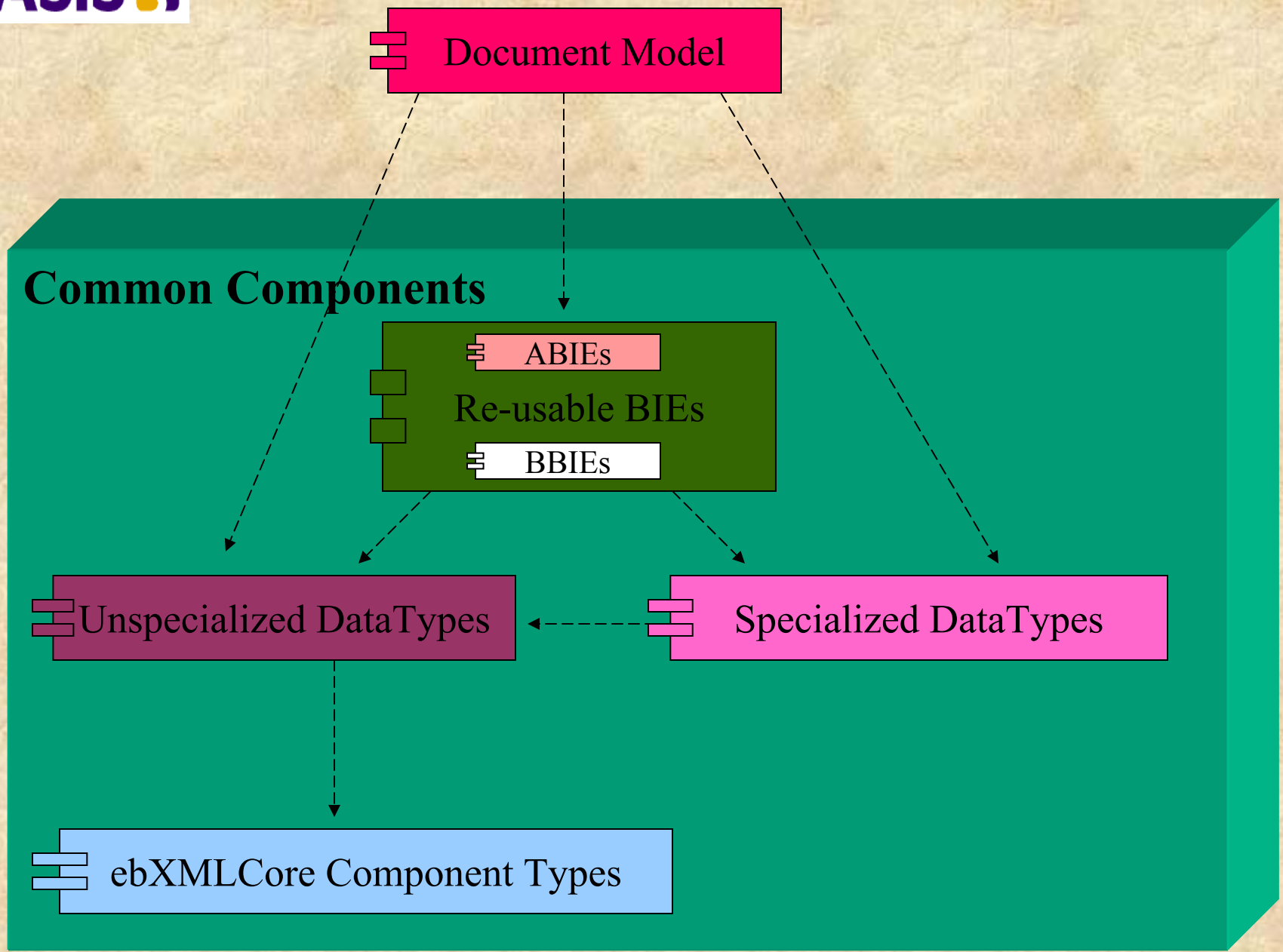


UBL Naming & Design Rules cont'd

- **Document Schema is comprised of a collection of reusable ABIEs + BBIEs + local extensions**
- **The Document Schema root element is classified as an ABIE**
- **A Collection of Document Schema(s) can be related through a Use-Case Scenario to define a complete information exchange**
- **UBL uses the procurement business process and 8 reference Document Schema(s) to accomplish a order/receipt/invoice transaction**

