United Nations Economic Commission for Europe
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UN/CEFACT

Technical Framework Supporting eBusiness Standards

Christian Huemer
TMG Chair

Requirements for interoperability between enterprises

- **Which** documents are exchanged between enterprises?
  - Common definition of the artifacts which are exchanged between enterprises
  - Business document standards
  - CCTS, UPCC, NDR, UCM
- **How** are documents exchanged between enterprises?
  - Common definition in which order documents are exchanged
  - Global process choreography
  - UMM, REA, (UCM in the future)

Meta Model sickness

Health warning

- If you want to learn modeling, it is not a good idea to start with the meta model
- If you are an experienced modeler the meta model serves as reference
- A tool builder must implement the meta model to provide the modeling environment for the modeler

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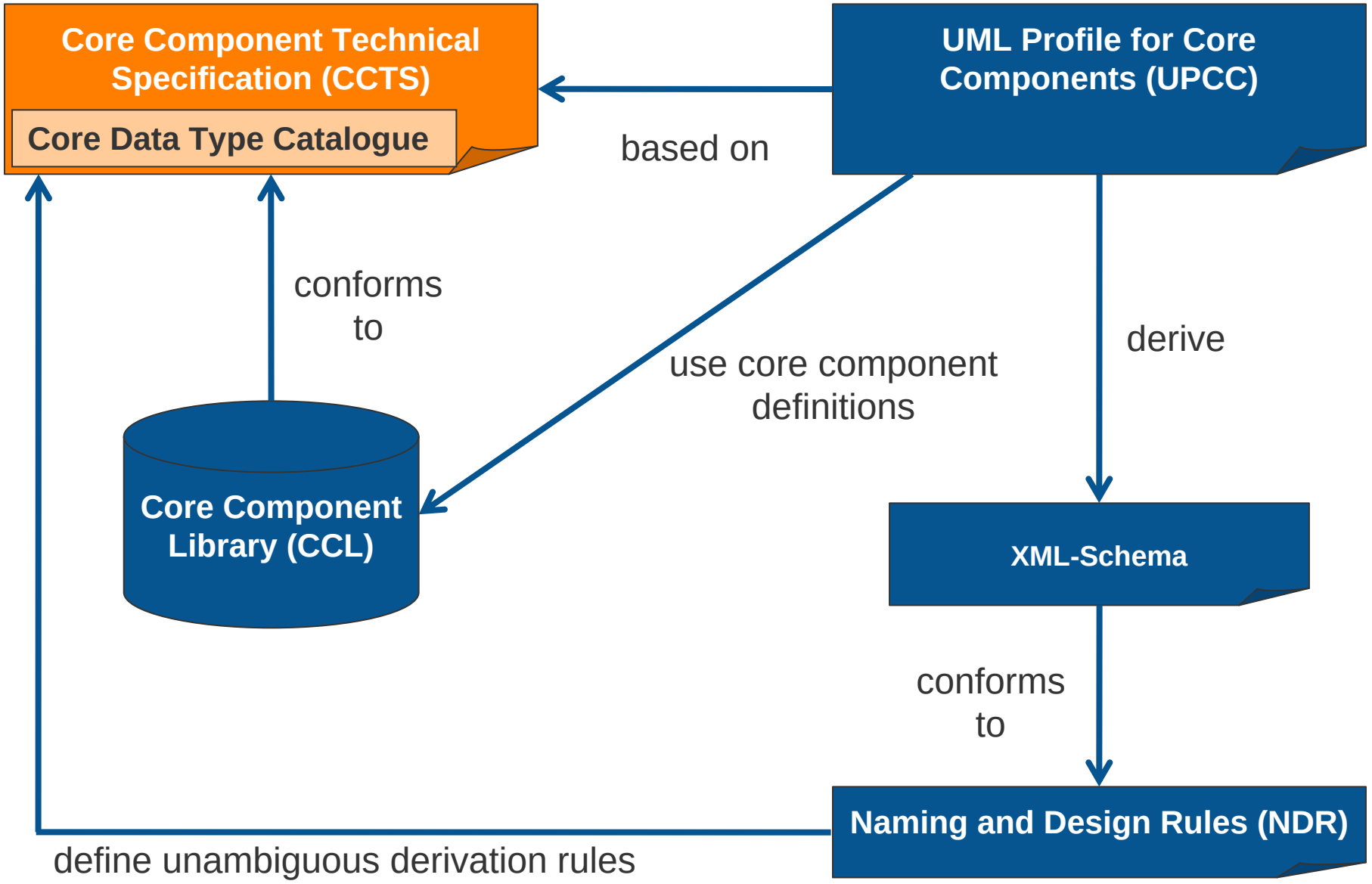
Overview of Core Component related UN/CEFACT specifications



