New work item proposal

Exchange formats for the Audit Data Collection Standard: XBRL

Semantic XBRL for Granular Data

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ISO/TC 295 Audit data services

Head of delegate Japanese Industrial Standards Committee (JISC)

April 19, 2021

19:00-21:00 Beijing time (GMT+8)

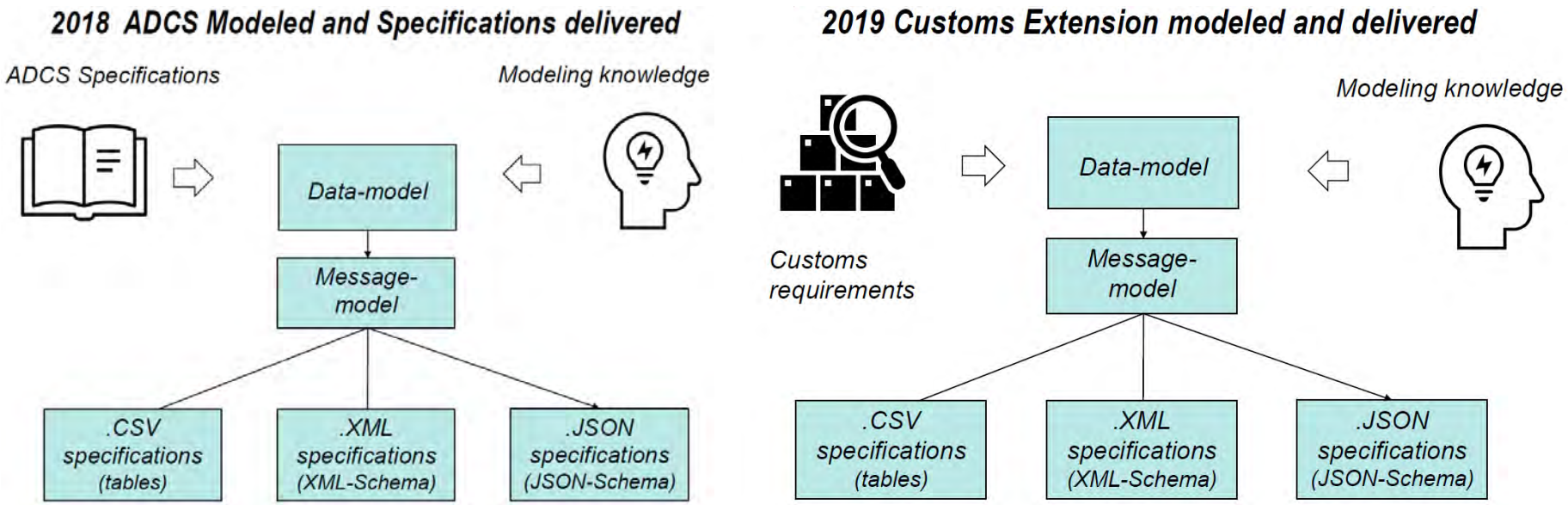
Meeting Agenda

1. Proposal on
   “Exchange formats for the Audit Data Collection Standard: XBRL”
   presented by Mr. Nobuyuki Sambuichi

2. Discussions on data modeling

3. Other business

Goal



SOURCE: " Audit Data Collection Standard Exchange Formats Modeling Approach" Frans van Basten, Jan Vrijenhoek

Draft documents do not have documented semantic modeling. There is no standard without semantic modeling documentation.

We need both a "data dictionary" and a "common data structure" which documented and preferably based on the CCTS. Since CCTS is not supporting all the features of ADCS, We want to expand it with things like primary keys and references to the primary keys, as it is now included in tables in the existing ADCS.

→ Extend and reuse CCTS

I'll show you why and how to do it in this presentation

Requirements

Reduce, Reuse and Recycle is the key concept of SDGs

Avoid Not-invented-here syndrome (NIH). NIH can be defined by a tendency for people and organizations to avoid things that they didn't create themselves. This syndrome is similar to the "let's reinvent the wheel" syndrome.
[SOURCE: https://www.bmc.com/blogs/not-invented-here-syndrome/]

Extensibility

Each jurisdiction has its own regulatory and / or internal control rules.
We SHALL supports extensibility to meet these requirements.

Comparability

There are many things in common other than the expansion due to the jurisdiction differences.
We SHALL support comparability based on common points.

Localization

As an international standard, we SHALL supports localized labeling and description in the natural language of the jurisdiction.

Support for business rule validation

If you need extensible semantic modeling with business rule validation, the solution is "**Semantic XBRL for Granular Data**".

Contents

Prerequisite

-4 Prior confirmation

-3 Core Component Technical Specification

-2 Business Information Entity

-1 eXtensible Business Reporting Language (XBRL) 2.1

Exchange formats for the Audit Data Collection Standard: XBRL

1. Semantic data modeling
2. Parties involved and their roles and relationships
3. Employee roles and user activities
4. Business process
5. Business controls and audit trails
6. Business rules
7. Syntax binding for XBRL

-4 Prior confirmation

It is advisable to study history of the standard and be well prepared.

-3 Core Component Technical Specification

-2 Business Information Entity

-1 eXtensible Business Reporting Language (XBRL) 2.1

Things to consider before writing a standard

Don’t climb mountain (ISO) in high heels

It is advisable to study history of the standard and be well prepared.

Colorado hiker climbs Mount Elbert in high heels

“A hiker in the US is proving no mountain is too tough, by throwing away her boots and replacing with a pair of heels instead. “

Kenneth Garger, New York Post OCTOBER 23, 2020 9:24AM

What to Bring and Wear on the Mt. Fuji Climb

After the weather stabilizes in the summer, even beginners can climb Japan' s symbolic Mt. Fuji. However, be warned, Mt. Fuji exceeds heights of 3,000 meters. Even if the lower part of the mountain is sunny, if the summit is covered in clouds, there is a chance you may run into bad weather. **We recommend fully preparing yourself against the cold and rain before climbing Mt. Fuji.**

* The below list is only a suggestion of what you should bring to Mt. Fuji. Please prepare for the trip according to the weather on the day of the climbs, your physical condition, sex, and age.

Clothing

[Protection Against the Cold]
There can be more than a 15°C difference in temperature between the 5th Station and the peak of Mt. Fuji. On top of a long-sleeved t-shirt, you should wear a warm fleece or sweater, in addition to a waterproof windbreaker to help protect yourself against the elements. Wear long pants with elasticity so you can move your knees easily. We do not recommend wearing jeans as they are inflexible and heavy.

[Change of Clothing]
Please bring clothing which not only dries easily but which you can also take on and off as necessary when you break a sweat or are rained on while climbing the mountain. Bring a plastic bag to keep them dry until use.

[Rain Gear]
Bringing rain gear which protects your upper and lower body separately is best. Do not use an umbrella on the mountain as it is dangerous.

Walking Stick

A walking stick will assist you on your ascent. You can buy a wooden pilgrim walking stick for a discounted price at the 5th Station Rest House.

Hats

The path from the 5th Station up the mountain is barren and without cover. There are also no clouds to protect you from direct sunlight. Bring a hat to protect your face from the sun, which will not easily blow away with the wind.

Flashlight

It is best to bring a head lamp as it leaves both of your hands free.

Backpack

Bring a bag in which you can easily and securely carry your belongings. A waterproof bag that protect your belongings from the rain is best.

Gloves

Gloves are not only helpful when climbing but also offer protection against the cold. We recommend bringing waterproof gloves as opposed to cotton gloves which do not offer protection against the cold when it rains.

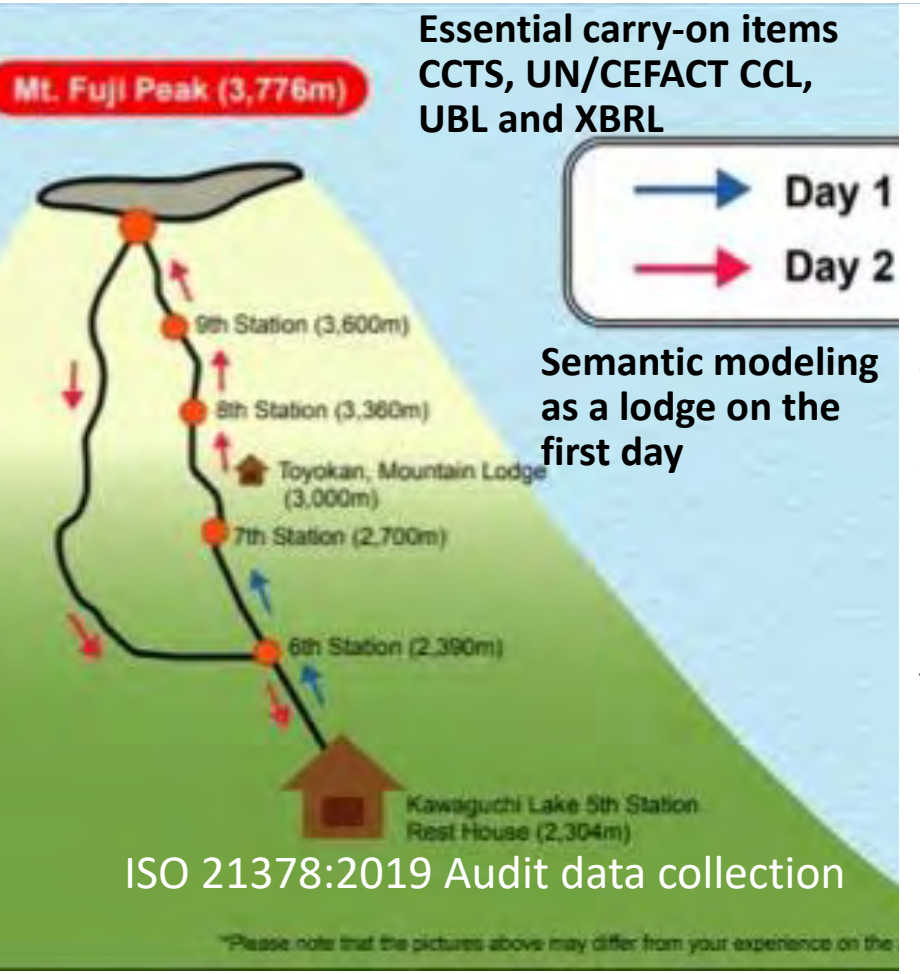
Shoes

We recommend shoes that support your ankles as well as protect your feet from pebbles, such as high cut hiking boots. You cannot climb Mt. Fuji in high heels or sandals.

gh heels

Even if it looks strange in the city, this is the clothes that safely reach the summit within the scheduled time.

Standing on the shoulders of giants



Day 1 Semantic modeling is defined based on following standards:
1) CCS (CCTS) defined in ISO 15000-5 Electronic Business Extensible Markup Language (ebXML) -- Part 5: ***Core Components Specification (CCS);***
2) Business rule definition for Core Invoice Usage Specification (CIUS) in EN 16931-1 Electronic Invoicing - Semantic data model of the core elements of an electronic invoice; and
3) Business process modeling in UBL
4) Extensible Business Reporting Language (XBRL) 2.1. Business rules can be validated using formula linkbase defined in taxonomy.

Day 2 We are standing on the shoulders of giants and defining new standards for new business domains for **audit**.

NOTE1: We have been wandering at the foot of this mountain for five years already. **We can't afford to spend more time looking for a trailhead**. Follow the route they climbed.
NOTE2: Wikipedia says that it is a metaphor of dwarfs **standing on the shoulders of giants** and expresses the meaning of *"**discovering truth by building on previous discoveries**"*.
Its most familiar expression in English is by Isaac Newton in 1675: **"If I have seen further, it is by standing on the shoulders of Giants.**"

Industry doesn't need to reinvent the wheel

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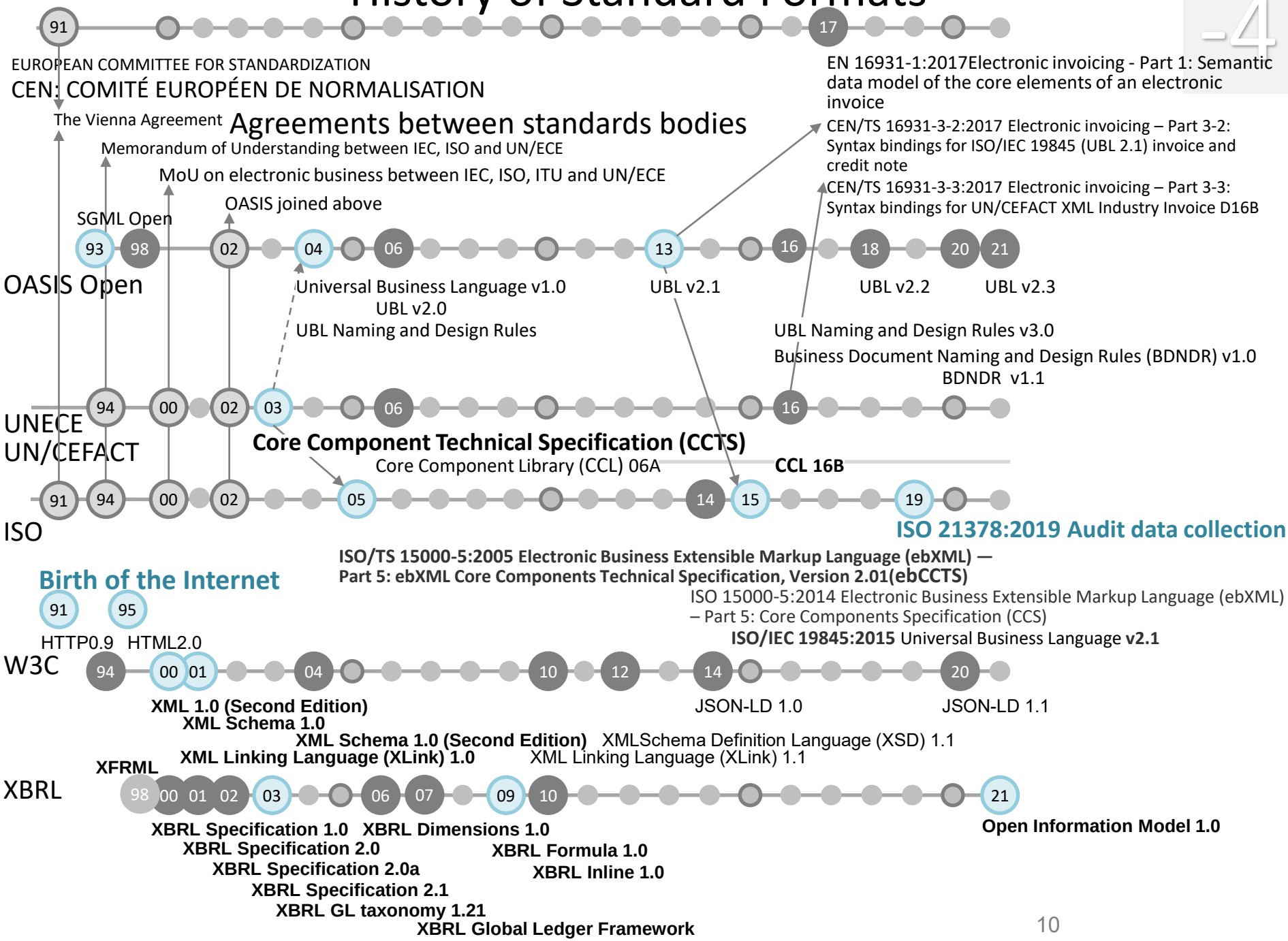
ISO/IEC Directives, Part 2
Principles and rules for the structure and drafting of ISO and IEC documents

5.7 Avoidance of duplication and unnecessary deviations

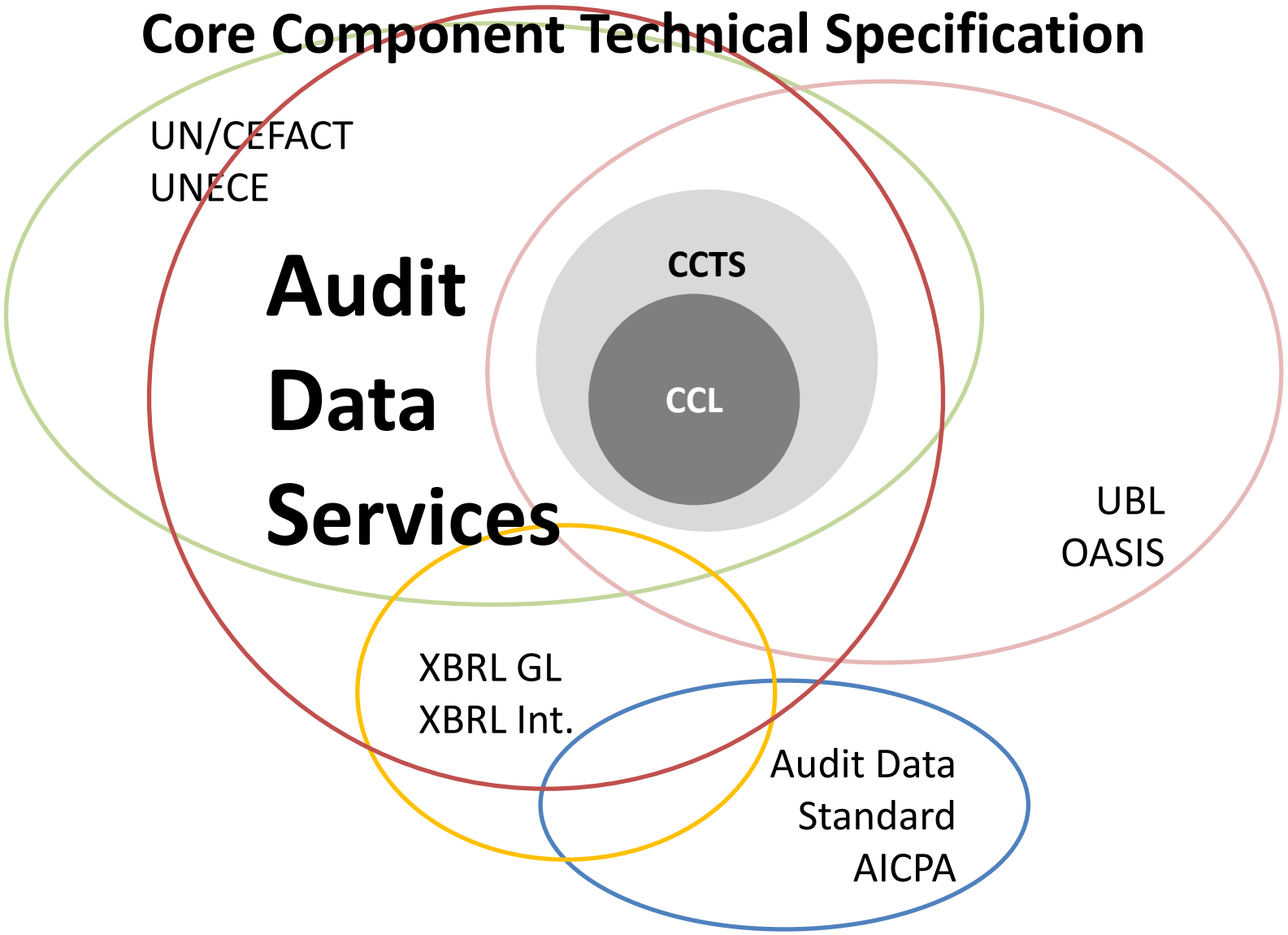
Before standardizing any item or subject, **the writer shall determine whether an applicable standard already exists**.
If it is necessary to invoke a requirement that appears elsewhere, this should be done by reference, not by repetition – see Clause 10.

"Trusted standards mean that **industry doesn't need to reinvent the wheel**, that innovations will be compatible and work with existing technology, and that products and services will be trusted too. Governments use standards as **trusted solutions to complement regulation**, and they give peace of mind to consumers who know they are not putting themselves or their families at risk."
NO TRUST IN WORLD WITHOUT STANDARDS, Maria Lazarte, October 2016
(https://www.iso.org/news/2016/10/Ref2128.html)

History of Standard Formats

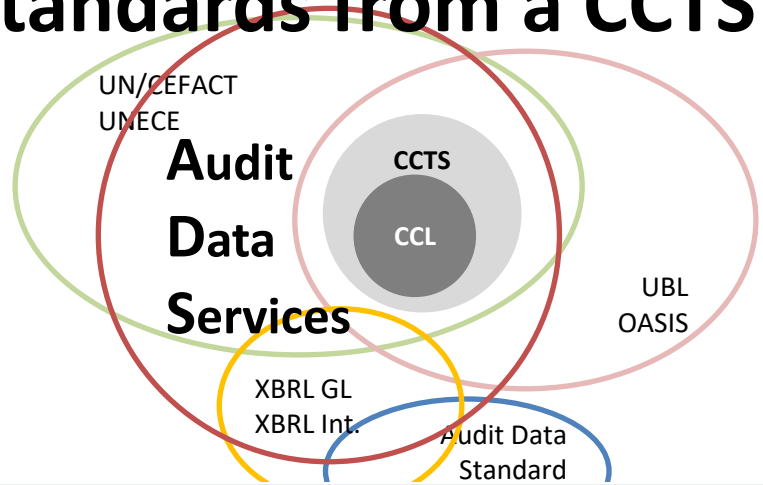


Core Component Technical Specification



Both Universal Business Language (UBL) by OASIS and UN/CEFACT by UNECE are based on the same *Core Component Technical Specification (CCTS).*

Different standards from a CCTS perspective



ADC XBRL GL ADS UBL UN/CEFACT BIE CCL Reset

ISO 21378:2019 Audit data collection — Search:

-	Module	Table	Description
ABIE	Base	Business Segment	The BAS_Business_Segment and the BAS_Business_Segment_Hierarch...
ABIE	Base	Business Segment Hierarchy	The fields in the BAS_Business_Segment_Hierarchy are used to c...
ABIE	Base	Employee	The personnel information of the employee in an

ADC_ Employee — Search:

-	Name	Description		
BBIE	Employee. ID	The unique identifier for an employee.	1	
BBIE	Code	The code of the employee. Each employee has only one code. If someone do...	1	
BBIE	Name	The name of the employee.	1	
BBIE	Inactive Flag. Indicator	Indicate whether one employee is active or inactive. One employee may be...	2	
BBIE	Type Code	The code of the employee types. EXAMPLE Using 004 to represent an on-the...	1	
BBIE	Type Name	The name of the employee type. EXAMPLE Employed, retired, probation and ...	1	
RBIE	Department. Business Segment	The code of department rosters. EXAMPLE The IT department is designated ...	1	
BBIE	Job Title. Name	The title of the person in an accounting unit. EXAMPLE Accounting manage...	2	
BBIE	Academic Degree	The highest academic degree acquired. EXAMPLE Doctor, Master.	2	
BBIE	Employment Date	The employment date of the employee.	2	
BBIE	Termination Date	The termination date of the employee from which the labor contract was n...	2	
RBIE	Associated. User	The system user ID associated with the employee. hall match the User_ID ...	2	

Showing 1 to 12 of 12 entries

Preliminary findings are at the following site.
https://www.wuwei.space/iso/tc295/

UN/CEFACT Core Components (UN/CCL 20A) — Search: t

-	Object Class Term	Definition
ACC	Access Control List	A list of permissions attached to an object defining access rights, such...
ACC	Accompanying Person	A person that accompanies another person, such as a mother accompanying ...
ACC	Accounting Book	A collection of accounting related data that pertains to specific docume...

Employee — Search:

-	Short Name	Definition	Occ.
BCC	Employer Assigned ID	The unique employer assigned identification number for the employee.	0..1
BCC	Hired Date Time	The date the employee was hired by their current employer.	0..1
BCC	Hired Country Sub-Division ID	The unique identifier for the country sub-division in which the individu...	0..1
BCC	Full Pay Day Injured Indicator	The indication of whether or not the employee will be paid in full for t...	0..1
BCC	Reporting Department Text	The name of the department or division of the company to which the emplo...	0..1
BCC	Started Current Job Date Time	The date, time, date time or other date time value on which the employee...	0..1
BCC	Entitled Tax Exemption Quantity	The number of tax exemptions that the employee is entitled to claim.	0..1
BCC	Exemption Withholding Quantity	The number of tax exemptions that the employee claims in their withholdi...	0..1
BCC	Premium Determining Country Sub-Division Code	The unique identifier for the country sub-division whose rating values w...	0..1
BCC	Insurer Contested Claim Indicator	The indication of whether or not the employee claim is or ever was conte...	0..1
BCC	Medical Record Release Authorization Indicator	The indication of whether or not there is written authorization to relea...	0..1
BCC	Borrowed Department Name	The name, expressed as text, of the department or division of the compan...	0..1
ASCC	Specified As Party	The party specified as an employee.	0..1
ASCC	Specified Employee Injury/Illness	An injury or illness specified for this employee.	0..*

Showing 1 to 14 of 14 entries

ADC XBRL GL ADS UBL UN/CEFACT BIE CCL Reset

UBL Conformance to ebXML CCTS ISO/TS 15000-5:2005 Version 1.0

[SOURCE: http://docs.oasis-open.org/ubl/UBL-conformance-to-CCTS/v1.0/UBL-conformance-to-CCTS-v1.0.html]

Does UBL conform to CCTS?