INFORMATION EXCHANGE USE-CASES



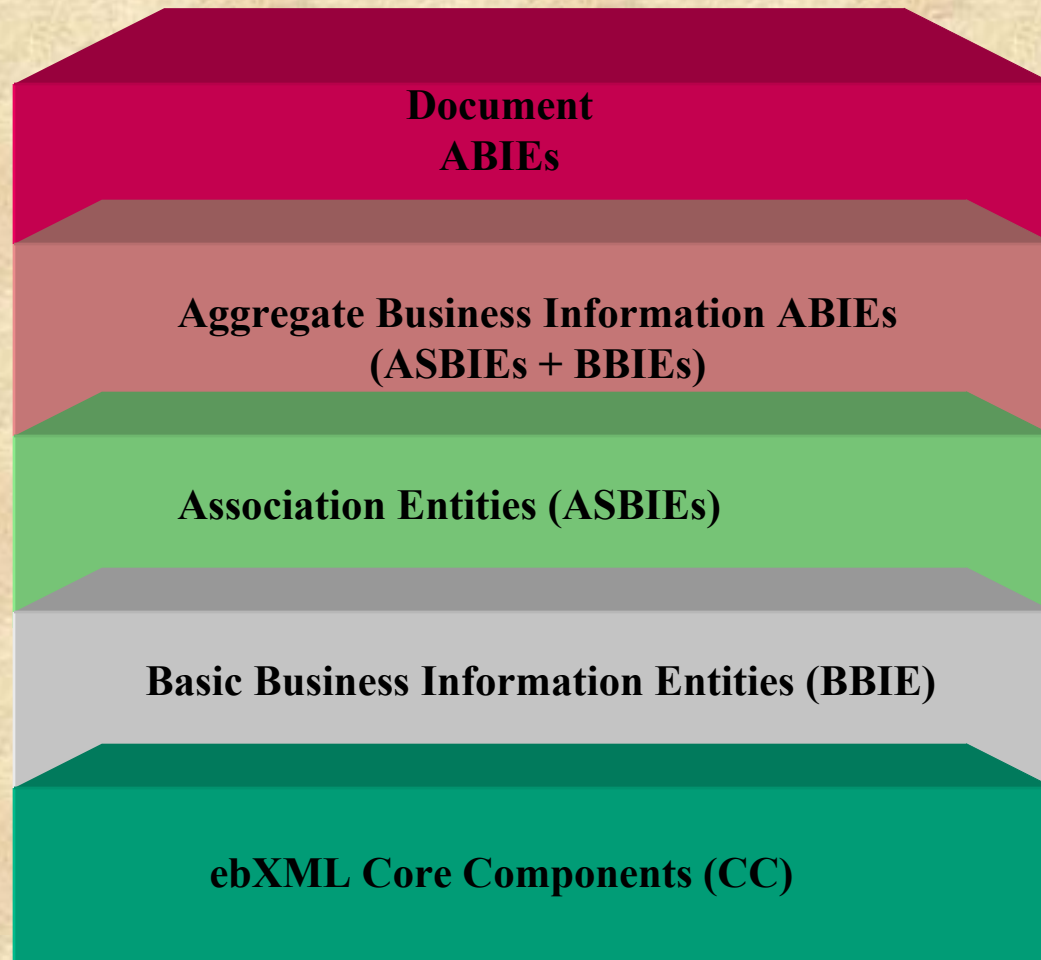




Observation #4

GJXDM could add UBL Document Metadata to classify all Core Components (Datatypes) and Business Components consistent with UBL rules for classifying objects

**UBL & GJXDM
Interoperable
Metadata**





UBL supports Contextualization (customization)

Contextualization (customization) MUST be done via subsetting (Restriction) or Extension of :

- **Core Components (ebXML Core Components & Specialized DataTypes)**
- **Core Component Business Entities (BBIEs & ABIEs)**



Observation #5

Both GJXDM and UBL require Core Components and Business Components as the base for any compliant extensions/restrictions to their respective vocabulary.