UN/CEFACT's Core Components – Definition of reusable building blocks

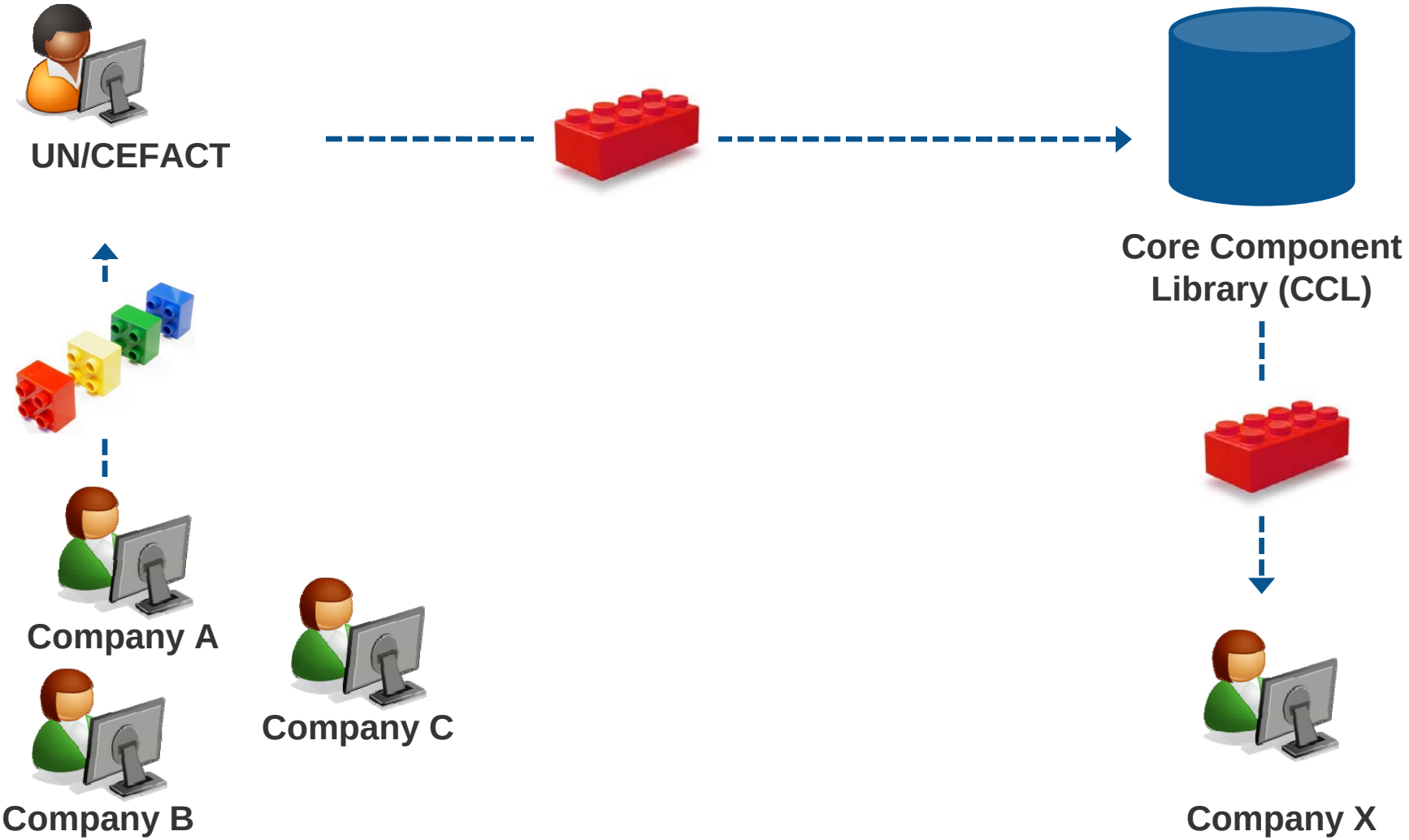
- Semantic building blocks for the definition of business document data
  - Context free – reuse in multiple business sectors
  - Customization of generic core components to specific business sectors and application domains