We believe the answer is “YES”.

The UBL TC believes that there is a broad consensus in the standards and user community that UBL is a valid implementation of the CCTS.

UBL was an early adopter of CCTS (probably the first) and was actually used as implementation verification for the CCTS standard itself.

Summary

The UBL TC believes that the CCTS is a valuable tool for creating eBusiness vocabularies and UBL has contributed to its development.

We believe we are fully conformant to the normative clauses in the CCTS and have been for several years.

We believe UBL has helped raise the profile of CCTS and promoted its adoption in other domains. We have also stimulated the development of open-source tools and technologies to support CCTS users.

On at least two occasions in the past 11 years (2003 and 2007) the UBL TC has had to justify our claims of conformance to the Core Components Technical Specification (CCTS) . This Committee Note makes the informal responses given in the past formal and makes them available to interested parties so as to avoid misunderstandings in the future.

It should also be understood that all references to CCTS in UBL are to ISO/TS 15000-5:2005 published by UN/CEFACT in 2003 as the “Core Components Technical Specification – Part 8 of the ebXML Framework”. UBL makes no claims with respect to the recently published ISO 15000-5:2014 version but have been assured by its authors that ISO 15000-5:2014 retains backward compatibility with ISO/TS 15000-5:2005.

UBL 2.1 JSON Alternative Representation Version 1.0 -4

Committee Note Draft 02 12 April 2017

Source: http://docs.oasis-open.org/ubl/UBL-2.1-JSON/v1.0/cnd02/UBL-2.1-JSON-v1.0-cnd02.html

For users of JSON syntax, this note publishes a suite of JSON schemas with which one can validate the structural content of a JSON document against the constraints of the UBL 2.1 vocabulary. Also included is a transliteration of all of the UBL 2.1 example documents in JSON syntax with which one can test a number of the JSON schemas.

The structural patterns exhibited by JSON schemas that conform to the OASIS **Business Document Naming and Design Rules Version 1.1 [BDNDR]** are distinctive as document interchange structures. As such, their intent is only to convey in syntax the information content reflecting the same abstract model of the **UN/CEFACT Core Component Technical Specification** 2.01 [CCTS] with which the document model was designed. Accordingly, and in parallel to an application's use of XML syntax, the JSON syntax used is generic in nature and is neither streamlined nor optimized for any particular application's objectives.

As one would undertake the unmarshalling of XML syntax into internal application data structures suitable for processing, one must also undertake the unmarshalling of JSON interchange syntax into whatever internal application data structures (or other JSON representations) of the content that are suitable for the task at hand. Of note, it has been observed that there are commercial JSON database tools unable to ingest this JSON interchange syntax directly without an application massaging the content first to suit the database schema necessary to enable a particular arbitrary use. Nevertheless, the **JSON syntax used does conform to the published standard [ISO 21778 - ECMA JSON]** and has been successfully demonstrated to be ingested by Python and Node.js applications and so is not a barrier to use for application developers.

-4 Prior confirmation

-3 Core Component Technical Specification

The first version ISO/TS 15000-5:2005 Electronic Business Extensible Markup Language (ebXML) — Part 5: ebXML Core Components Technical Specification, Version 2.01 (ebCCTS) HAS BEEN REVISED BY ISO 15000-5:2014 Electronic Business Extensible Markup Language (ebXML) — Part 5: Core Components Specification (CCS)

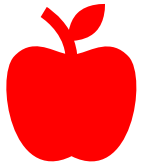
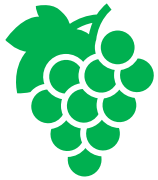
-2 Business Information Entity

-1 eXtensible Business Reporting Language (XBRL) 2.1

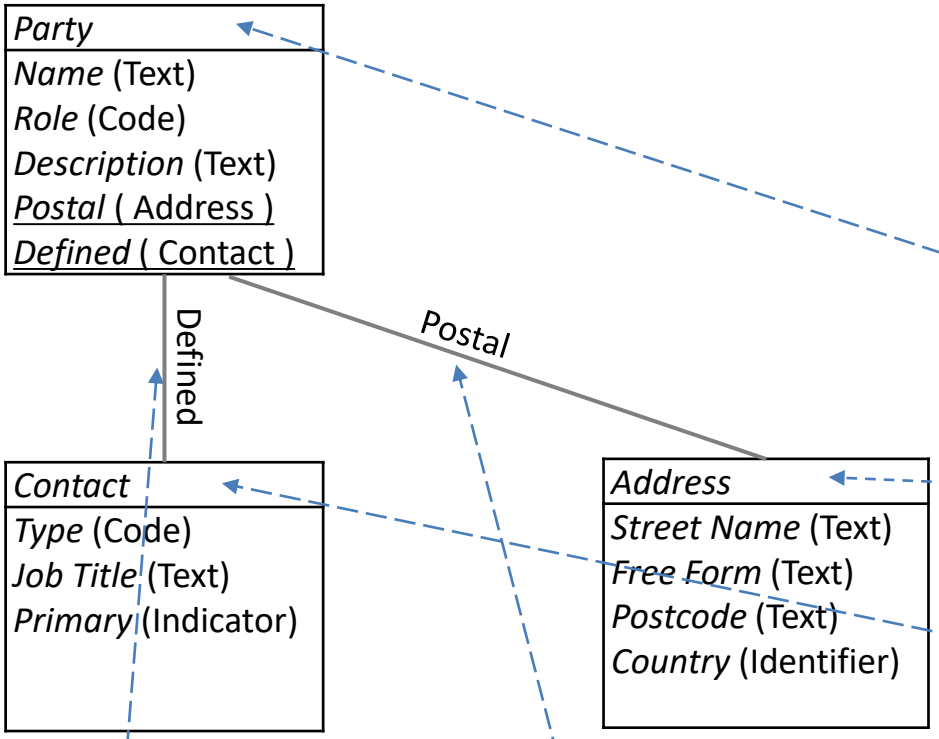
Dictionary Entry Name

Dictionary Entry Name = ***Object Class*** *Term.* ***Property*** *Term.* ***Representation*** *Term*

e.g. name: *Fruits. Name. Text*
value: Strawberry

	Object Class	Property	Representation	Value	
	Fruits	Name	Text	Strawberry	
		Color	Text	Red	
		Weight	Quantity	30	g
		Price	Amount	0.10	USD
	Fruits	Name	Text	Apple	
		Color	Text	Red	
		Weight	Quantity	300	g
		Price	Amount	2.00	USD
	Fruits	Name	Text	Grape	
		Color	Text	Green	
		Weight	Quantity	380	g
		Price	Amount	5.00	USD

Association Core Component



— three *Aggregate Core Components (ACC)*: "***Party**. Details*"; "***Contact**. Details*" and "***Address**. Details*";
— each *Aggregate Core Component (ACC)* has a number of ***Properties*** (i.e. business characteristics);
— the *Aggregate Core Component (ACC)* "***Party**. Details*" has five *Properties* ("Name", "Role", "Description", "Defined. Contact" and "Postal. Address");
— the *Aggregate Core Component (ACC)* "***Address**. Details*" has four Properties ("Street Name", "Free Form", "Postcode" and "Country").
— the *Aggregate Core Component (ACC)* "***Contact**. Details*" has three *Properties* ("Type", "Job Title" and "Primary");
NOTE: Each property has a ***Representation (data type)*** such as text, code, identifier, indicator, etc.

"***Party**. **Defined**. **Contact***" and "***Party**. **Postal**. **Address***" are ***Association Core Components (ASCC).***
The structures of these associated *Aggregate Core Components (ACC)* are defined by the *Aggregate Core Components (ACCs)* "***Contact**. Details*" and "***Address**. Details*", respectively.

Aggregate Core Component (ACC) Party

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ACC *Party*
BCC *Name* (Text)
BCC *Role* (Code)
BCC *Description* (Text)
ASCC *Postal* (Address)
ASCC *Defined* (Contact)

ACC *Address*
BCC *Street Name* (Text)
BCC *Free Form* (Text)
BCC *Postcode* (Text)
BCC *Country* (Identifier)

ACC *Contact*
BCC *Type* (Code)
BCC *Job Title* (Text)
BCC *Primary* (Indicator)

No	ID	D	Business Term	Semantic data type	O
0	BG-0	0	***Party***		0..n
1	BT-1	1	*Name*	Text	1..1
2	BT-2	1	*Role*	Code	0..n
3	BT-3	1	*Description*	Text	0..1
4	BG-1	1	*Postal Address*		1..1
5	BT-4	2	*Street Name*	Text	1..1
6	BT-5	2	*Postcode*	Code	0..1
7	BT-6	2	*Country*	Identifier	0..1
8	BG-2	1	*Defined Contact*		0..n
9	BT-7	2	*Email*	Code	1..1
10	BT-8	2	*Job Title*	Text	0..n
11	BT-9	2	*Primary*	Indicator	1..1
Key D: Depth O: Occurrence					

Party

Name	SS Ltd.	
Role	Customer	
Description		
Postal Address		
Street name	*Postcode*	*Country*
First St.	1234	JA
Defined Contact		
Type	*Job Title*	*Primary*
sam@ss.com		true

Party

Name	XYZ Co.	
Role	Customer	
Description		
Postal Address		
Street name	*Postcode*	*Country*
Second St.	4567	US
Defined Contact		
Type	*Job Title*	*Primary*
peter@xyz.com	manager	true
mary@zyz.com	staff	false

Party

Name	JG Co.	
Role	Provider	
Description	Gold	
Postal Address		
Street name	*Postcode*	*Country*
Third Ave.	8765	CN
Defined Contact		
Type	*Job Title*	*Primary*
john@jg.com	manager	false
beth@jg.com	assistant	true

Aggregate Core Component (ACC) Party

No	ID	D	Business Term	Semantic data type	O
0	BG-0	0	*Party*	(ACC)	0..n
1	BT-1	1	*Name*	Text	1..1
2	BT-2	1	*Role*	Code	0..n
3	BT-3	1	*Description*	Text	0..1
4	BG-1	1	*Postal Address*	(ASCC)	1..1
5	BT-4	2	*Street Name*	Text	1..1
6	BT-5	2	*Postcode*	Code	0..1
7	BT-6	2	*Country*	Code	0..1
8	BG-2	1	*Defined Contact*	(ASCC)	0..n
9	BT-7	2	*Email*	Code	1..1
10	BT-8	2	*Job Title*	Text	0..n
11	BT-9	2	*Primary*	Indicator	1..1
Key D: Depth O: Occurrence					

ASCC can be thought of as a *has_a* or *is_part_of* relationship.

e.g. The Postal Address is part of the Party.

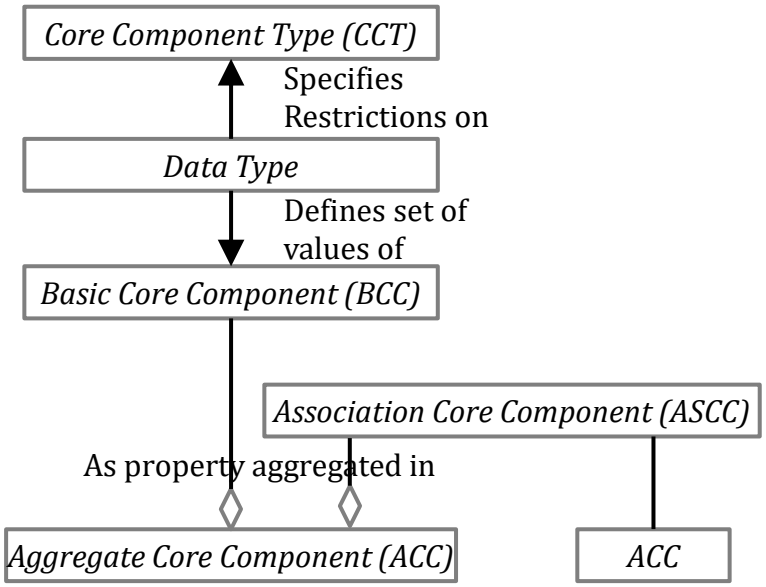
Below is a flat file that supports a CSV hierarchical data structure.

This flat file representation can also support occurrences (0..n) of ASCC.

The occurrence sequence number and the ID column of the business term group ID specify the occurrence data structure.

ID				BG-0 *Party*								
				BT-1 *Name*	BT-2 *Role*	BT-3 *Desc*	BG-1 *Postal Address*			BG-2 *Defined Contact*		
							BT-4 *Street Name*	BT-5 *Postcode*	BT-6 *Country*	BT-7 *Email*	BT-8 *Job Title*	BT-9 *Primary*
0	BG-0			SS Ltd.	Customer							
0	BG-0	0	BG-1				First St.	1234	JA			
0	BG-0	0	BG-2							sam@ss.com		true
1	BG-0			XYZ Co.	Customer							
1	BG-0	0	BG-1				Second St.	4567	US			
1	BG-0	0	BG-2							peter@xyz.com	manager	true
1	BG-0	1	BG-2							mary@zyz.com	staff	false
2	BG-0			JG Co.	Provider	Gold						
2	BG-0	0	BG-1				Third Ave.	8765	CN			
2	BG-0	0	BG-2							john@jg.com	manager	false
2	BG-0	1	BG-2							beth@jg.com	assistant	true

CCTS Core Components



Core Components are building blocks for the development and publication of a library of standard Core Components and Business Information Entities containing the information pieces needed to describe a specific concept.
There are four categories of Core Components:
— Core Component Type (CCT);
— Basic Core Component (BCC);
— Association Core Component (ASCC); and
— Aggregate Core Component(ACC).

The Core Component is a semantic building block, which is used as a basis to construct all electronic business messages.

Semantic datatypes

Primitive types

Semantic data type content may be of the following primitive types. These primitive types were taken from ISO 15000-5:2014, Annex A.

Primitive type	Definition
Binary	A set of finite-length sequences of binary digits.
Date	Time point representing a calendar day on a time scale consisting of an origin and a succession of calendar ISO 8601:2004.
Decimal	A subset of the real numbers, which can be represented by decimal numerals.
String	A finite sequence of characters.

Semantic data types

The semantic data types are described in the tables on following slides, where various features such as attributes, format, and decimals as well as the basic type are defined for each semantic data type. They are based on 15000-5:2014.

Amount
Numeric
Quantity
Code
Identifier
Indicator
Date
Time
Text

Semantic datatype (contd.)

Semantic data type	Component	Primitive Type	Description
Amount	Amount. Content	Decimal	A number of monetary units specified in a currency where the unit of currency is explicit or implied.
	Amount. Currency. Identifier	String	
Numeric	Numeric. Content	Decimal	Numeric information that is assigned or is determined by calculation, counting, or sequencing. It does not require a unit of measure.
Quantity	Quantity. Content	Decimal	Quantities are used to state a number of units such as for items. The code for the Unit of Measure (Quantity Unit. Code) is explicit or implicit.
	Quantity Unit. Code	String	
	Quantity Unit. Code List. Identifier	String	
	Quantity Unit. Code List Agency. Identifier	String	
Code	Code. Content	String	Codes are used to specify allowed values in elements as well as for lists of options. Code is different from Identifier in that allowed values have standardized meanings that can be known by the recipient.
	Code List. Identifier	String	
	Code List. Agency. Identifier	String	
	Quantity Unit. Code List Agency. Identifier	String	
	Code List. Version. Identifier	String	

Semantic datatype (contd.)

Semantic data type	Component	Primitive Type	Description
Identifier	Identifier. Content	String	Identifiers (IDs) are keys that are issued by the sender or recipient of a document or by a third party.
	Identification Scheme. Identifier	String	
	Identification Scheme Agency. Identifier	String	
	Identification Scheme. Version. Identifier	String	
Indicator	Indicator. Content	String	A list of exactly two mutually exclusive values that express the only possible states of a Property.
Date	Date. Content	Date	Dates shall be in accordance with the " Complete representation of a calendar date" as specified by ISO 8601-1:2019, format YYYY-MM-DD.
Time	Time. Content	Time	Time shall be in accordance with the "Complete representation of a time of day" as specified by ISO 8601-1:2019, format hh:mm:ss
Text	Text. Content	String	Text is the actual wording of anything written or printed. Line breaks in the text may be present, and any line breaks should be preserved and respected by the receiver's system
	Language. Identifier	String	

Core Component Rules for Dictionary Entry Names specified in ISO 15000-5

-3

[C1] The *Dictionary Entry Name (DEN)* of a ***Basic Core Component (BCC)*** shall consist of the following parts in the order specified:

— the ***Object Class Term*** of the *Aggregate Core Component (ACC)* owning the corresponding *Basic Core Component (BCC)* Property;

— the ***Property Term*** of the corresponding *Basic Core Component (BCC)* Property;

— the ***Representation Term*** of the Data Type on which the corresponding *Basic Core Component (BCC)* Property is based.

Object Class Term. Property Term. Representation Term

[C2] The *Dictionary Entry Name (DEN)* of an ***Association Core Component (ASCC)*** shall consist of the following parts in the order specified:

— the ***Object Class Term*** of the *Aggregate Core Component (ACC)* owning the corresponding *Association Core Component (ASCC)* Property;

— the ***Property Term*** of the corresponding *Association Core Component (ASCC)* Property;

— the ***Object Class Term of the Aggregate Core Component*** on which the corresponding *Association Core Component (ASCC)* Property is based.

Object Class Term. Property Term. Object Class Term of the Aggregate Core Component

Permissible Representation Terms

-3

Primary Representation Term	Definition	Related CCT	Secondary Representation Terms
Amount	A number of monetary units specified in a currency where the unit of currency is explicit or implied.	Amount. Type	
Numeric	Numeric information that is assigned or is determined by calculation, counting or sequencing.	Numeric. Type	Value, Rate, Percent
Quantity	A counted number of non-monetary units. Quantities may be specified with a unit of quantity.	Quantity. Type	
Code	A character string (letters, figures or symbols) that for brevity and / or language independence may be used to represent or replace a definitive value or text of a Property.	Code. Type	
Identifier	A character string used to establish the identity of, and distinguish uniquely, one instance within an identification scheme from all others within the same scheme.	Identifier. Type	
Indicator	A list of exactly two mutually exclusive values that express the only possible states of a Property.	Indicator. Type	
Date Time	A particular point in the progression of time (ISO 8601).	Date Time. Type	Date, Time

Limitation: CCTS “Association” is UML “Aggregation” -3

CCTS uses the word “Association” in a different way than UML.

Association can be represented by a line between these classes with an arrow indicating the ***navigation*** direction.

Aggregation implies a relationship where the child can exist independently of the parent.

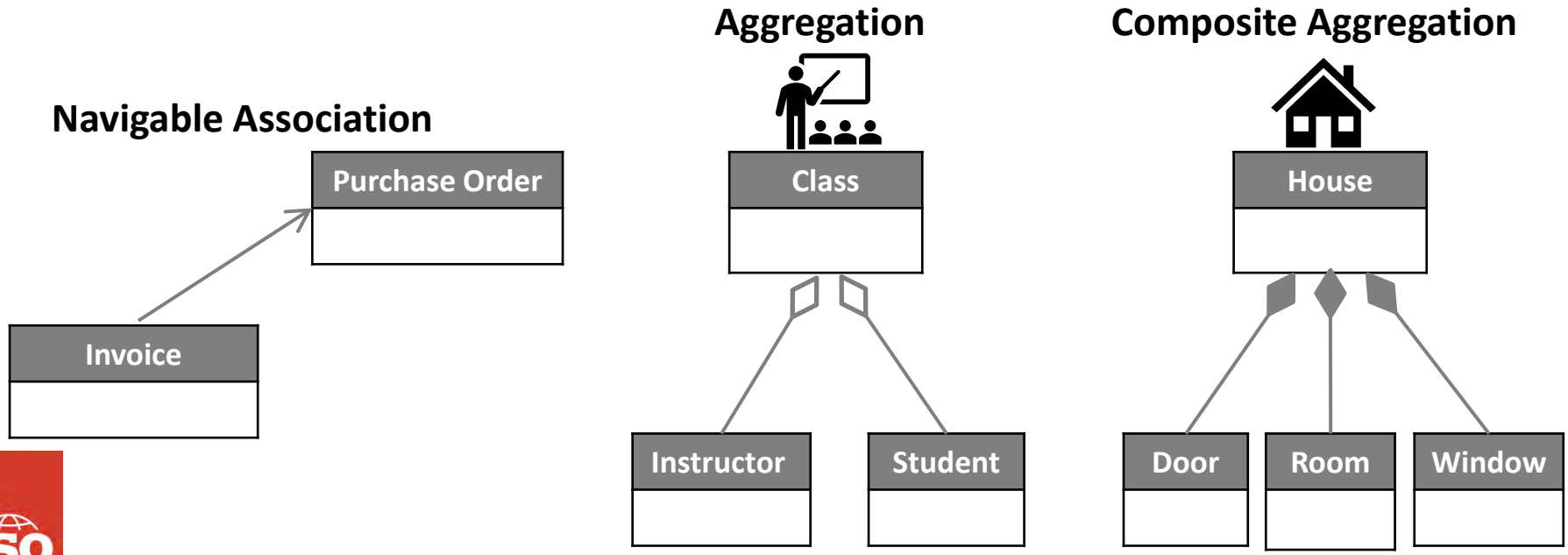
Example: Class (parent) and Students (child). Delete the Class and the Students still exist.

Composition implies a relationship where the child cannot exist independent of the parent.

Example: House (parent) and Room (child). Rooms don't exist separate to a House.

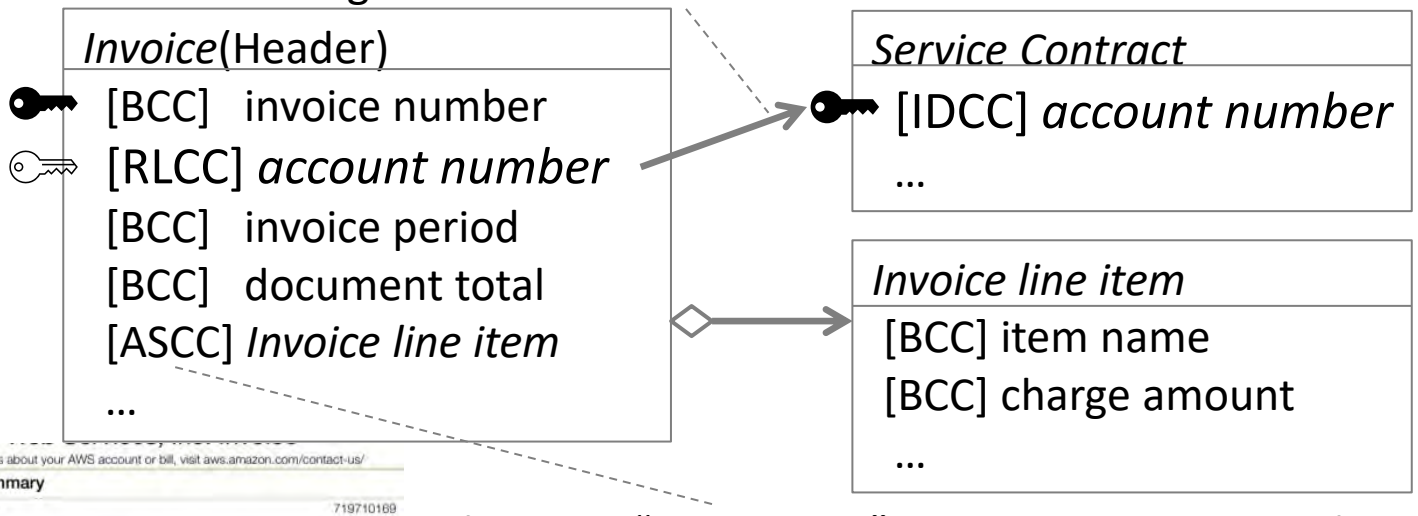
The CCTS “Association” is an “Aggregation” in UML.

There is no ***Navigable Association*** nor ***Composite Aggregation*** in CCTS. .