Common Naming and Design Rules (NDR) Benefits

Interoperability Benefits

- **Schema compatibility**
- **Syntax compatibility**
- **I need your industry schema and my application understands the structure used**
- **We share the same NDRs for XML**
- **Semantic compatibility**
- **Whatever you call the component I can understand what it means and can map it to my application**
- **We share ebXML “syntax-independent” Core Components**



Common Methods for Development of Implementation Schema and Instances

“Two very independent development efforts with two surprisingly similar methodologies and sets of non-normative artifacts”

UBL



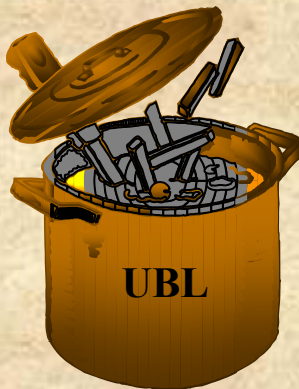
GJXDM



UBL Methodology for developing Document Schemas:

- **Identification of Document Components Required (UML diagram called Document Component Model)**
- **Document Assembly Detailed Model + local extensions (UBL Domain Spreadsheet called Document Assembly Model)**
- **Generate Schema from Document Assembly Model**
 - **Conformant to UBL Naming & Design Rules, Schema is generated automatically utilizing a data modeling and schema generation software tool**
- **Generate Implementation Model from Schema (UML like diagram)**

BBIEs



ABIEs

Ingredients/Components





GJXDM Methodology for developing Document Schemas:

- **Document Domain Model (high-level overview model depicted with UML, Visio, or PowerPoint diagram(s))**
- **Detailed Domain Model Mapping to GJXDM (Spreadsheet)**
- **GJXDM subset schema generator tool to select objects and properties relevant to the Document Model**
- **Extension Schema Development for customized GJXDM object types**
- **Document Schema Development utilizing Extension Schema and GJXDM subset/constraint schema**