UN/CEFACT's Core Components – Reuse of building blocks

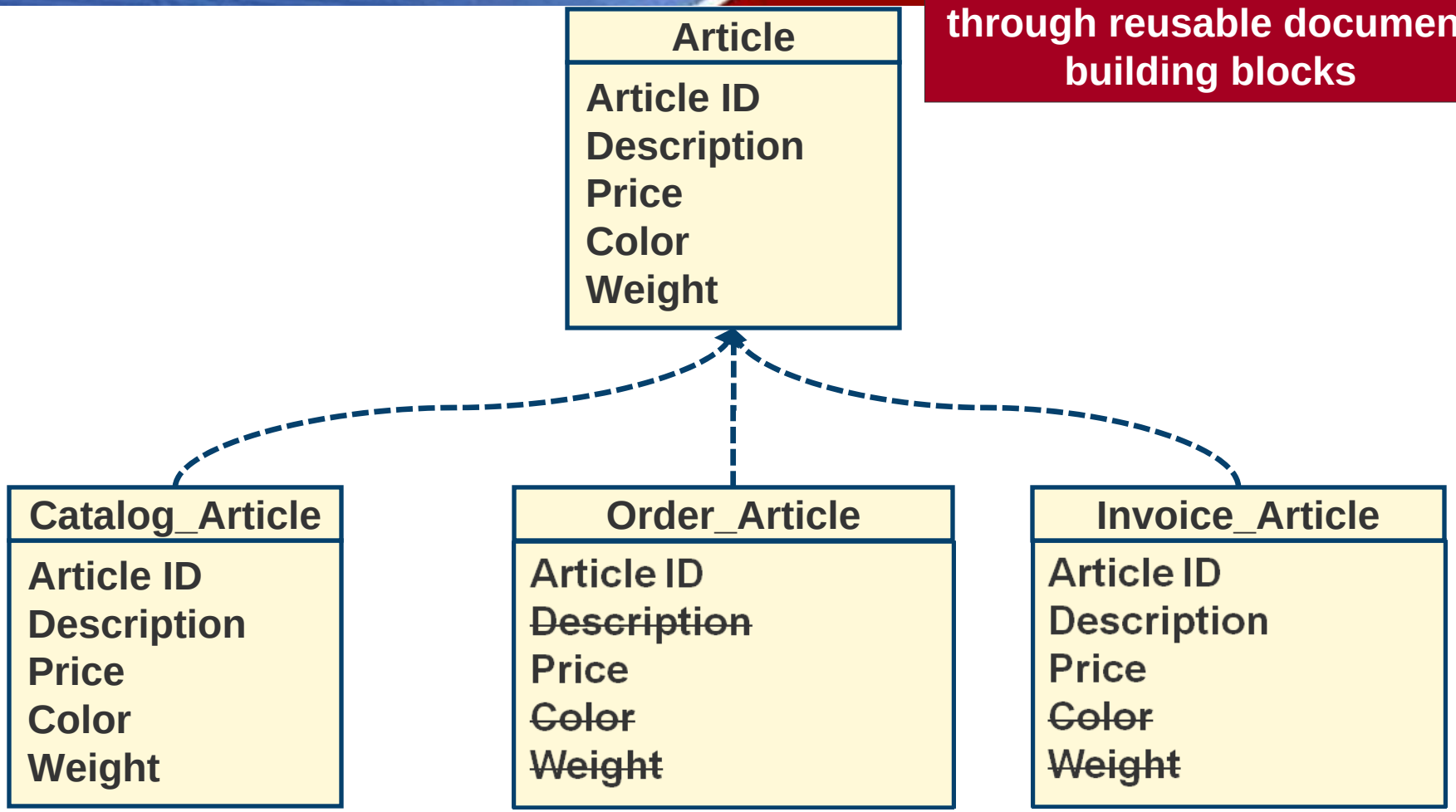
Core Components

Business document

Creation and use of building blocks



Reduction of complexity through reusable document building blocks

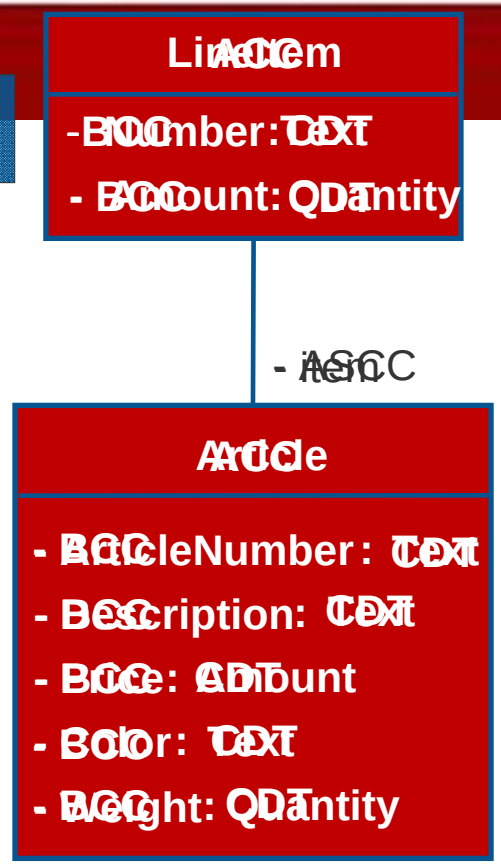


Contextualization by omitting non-used elements

Core components in one slide

- Identification of objects
- Identification of object properties

- Two types of properties
  - Simple properties (text, number, date)
  - Complex properties (other objects)



- Object type = **A**ggregate **C**ore **C**omponent
- Simple Property = **B**asic **C**ore **C**omponent
- Simple Property Data Type = **C**ore **D**ata **T**ype
- Complex Property = **AS**sociation **C**ore **C**omponent

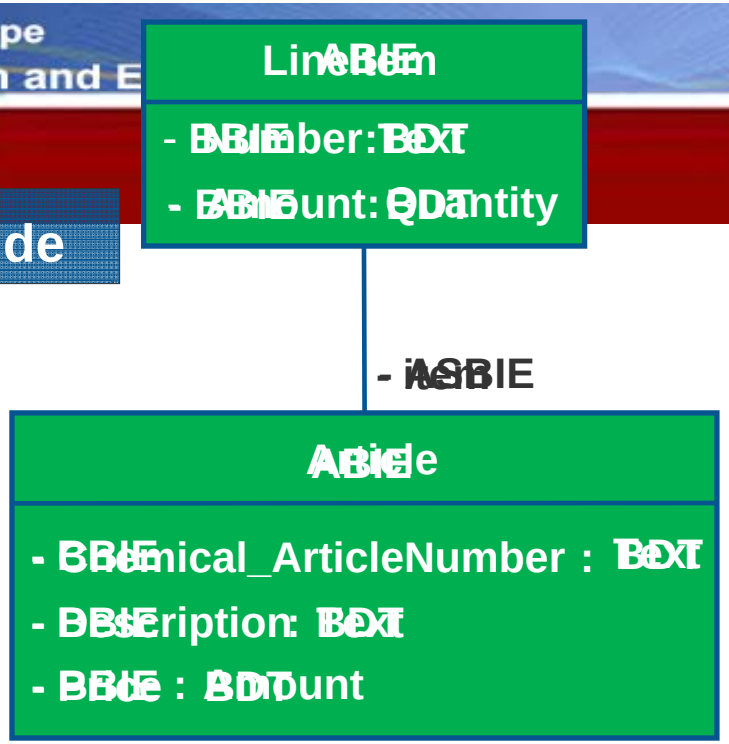
From Core Components to Business Information Entities

- Core Components act as conceptual models that are used to define **business information entities** (BIE)
- Business Information entities are created
  - by the application of context
  - by restricting a generic core component
- Business Information Entities and Core Components are complementary in many respects
- A Business Information Entity must always be based on a Core Component

Business Information Entities in one slide

- Core Components in a specific context
- Qualifiers help to distinguish BIEs

- Two different type of properties
  - Simple properties (text, number, date)
  - Complex properties (other objects)



- Object type = **A**ggregate **B**usiness **I**nformation **E**ntity
- Simple Property = **B**asic **B**usiness **I**nformation **E**ntity
- Simple Property DT = **B**usiness **D**ata **T**ype
- Complex Property = **AS**sociation **B**usiness **I**nformation **E**ntity