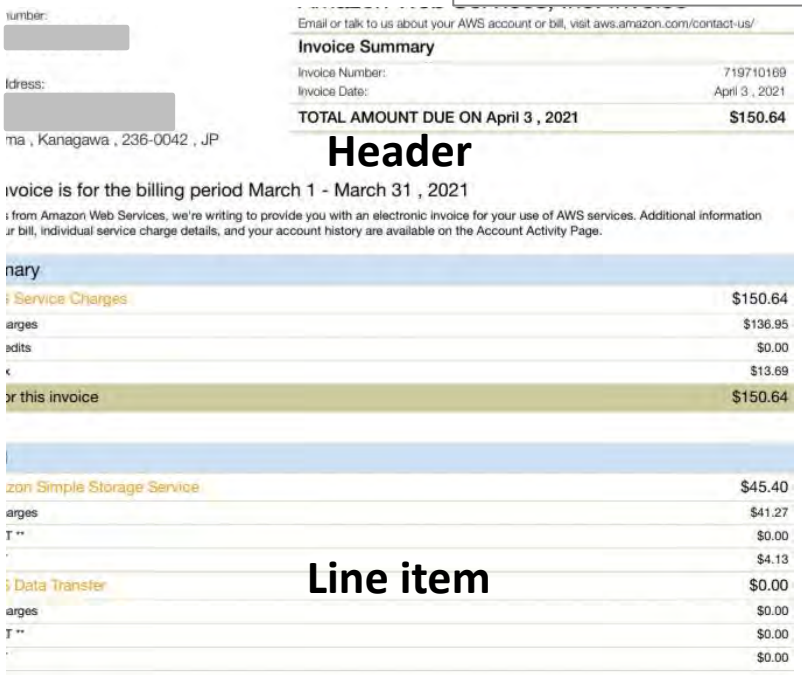


Audit data requires Navigable Associations
extend BCC to support Reference Core Component (RFCC)

Navigable **Association** from "*Invoice*" to "*Service Contract*" using **reference identifier** "*account number*"



Invoice

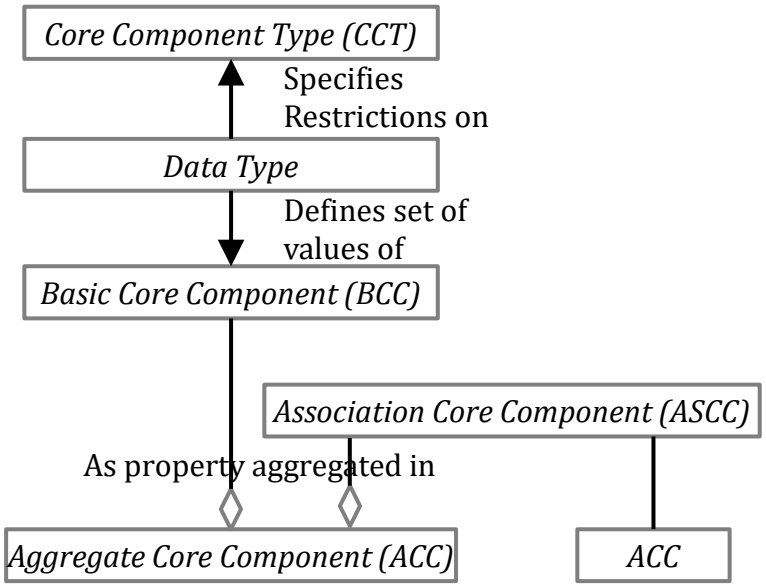


The CCTS "Association" is an **Aggregation** used to contain many line items.

It is important to make a clear distinction between the Basic Core Component being a reference identifier, a unique identifier (primary key), or neither.

Reference Core Component (RLCC)
Identifier Core Component (IDCC)
Basic Core Component (BCC)

CCTS Core Components

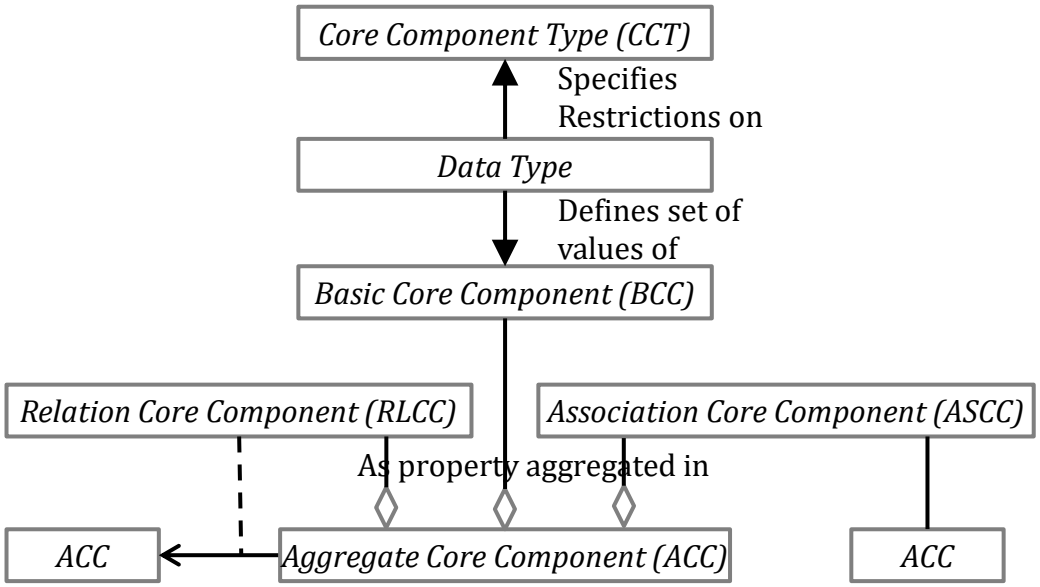


Core Components are building blocks for the development and publication of a library of standard Core Components and Business Information Entities containing the information pieces needed to describe a specific concept.
There are four categories of Core Components:
— Core Component Type;
— Basic Core Component;
— Association Core Component; and
— Aggregate Core Component.

The Core Component is a semantic building block, which is used as a basis to construct all electronic business messages.

Next slide shows extended Core Components for ADCS

Extend CCTS Core Components



Core Components are building blocks for the development and publication of a library of standard Core Components and Business Information Entities containing the information pieces needed to describe a specific concept.
There are six categories of Core Components:
— Core Component Type;
— Basic Core Component;
— **Relation Core Component;**
— **Identifier Core Component;**
— Association Core Component; and
— Aggregate Core Component.

The Core Component is a semantic building block, which is used as a basis to construct all electronic business messages.
The **RLCC** is a BCC, which is a reference identifier with the value of referencing ACC's unique identifier.
The **IDCC** is a BCC, which is **a unique identifier** for ACC.

Basic Core Component is detailed In this standard, Relation Core Component and Identifier Core Component are newly defined in addition to the conventional Basic Core Component.
Unless otherwise specified, the provisions for Basic Core Component also apply to Relation Core Component and Identifier Core Component. Other Core Components shall be as specified in ISO 15000-5.

NOTE Audit data collection requires a concept to clearly define the relationships between ACCs using ***identifier (primary key)*** and ***reference identifier (foreign key)***.

Extend Semantic data types

-3

Primitive types

Semantic data type content may be of the following primitive types. These primitive types were taken from ISO 15000-5:2014, Annex A.

Primitive type	Definition
Binary	A set of finite-length sequences of binary digits.
Date	Time point representing a calendar day on a time scale consisting of a point and a succession of calendar ISO 8601:2004.
Decimal	A subset of the real numbers, which can be represented by decimal numerals.
String	A finite sequence of characters.

The same

Semantic data types

The different semantic data types are provided with Table below. Also various features such as attributes format, and decimals as well as the basic type are defined for each semantic data type. They are based on ISO 15000-5:2014

Add new Semantic data type

Reference Identifier

Amount
Code
Date
Identifier
Numeric
Quantity
Reference Identifier
Text

Extend Semantic data types **Reference Identifier**

Add new semantic data type **Reference Identifier**

Semantic data type	Component	Primitive Type	Description
Reference Identifier	Identifier. Content	String	Reference Identifiers (IDs) are identifiers that were assigned to a document or document line to reference another document or document line.
	Identification Scheme. Identifier	String	
	Identification Scheme Agency. Identifier	String	
	Identification Scheme. Version. Identifier	String	

Extended Core Component Rules for Dictionary Entry Names

[C3] The *Dictionary Entry Name* of an ***Identifier Core Component*** shall consist of the following parts in the order specified:

— the ***Object Class Term*** of the *Aggregate Core Component* owning the corresponding *Identifier Core Component* Property;

— the ***Property Term*** is " *Identification* ";

— the ***Representation Term*** is "*Identifier*".

Object Class Term. Identification. Identifier

[C4] The *Dictionary Entry Name* of a ***Relation Core Component*** shall consist of the following parts in the order specified:

—the ***Object Class Term*** of the *Aggregate Core Component* owning the corresponding *Relation Core Component* Property;

— the ***Property Term*** reflects the *nature of the relation* between object classes;

— the ***Object Class Term of the Aggregate Core Component*** on which the referenced *Relation Core Component* Property is based.

Object Class Term. Property Term. Object Class Term of the Aggregate Core Component

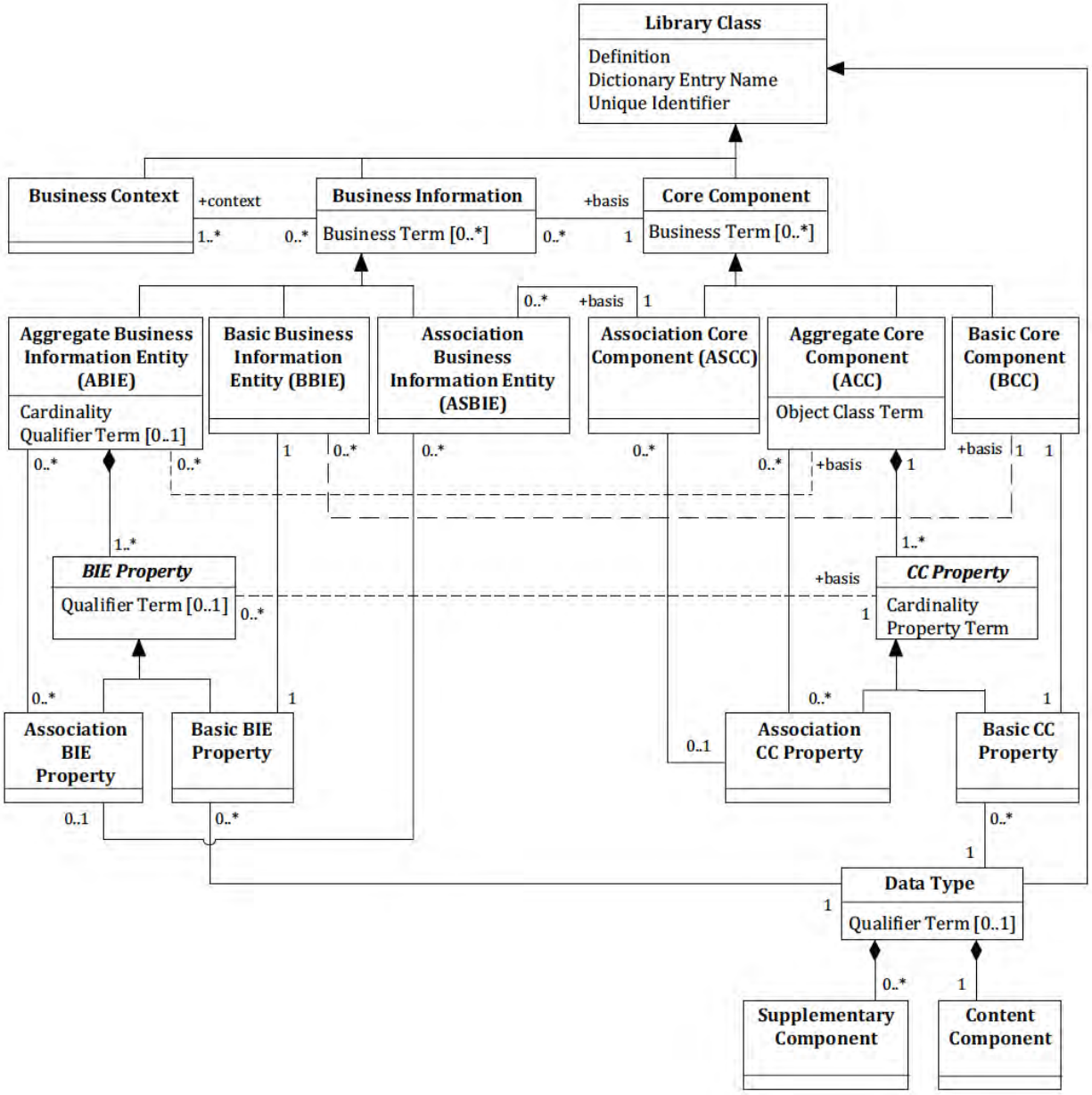
-4 Prior confirmation

-3 Core Component Technical Specification

-2 Business Information Entity

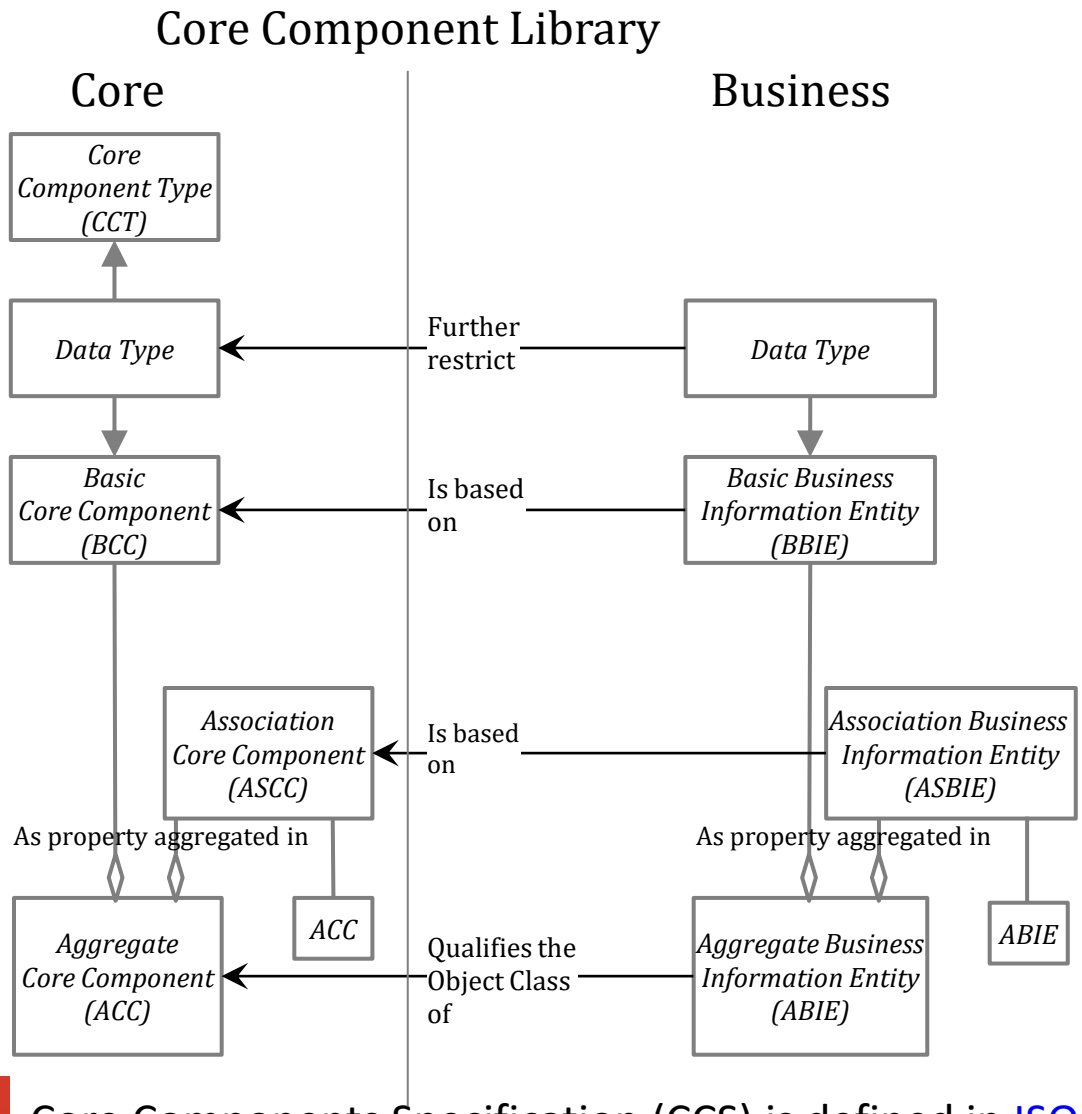
-1 eXtensible Business Reporting Language (XBRL)

Business Information Entities Basic Definition Model



When a Core Component is used in a real business circumstance it serves as the basis of a Business Information Entity. The Business Information Entity is the result of using a Core Component within a specific Business Context. [SOURCE: ISO 15000-5, 0.5]

Core Components Specification



There are 4 different categories of *Core Components:*

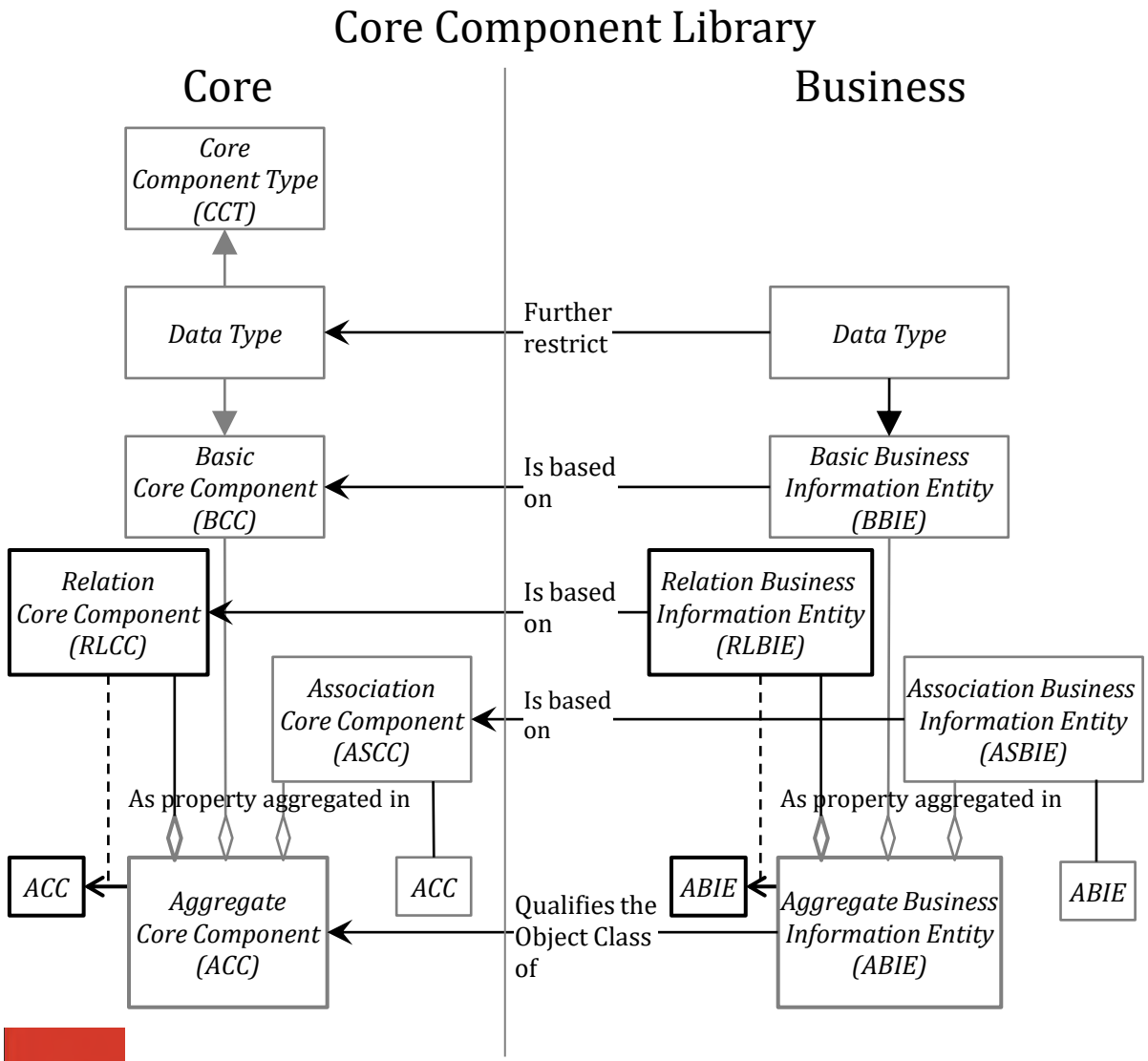
- *Core Component Type*;
- *Basic Core Component*;
- *Association Core Component*;
- *Aggregate Core Component*.

There are 3 different categories of Business Information Entity :

- ***Basic Business Information Entity*** is based on *Basic Core Component*.
- ***Association Business Information Entity*** is based on *Association Core Component*.
- ***Aggregate Business Information Entity*** qualifies the Object Class *of Aggregate Core Component.*

Core Components Specification (CCS) is defined in ISO 15000-5 Electronic Business Extensible Markup Language (ebXML) — Part 5: Core Components Specification (CCS).

Extended Core Components Specification



There are 6 different categories of *Core Components:*

- *Core Component Type*;
- *Basic Core Component*;
- ***Relation Core Component***;
- ***Identifier Core Component***;
- *Association Core Component*;
- *Aggregate Core Component*.

There are 3 different categories of Business Information Entity :

- *Basic Business Information Entity* is based on *Basic Core Component*.
- ***Relation Business Information Entity*** is based on ***Relation Core Component***.
- ***Identifier Business Information Entity*** is based on ***Identifier Core Component.***
- *Association Business Information Entity* is based on *Association Core Component*.
- *Aggregate Business Information Entity* qualifies the Object Class *of Aggregate Core Component.*

NOTE The RLCC is a BCC, which is a reference identifier with the value of referencing ACC's unique identifier. The IDCC is a BCC, which is a unique identifier for ACC.

-4 Prior confirmation

-3 Core Component Technical Specification

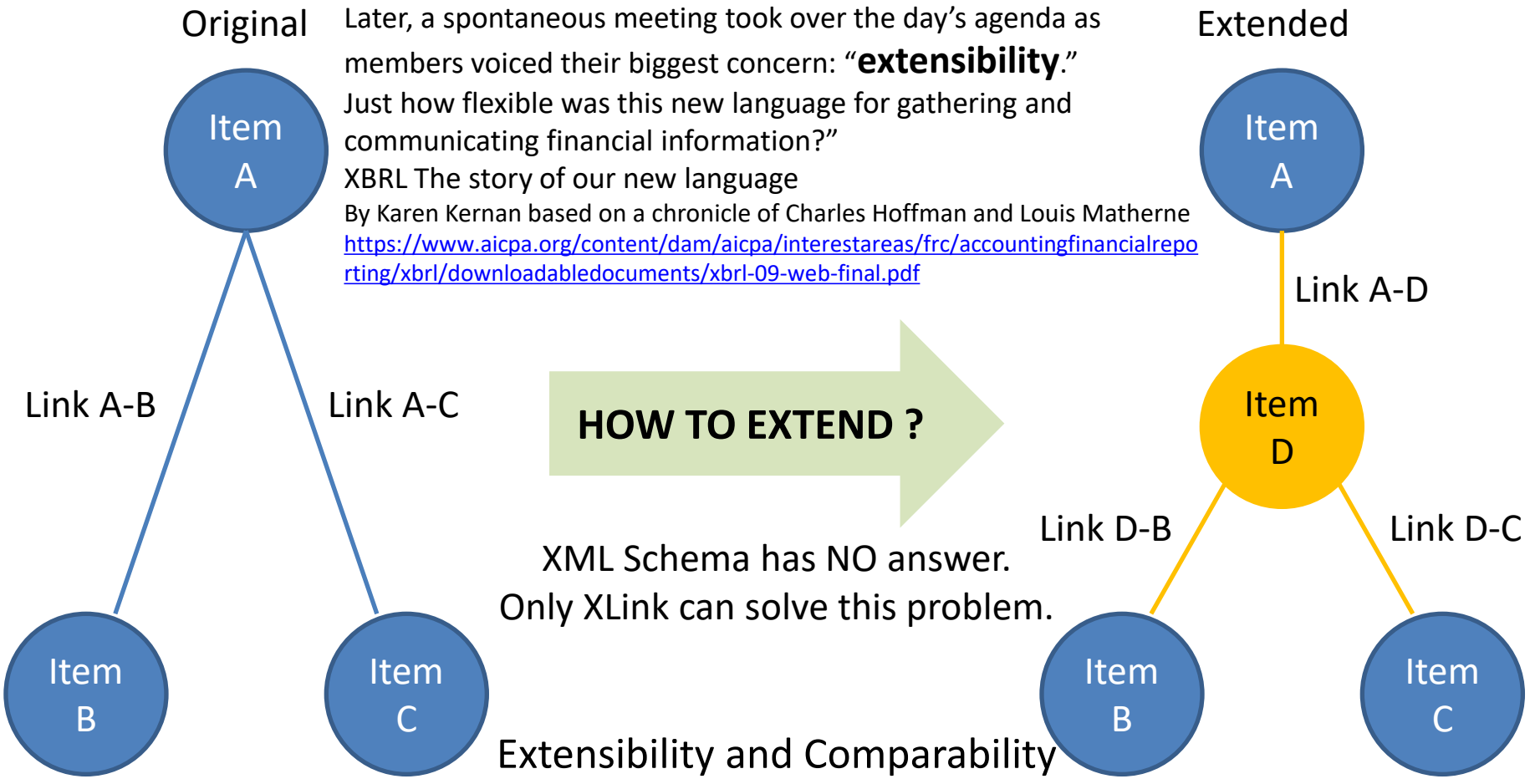
-2 Business Information Entity

-1 eXtensible Business Reporting Language (XBRL) 2.1

An XBRL taxonomy defines the reporting concepts that may be used in instance documents and can also provide a wide range of structured meta-data about the concepts and how they should be used.