BBIEs

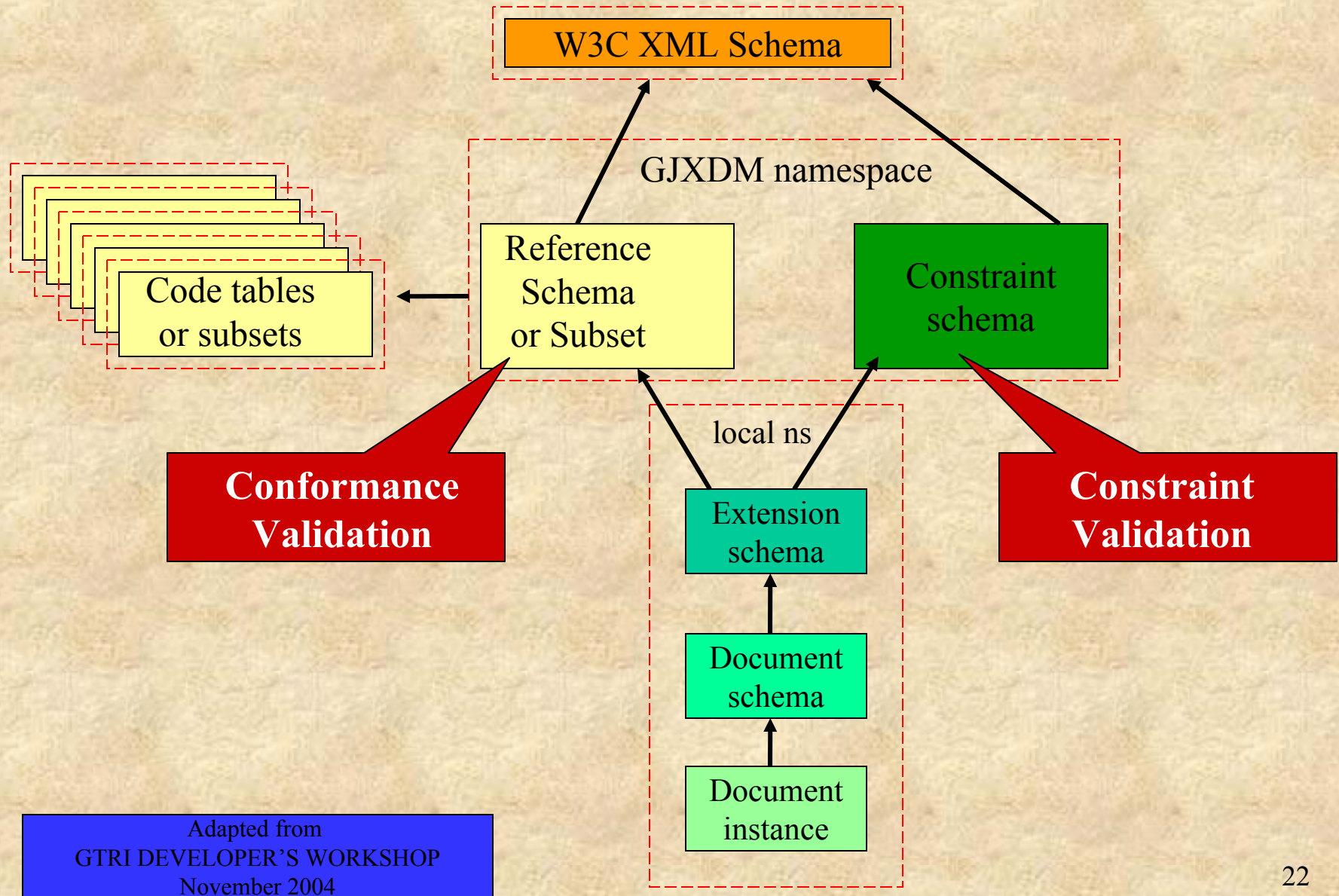


ABIEs

Ingredients/Components



GJXDM Diagram for Document Model Creation:

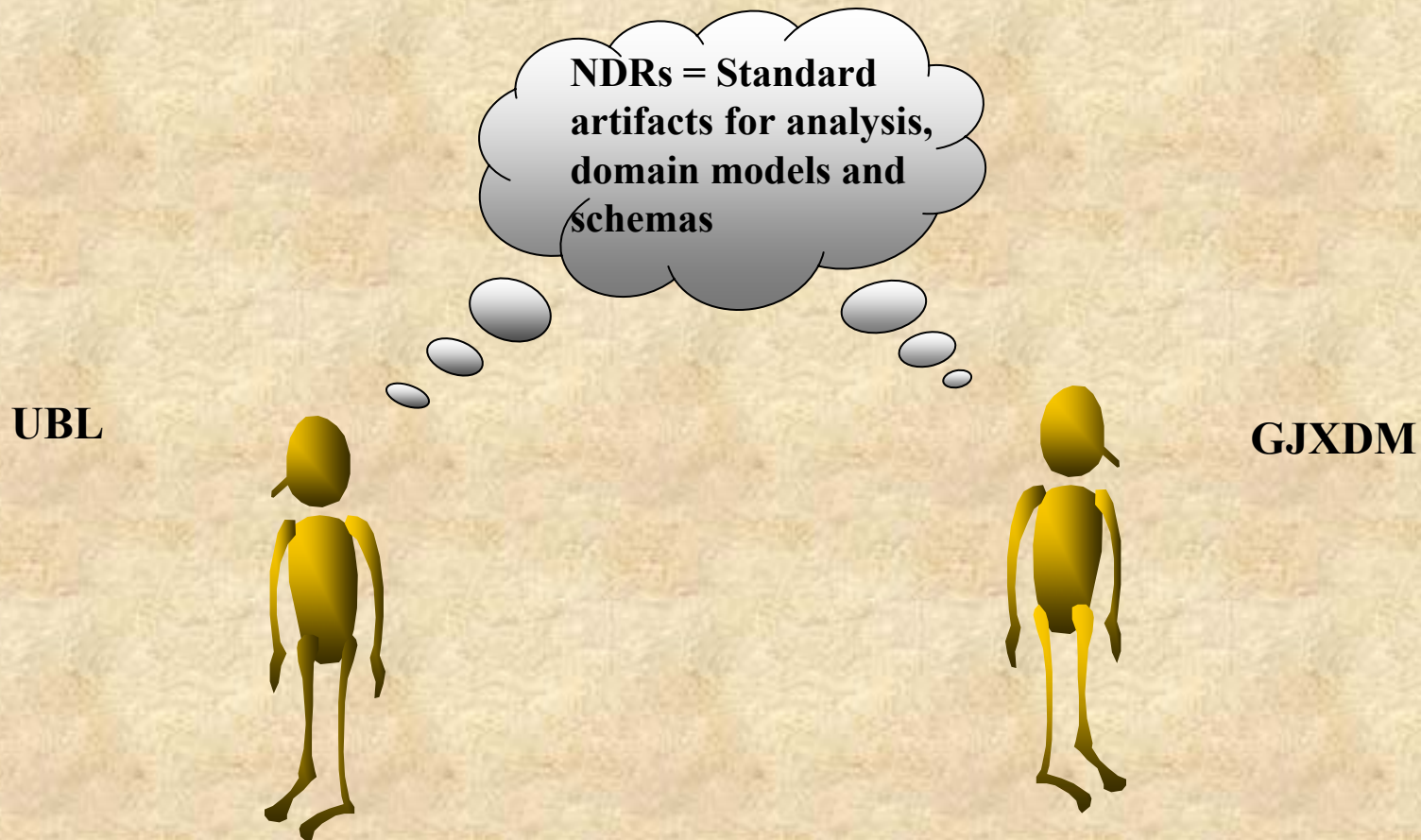


Adapted from
 GTRI DEVELOPER'S WORKSHOP
 November 2004



Observation #6

GJXDM and UBL follow a similar methodology for developing reference exchange documents and utilize similar tools in the process (UML, Excel Spreadsheets, some automated software tools)