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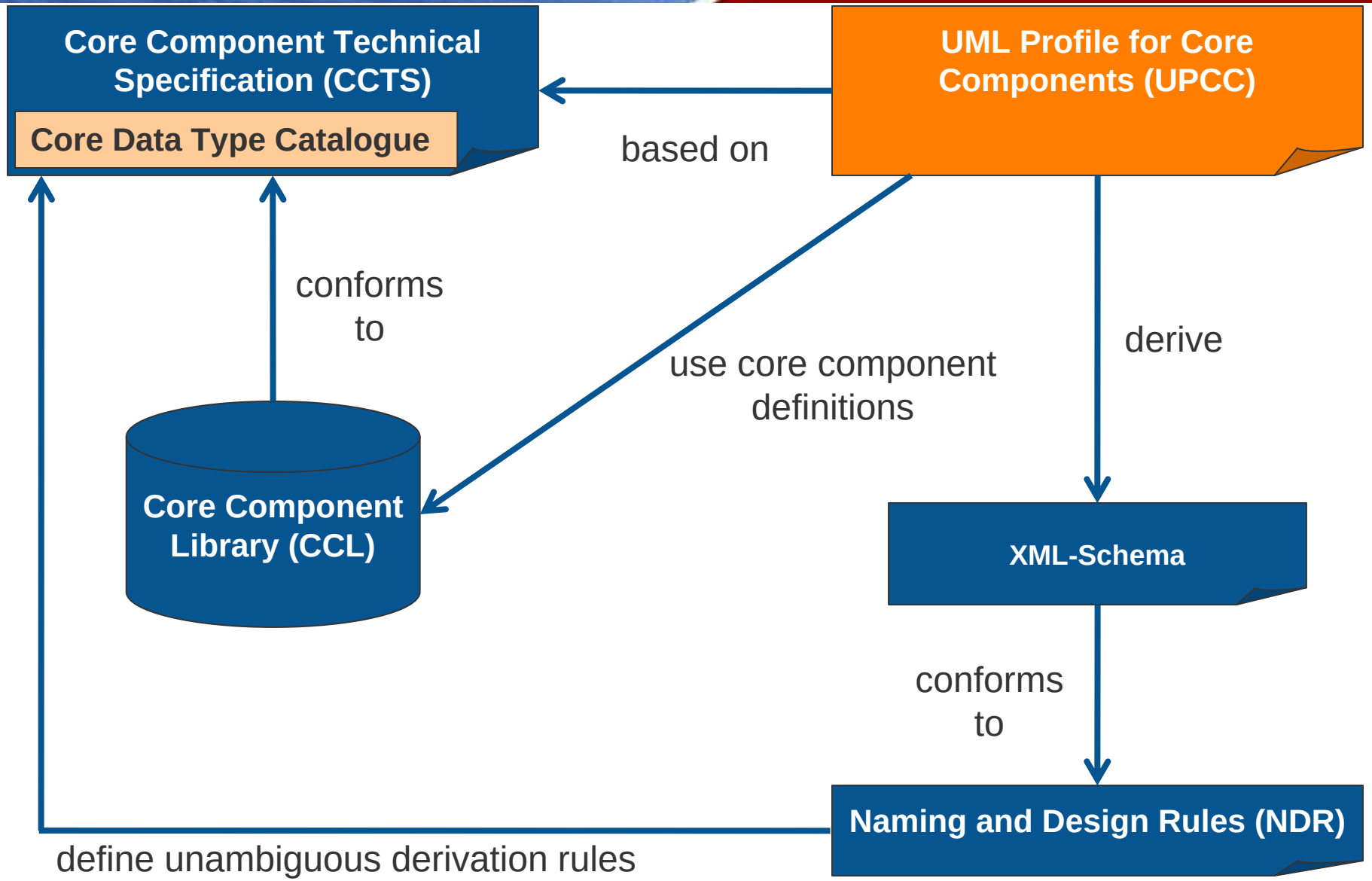

- UPCC goals
  - Define UML Profile for CCTS to allow for an unambiguous representation of Core Components in UML
  - Support validation of structure and semantics of CCTS compliant information models
  - Provide an unambiguous basis for the derivation of XML Schema artifacts
  - Make CCTS information modeling available to a broad user community
  - Help to improve model interchange between UML tools of different vendors