How to extend the new intermediate aggregation item – 1

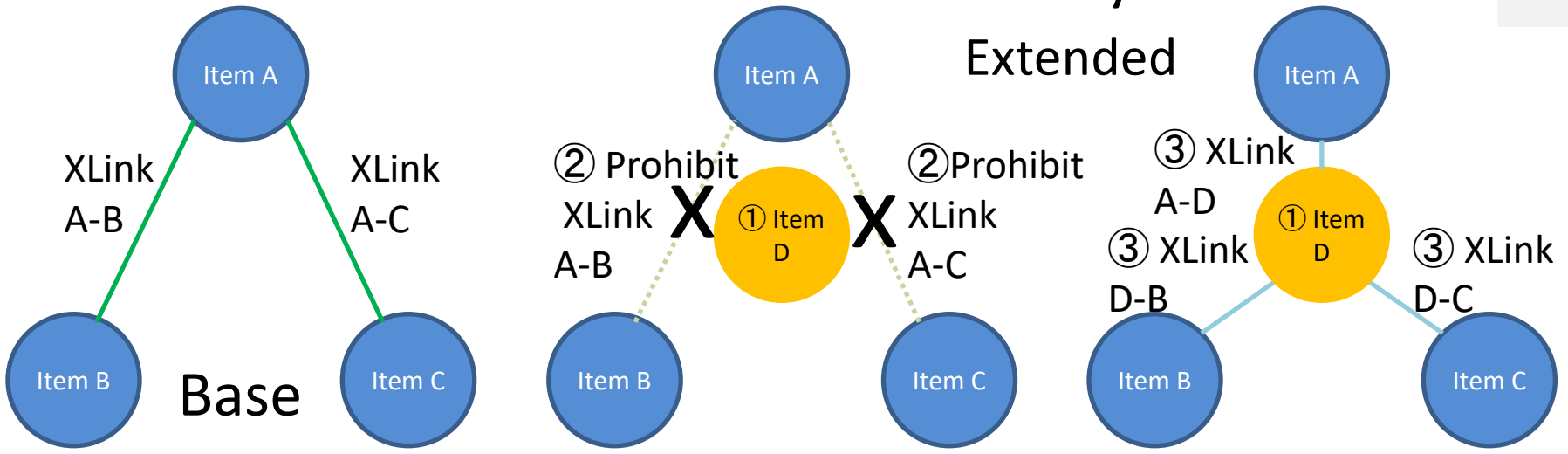
"At the first international conference, in London in January 2001, one European raised his hand to pointedly ask what the bunch of Americans up front knew about the world's accounting standards. Later, a spontaneous meeting took over the day's agenda as members voiced their biggest concern: "**extensibility**." Just how flexible was this new language for gathering and communicating financial information?"
XBRL The story of our new language
By Karen Kernan based on a chronicle of Charles Hoffman and Louis Matherne
https://www.aicpa.org/content/dam/aicpa/interestareas/frc/accountingfinancialreporting/xbrl/downloadabledocuments/xbrl-09-web-final.pdf

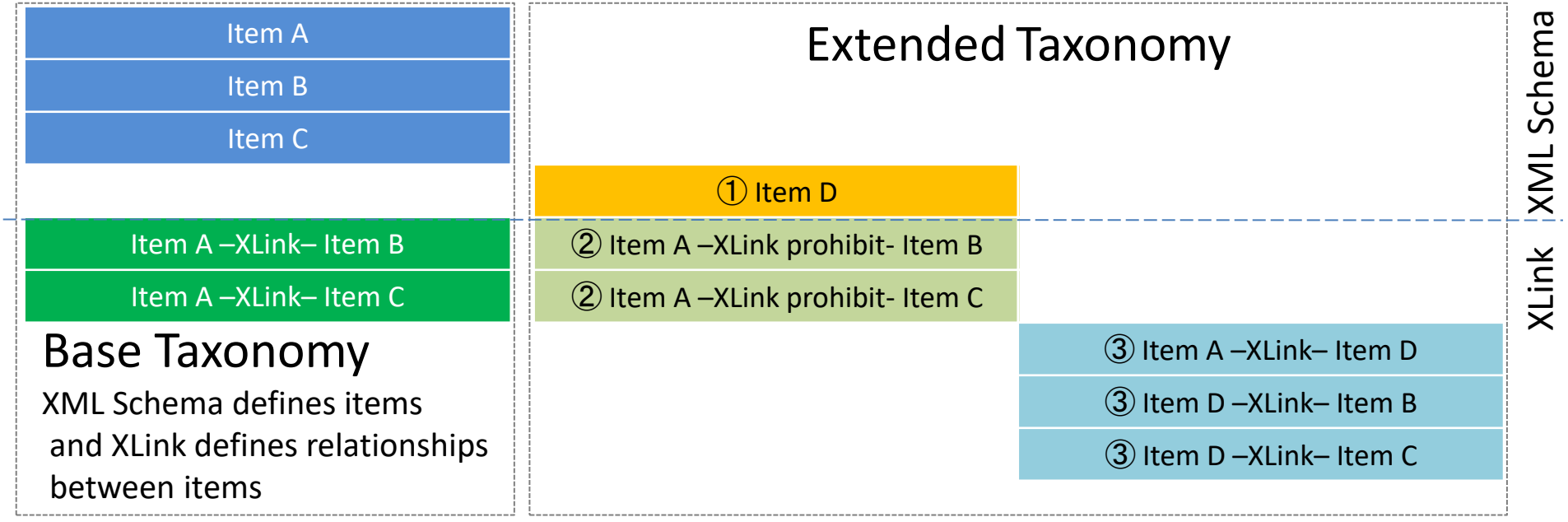


XML Schema has NO answer.
Only XLink can solve this problem.

Extensibility and Comparability
are silver bullets with
eXtensible Business Reporting language (XBRL)

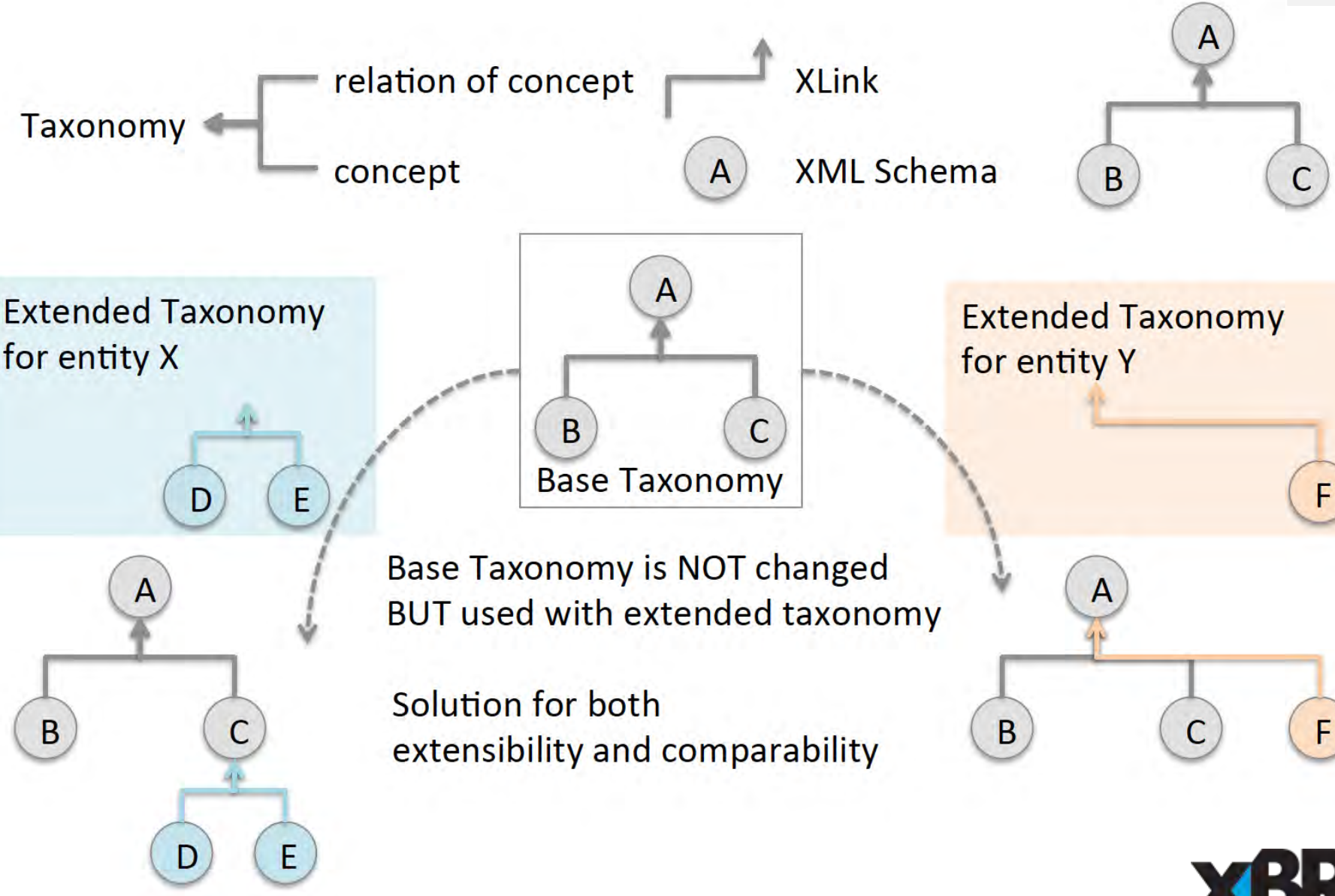
XBRL style extension method
Use of XLink in Taxonomy





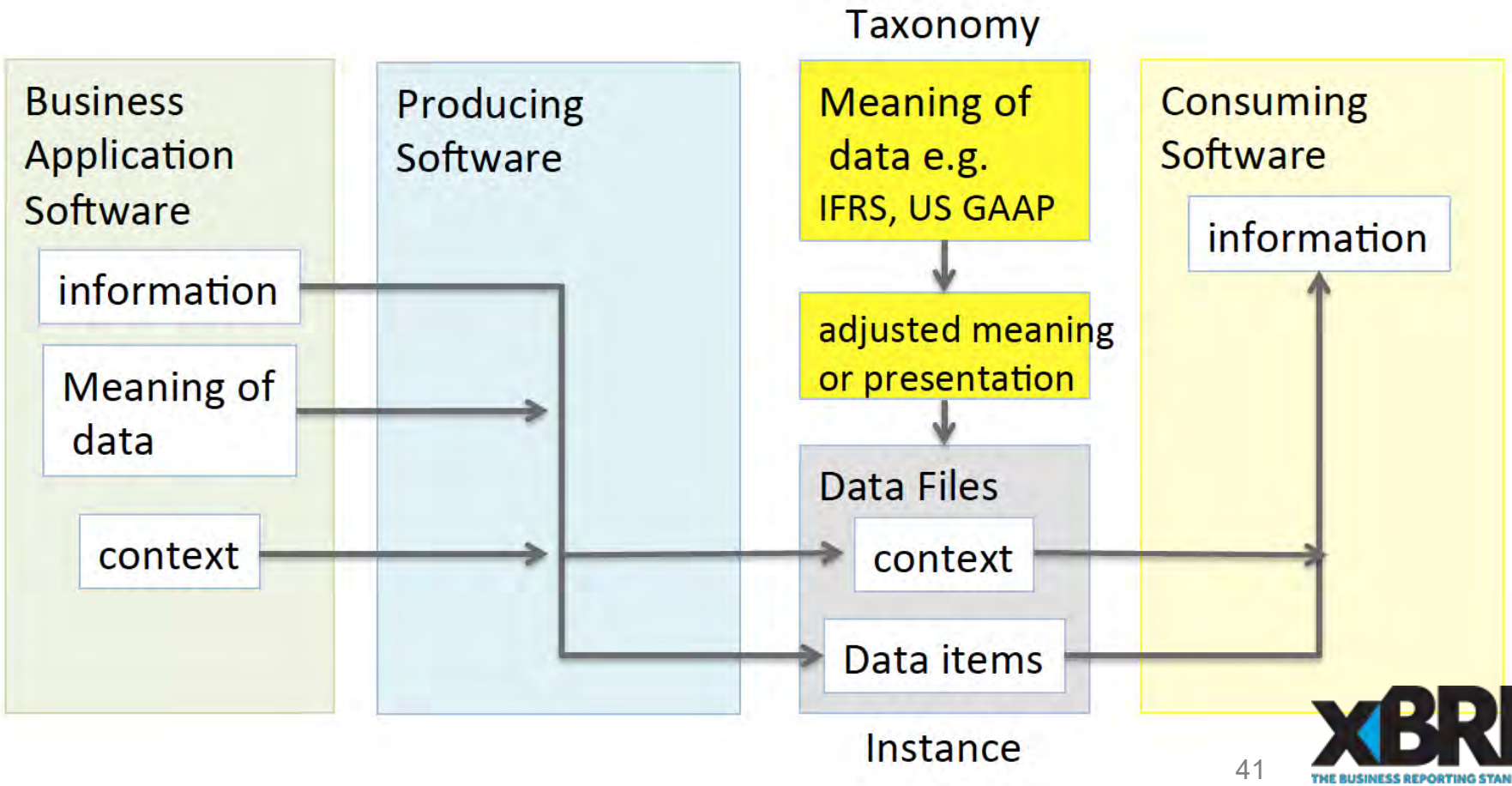
①Add Item D, ②Remove links, and ③Add links

Extensibility and Comparability



Taxonomy based Reporting Data Value Chain

We need standards not only for data but also for the meaning of data.
Standards for data files, meaning of data, and application process.
-> XBRL(eXtensible Business Reporting Language)



XBRL Specifications

An XBRL taxonomy defines the reporting concepts that may be used in instance documents and can also provide a wide range of structured meta-data about the concepts and how they should be used. Meta-data that can be defined using the core specifications include:

Labels Taxonomies can provide a variety of different labels. For example, "standard labels" provide a general- purpose label for a concept, whereas "documentation labels" can provide a more verbose description defining the purpose of the concept. All labels can be provided in multiple languages.

References References provide structured meta-data, which can be used to provide links to authoritative reference material containing concept definitions.

Hierarchies Concepts can be arranged into hierarchies that provide an organized presentation of concepts in the taxonomy (presentation relationships) or that capture certain arithmetic relationships between them (calculation relationships).

Dimensions Taxonomies can use the specification to define hierarchies of dimensions that can be associated with concepts in order to report multi-dimensional data. Meta-data is primarily contained in linkbases, which form part of the taxonomy:

Linkbase A linkbase is an XML document that defines relationships using the W3C's XLink standard. Relationships are typically between concepts and other concepts, or between concepts and other resources such as labels. A number of additional specifications have been developed in order to further enhance the ability of XBRL to define and manage reporting requirements.

Internationalization and Translations

XBRL is an international standard and has been designed from the outset to support multiple languages and localized characters. All components in XBRL can be labelled in multiple languages, and the use of the linkbase mechanism makes it easy for third parties to define their own translations of taxonomies

Business rules validation

Reporting requirements often translate into business rules to which all reports are expected to conform. XBRL makes it possible for many of these rules to be defined and published in a standard format.

Source: Defining Reporting Requirements https://specifications.xbrl.org/reporting-requirements.html

Exchange formats for the Audit Data Collection Standard: XBRL

Semantic data modeling and syntax binding for XBRL

Semantic data modeling and syntax binding for XBRL

SCOPE

Standardization in the field of audit data services covers the content specification *as well as the collection, **pre-processing, management and analysis techniques for the identification, communication, receipt, preparation and use of** audit data*.

Note:

1. Audit: an official examination of an entity's financial and financial related records *in order to check that they are correct*.
2. The audit data includes data of different areas including public sector budget, financial report, nonfinancial enterprises, tax and social insurance, for the purpose of government audit, external independent audit, internal audit and ***other regulators***.

TC 295 is intended for stakeholders, including **tax and financial reporting regulators who already require reporting in XBRL format**.

The syntactic binding of granular audit data to XBRL helps these stakeholders collect data in a consistent manner.

Semantic XBRL for Granular Data

Semantic XBRL for Granular Data

Even if unusual signs can be detected from machine learning patterns in the data exchanged, it is difficult to explain what the problem is and deal with it.

What do you think if you were arrested for accounting fraud and when asked why you were told that AI had decided so?

Semantic XBRL can be used to define firm business rules as internal control, detect abnormalities against them, deal with problems, and, depending on the type of problem, improve internal control rules.

Normative References

Business parties involved and their roles and relationships

Employee roles and activities

ISO/IEC 19505-1:2012 Information technology — Object Management Group Unified Modeling Language (OMG UML) — Part 1: Infrastructure

ISO/IEC 19505-2:2012 Information technology — Object Management Group Unified Modeling Language (OMG UML) — Part 2: Superstructure

Semantic datatypes

ISO/IEC 11179-4:2004 Information technology — Metadata registries (MDR) — Part 4: Formulation of data definitions

ISO/IEC 11179-5:2015 Information technology — Metadata registries (MDR) — Part 5: Naming principles

ISO 15000-5:2014 Electronic Business Extensible Markup Language (ebXML) — Part 5: Core Components Specification (CCS)

Business processes

ISO/IEC 19845:2015 Information technology — Universal business language version 2.1 (UBL v2.1)

Business controls and audit trails

CEN EN 16931-1:2017+A1:2019 Electronic invoicing - Part 1: Semantic data model of the core elements of an electronic invoice

CEN/TS 16931-3-2:2020 Electronic invoicing - Part 3-2: Syntax binding for ISO/IEC 19845 (UBL 2.1) invoice and credit note

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[3] XBRL Dimensions 1.0, Recommendation 18 September 2006 with errata corrections to 25 January 2012 https://www.xbrl.org/specification/dimensions/rec-2012-01-25/dimensions-rec-2006-09-18+corrected-errata-2012-01-25-clean.html

[4] XBRL Formula Overview 1.0, Public Working Draft 21 December 2011 https://www.xbrl.org/wgn/xbrl-formula-overview/pwd-2011-12-21/xbrl-formula-overview-wgn-pwd-2011-12-21.html

[5] Formula 1.0, Recommendation 22 June 2009 http://www.xbrl.org/Specification/formula/REC-2009-06-22/formula-REC-2009-06-22.html

[6] Open Information Model 1.0, Candidate Recommendation 16 February 2021, http://www.xbrl.org/Specification/oim/CR-2021-02-16/oim-CR-2021-02-16.html

[7] xBRL-XML: XML Mappings for the Open Information Model 1.0, Candidate Recommendation 16 February 2021 http://www.xbrl.org/Specification/xbrl-xml/CR-2021-02-16/xbrl-xml-CR-2021-02-16.html

[8] xBRL-CSV: mapping from Open Information Model 1.0, Candidate Recommendation 3 February 2021 https://www.xbrl.org/Specification/xbrl-csv/CR-2021-02-03/xbrl-csv-CR-2021-02-03.html

[9] Open Information Model 1.0, Candidate Recommendation 14 October 2020 https://www.xbrl.org/Specification/oim/CR-2020-10-14/oim-CR-2020-10-14.html

[10] **XBRL Global Ledger Taxonomy Framework 2017**, Public Working Draft 01 December 2016 https://www.xbrl.org/int/gl/2016-12-01/gl-framework-2017-PWD-2016-12-01.html

Exchange formats for the Audit Data Collection Standard: XBRL

1. Semantic data modeling
2. Parties involved and their roles and relationships
3. Employee roles and user activities
4. Business processes
5. Business controls and audit trails
6. Business rules
7. Syntax binding for XBRL

1. Semantic data modeling
2. Parties involved and their roles and relationships
3. Employee roles and user activities
4. Business process
5. Business controls and audit trails
6. Business rules
7. Syntax binding for XBRL

Document and Line item

There are two types of business documents.

One is ***a list of data*** and the other is a ***header and line item***.

The list of data includes customer masters, supplier masters, subledgers such as accounts payable, trial balance and journal entries.

Most business transactions consist of ***header and line items***.

There are two ways to represent a business document that consists of headers and line items:

One is a format in which the header contains line items and is expressed in single document.

The other is to represent it as two documents, a header document and a line-item document.

Two approaches to represent Header and Line items -3

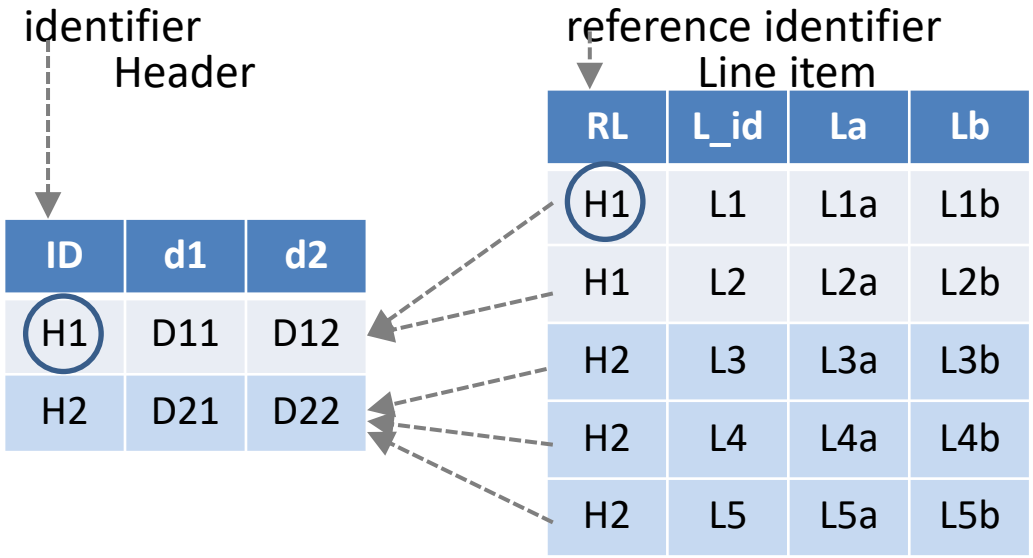
Transaction documents

Header	H1	D11	D12	H2	D21	D22
Line item	L1	L1a	L1b	L3	L3a	L3b
	L2	L2a	L2b	L4	L4a	L4b
				L5	L5a	L5b

Semantic model

Header			Line item		
ID	d1	d2	Association		
			L_id	La	L2
H1	D11	D12			
H1			L1	L1a	L1b
H1			L2	L2a	L2b
H2	D21	D22			
H2			L3	L3a	L3b
H2			L4	l4a	L4b
H2			L5	L5a	L5b

Single instance



Two instances bound by the relationship between the reference identifier and the identifier.

Base architecture type A
ASBIE for line items

In the first method, the line items are defined as ASBIE in the header

No	BIE	D	Business Term	Semantic data type	O	Description	Dictionary Entry Name
0	ABIE	0	Header	—	—	The document header.	ADS Header_ Trade Transaction. Details
1	IDBIE	1	Header ID	Identifier	1..1	The unique identifier for the he document header.	ADS Header_ Trade Transaction. Identification. Identifier
x	**ASBIE**	1	**Line Item**	—.	1..n	line items of this document	ADS Header_ Trade Transaction. Defined. **ADS Line Item_ Trade Line Item**

0	ABIE	0	**Line Item**	—	—	The document line item.	**ADS Line Item_ Trade Line Item**. Details
1	IDBIE	1	Line Item ID	Identifier	1..1	The unique identifier for the document line item.	ADS Line Item_Trade Line Item. Identification. Identifier
2	BBIE	1	Line Number	Code	1..1	Line number for the document line item	ADS Line Item_Trade Line Item. Line. Numeric

Base architecture type B
RLBIE for the header

In the second method, the Line item ABIE contains the RLBIE for the header ABIE. In such cases, there are two lists.