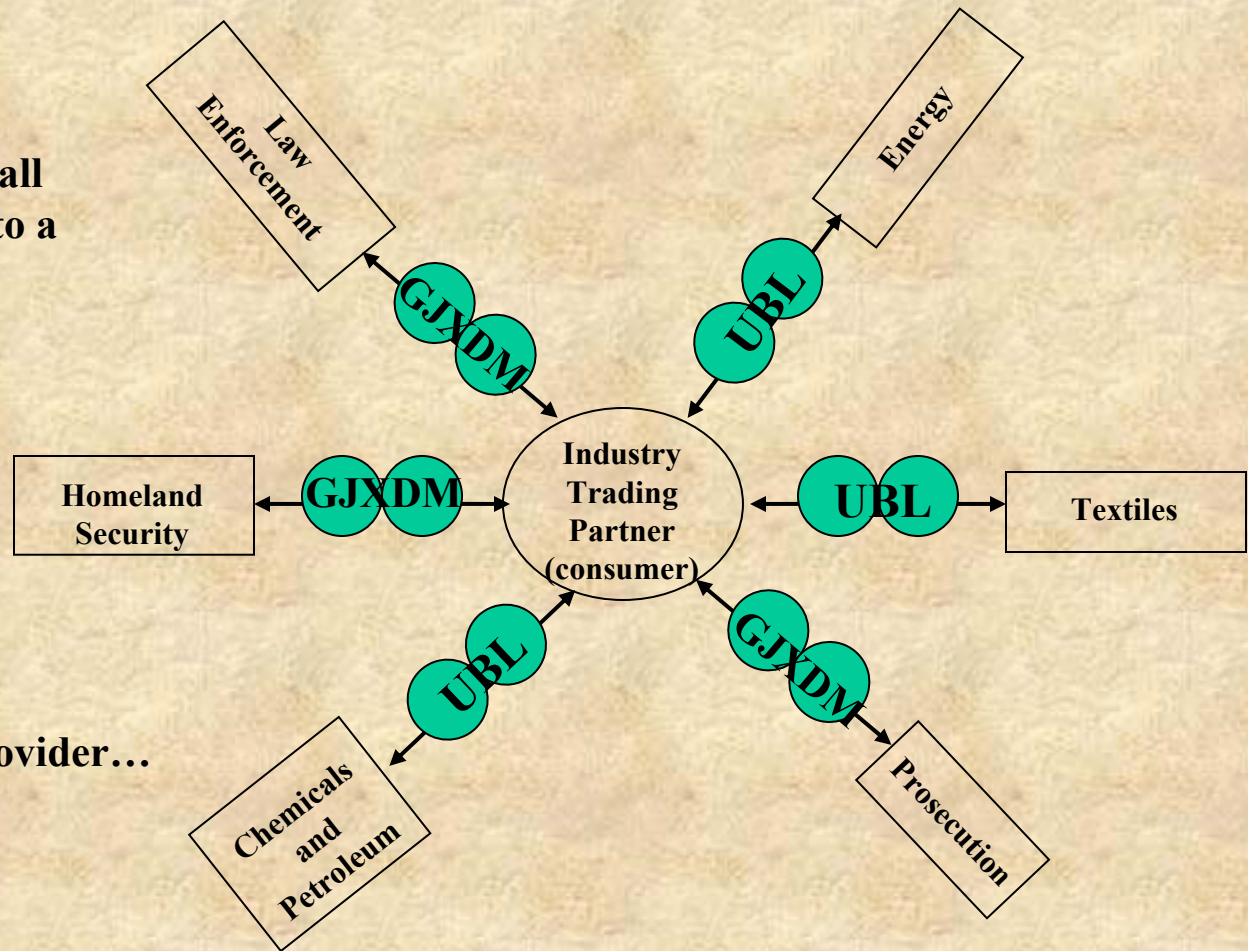


Normative Schemas produced by using UBL Naming & Design Rules (NDR)

- **W3C XML Schema (XSD) modules**
- **Schemas of re-usable Business Core Components Types**
- **Schemas for re-usable ebXML Core Components Types**
- **Standard Core Component Types, Representation Terms and Data Types**
- **Schemas for documents built with re-usable Components**
- **Schemas for Code Lists (enumerations)**

The Role of a Hub Format

One adapter interfaces all Information providers to a common consumer...



And all consumers to a common information provider...

There appears to be no practical alternative to this plan.