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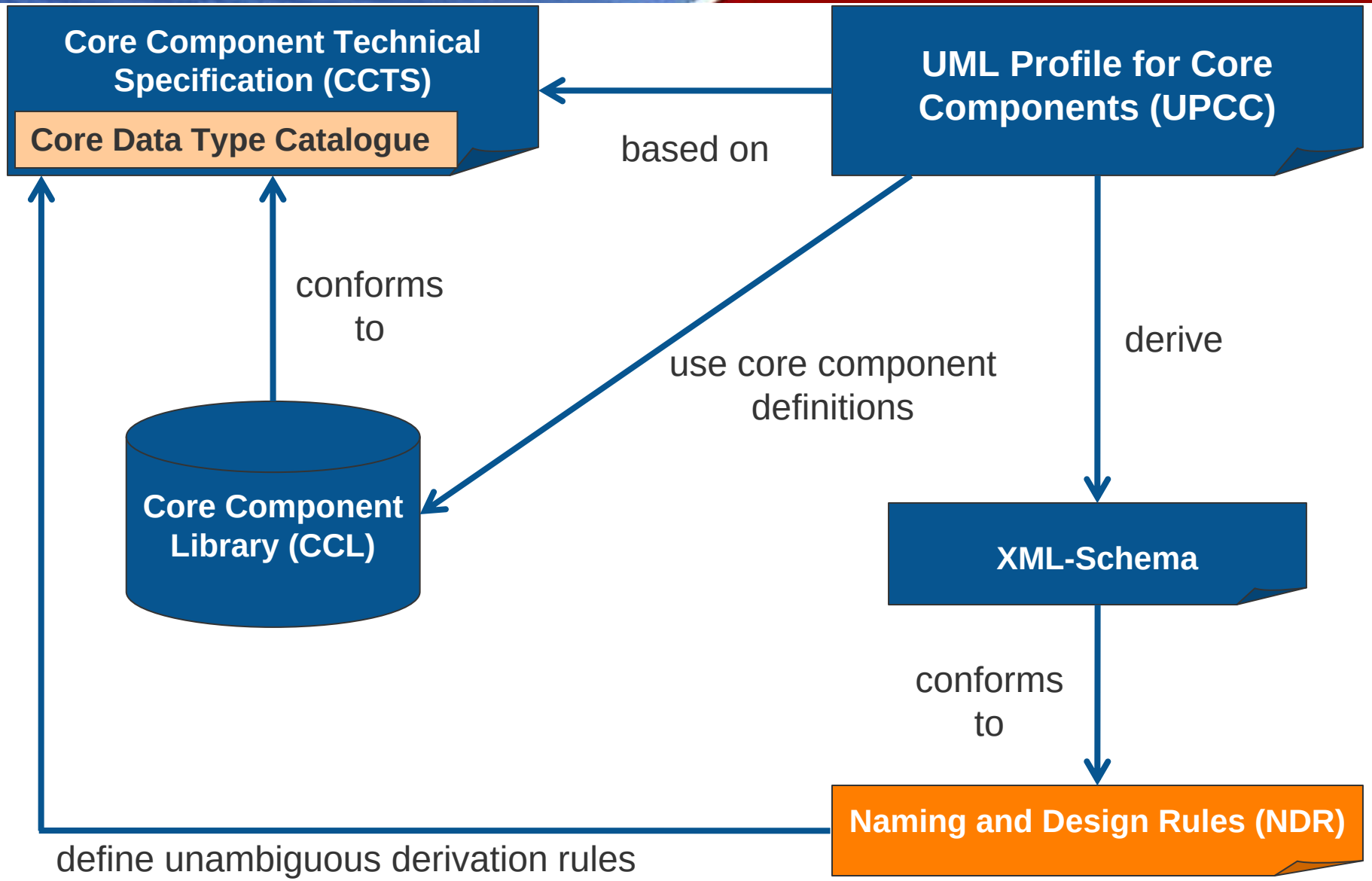
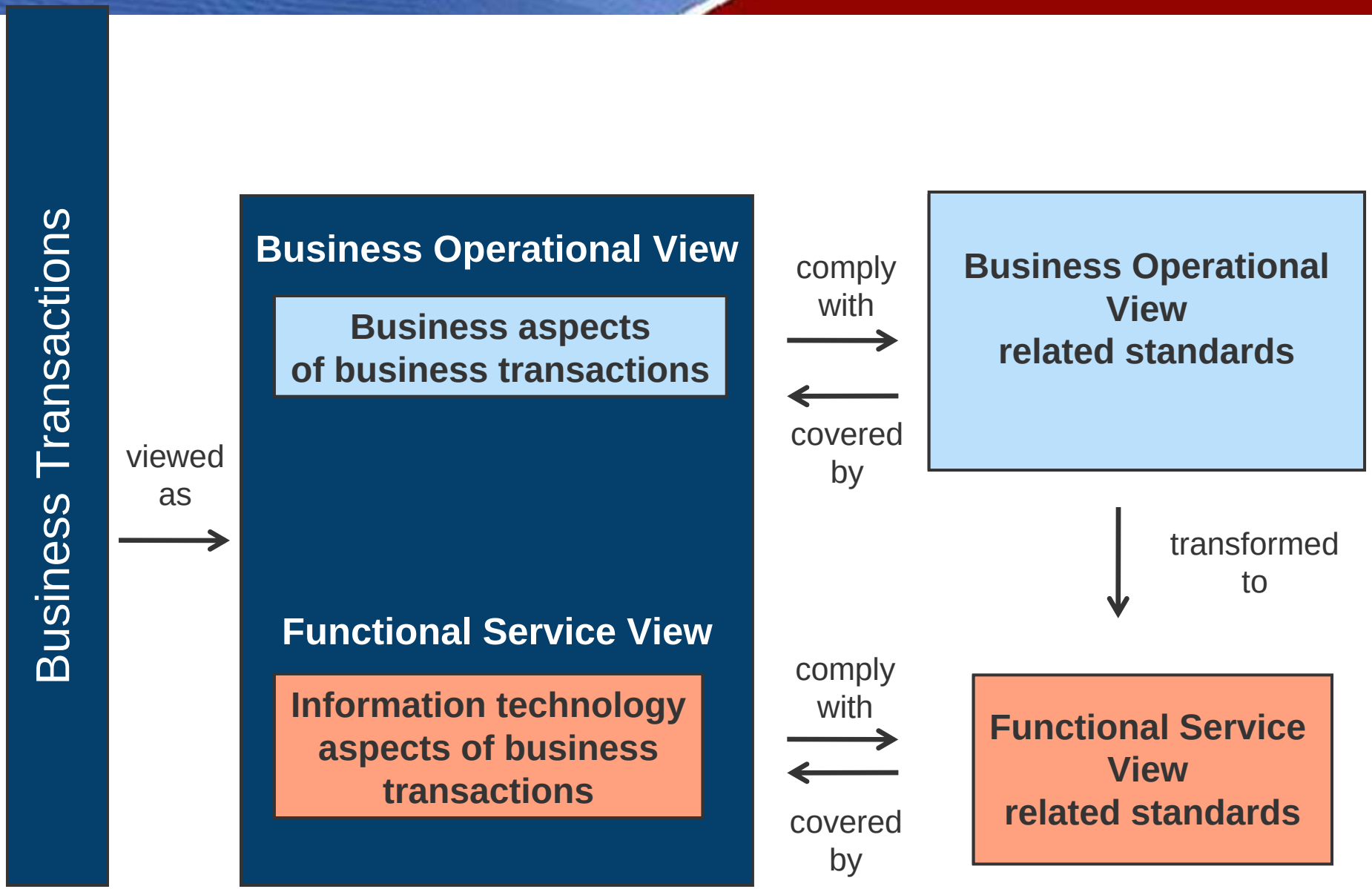