No	BIE	D	Business Term	Semantic data type	O	Description	Dictionary Entry Name
0	ABIE	0	Header	—	—	The document header.	ADS Header_ Trade Transaction. Details
1	**IDBIE**	1	**Header ID**	Identifier	1..1	The **unique identifier** for the document header.	**ADS Header_ Trade Transaction**. Identification. Identifier
			…				

No	BIE	D	Business Term	Semantic data type	O	Description	Dictionary Entry Name
0	ABIE	0	Line Item	—	—	The document line item.	ADS Line Item_ Trade Line Item. Details
1	**RLBIE**	1	**Header ID**	Reference identifier	1..1	The **reference identifier** for the document header.	ADS Line Item_Trade Line Item. Header. **ADS Header_ Trade Transaction**
2	IDBIE	1	Line Item ID	Identifier	1..1	The unique identifier for the document line item.	ADS Line Item_Trade Line Item. Identification. Identifier
3	BBIE	1	Line Number	Code	1..1	Line number for the document line item	ADS Line Item_Trade Line Item. Line. Numeric
			…				

Step 1: Select Core Components

Trade Transaction (UN00002077) & Trade Line Item (UN00001308)

UN00002077	ACC	Trade Transaction. Details	Agreement, contract, exchange, understanding, or transfer of cash or property that occurs between two or more parties.
UN00002078	BCC	Trade Transaction. Identification. Identifier	A unique identifier for this trade transaction.
UN00002079	BCC	Trade Transaction. Type. Code	A code specifying the type of trade transaction.
UN00002080	BCC	Trade Transaction. Information. Text	Information, expressed as text, for this trade transaction.
UN00003254	BCC	Trade Transaction. Line Item. Quantity	A number of line items for this trade transaction.
UN00008735	BCC	Trade Transaction. Issue. Date Time	A date, time, date time or other date time value for the issuance of this trade transaction.
UN00008736	BCC	Trade Transaction. URL. Identifier	A Uniform Resource Locator (URL) of the web location of this trade transaction.
UN00002081	ASCC	Trade Transaction. Included. Trade Line Item	A trade line item included in this trade transaction.
UN00002082	ASCC	Trade Transaction. Associated. Document	A document associated with this trade transaction, such as the purchase order, invoice or packing list.
UN00002083	ASCC	Trade Transaction. Applicable. Trade Agreement	Trade agreement details applicable to this trade transaction such as payment or delivery terms.
UN00002084	ASCC	Trade Transaction. Applicable. Trade Delivery	Trade delivery details applicable to this trade transaction.
UN00002085	ASCC	Trade Transaction. Applicable. Trade Settlement	Trade settlement details applicable to this trade transaction.
UN00003217	ASCC	Trade Transaction. Specified. Package	A package specified for this trade transaction.
UN00005067	ASCC	Trade Transaction. Included. Product Group	A product group included in this trade transaction.
UN00008090	ASCC	Trade Transaction. Included. Product	A product included in this trade transaction.

UN00001308	ACC	Trade Line Item. Details	A collection of information specific to an item being used or reported on for trade purposes.
UN00001309	BCC	Trade Line Item. Identification. Identifier	A unique identifier for this trade line item.
UN00001928	BCC	Trade Line Item. Sequence. Numeric	A sequence number for this trade line item.
UN00001929	BCC	Trade Line Item. Seller Assigned. Identifier	The unique identifier for this trade line item as assigned by the seller.
UN00001930	BCC	Trade Line Item. Buyer Assigned. Identifier	The unique identifier for this trade line item as assigned by the buyer.
UN00001932	BCC	Trade Line Item. Description. Text	A textual description of this trade line item.
UN00001933	BCC	Trade Line Item. Production Batch. Identifier	A unique production batch identifier for this trade line item.
UN00001934	BCC	Trade Line Item. Product Model. Identifier	A unique product model identifier for this trade line item.
UN00001935	BCC	Trade Line Item. Type. Code	A code specifying a type of trade line item.
UN00001936	BCC	Trade Line Item. Type Extension. Code	A code used as an extension to the type code for further specifying a type of trade line item.
UN00001937	BCC	Trade Line Item. Gross Weight. Measure	A measure of the gross weight (mass) of this trade line item which includes packaging but which excludes any associated transport equipment.
UN00001938	BCC	Trade Line Item. Net Weight. Measure	A measure of the net weight (mass) of this trade line item which excludes all packaging.
UN00001939	BCC	Trade Line Item. Gross Volume. Measure	A measure of the gross volume of this trade line item.
UN00001940	BCC	Trade Line Item. Charge Free. Indicator	The indication of whether or not this trade line item is free of charge.
UN00001941	BCC	Trade Line Item. Charge. Amount	A monetary value of a charge for this trade line item.
UN00001942	BCC	Trade Line Item. Invoice. Amount	A monetary value of an invoice for this trade line item.

"Trade Transaction" and "Trade Line Items" are Aggregate Core Components selected from the 2020 version of the Core Component Library (CCL). The CCL is defined by UN/CEFACT. CCL contains 596 Aggregate Core Components and over 8,000 Core Components.

See https://www.wuwei.space/iso/tc295/

Legend

No	CC	Business Term	Definition	ID	Dictionary Entry Name

Each information element that constitutes the semantic data model of the Core Components is described as a row in the table documented in the following sub-clause where the following information is provided.

No: A sequence number for the information element.

CC: Specifies which category of Core Component the information element belongs to.

- ACC: Aggregate Core Component
- ASCC: Association Core Component
- BCC: Basic Core Component
- IDCC: Identifier Core Component
- RLCC: Relation Core Component

Business Term: A synonym used in business where a Core is commonly known.

Definition: A definition of the information element.

ID: A unique identifier **uniquely assigned by the United Nations** are numberd UNnnnnnnnn.

The Core Components **defined in this standard** are numberd ADCS-nnnnn.

Dictionary Entry Name: A unique official name of a Core Component registered by the United Nations. If there is no corresponding registered information element, named according to the naming convention defined in ISO 15000-1.

Step 2: Extend Core Components to support ADCS

Trade Transaction (ADCS-00152) & Trade Line Item (ADCS-00160)

-3

No	CC	Business Term	Definition	Dictionary Entry Name
0	ACC	**Trade Transaction**		Trade Transaction. Details
1	**IDCC**	**Trade Transaction ID**	A unique identifier for this trade transaction.	Trade Transaction. Identification. Identifier
2	BCC	Type Code	A code specifying the type of trade transaction.	Trade Transaction. Type. Code
5	BCC	Issue Date	A date, time, date time or other date time value for the issuance of this trade transaction.	Trade Transaction. Issue. Date Time
12	ASCC	Specified Period	A period specified in this trade transaction.	Trade Transaction. Defined. Period
13	ASCC	[Specified] Monetary Value	A monetary value [specified] in this trade transaction.	Trade Transaction. [Spedified]. Monetary Value
14	**ASCC**	**Trade Line Item**	A trade line item **included** in this trade transaction.	Trade Transaction. **Included**. Trade Line Item

No	CC	Business Term	Definition	Dictionary Entry Name
0	ACC	**Trade Line Item**		Trade Line Item. Details
1	**RLCC**	**Trade Transaction ID**	A specified **reference identifier** for trade transaction including this trade line item.	Trade Line Item. **Header**. Trade Transaction
2	**IDCC**	**Trade Line Item ID**	A **unique identifier** for this trade line item.	Trade Line Item. Identification. Identifier
3	BCC	Sequence Number	A sequence number for this trade line item.	Trade Line Item. Sequence. Numeric
65	BCC	Tax excluded Amount	A tax excluded amount for this trade line item.	Trade Transaction. Tax Excluded. Amount
65	BCC	Tax Included Amount	A tax included amount for this trade line item.	Trade Transaction. Tax Included. Amount
67	BCC	Transaction Amount	An amount for this trade line item intarnsaction currency.	Trade Transaction. Transaction Currency. Amount
40	ASCC	Accounting Account	An accounting account for this trade line item.	Trade Line Item. Account. Accounting Account

Add #13 “[Specified] Monetary Value” in “Trade Transaction” (ADCS-00152) to record monetary values.
Add #1 “Trade Transaction ID” in “Trade Line Item” (ADCS-00160) to specify the reference identifier for “Trade Transaction” including this “Trade Line Item”.

Step3: Define Business Information Entities

Syntax mappings to audit data are defined from business information

No	BIE	D	Business Term	Semantic data type	O	Dictionary Entry Name
0	ABIE	0	**Invoices Received**	—	—	ADS Invoices Received_ Trade Transaction. Details
1	IDBIE	1	Invoice ID	Identifier	1..1	ADS Invoices Received_ Trade Transaction. Identification. Identifier
2	BBIE	1	Invoice Number	Text	1..1	ADS Invoices Received_ Trade Transaction. Number_ Information. Text
3	ASBIE	1	Period	—	1..1	ADS Invoices Received_ Trade Transaction. Defined. ADS_ Fiscal Period
4	BBIE	2	Fiscal Year	Numeric	1..1	ADS_ Fiscal Period. Fiscal Year. Code
5	BBIE	2	Accounting Period	Code	1..1	ADS_ Fiscal Period. Accounting ADS_ Period. Code
6	BBIE	1	Official Invoice Code	Code	0..1	ADS Invoices Received_ Trade Transaction. Official. Code
20	ASBIE	1	Created Activity	—	0..1	ADS Invoices Received_ Trade Transaction. Specified. ADS Created_ Activity
21	BBIE	2	Created Date	Date	1..1	ADS_ Created_ Activity. Occurred. Date
22	BBIE	2	Created Time	Time	0..1	ADS_ Created_ Activity. Occurred. Time
38	RLBIE	1	Business Segment [X][a]	Reference Identifier	1..1	ADS Invoices Received_ Trade Transaction. [X]. ADS Business Segment_ Code
39	ASBIE	1	Invoices Received Line Item	—	0..n	ADS Invoices Received_ Trade Transaction. Defined. ADS Invoices Received_ Trade Line Item. Detail

No	BIE	D	Business Term	Semantic data type	O	Dictionary Entry Name
0	ABIE	0	**Invoices Received Line Item**	—	—	ADS Invoices Received_ Trade Line Item. Detail
1	RLBIE	1	Invoice ID	Reference Identifier	1..1	ADS Invoices Received_ Trade Line Item. Header. ADS Invoices Received_ Trade Transaction
2	IDBIE	1	Invoice Line ID	Identifier	1..1	ADS Invoices Received_ Trade Line Item. Identification. Identifier
3	BBIE	1	Sequence Number	Numeric	0..1	ADS Invoices Received_ Trade Line Item. Sequence. Numeric
4	RLBIE	1	Purchase Order ID	Reference Identifier	1..1	ADS Invoices Received_ Trade Line Item. Defined. ADS Purchase Order_ Trade Transaction
5	RLBIE	1	Purchase Order Line ID	Reference Identifier	1..1	ADS Invoices Received_ Trade Line Item. Defined. ADS Purchase Order_ Trade Line Item
6	ASBIE	1	Product	—	1..1	ADS Invoices Received_ Trade Line Item. Defined. ADS_ Product
7	IDBIE	2	Product ID	Identifier	1..1	ADS_ Product. Identification. Identifier
8	BBIE	2	Unit of Measurement Code	Code	1..1	ADS_ Product. Measurement. Code
11	BBIE	2	Basic UOM Quantity	Quantity	0..1	ADS_ Product. Basic UOM. Quantity
12	RLBIE	2	Basic UOM Code	Reference Identifier	0..1	ADS_ Product. Defined. ADS Measurement Unit_ Code

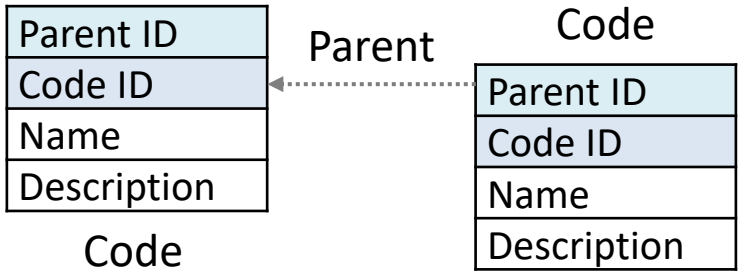
Invoices Received & Invoices Received Line Item

Relation Core Component in Code

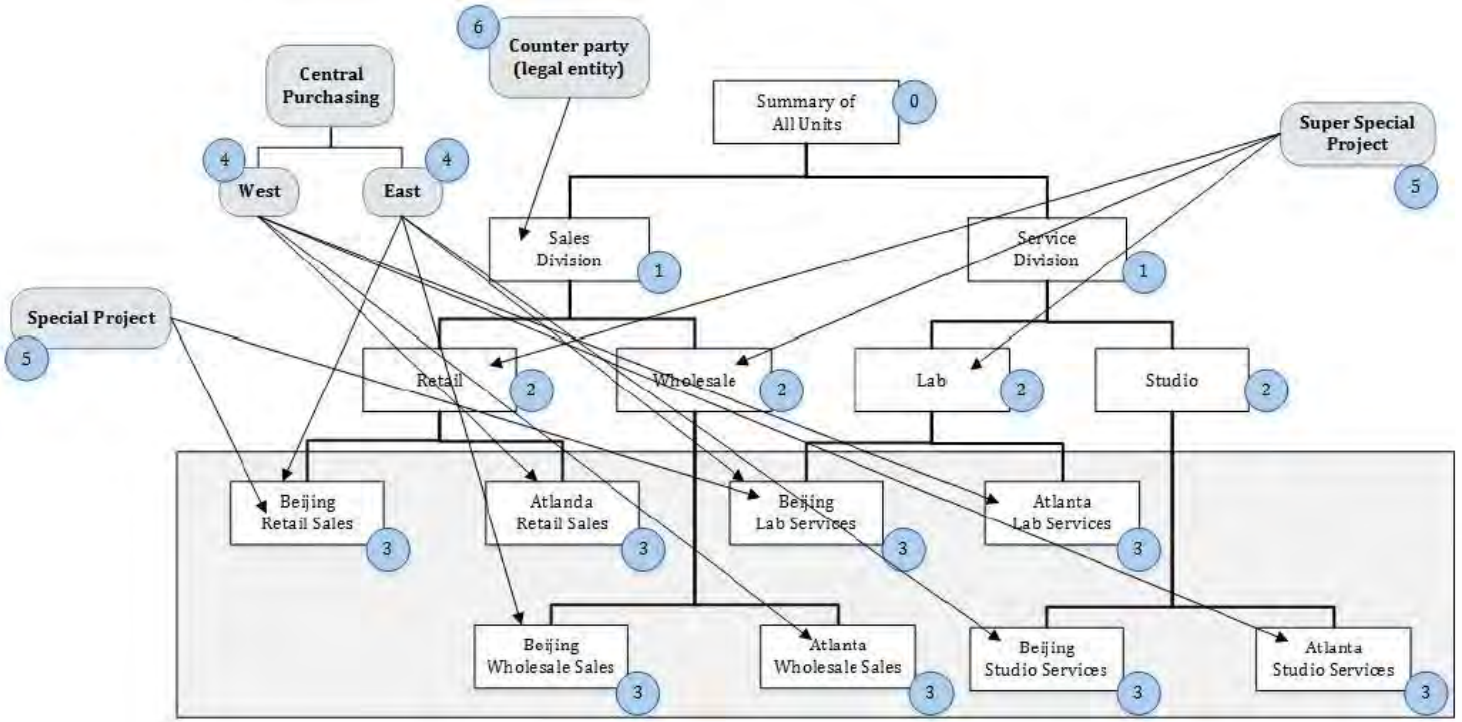
Although UN/CEFACT Core Component Library contains little ACC which contains BCC specifying reference identifier for another ACC, Audit data requires relationship among documents based on identifiers.

Core Components for Code

No	CC	Business Term	Definition	ID	Dictionary Entry Name
0	ACC	Code	A code.	ADCS-00008	Code. Details
1	RLCC	Parent ID	A reference identifier for the parent code.	ADCS-00009	Code. Parent. Code
2	IDCC	Code ID	A unique identifier for this code. A code of this code.	ADCS-00010	Code. Identification. Identifier
3	BCC	Name	A name, expressed as text, of this code.	ADCS-00011	Code. Name. Text
4	BCC	Description	A description, expressed as text, for this code.	ADCS-00012	Code. Description. Text



ISO 21378:2019 Annex A Business Segment



Key Components

- Organizational entity
- additional relationships
- segment level
- all business units

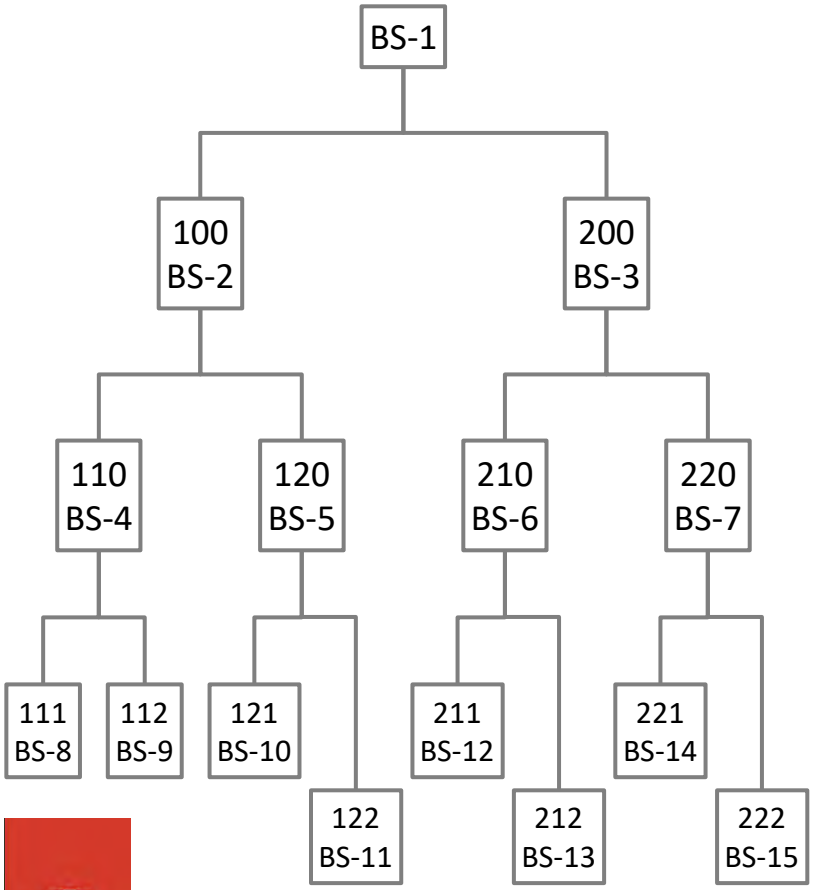
Connections and lines

- — connection between organizational entities
- → connection between additional relationships and organizational entities

Figure A.3— Example of the level assignments

Business Segment Code

No	BIE	D	Business Term	O	Dictionary Entry Name
0	ABIE	0	Business Segment	—	ADS Business Segment_ Code. Details
1	IDBIE	1	Business Segment ID	1..1	ADS Business Segment_ Code. Identification. Identifier
2	BBIE	1	Organization Type	1..1	ADS Business Segment_ Code. Organization Type. Code
3	BBIE	1	Business Segment Code	1..1	ADS Business Segment_ Code. Business Segment Code
4	BBIE	1	Name	1..1	ADS Business Segment_ Code. Name. Text
5	BBIE	1	Reference Level Code	1..1	ADS Business Segment_ Code. Reference Level Code
6	RLBIE	1	Parent ID	0..1	ADS Business Segment_ Code. Parent. ADS Business Segment_ Code



ID	Organization Type	Code	Name	L	Parent ID
BS-1	Consolidated business		All Units Segment	0	
BS-2	Division	100	Sales Division Segment	1	BS-1
BS-3	Division	200	Service Division Segment	1	BS-1
BS-4	Department	110	Retail Segment	2	BS-2
BS-5	Department	120	Wholesale Segment	2	BS-2
BS-6	Department	210	Lab Segment	2	BS-3
BS-7	Department	220	Studio Segment	2	BS-3
BS-8	Business Unit	111	Beijing Retail Sales Segment	3	BS-4
BS-9	Business Unit	112	Atlanta Retail Sales Segment	3	BS-4
BS-10	Business Unit	121	Beijing Wholesale Sales Segment	3	BS-5
BS-11	Business Unit	122	Atlanta Wholesale Sales Segment	3	BS-5
BS-12	Business Unit	211	Beijing Lab Services Segment	3	BS-6
BS-13	Business Unit	212	Atlanta Lab Services Segment	3	BS-6
BS-14	Business Unit	221	Beijing Studio Services Segment	3	BS-7
BS-15	Business Unit	222	Atlanta Studio Services Segment	3	BS-7
BS-16	Purchasing Org	West	Central Purchasing West Segment	4	
BS-17	Purchasing Org	East	Central Purchasing East Segment	4	
BS-18	Project	A123	Special Project Segment	5	
BS-19	Project	C543	Super Special Project Segment	5	
BS-20	Legal Entity	43278	Counterparty Segment	6	

Extension Methodology

1.2

This standard defines extendable Core Component with [ ].
Following is an example definition of Basic Core Component in Code.Detail. We can define the "Function Code" by replacing [Specified] with "Function" and resulting Dictionary Entry Name is "Code. Function. Code".

EXAMPLE Base definition

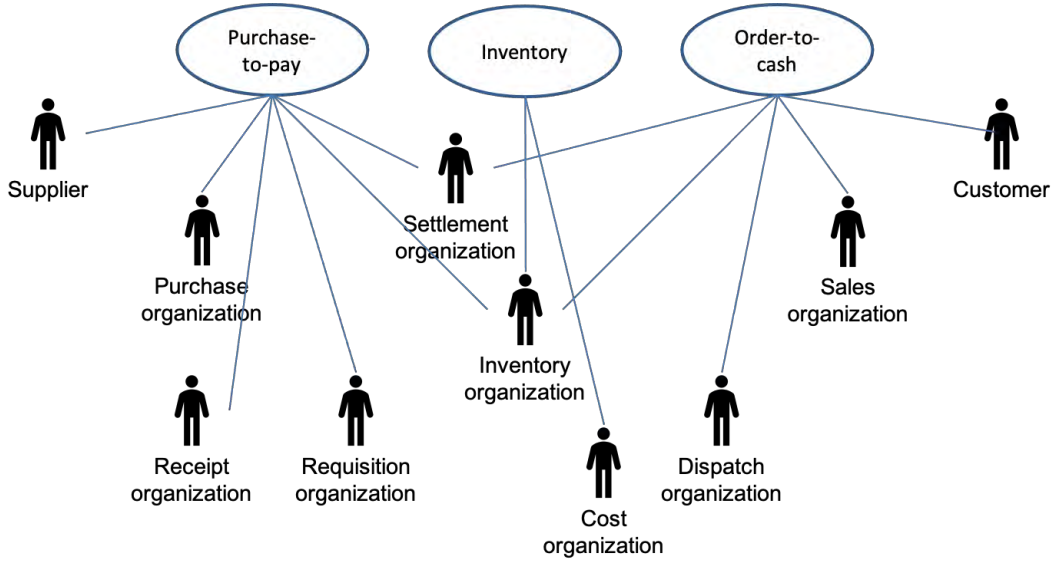
No	CC	Business Term	Definition	ID	Dictionary Entry Name
	BCC	[Specified] Code	A [Specified] code of this code.		Code. [Specified]. Code

EXAMPLE Extended definition

No	CC	Business Term	Definition	ID	Dictionary Entry Name
	BCC	Function Code	A Function code of this code.		Code. Function. Code

1. Semantic data modeling
2. Parties involved and their roles and relationships
3. Employee roles and user activities
4. Business process
5. Business controls and audit trails
6. Business rules
7. Syntax binding for XBRL

Parties involved and their roles and relationships



For example, EN 16931-1 defines following party and roles.

Parties

Customer The customer is the legal person or organization who is in demand of a product or service.

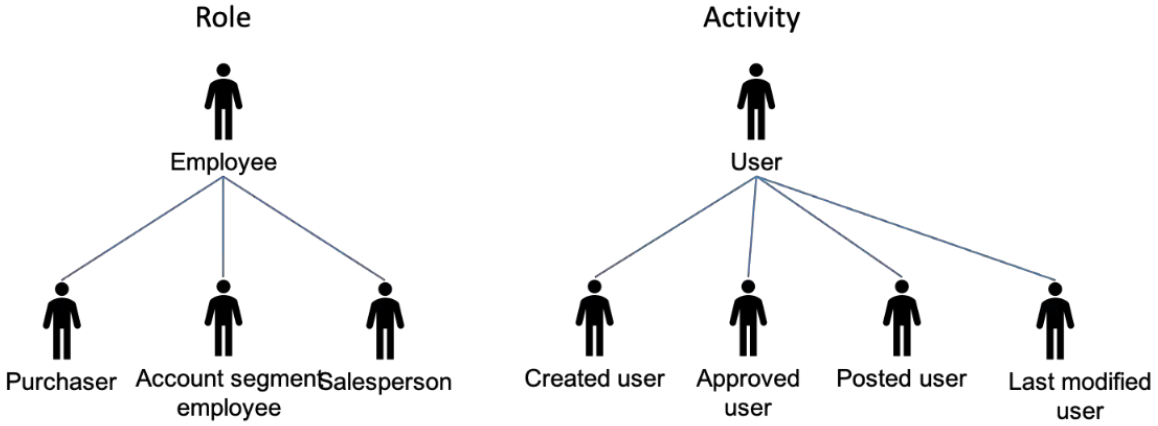
Supplier The supplier is the legal person or organization who provides a product or service.

