Interoperability enhancement of electronic Business-to-Government: Extending the scope of UBL

Till Janner, Fenarethi Lampathaki, S. Mouzakitis, Christoph Schroth & Ulrich Scheper

NTUA / BOC / SAP

November, 29th 2006
Agenda

UN/CEFACT standards for modeling of governmental business information

Integrated GENESIS modeling approach
Challenges in modeling of governmental business information

- Plethora of standards exists in business information modeling that all show different degrees of dissemination

- No universal language exists that describes the semantics of governmental data in unambiguous terms

- Governmental authorities are focused on their proprietary requirements and defining their specific, inflexible business data models
UN/CEFACT CCTS as solution to the business standards dilemma

1. Reusability
   Definition of data building blocks that reflect actual business requirements and can be reused

2. Extensibility
   In case existing artifacts are not sufficient, additional components can be created and published in the common library

3. Context-sensitivity
   Business documents are always structured according to user context

4. Templates available
   Semantic-level, CCTS-compliant information modeling

UBL provides standardized document structures that can serve as templates
Core Component based Business Information Modeling

Business

ABIE

ASBIE

BBIE

Business Data Type

Specify Restrictions On

Aggregated In

Specify Restrictions On

Aggregated In

Define Values of

May Specify Restrictions On

Core Data Type

Core

ACC

ASCC

BCC

Specify Restrictions On

Aggregated In

Aggregated In

Define Values of

Purchase Order

Address

ID number

Identifier
UN/CEFACT standards for modeling of governmental business information

Integrated GENESIS modeling approach
Multi-level modeling, Reuse and Standardized Notation

- Allow different levels of data to be gathered according to the skills of the parties involved
  - Three-View-Based modelling approach (private view, public view, collaboration view)
  - Unstructured documentation (“light” data description)
  - Structured documentation (“heavy” data description)
  - Specific scope (corresponding to the private view)
  - Generic scope (corresponding to the collaboration view)

- Reuse and extend existing information (e.g. UBL and CCL) within the modelling environment
  - Data repository

- Standardized (modelling) notation to allow exchange beyond the modelling environment
  - UN/CEFACT ISO 15000-5 compliant
  - XML interface
Consistent Business Document integration into all different views

Once a data element has been identified within a process it is reused (and refined) within all view levels [→ = Inter Model Reference]
Data Repository: Example (Generic Documents)
Integrated Approach

1. Define specific business documents based on private view (Scope: single party)
   - Unstructured information

2. Refine specific business document based on public view (Scope: single party)
   - Structured information, aligned to UBL templates

3. Consolidate specific business documents into generic business documents based on collaboration view (Scope: all parties)
   - Structured information, aligned to UBL templates
Thank you for your attention!
Hierarchical composition of Aggregate Core Components (ACCs)

- **Content Component**: 1
- **Supplementary Component**: 1-n

**Core Data Type**
- consists of
- specifies restrictions on
- Defines set of values of

**Data Type**
- without

**Basic Core Component**
- with

**Association Core Component**
- Provides a complex characteristic of and is aggregated in

**Aggregate Core Component**
- Provides a simple characteristic of and is aggregated in
Core Data Types as the Smallest Piece of Information

Context

Need for a standardized business data representation

Core Data Types

- UN/CEFACT has established 21 so-called Core Data Types that can be used as atomic pieces of information

- **Major advantages:**
  - Worldwide accepted standard facilitates global interoperability through a common understanding in a syntax independent manner
  - Comprehensiveness: Almost every imaginable piece of information can be classified
  - Easy to use: Pre-defined explanations serve as support for identifying the correct Core Data Type

- **Composition of Core Data Types:** Each CDT comprises one so-called Content Component (that carries the actual data value) and one or several so-called Supplementary Components (that impose further restrictions on the content Component)