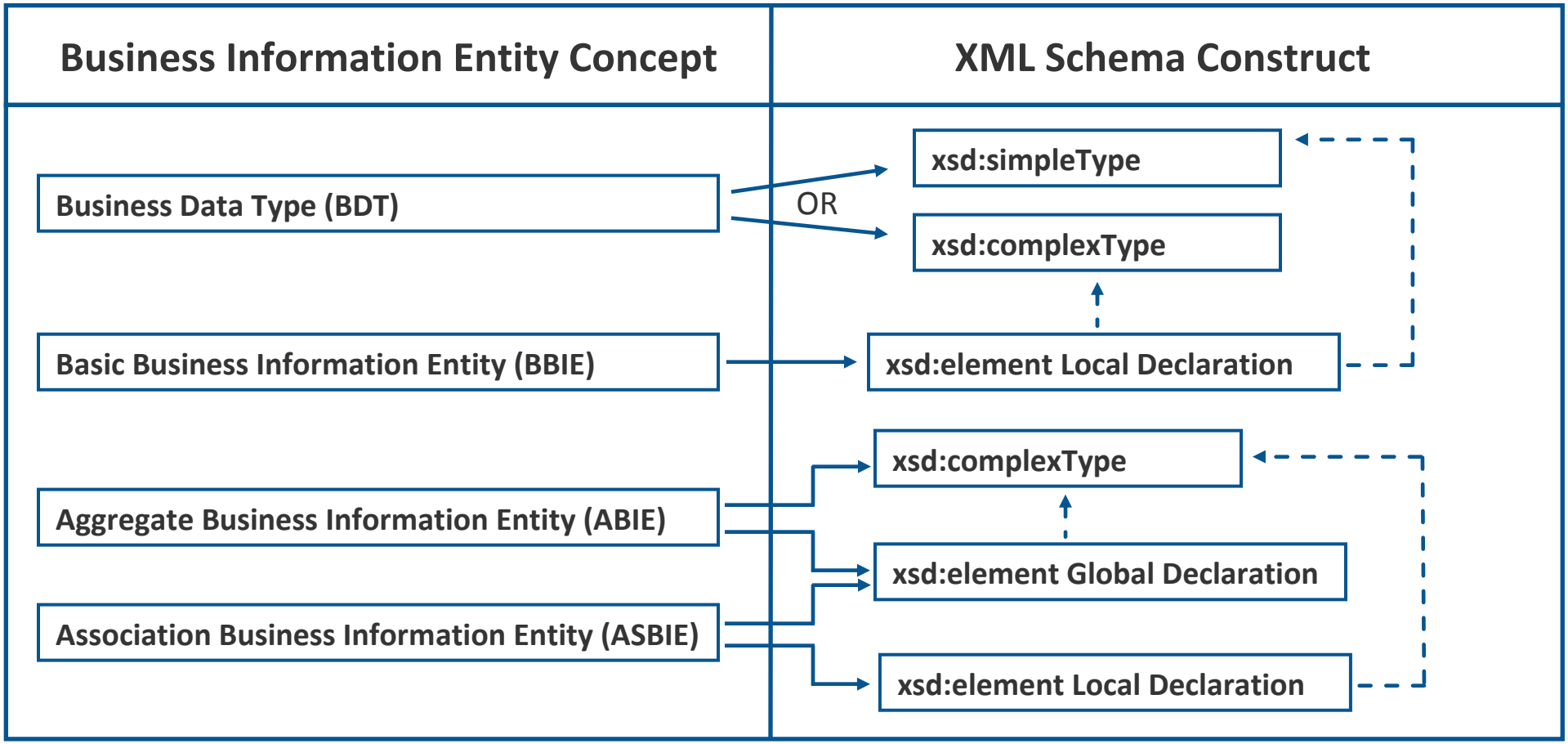
Overview of Core Component related UN/CEFACT specifications