Roles

Creditor One to whom a debt is owe. The party that claims the payment and is responsible for resolving billing issues and arranging settlement. The party that sends the invoice or credit note.

Debtor One who owes debt. The party responsible for making settlement relating to a purchase. The party that receives the invoice or credit note.

Employee roles and user activities



The **users** managing the ERP system shall have unique identification data, enabling job identification and authentication of the users. The identification and authentication data shall be revoked without delay in case of the cessation of user rights. Each employee shall have the necessary education, practice and professional experience for the provision of his scope of activities.

The party shall log every transactional event that can provide information on activity, changes happened in the ERP system, every verification activity performed related to transaction and / or accounting.
In case of every log entry, the following data shall be stored:

- the date and time of the activity;
- the type of the event;
- the success or failure of the implementation;

the identification of the user or the system who/what triggered the event

Party Roles in UBL

"In the UBL supply chain processes, two main **actors**, **Customer** and **Supplier**, represent the key organizations or people involved in the processes. Each of these actors may play various **roles**. Some processes may also involve supplementary roles that may be provided by different parties."

Table 1. Party Roles

Actor	Role	Description
Customer Party	Originator	The party that had the original demand for the goods and/or services and therefore initiated the procurement transaction. The Originator participates in pre-ordering activity either through Request for Quotation and Quotation or by receiving a Quotation as a response to a punch-out transaction on a marketplace or Seller's website. If the Originator subsequently places an Order, the Originator adopts the role of Buyer. The Originator is typically the contact point for queries regarding the original requirement and may be referred to in an Order Change, Order Cancellation, or Order Response.
Customer Party	Buyer	The party that purchases the goods or services on behalf of the Originator. The Buyer may be referred to in Order Response, Despatch Advice, Fulfilment Cancellation, Invoice, Self Billed Invoice, Credit Note, and Statement.
Customer Party	Delivery	The party to whom goods should be delivered. The Delivery Party may be the same as the Originator. The Delivery Party must be referred to at line item level in Request for Quotation, Quotation, Order, Order Change, Order Cancellation, and Order Response. The Delivery Party may be referred to at line level in Invoice, Self Billed Invoice, Credit Note, and Debit Note. The Delivery Party may be stipulated in a transport contract.
Customer Party	Accounting Customer	The party responsible for making settlement relating to a purchase and resolving billing issues using a Debit Note. The Accounting Customer must be referred to in an Order and may be referred to in an Order Response. In a Self Billing scenario, the Accounting Customer is responsible for calculating and issuing tax invoices.
Supplier Party	Seller	The party responsible for handling Originator and Buyer services. The Seller party is legally responsible for providing the goods to the Buyer. The Seller party receives and quotes against Request for Quotation documents and may provide information to the Buyer's requisitioning process through Catalogues and Quotations.
Supplier Party	Despatch	The party where goods are to be collected from. The Despatch Party may be stipulated in a transport contract.

Only part of this table is quoted here.

1. Semantic data modeling
2. Parties involved and their roles and relationships
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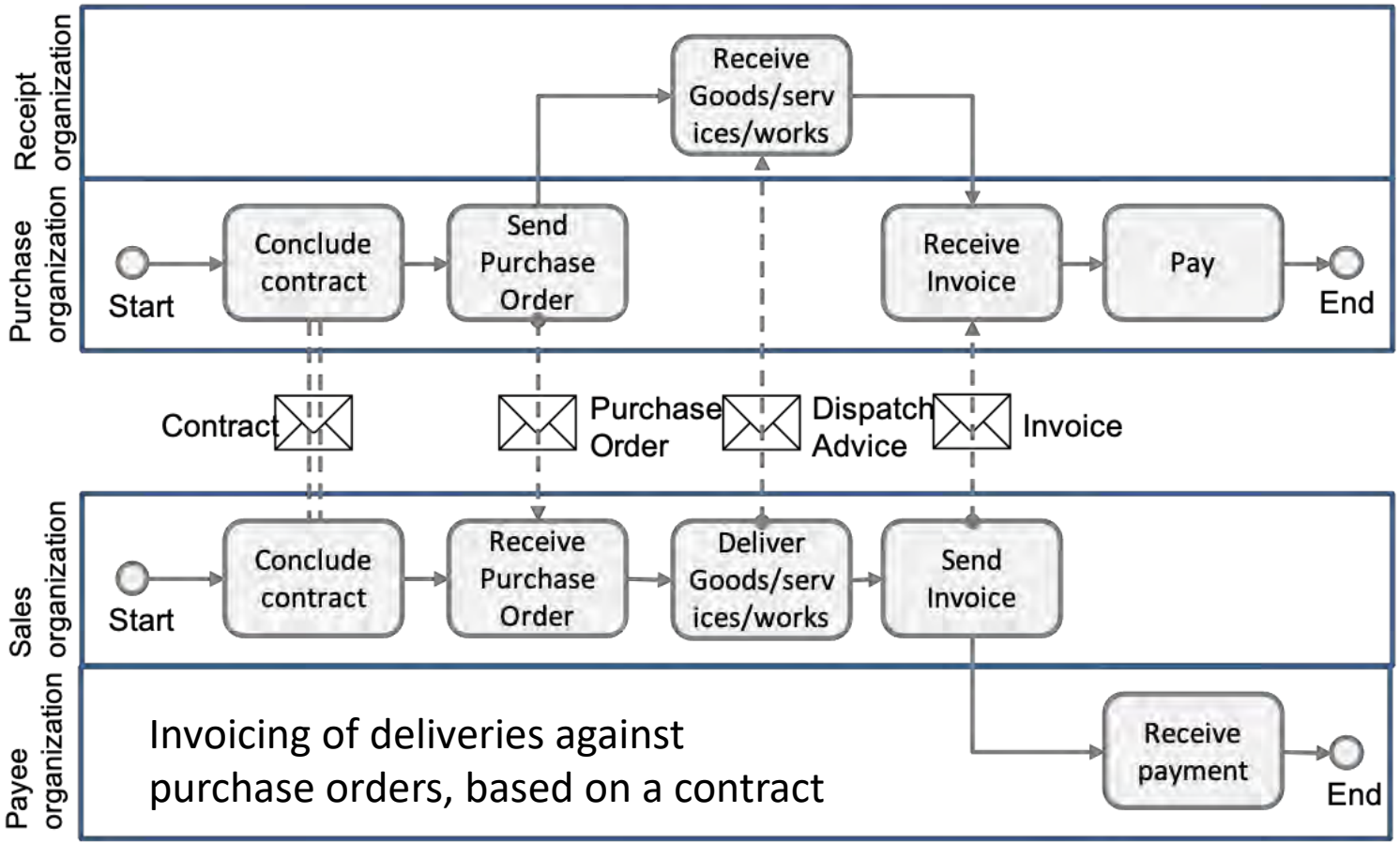
4. **Business process**
5. Business controls and audit trails
6. Business rules
7. Syntax binding for XBRL

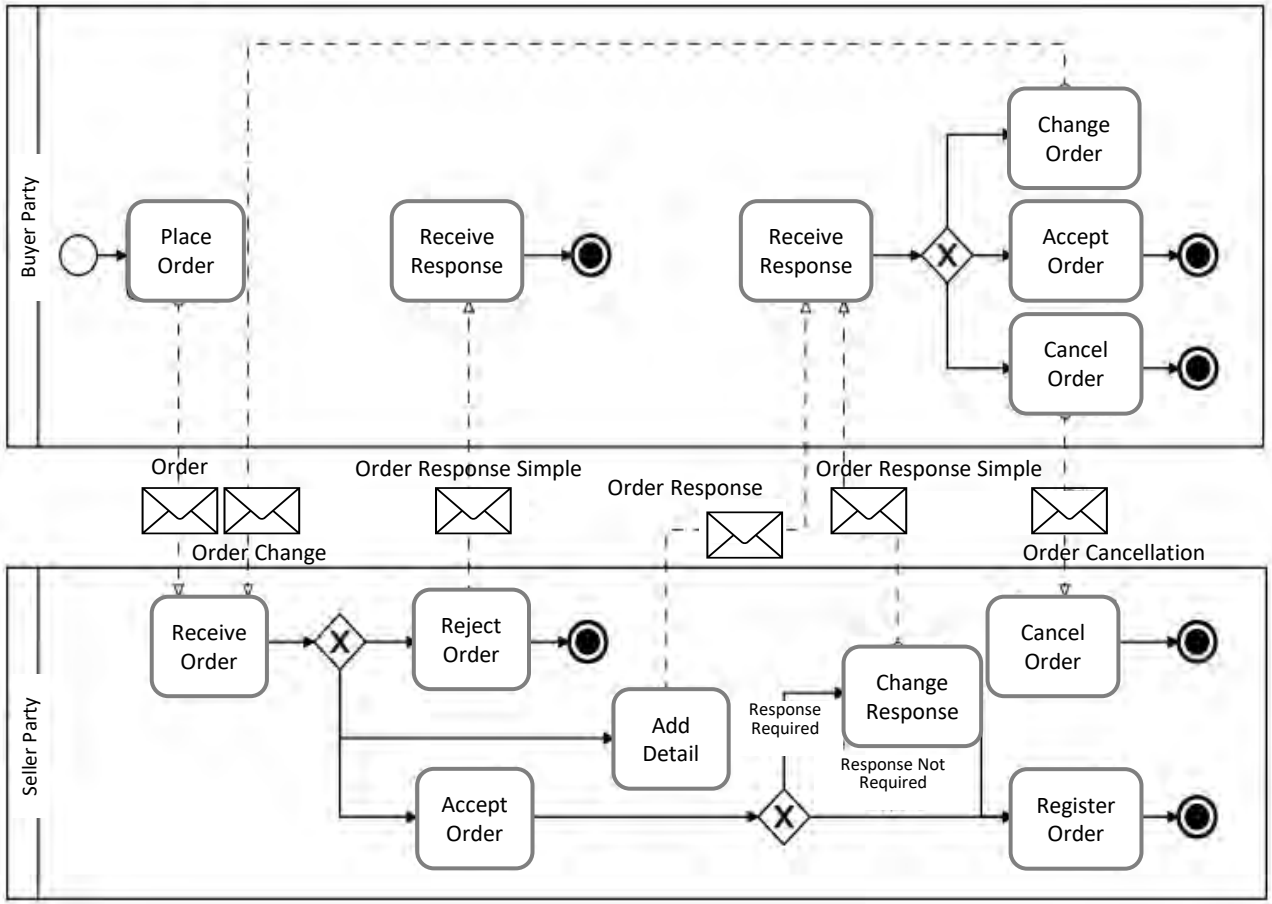
Business processes



In this process the Buyer and the Seller conclude a formal contract (or there is an assumed contract by legal definition) in which the terms and conditions are stated under which goods and services will be delivered and are paid for. The Buyer orders the goods and services, stating the specifications for goods and services, the quantities and the place and time for delivery. The Seller delivers the ordered goods and services to the Receiver as specified on the purchase order. This delivery is then invoiced by the Seller to the Buyer. Finally, the Buyer pays the Payee.

Order Process in UBL

Figure 39. Ordering Process



Ordering is the collaboration that creates a contractual obligation between the Seller Supplier Party and the Buyer Customer Party. Document types in these processes are Order, Order Response, Order Response Simple, Order Change, and Order Cancellation.

Only part of business process is quoted here.

Ordering Business Rules

- The Order may specify allowance and charge instructions (e.g., freight, documentation, etc.) that identify the type of charge and who pays which charges. The Order may be placed “on account” against a trading credit account held by the Seller, or against a credit/debit card account, or against a direct debit agreement. The Order allows for an overall currency defining a default for all pricing and also a specific currency to be used for Invoicing. Within an Order, additional currencies may be specified both for individual item pricing and for any allowances or charges.
- Trade discount may be specified at the Order level. The Buyer may not know the trade discount, in which case it is not specified. This makes a detailed response from the Seller necessary; see Section 2.3.3.4.4, “Order Response”.
- The Order provides for multiple Order Lines.
- The Order may specify delivery terms, while the Order Line may provide instructions for delivery.
- The Buyer may indicate potential acceptable alternatives.

1. Semantic data modeling
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Definitions

Business Control

The COSO Model defines “business control” as:

> a process, effected by an entity’s board of directors, management and other personnel, designed to provide reasonable assurance regarding the achievement of objectives in effectiveness and efficiency of operations, reliability of financial reporting, and compliance with applicable laws and regulations.

Audit Trail

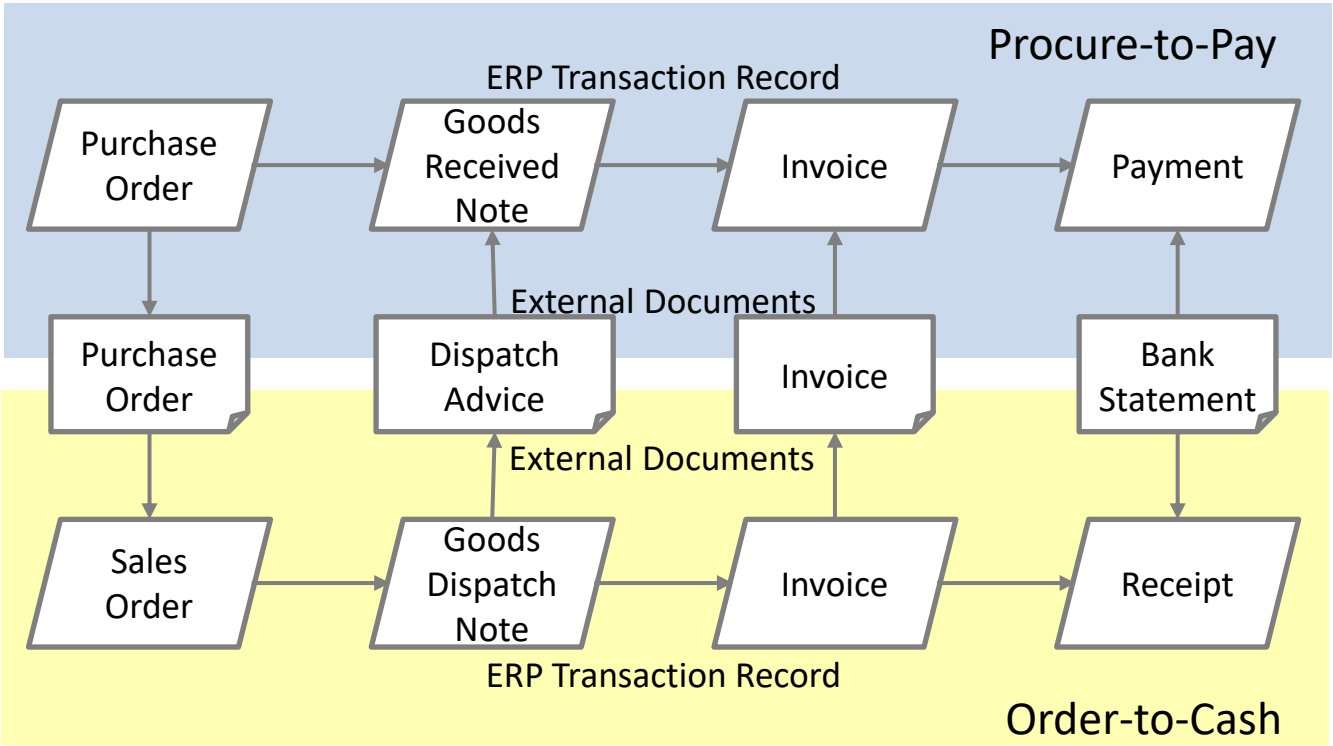
An audit trail is:

> a paper and/or electronic record that gives a step by step documented history of a transaction, which can validate or invalidate accounting entries. Components of an audit trail include:
> (i) source records,
> (ii) list of transactions processed and
> (iii) transaction identifiers so that reference can be made to the source of a transaction.

Source: CEN WORKSHOP AGREEMENT CWA 16460 May 2012 Good Practice: e-Invoicing Compliance Guidelines - The Commentary

Business controls and audit trails

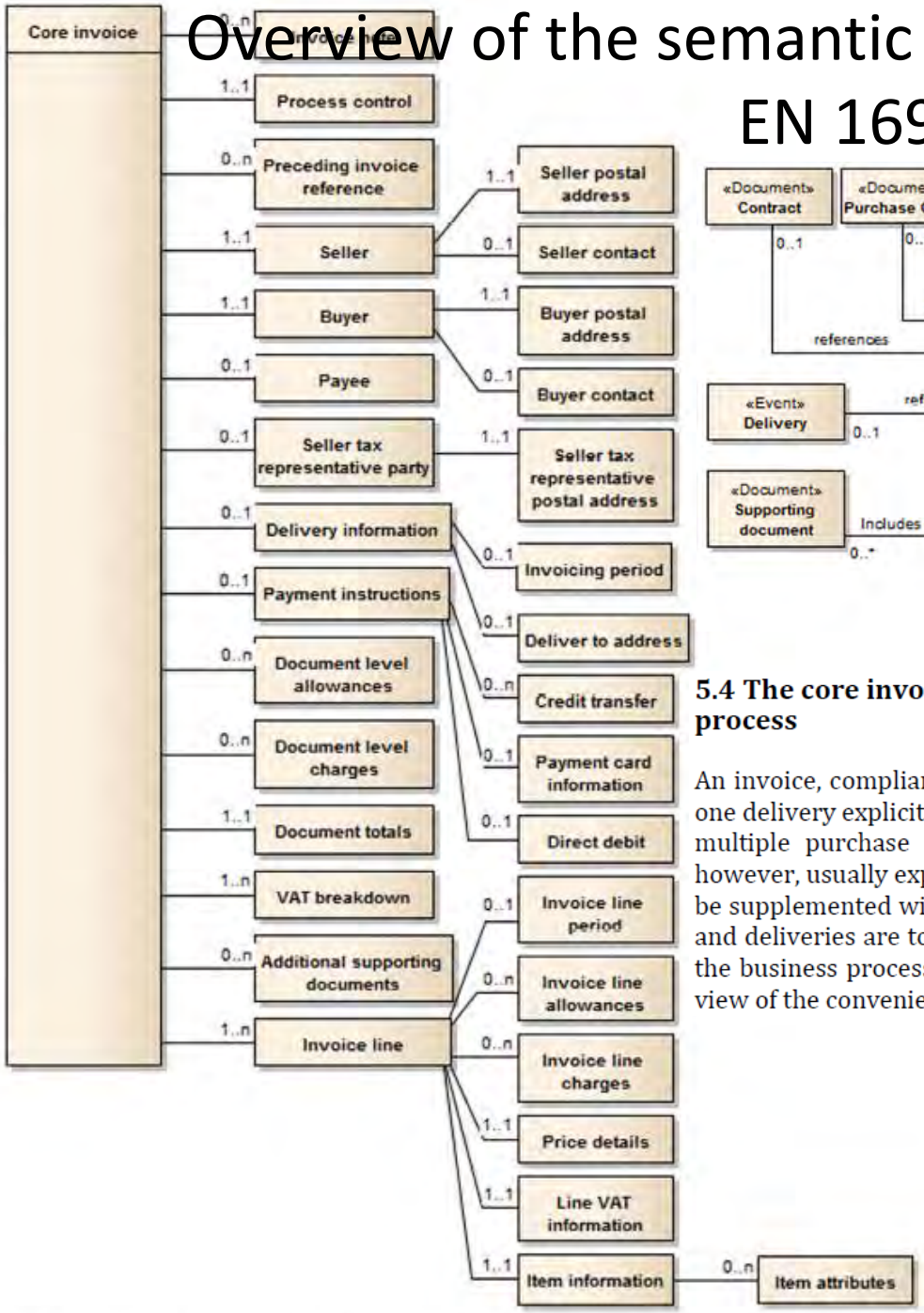
An electronic record of each of these events will usually be created in the ERP system. This record may directly contain values relating to the event, e.g. quantities, or reference master data to provide or derive content, e.g. pricing. It is this record of the sequence of events in the process that contributes to an audit trail. An audit trail will consist of documents outside the ERP and a transaction record within the ERP. For example, the audit trail for the 'procure-to-pay' cycle will often take the following form.



This represents the process that supports purchase of goods or services where the 3-way match control is implemented, typically: purchase order → goods received note → purchase invoice → payment.
Left is the equivalent audit trail for an 'order-to-cash' cycle.

Source: CEN WORKSHOP AGREEMENT CWA 16460 May 2012 Good Practice: e-Invoicing Compliance Guidelines - The Commentary
Partially modified by SAMBUICHI, Nobuyuki

Overview of the semantic model of Core Invoice in EN 16931-1



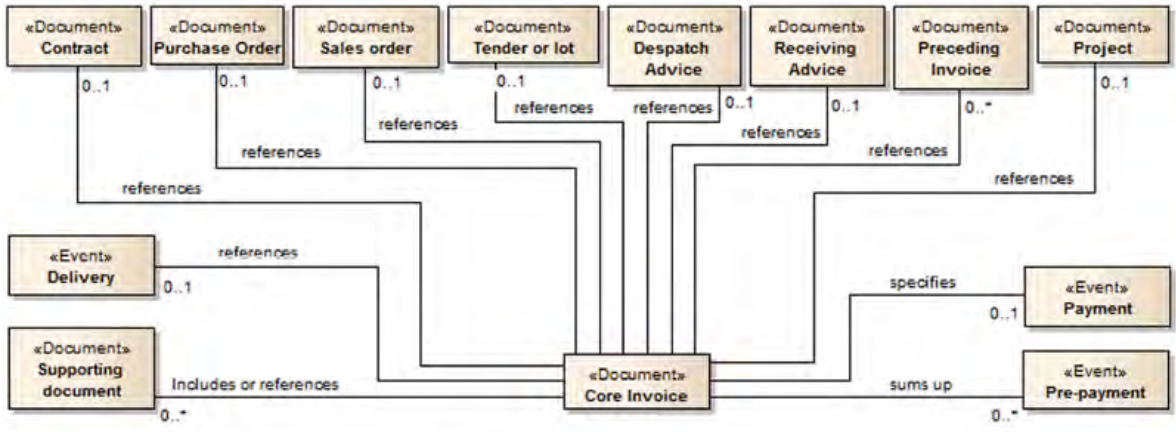


Figure 14 — Invoice relations

5.4 The core invoice model in relation to other documents in the procurement process

An invoice, compliant with the core invoice model may reference only one purchase order and one delivery explicitly. Such an invoice may still be used if only general, unqualified references to multiple purchase orders and/or deliveries suffice. For automatic processing of invoices, however, usually explicit, qualified references are needed. The core invoice model would need to be supplemented with use of an extension to support a process where multiple purchase orders and deliveries are to be invoiced with one invoice. Alternatively, steps could be taken to change the business process and send one invoice per purchase order or delivery. This is especially in view of the convenience of electronic initiation for generating higher frequency invoicing.