Adapted from
UBL Presentation by Mark Crawford
December 9, 2003

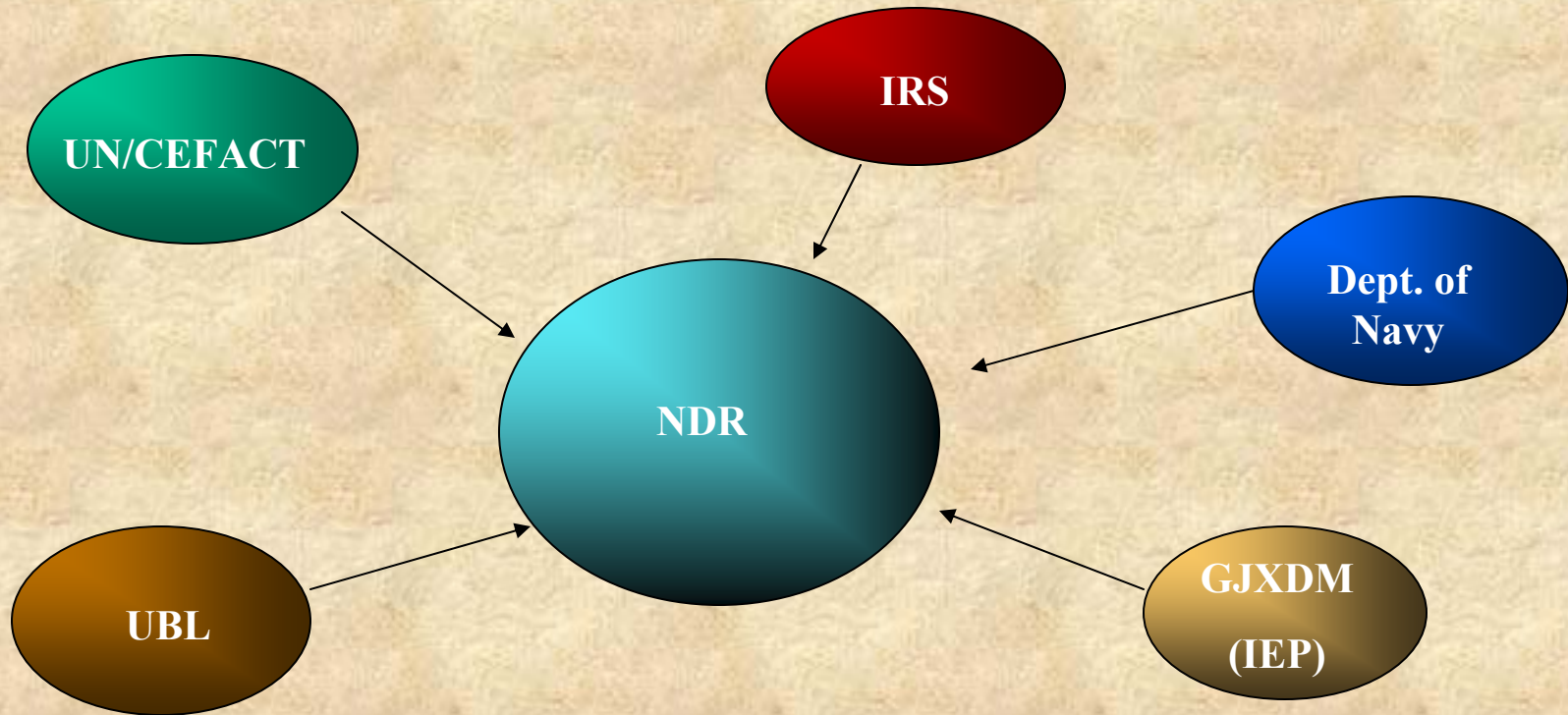


Conclusion

- **OASIS Integrated Justice is evaluating UBL NDR as a model for developing a GJXDM Information Exchange Package NDR**
- **Additionally, the GJXDM NDR will specify standards for Domain Model artifacts and Detail Domain Modeling mapping artifacts to make these artifacts interoperable**

Other industry groups adopting or customizing the UBL NDR standard:

- Department of Navy NDR
- IRS Tax NDR
- UN/CEFACT NDR
- OASIS GJXDM Information Exchange Package NDR





Some Questions:

- **Is UBL NDR the WS-I profile for developing interoperable vocabularies?**
- **Will UBL, Department of Navy, UN/CEFACT, GJXDM (NIEM), IRS deploy according to their NDRs?**
- **Will developers comply with the NDRs?**
- **Will there be certification sites for testing compliance with an NDR?**
- **Should UBL work with WS-I to propose a profile for interoperable vocabularies?**
- **Should you adopt UBL NDR standards for your industry vocabulary?**

Possibilities?

“Too early to tell, but the opportunity for UBL NDR to represent a profile for interoperable vocabularies is further along than any other standards effort today.”

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