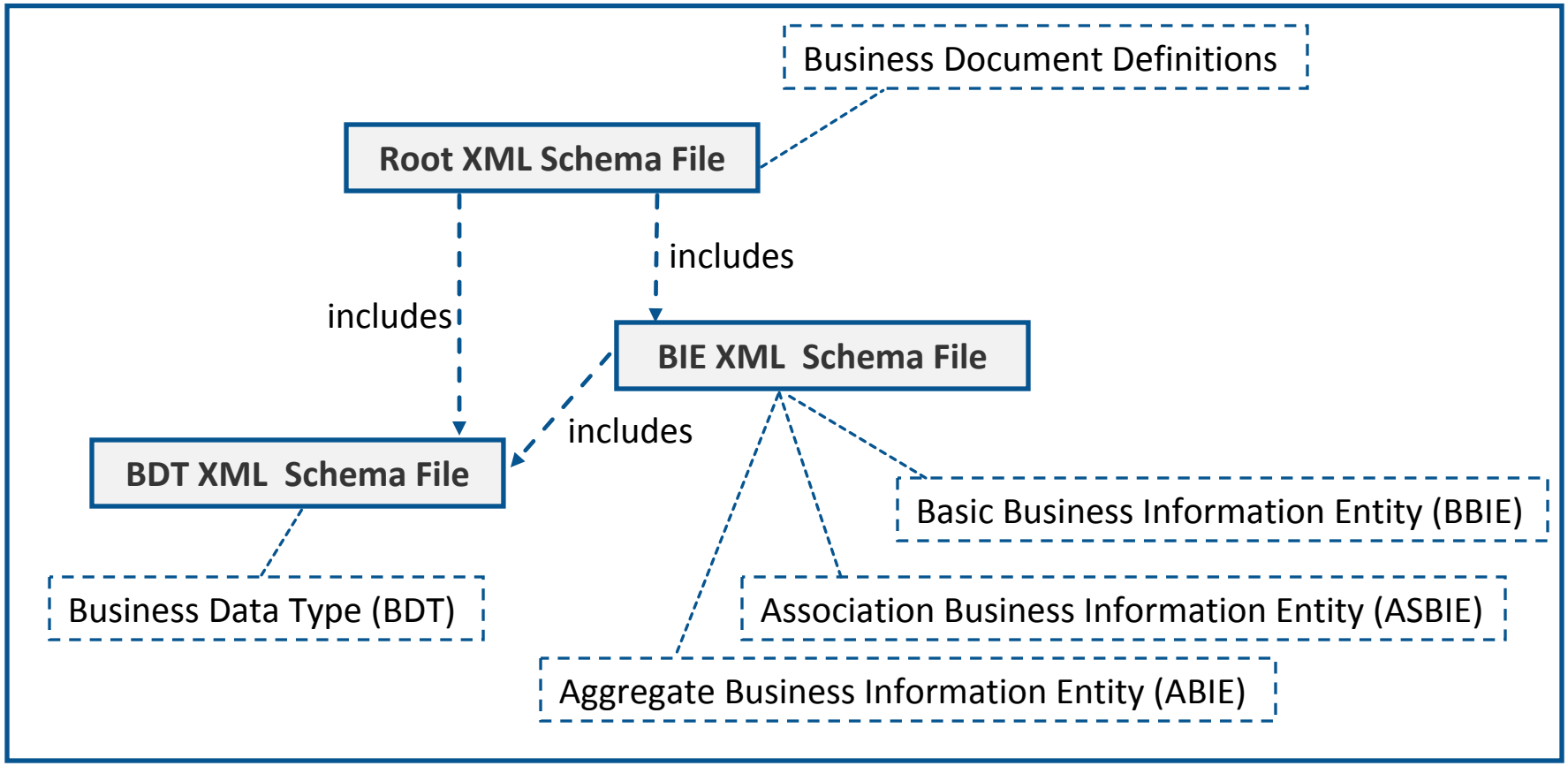
The Open-edi Reference Model ISO 14662



Transformation concepts



Resulting XML files



«MA»
WasteMovementForm

BIELibrary (Busines
Waste_

«BBIE»
+ Waste_ChargeableW
+ Waste_DeclaredValu
+ Waste_DeclaredValu
+ Waste_DeclaredValu
+ Waste_DeliveryInstru
+ Waste_GrossVolume
+ Waste_GrossWeight
+ Waste_Identification:
+ Waste_Information:
+ Waste_InsuranceVal
+ Waste_Invoice: Was
+ Waste_NetWeight: V

```
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            <ccts:AcronymCode>ASBIE</ccts:AcronymCode>
          </xsd:documentation>
        </xsd:annotation>
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    </xsd:sequence>
  </xsd:complexType>
</xsd:schema>
```
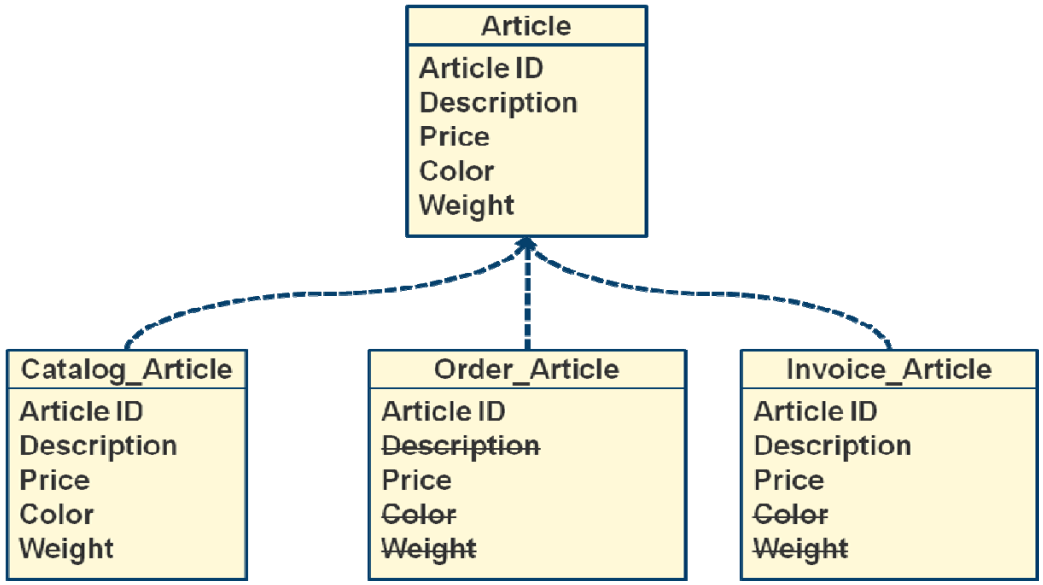
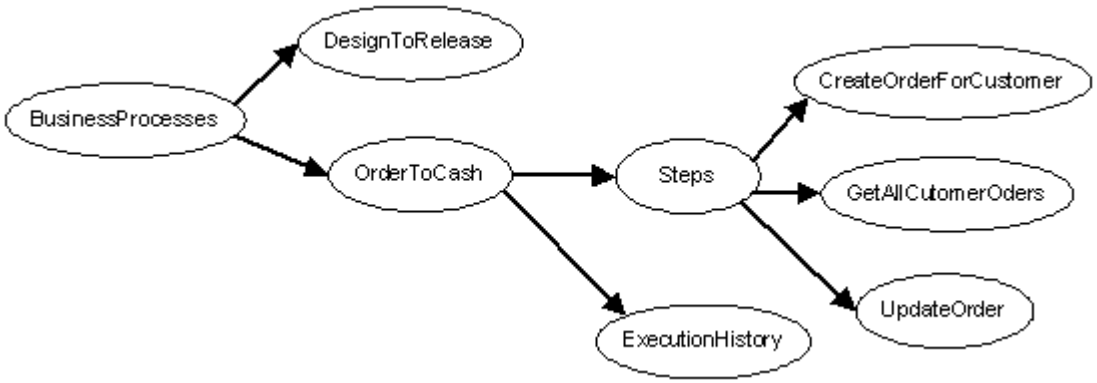
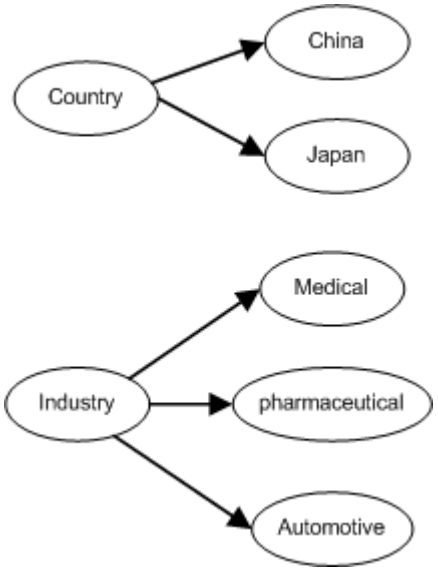