Universal Business Language (UBL) 2.3

Business Objects

General Business Rules

- Manifest Values
- Items
- Item Identification
- Item Instances
- Item Pricing
- Hazardous Items
- Parties
- Multilingual Text
- Taxation Rules
- Item vs. Line Item
- Shipment vs. Consignment
- Transport vs. Transportation
- Transport Events
- Financial Information
- Indirect Taxes

Supply Chain Business Processes

- Supply Chain Overview
- Plan
- Procurement
- Make
- Deliver
- Return
- Pay
- Business Directory and Agreements

Party Roles

Document Schemas

- Application Response
- Attached Document
- Awarded Notification
- Bill Of Lading
- Business Card
- Call For Tenders
- Catalogue
- Catalogue Deletion
- Catalogue Item Specification Update
- Catalogue Pricing Update
- Catalogue Request
- Certificate Of Origin
- Common Transportation Report
- Contract Award Notice
- Contract Notice
- Credit Note
- Debit Note
- Despatch Advice
- Digital Agreement
- Digital Capability
- Document Status
- Document Status Request
- Enquiry
- Enquiry Response
- Exception Criteria
- Exception Notification
- Export Customs Declaration
- Expression Of Interest Request
- Expression Of Interest Response
- Forecast
- Forecast Revision
- Forwarding Instructions
- Goods Certificate
- Goods Item Itinerary
- Goods Item Passport
- Guarantee Certificate
- Import Customs Declaration
- Instruction For Returns
- Inventory Report
- Invoice
- Item Information Request
- Manifest
- Order
- Order Cancellation
- Order Change
- Order Response
- Order Response Simple
- Packing List
- Prior Information Notice
- Product Activity
- Proof Of Reexportation
- Proof Of Reexportation Reminder
- Proof Of Reexportation Request
- Qualification Application Request
- Qualification Application Response
- Quotation
- Receipt Advice
- Reminder
- Remittance Advice
- Request For Quotation
- Retail Event
- Self Billed Credit Note
- Self Billed Invoice
- Statement
- Stock Availability Report
- Tender
- Tender Contract
- Tender Receipt
- Tender Status
- Tender Status Request
- Tender Withdrawal
- Tenderer Qualification
- Tenderer Qualification Response
- Trade Item Location Profile
- Transit Customs Declaration
- Transport Execution Plan
- Transport Execution Plan Request
- Transport Progress Status
- Transport Progress Status Request
- Transport Service Description
- Transport Service Description Request
- Transportation Status
- Transportation Status Request
- Unawarded Notification
- Unsubscribe From Procedure Request
- Unsubscribe From Procedure Response
- Utility Statement
- Waybill
- Weight Statement

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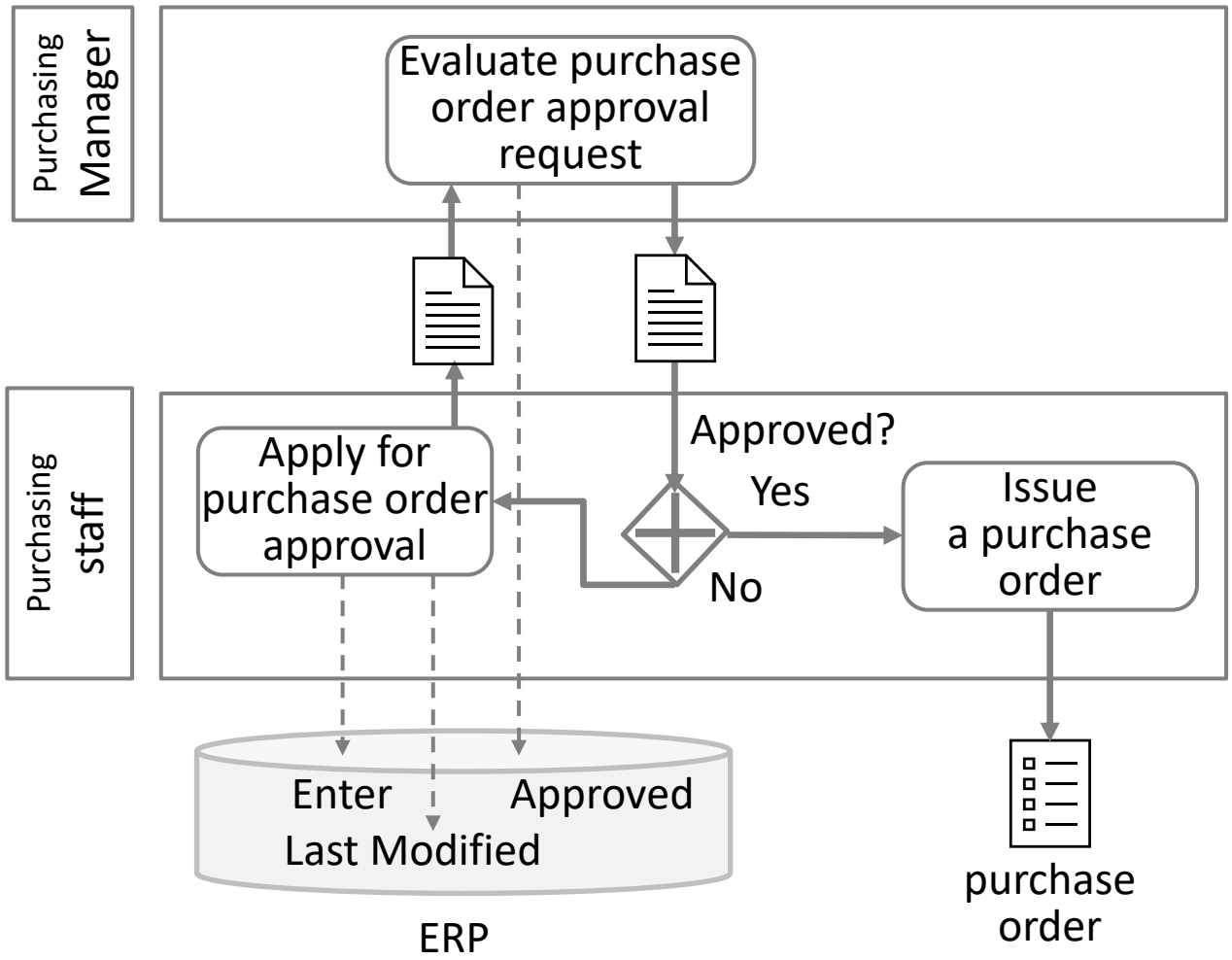
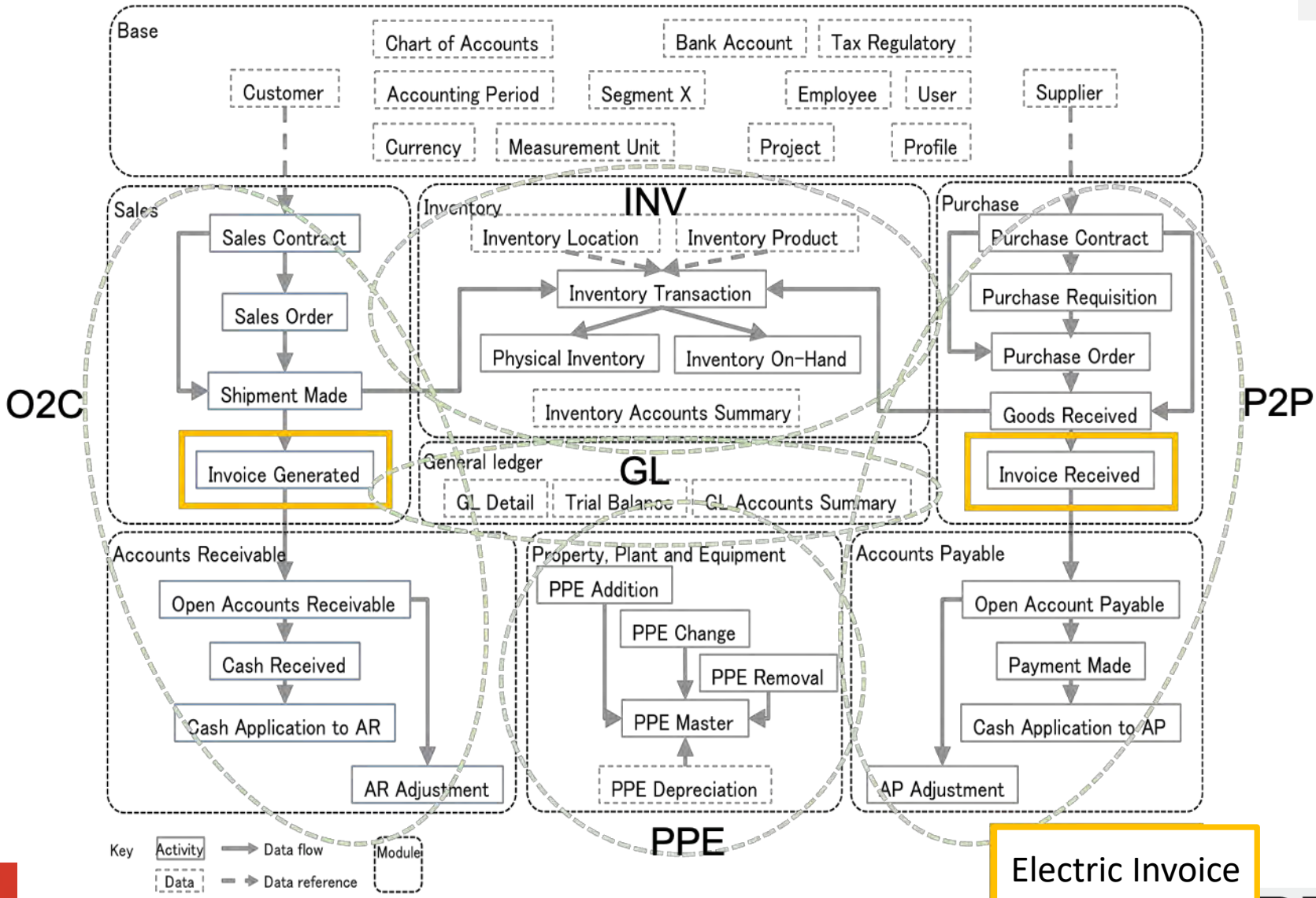
Enter and Approve Activity



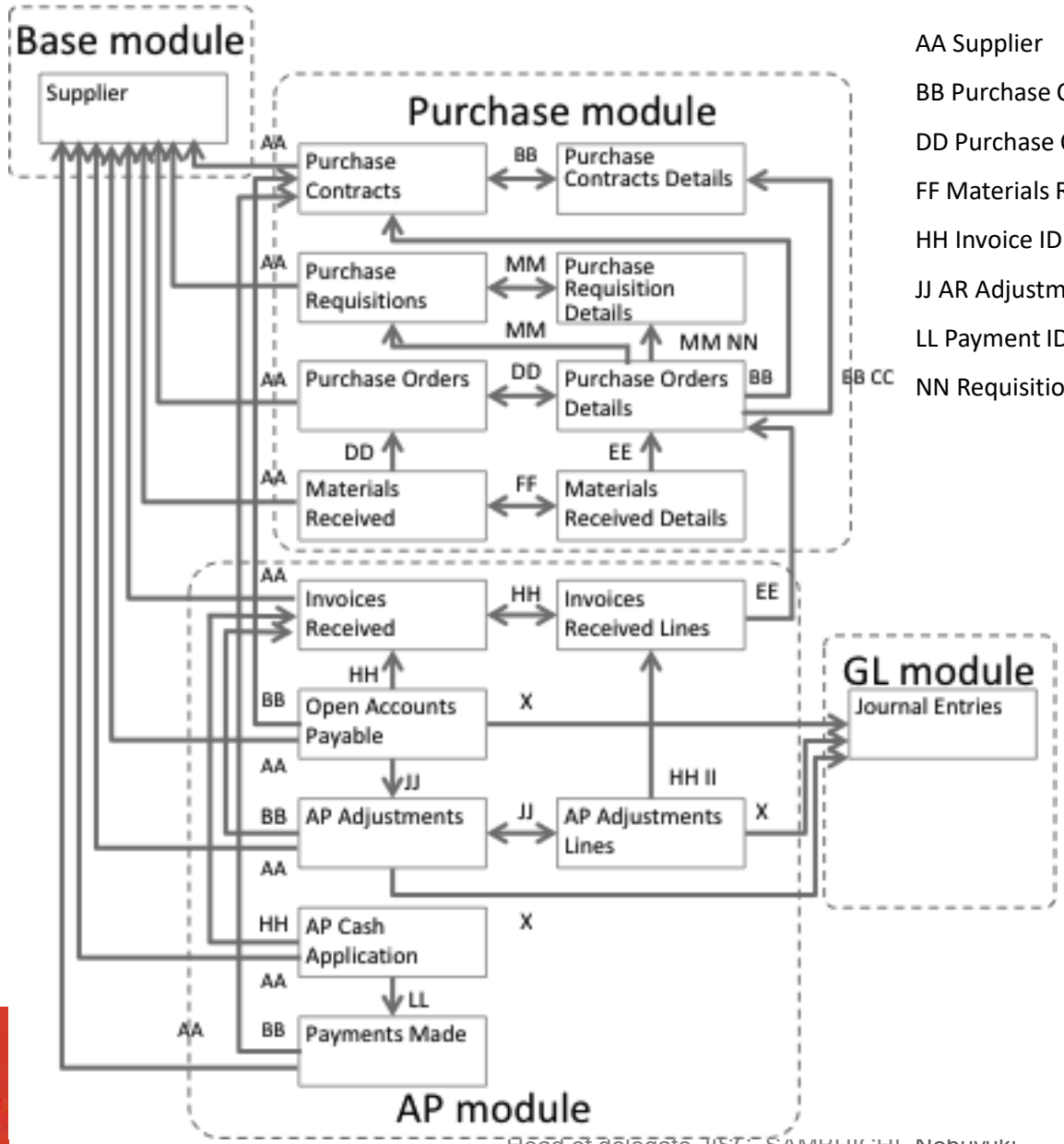
Each case in the figure must be clearly defined so that the computer can detect illegal incidents.

You need to answer:
Need a reason for the last change?
What if the last change was after the PO was sent?
Is the change procedure documented in principle?
Is the timing recorded with that person legal?

ISO 21378:2019 Audit data collection



Procure to pay



AA Supplier

BB Purchase Contract ID

CC Purchase Contract Line ID

DD Purchase Order ID

EE Purchase Order Line ID

FF Materials Receipt ID

GG Materials Receipt Line ID

HH Invoice ID

II Invoice Line ID

JJ AR Adjustment ID

KK AR Adjustment Line ID

LL Payment ID

MM Requisition ID

NN Requisition Line ID

X GL Detail ID

Procure to Pay (3-way matching)

No	Audit Trail	Invoice Component												
			Integrity											
		Authenticity	VAT ID Supplier	Supplier (Name & Address)	VAT ID Customer	Customer (Name & Address)	Invoice Date	Date of Supply	Invoice Number	Nature of Supply	Quantity	Taxable Amount	VAT Rate	VAT Amount	Currency
		a	b	c	d	e	f	g	h	i	j	k	l	m
1	Purchase Contract	3001		3001	3007	3007				3012		3017			3021
2	Purchase Order	3002		3005	3008	3008				3013	3015	3018			3022
3	Goods / Service Received Note							3010		3014	3016				
4	Invoice						3009								
5	Payment	3005		3006					3011			3019		3020	3023

Audit Trail Contribution to Authenticity and Integrity in Purchasing Processes.

Business rules for P2P 3-way match

Invoice Component	No	Audit Trail	Rule ID	Audit trail component contribution to Integrity
Authenticity	1	Purchase Contract	P2P-3001	Will identify the supplier for a particular supply.
	2	Purchase Order	P2P-3002	Will identify the supplier for a particular supply.
	5	Payment	P2P-3003	Will identify the supplier for a particular supply.
a) VAT ID Supplier	1	Purchase Contract	P2P-3001	Will identify the supplier for a particular supply.
b) Supplier (Name & Address)	2	Purchase Order	P2P-3005	Business records will contain a supplier account reference providing a link back to ERP supplier master data.
	5	Payment	P2P-3006	Payments allocated to invoices will identify the payee.
c) VAT ID Customer	1	Purchase Contract	P2P-3007	Purchase contract will identify the purchasing company.
d) Customer (Name & Address)	2	Purchase Order	P2P-3008	Purchase order will identify the purchasing company.
e) Invoice Date	4	Invoice	P2P-3009	There will be a correlation between invoice date and posting date of the invoice record in the ERP.
f) Date of Supply	3	Goods / Service Received Note	P2P-3010	Date of goods / service receipt will correlate with the date of supply.
g) Invoice Number	5	Payment	P2P-3011	Payment remittance advice may reference invoice number.
h) Nature of Supply	1	Purchase Contract	P2P-3012	Will contain a record of what is to be supplied.
	2	Purchase Order	P2P-3013	Will contain a record of what is to be supplied.
	3	Goods / Service Received Note	P2P-3014	Will contain a record of what has been supplied.
i) Quantity	2	Purchase Order	P2P-3015	Will contain a record of quantity requested.
	3	Goods / Service Received Note	P2P-3016	Will contain a record of quantity delivered.

Authenticity and Integrity in a Procure-to-Pay (goods 3-way matching) Cycle.

Example: Auditing requirement for Invoice

Source: PEPPOL BIS Billing https://docs.peppol.eu/poacc/billing/3.0/bis/

Auditing requirements

Id	Requirement (depending, as applicable, on the respective business case)
R56	sufficient information to support the auditing process with regard to: •Identification of the invoice; •Identification of the date of issue of the invoice; •Identification of the products and services traded, including their description, value and quantity; •Information for relating the invoice to its settlement; •Information for relating the invoice to relevant documents such as a contract, a purchase order and a despatch advice;
R57	identification of the parties that fulfil the following roles at the invoice level, including their legal name and address: •The Seller (including the Seller's trade name); •The Buyer; •The Deliver to party (if different from the Buyer); •The Payee (if different from the Seller); •The Tax representative of the Supplier;

Payment requirements

Id	Requirement (depending, as applicable, on the respective business case)
R58	identification of the means of settlement;
R59	the requested amount due for payment;
R60	the date on which payment is due;
R61	necessary details to support bank transfers in accordance with SEPA and national systems;
R62	a reference number and any additional reference data to be included in the payment;
R63	reference number and any additional reference data to be included in the payment, in order to relate the payment to the invoice;
R64	information for relating an invoice to a payment card used for settlement;
R65	basic information to support national payment systems for use in domestic trade;
R66	information about the amount that was pre-paid;
R67	invoices that have a total amount of zero;
R68	invoices that have an amount to pay of zero;
R69	necessary details to support direct debits.
R70	pre-payment invoices

Example: Calculation of totals

Source: PEPPOL BIS Billing https://docs.peppol.eu/poacc/billing/3.0/bis/

id	Term name	Calculation
BT-106	Sum of invoice line net amounts	∑(BT-131: Invoice line net amount)
BT-107	Sum of allowances on document level	∑(BT-92: Document level allowance amount)
BT-108	Sum of charges on document level	∑(BT-99: Document level charge amount)
BT-109	Invoice total amount without VAT	BT-106: Sum of invoice line net amounts − BT-107: Sum of allowances on document + BT-108: Sum of charges on document level
BT-110	Invoice total VAT amount	∑(BT-117: VAT category tax amount)
BT-112	Invoice total amount with VAT	BT-109: Invoice total amount without VAT + BT-110: Invoice total VAT amount
BT-115	Amount due for payment	BT-112: Invoice total amount with VAT − BT-113: Paid amount + BT-114: Rounding amount

1. Semantic data modeling
2. Parties involved and their roles and relationships
3. Employee roles and user activities
4. Business process
5. Business controls and audit trails
6. Business rules

7. Syntax binding for XBRL

Semantic XBRL for Granular Data

7. Syntax binding for XBRL

7.1 Audit data binding for XBRL taxonomy

- Enable extension based on jurisdictional and/or agency requirements
- Internationalization

7.2 Business rules Validation with formula linkbase

- Business rules
- Integrity constraints
- data profiling report
- data questionnaire

7.3 Syntax binding for xBRL-XML

7.4 Syntax binding for xBRL-CSV

XBRL can define computer-readable business rules

Data profiling report

Test	Description
Date ranges	Minimum and maximum dates for the following dates
Control totals	Record count and total sum of amount fields
Missing data	Number of missing or blank values listed by field.
Invalid data	Count of records by field that do not comply with field format requirements.

Data profiling reports SHALL be processed with computer-readable rules for calculation and / or validation.

AR standard **data questionnaire**

c) Are ARs tracked by customer invoice or in aggregate for the customer?
d) How are partial payments processed? Is the original invoice retained in the subledger with a remaining balance due when a partial payment is processed? Or is a new invoice raised with the remaining balance recorded at the time of partial payment? If new invoices are created, how are those identified in the system?
e) How are transactions with related parties identified? For example, transactions with wholly or partially owned subsidiaries.
f) What is the organizational policy to maintaining invoices in the open item table once the balance is paid off?
g) What is the policy for cash application? Is cash applied only to specific documents, to oldest balances, to customer account?
h) How do you differentiate non-customer receivables from customer receivables?

XBRL can define computer-readable business rules for data profiling report and data questionnaire in ISO 21378, as well as more general rules for business processes.

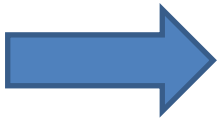
Data questionnaire answers SHALL be defined in a computer-readable way for automatic processing.

Formula Overview

Value Assertion	Formula
▸Evaluate variables ▸Apply testing expression	▸Evaluate variables ▸Produce new fact item of ◦Value expression ◦Aspects rules
Existence Assertion	**Consistency Assertion**
▸Count evaluations ◦variables & preconditions ▸Apply a test to the count	▸Evaluate formula ▸Compare to source fact ◦v-equals or value radius

The first column has the value and existence assertions, which operate on the input XBRL instance data and provide evaluation feedback (as a boolean successful or not successful result, along with possible message detailing cause and ancillary data).
The right column has formula which provides a resulting output fact when it is processed, and below is consistency assertion, which is used when it is desired to compare the formula's output fact with a matching one expected in the input XBRL instance.

Simple examples of each of these four models

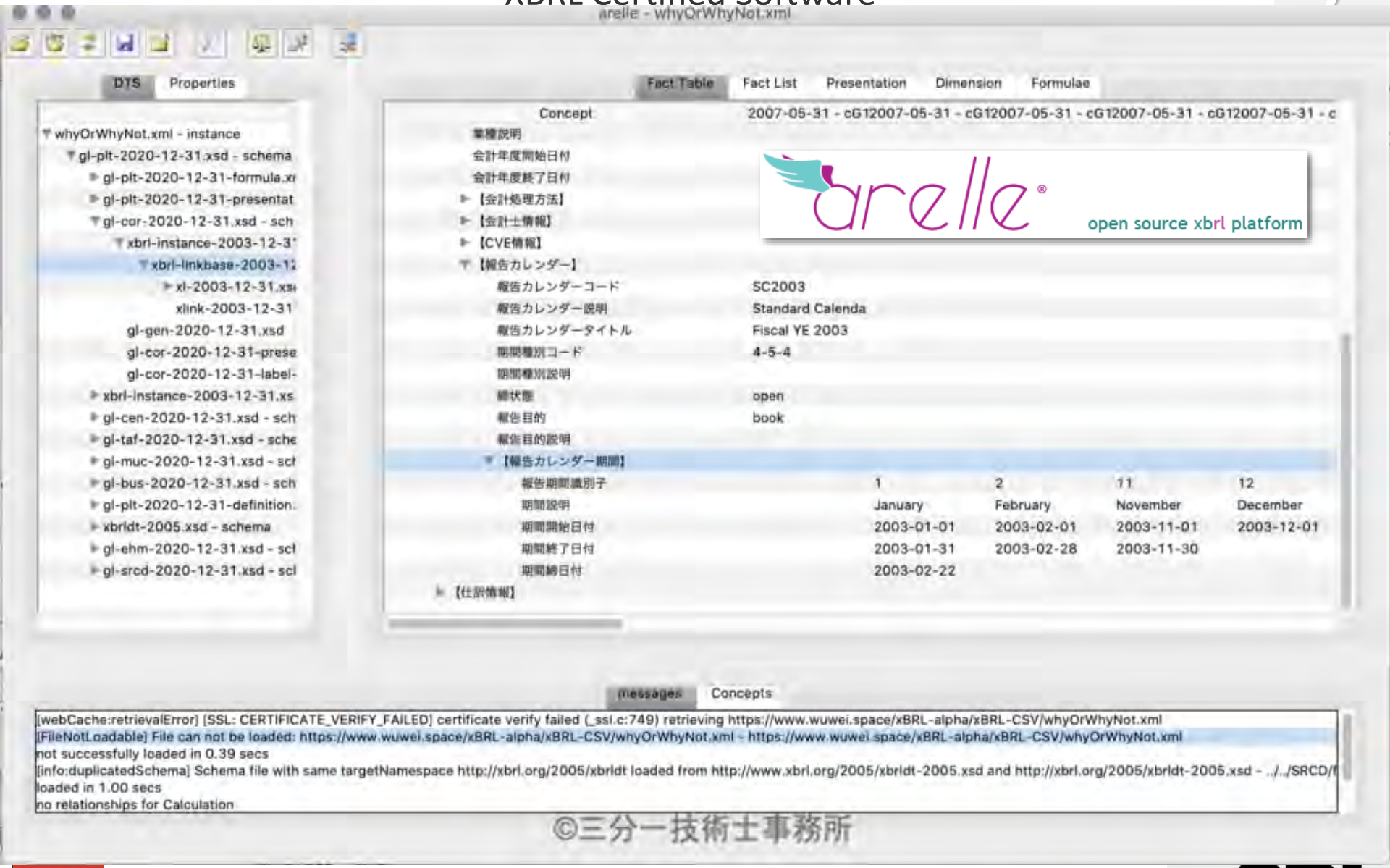


Value Assertion	Formula
▸Ratio > minimum ◦Capital adequacy ratio > 8% ◦Interest cover ratio > 2.5% ▸Cash balance is positive	▸Assets = liabilities + equity ▸Ending balance = starting balance + flows
Existence Assertion	**Consistency Assertion**
▸Total assets is reported ▸Correct entity is reported ▸No fact after cut off date	▸Reported item matches computed item ◦Assets ◦Ending balance