UCM: Modeling Dimension

The is the initial, and only, UCM specification being worked on.
It is in the Modeling Dimension.

1. A Grammar (BNF) to express context values such as:
   - "All of Europe but not the UK"
   - BIEs which are relevant for Step3 in OrderToCash for partner1
   - Automotive industry in Germany
   - More – you define your values
2. Mathematical foundation based on a Directed Acyclic Graph (DAG)
3. Will specify
   - A UML logical metamodel for defining context values
     - UCM will NOT define context values such as in CCTS 2.X
     - UCM WILL define how to define context values via Classification Scheme instances


Article
Article ID
Description
Price
Color
Weight
Catalog_Article
Article ID
Description
Price
Color
Weight
Order_Article
Article ID
~~Description~~
Price
~~Color~~
~~Weight~~
Invoice_Article
Article ID
Description
Price
~~Color~~
~~Weight~~


BusinessProcesses
DesignToRelease
OrderToCash
Steps
CreateOrderForCustomer
GetAllCutomerOders
UpdateOrder
ExecutionHistory


Country
China
Japan
Industry
Medical
pharmaceutical
Automotive

Order from Quote business scenario – simple, but realistic

Buyer

What kind of apples do you have?

We provide 5 alternatives: …

What is the price of the 2nd and 4th option?

The 2nd is x$ and the 4th is y$

I take 5 pieces of the second option

Fine.

Seller

Principles of the UMM solution

- Separation of business logic and implementation technology
  - Model-driven approach
  - Based on the Unified Modeling Language (UML)
- Process centric
  - UMM is business process centric
- Business state centric
  - Adjust UMM to a business state centric methodology
- Business context sensitive
  - Need concepts for applying models in multiple contexts with respect to the environment-specific requirements

UN/CEFACT's Modeling Methodology (UMM) at a glance

- Graphical process modeling technique for inter-organizational (B2B) business processes
- Concentrates on business semantics – it is implementation neutral
- Provides a procedure similar to a software development process
  - from requirements elicitation to process design
- UMM is defined as a UML profile on top of UML 2.1.1
- UMM is used in order to define global business choreographies

Global choreography

- If each organization defines its own choreography with business partners, interoperability is unlikely

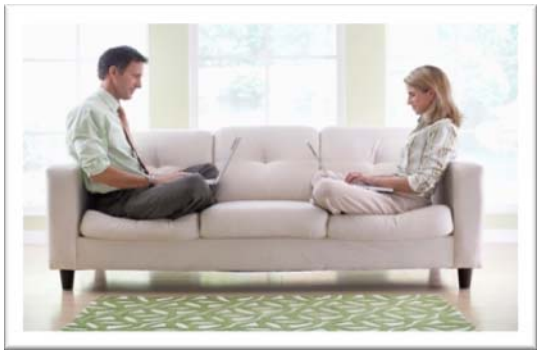
Buyer‘s view

Seller‘s view

- UMM describes collaborative business processes from a **global** and **neutral** point of view

Collaboration

Buyer



Seller

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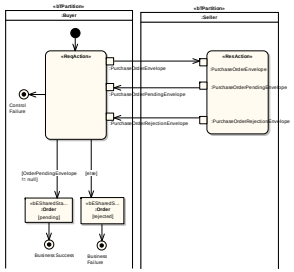
From UMM to Exectuion



UMM Modell

orchestration

orchestration

internal

public

public

internal

local

global

choreography

local

Company A

Company B

End of Presentation

<Lecturer>
<Name>**Christian Huemer**</Name>
<Company>**Vienna University of Technology**</Company>
<Department>**Business Informatics Group**</Department>
<Address>
<Street>**Favoritenstraße 9-11/188**</Street>
<ZIP>**1040**</ZIP><City>**Vienna**</City>
<Country>**Austria**</Country>
</Address>
<Contact>
<Email>**huemer@big.tuwien.ac.at**</Email>
<Http>**http://www.big.tuwien.ac.at**</Http>
</Contact>
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