Source: https://www.xbrl.org/wgn/xbrl-formula-overview/pwd-2011-12-21/xbrl-formula-overview-wgn-pwd-2011-12-21.html

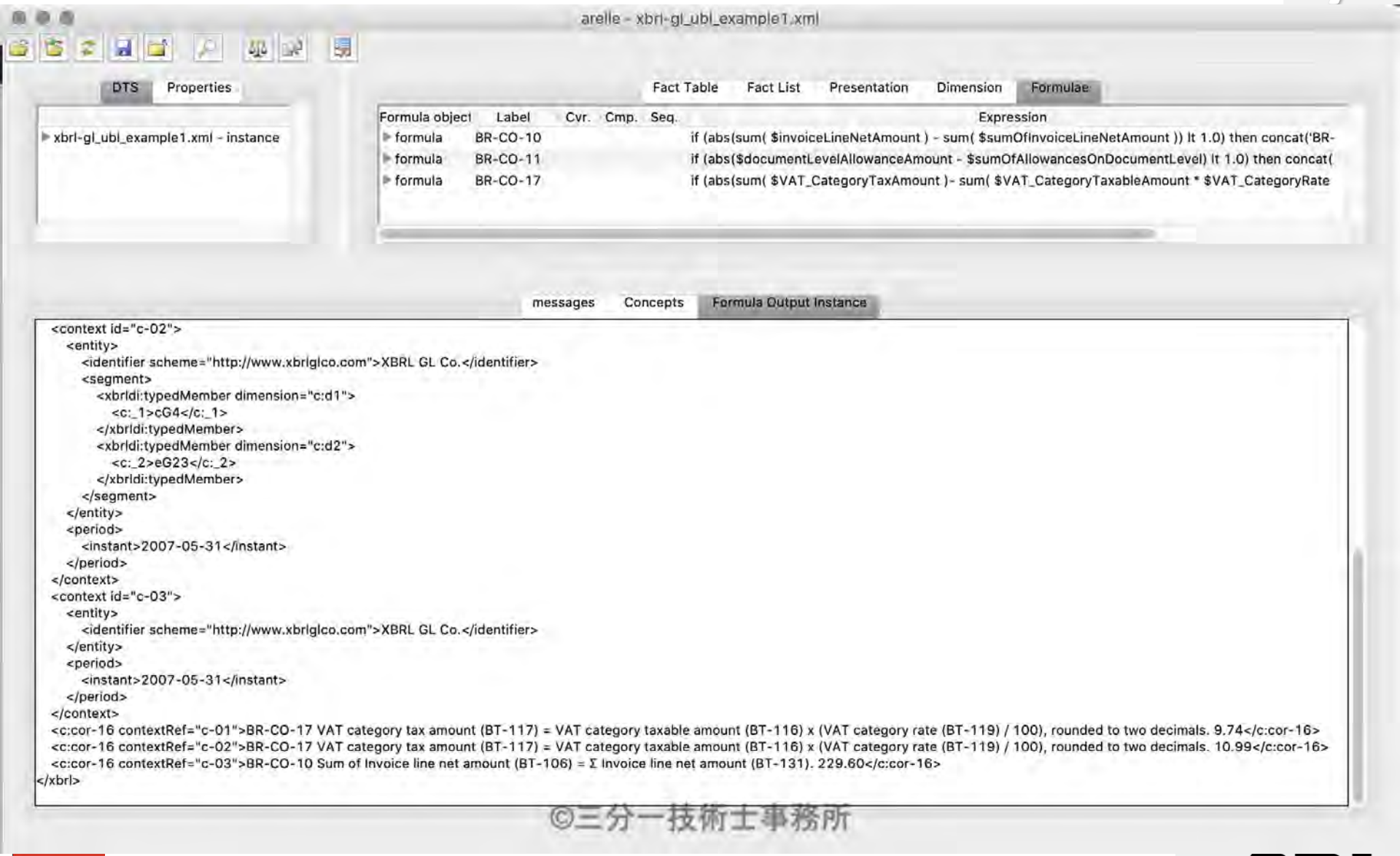
Open source xbrl platform Arelle

XBRL Certified Software™



THE BUSINESS REPORTING STANDARD

Validation with XBRL Formula linkbase


arelle - xbrl-gl_ubl_example1.xml
DTS
Properties
xbrl-gl_ubl_example1.xml - instance
Fact Table
Fact List
Presentation
Dimension
Formulae
Formula object
Label
Cvr.
Cmp.
Seq.
Expression
formula BR-CO-10 if (abs(sum($invoiceLineNetAmount) - sum($sumOfInvoiceLineNetAmount)) lt 1.0) then concat('BR-
formula BR-CO-11 if (abs($documentLevelAllowanceAmount - $sumOfAllowancesOnDocumentLevel) lt 1.0) then concat(
formula BR-CO-17 if (abs(sum($VAT_CategoryTaxAmount)- sum($VAT_CategoryTaxableAmount * $VAT_CategoryRate
messages
Concepts
Formula Output Instance
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<entity>
<identifier scheme="http://www.xbrlglco.com">XBRL GL Co.</identifier>

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</xbrldi:typedMember>
<xbrldi:typedMember dimension="c:d2">
<c:_2>eG23</c:_2>
</xbrldi:typedMember>

</entity>
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</period>
</context>
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</period>
</context>
<c:cor-16 contextRef="c-01">BR-CO-17 VAT category tax amount (BT-117) = VAT category taxable amount (BT-116) x (VAT category rate (BT-119) / 100), rounded to two decimals. 9.74</c:cor-16>
<c:cor-16 contextRef="c-02">BR-CO-17 VAT category tax amount (BT-117) = VAT category taxable amount (BT-116) x (VAT category rate (BT-119) / 100), rounded to two decimals. 10.99</c:cor-16>
<c:cor-16 contextRef="c-03">BR-CO-10 Sum of Invoice line net amount (BT-106) = Σ Invoice line net amount (BT-131). 229.60</c:cor-16>
</xbrl>

xBRL-CSV

7. Syntax binding for XBRL

xBRL-CSV file

The following is an example of an XBRL instance document in xBRL-CSV.

```
d1,d2,d3,cor-76,cor-79,cor-73,cen-81,cen-83,cen-84,cen-24,cen-35,cen-37,cen-38,cen-40,cen-46,cen-44,cen-50,cen-52,cen-53,cen-55,muc-4,muc-33,cor-22,cen-129,cen-131,cen-151,cen-152,cen-146,bus-143,cen-106,cen-109,cen-111,cen-112,cen-115,cen-116,cen-117,cen-118,cen-119
cG2,,,12115118,2015-01-09,380,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
cG2,eG16,,,,30,Deb.10202.Fact.12115118,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
cG2,eG16,eG17,,,,,,NL57RABO0107307510,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
cG2,eG2,,,,,,,,urn:cen.eu:en16931:2017,,,,,,,,,,,,,,,,,,,,,,,,,,,,
cG3,eG4,eG5,,,,,,,,Postbus7l,Velsen-Noord,1950AB,NL,,,,,,,,,,,,,,,,,,,,,,,,
cG3,eG7,,,,,,,,,,,,,10202,ODIN59,,,,,,,,,,,,,,,,,,,,,,
cG3,eG7,eG8,,,,,,,,,,,,,,POSTBUS367,HEEMSKERK,1960AJ,NL,,,,,,,,,,,,,,,,,,
cG4,,,,,,,,,,,,,,,,,,,,,iso4217:EUR,iso4217:EUR,,,,,,,,,,,,,,,,
cG4,cG5,,,,,,,,,,,,,,,,,,,,,1,2,19.9,,,,,,,,,,,,,
cG4,cG5,cG19,,,,,,,,,,,,,,,,,,,,,,,S,0.06,,,,,,,,,,,
cG4,cG5,eG29,,,,,,,,,,,,,,,,,,,,,,,,,9.95,,,,,,,,,,
cG4,cG5,eG31,,,,,,,,,,,,,,,,,,,,,,,,,,PATATFRITES10MM10KG,,,,,,,,,
cG4,cG5.1,,,,,,,,,,,,,,,,,,,,,2,1,9.85,,,,,,,,,,,,,
cG4,cG5.1,cG19,,,,,,,,,,,,,,,,,,,,,,,S,0.06,,,,,,,,,,,
cG4,cG5.1,eG29,,,,,,,,,,,,,,,,,,,,,,,,,9.85,,,,,,,,,,
cG4,cG5.1,eG31,,,,,,,,,,,,,,,,,,,,,,,,,,PKAAS50PL.JONGBEL.1KG,,,,,,,,,
cG4,cG5.2,,,,,,,,,,,,,,,,,,,,,3,1,8.29,,,,,,,,,,,,,
cG4,cG5.2,cG19,,,,,,,,,,,,,,,,,,,,,,,S,0.06,,,,,,,,,,,
cG4,cG5.2,eG29,,,,,,,,,,,,,,,,,,,,,,,,,8.29,,,,,,,,,,
cG4,cG5.2,eG31,,,,,,,,,,,,,,,,,,,,,,,,,,POTKETCHUP3LT,,,,,,,,,
cG4,cG5.3,,,,,,,,,,,,,,,,,,,,,4,2,14.46,,,,,,,,,,,,,
cG4,cG5.3,cG19,,,,,,,,,,,,,,,,,,,,,,,S,0.06,,,,,,,,,,,
cG4,cG5.3,eG29,,,,,,,,,,,,,,,,,,,,,,,,,7.23,,,,,,,,,,
cG4,cG5.3,eG31,,,,,,,,,,,,,,,,,,,,,,,,,,FRITESSAUS3LRR,,,,,,,,,
cG4,cG5.4,,,,,,,,,,,,,,,,,,,,,5,1,35,,,,,,,,,,,,,
cG4,cG5.4,cG19,,,,,,,,,,,,,,,,,,,,,,,S,0.06,,,,,,,,,,,
cG4,cG5.4,eG29,,,,,,,,,,,,,,,,,,,,,,,,,35,,,,,,,,,,
cG4,cG5.4,eG31,,,,,,,,,,,,,,,,,,,,,,,,,,KOFFIEBLIK3.5KGSNELF,,,,,,,,,
cG4,cG5.5,,,,,,,,,,,,,,,,,,,,,6,1,35,,,,,,,,,,,,,
cG4,cG5.5,cG19,,,,,,,,,,,,,,,,,,,,,,,S,0.06,,,,,,,,,,,
cG4,cG5.5,eG29,,,,,,,,,,,,,,,,,,,,,,,,,35,,,,,,,,,,
...
```

Metadata file

The following is a xBRL-CSV metadata file, which is a JSON file.


```
{"documentInfo": {
   "documentType": "https://xbrl.org/CR/2021-02-03/xbrl-csv",
   "namespaces": { "c": "http://www.xbrl.org/int/gl/cor/2020-12-31", "b": "http://www.xbrl.org/int/gl/bus/2020-12-31","m":
"http://www.xbrl.org/int/gl/muc/2020-12-31", "e": "http://www.xbrl.org/int/gl/cen/2020-12-31", "ns0": "http://www.xbrlglco.com", "iso4217":
"http://www.xbrl.org/2003/iso4217" },
   "taxonomy": [ "../xBRL/gl/plt/case-cen/gl-plt-2020-12-31.xsd" ] },
  "tableTemplates": {
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     "d3": {},
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…
     "cen-129": { "dimensions": { "concept": "e:cen-129" } },
     "cen-131": { "dimensions": { "concept": "e:cen-131", "unit": "iso4217:EUR" } }, "cen-119": { "dimensions": { "concept": "e:cen-119" } }
    },
    "dimensions": {
     "c:d1": "$d1",
     "c:d2": "$d2",
     "c:d3": "$d3",
     "period": "2007-06-01T00:00:00",
     "entity": "ns0:XBRL GL Co."
    }
   }
  },
  "tables": { "gl": { "url": "xbrl-gl_ubl_example1.csv" } }
}
```

Business Information Entity Purchase Order

7. Syntax binding for XBRL

Legend

No	BIE	D	Business Term	Semantic data type	O	Description	Dictionary Entry Name

Each information element that constitutes the semantic data model of the Business Information Entity is described as a row in the table documented in the following sub-clause where the following information is provided.

No: A sequence number for the information element.

BIE: Specifies which category of Business Information Entity the information element belongs to.

ABIE: Aggregate Business Information Entity
ASBIE: Association Business Information Entity
BBIE: Basic Business Information Entity
IDBIE: Identifier Business Information Entity
RLBIE: Relation Business Information Entity

D: Depth. Indicates on which depth in the model the information element occurs:

0: The first depth of the model;
1: the second depth of the model. The information element (or the group of information elements) is part of a group of information elements which is defined at the first depth of the model.
2: the third depth of the model. The information element (or the group of information elements) is part of a group of information elements which is defined at the second depth of the model.
3: the fourth depth of the model. The information element (or the group of information elements) is part of a group of information elements which is defined at the third depth of the model.

Business Term: A synonym used in business where a Business Information Entity is commonly known.

Semantic data type: The data format that applies to the information element.

O: Occurence

Description: A description of the information element.

Dictionary Entry Name: A unique official name of a Core Component registered by the United Nations. If there is no corresponding registered information element, named according to the naming convention defined in ISO 15000-1.

Hierarchical view of Purchase order

No	BIE	D	Business Term	Semantic data type	O	Definition	Dictionary Entry Name
0	ABIE	0	Purchase Order	—	—	Summary information of purchase orders placed during the period under review.	ADS Purchase Order_ Trade Transaction. Details
1	IDBIE	1	Purchase Order ID	Identifier	1..1	The unique identifier for the purchase order.	ADS Purchase Order_ Trade Transaction. Identification. Identifier
2	BBIE	1	Purchase Order Number	Text	1..1	The number of the purchase order.	ADS Purchase Order_ Trade Transaction. Number_ Information. Text
3	ASBIE	1	Period	—	1..1	Accounting period in which the Purchase Order Date occurs.	ADS Purchase Order_ Trade Transaction. Defined. ADS_ Fiscal Period
4	BBIE	2	Fiscal Year	Numeric	1..1	Fiscal year in which the Payment Date occurs see 4.6.3.3.8	ADS_ Fiscal Period. Fiscal Year. Code
5	BBIE	2	Accounting Period	Code	1..1	Accounting period in which the Payment Date occurs. see 4.6.3.3.8	ADS_ Fiscal Period. Accounting ADS_ Period. Code
6	BBIE	1	Purchase Order Type	Code	1..1	The name of the order type in purchase activities. EXAMPLE Ordinary purchasing, outsourcing parts and process outsourcing.	ADS Purchase Order_ Trade Transaction. Type. Code
7	BBIE	1	Purchase Order Date	Date	1..1	The date of the purchase order regardless of the date the order is created.	ADS Purchase Order_ Trade Transaction. Issue. Date Time
8	RLBIE	1	Purchase Organization ID	Reference Identifier	1..1	The reference identifier for the purchase organization which signed the order.	ADS Purchase Order_ Trade Transaction. Purchase Organization. ADS_ Business Segment
9	RLBIE	1	Purchaser ID	Reference Identifier	0..1	The reference identifier for the person who was responsible for purchase orders.	ADS Purchase Order_ Trade Transaction. Purchaser. ADS_ Employee
10	RLBIE	1	Supplier ID	Reference Identifier	1..1	The reference identifier for the supplier account in the purchase order.	ADS Purchase Order_ Trade Transaction. Specified. ADS Supplier_ Party
11	RLBIE	1	Settlement Method Code	Reference Identifier	1..1	The reference identifier for the method by which the transaction debit or credit amount was settled or apportioned by the customer or the supplier; for example, check, wire transfer and cash.	ADS Purchase Order_ Trade Transaction. Specified. ADS Settlement Method_ Code
12	RLBIE	1	Payment Term Code	Reference Identifier	1..1	The reference identifier for the payment term; for example, cash on delivery, payment 30 days after delivery date.	ADS Purchase Order_ Trade Transaction. Specified. ADS Payment Term_ Document
14	BBIE	1	Transaction Amount	Amount	1..1	The material or monetary worth of a thing that is associated with this purchase order.	ADS Purchase Order_ Trade Transaction. Transaction Currency. Amount
15	ASBIE	1	Created Activity	—	1..1	The activity the record was created in the system.	ADS Purchase Order_ Trade Transaction. Specified. ADS Created_ Activity
16	RLBIE	2	Created By	Reference Identifier	1..1	The reference identifier for the system user who created the record. see 4.6.3.2.3 Table 65	ADS_ Created_ Activity. Performed By. ADS_ System User

Hierarchical view of Purchase order (contd.)

No	BIE	D	Business Term	Semantic data type	O	Definition	Dictionary Entry Name
17	BBIE	2	Created Date	Date	1..1	The date the record was created in the system. This should be a system generated date (rather than user-created date), when possible. This is sometimes referred to as the creation date. see 4.6.3.2.3 Table 65	ADS_ Created_ Activity. Occurred. Date
18	BBIE	2	Created Time	Time	0..1	The time this record was created into the system. see 4.6.3.2.3 Table 65	ADS_ Created_ Activity. Occurred. Time
19	ASBIE	1	Approved Activity	—	0..1	The activity the record additions or changes was approved.	ADS Purchase Order_ Trade Transaction. Specified. ADS Approved_ Activity
20	RLBIE	2	Approved By	Reference Identifier	0..1	The reference identifier for the system user who approved the record additions or changes. see 4.6.3.2.3 Table 62	ADS_ Approved_ Activity. Performed By. ADS_ System User
21	BBIE	2	Approved Date	Date	1..1	The date the record additions or changes was approved. see 4.6.3.2.3 Table 62	ADS_ Approved_ Activity. Occurred. Date
22	ASBIE	1	Last Modified Activity	—	0..1	The activity the record was last modified.	ADS Purchase Order_ Trade Transaction. Specified. ADS Last Modified_ Activity
23	RLBIE	2	Last Modified By	Reference Identifier	0..1	The reference identifier for the system user who last modified the record. see 4.6.3.2.3 Table 63	ADS_ Last Modified_ Activity. Performed By. ADS_ System User
24	BBIE	2	Last Modified Date	Date	1..1	The date the record was last modified. see 4.6.3.2.3 Table 63	ADS_ Last Modified_ Activity. Occurred. Time
25	BBIE	1	Status	Code	0..1	The status of the purchase order. EXAMPLE New, save, submit, approved and frozen.	ADS Purchase Order_ Trade Transaction. Stattus. Code
26	BBIE	1	Remark	Text	1..1	Freeform text description.	ADS Purchase Order_ Trade Transaction. Remark. Text
27	RLBIE	1	Business Segment [X][a]	Reference Identifier	1..1	The reference identifier for the Business Segment.	ADS Purchase Order_ Trade Transaction. [X]. ADS Business Segment_ Code
28	ASBIE	1	Purchase Order Line Item	—	0..n	Line item details for purchase orders.	ADS Purchase Order_ Trade Transaction. Defined. ADS Purchase Order_ Trade Line Item. Detail

a X indicates the organization type. For example, division, department, business unit, purchasing organization, project or legal entity. A reserved field that shall be used for business segments / structures.

Purchase Order

No	BIE	D	Business Term	Semantic data type	O	Definition	Dictionary Entry Name
0	ABIE	0	Purchase Order	—	—	Summary information of purchase orders placed during the period under review.	ADS Purchase Order_ Trade Transaction. Details
1	IDBIE	1	Purchase Order ID	Identifier	1..1	The unique identifier for the purchase order.	ADS Purchase Order_ Trade Transaction. Identification. Identifier
2	BBIE	1	Purchase Order Number	Text	1..1	The number of the purchase order.	ADS Purchase Order_ Trade Transaction. Number_ Information. Text
3	ASBIE	1	Period	—	1..1	Accounting period in which the Purchase Order Date occurs.	ADS Purchase Order_ Trade Transaction. Defined. ADS_ Fiscal Period
6	BBIE	1	Purchase Order Type	Code	1..1	The name of the order type in purchase activities. EXAMPLE Ordinary purchasing, outsourcing parts and process outsourcing.	ADS Purchase Order_ Trade Transaction. Type. Code
7	BBIE	1	Purchase Order Date	Date	1..1	The date of the purchase order regardless of the date the order is created.	ADS Purchase Order_ Trade Transaction. Issue. Date Time
8	RLBIE	1	Purchase Organization ID	Reference Identifier	1..1	The reference identifier for the purchase organization which signed the order.	ADS Purchase Order_ Trade Transaction. Purchase Organization. ADS_ Business Segment
9	RLBIE	1	Purchaser ID	Reference Identifier	0..1	The reference identifier for the person who was responsible for purchase orders.	ADS Purchase Order_ Trade Transaction. Purchaser. ADS_ Employee
10	RLBIE	1	Supplier ID	Reference Identifier	1..1	The reference identifier for the supplier account in the purchase order.	ADS Purchase Order_ Trade Transaction. Specified. ADS Supplier_ Party
11	RLBIE	1	Settlement Method Code	Reference Identifier	1..1	The reference identifier for the method by which the transaction debit or credit amount was settled or apportioned by the customer or the supplier; for example, check, wire transfer and cash.	ADS Purchase Order_ Trade Transaction. Specified. ADS Settlement Method_ Code
12	RLBIE	1	Payment Term Code	Reference Identifier	1..1	The reference identifier for the payment term; for example, cash on delivery, payment 30 days after delivery date.	ADS Purchase Order_ Trade Transaction. Specified. ADS Payment Term_ Document
15	ASBIE	1	Created Activity	—	1..1	The activity the record was created in the system.	ADS Purchase Order_ Trade Transaction. Specified. ADS Created_ Activity
19	ASBIE	1	Approved Activity	—	0..1	The activity the record additions or changes was approved.	ADS Purchase Order_ Trade Transaction. Specified. ADS Approved_ Activity
22	ASBIE	1	Last Modified Activity	—	0..1	The activity the record was last modified.	ADS Purchase Order_ Trade Transaction. Specified. ADS Last Modified_ Activity
25	BBIE	1	Status	Code	0..1	The status of the purchase order. EXAMPLE New, save, submit, approved and frozen.	ADS Purchase Order_ Trade Transaction. Stattus. Code
26	BBIE	1	Remark	Text	1..1	Freeform text description.	ADS Purchase Order_ Trade Transaction. Remark. Text
27	RLBIE	1	Business Segment [X][a]	Reference Identifier	1..1	The reference identifier for the Business Segment.	ADS Purchase Order_ Trade Transaction. [X]. ADS Business Segment_ Code
28	ASBIE	1	Purchase Order Line Item	—	0..n	Line item details for purchase orders.	ADS Purchase Order_ Trade Transaction. Defined. ADS Purchase Order_ Trade Line Item. Detail

a X indicates the organization type. For example, division, department, business unit, purchasing organization, project or legal entity. A reserved field that shall be used for business segments / structures.

Aggregated BIEs

Period

No	BIE	D	Business Term	Semantic data type	O	Definition	Dictionary Entry Name
0	ASBIE	0	Period	—	1..1	Accounting period in which the Purchase Order Date occurs.	ADS_ Fiscal Period. Details
1	BBIE	1	Fiscal Year	Numeric	1..1	Fiscal year in which the Payment Date occurs see 4.6.3.3.8	ADS_ Fiscal Period. Fiscal Year. Code
2	BBIE	1	Accounting Period	Code	1..1	Accounting period in which the Payment Date occurs. see 4.6.3.3.8	ADS_ Fiscal Period. Accounting ADS_ Period. Code

Created Activity

No	BIE	D	Business Term	Semantic data type	O	Definition	Dictionary Entry Name
0	ASBIE	0	Created Activity	—	1..1	The activity the record was created in the system.	ADS Created_ Activity. Details
1	RLBIE	1	Created By	Reference Identifier	1..1	The reference identifier for the system user who created the record. see 4.6.3.2.3 Table 65	ADS_ Created_ Activity. Performed By. ADS_ System User
2	BBIE	1	Created Date	Date	1..1	The date the record was created in the system. This should be a system generated date (rather than user-created date), when possible. This is sometimes referred to as the creation date. see 4.6.3.2.3 Table 65	ADS_ Created_ Activity. Occurred. Date
3	BBIE	1	Created Time	Time	0..1	The time this record was created into the system. see 4.6.3.2.3 Table 65	ADS_ Created_ Activity. Occurred. Time

Approved Activity

No	BIE	D	Business Term	Semantic data type	O	Definition	Dictionary Entry Name
0	ASBIE	0	Approved Activity	—	0..1	The activity the record additions or changes was approved.	ADS Approved_ Activity
1	RLBIE	1	Approved By	Reference Identifier	0..1	The reference identifier for the system user who approved the record additions or changes. see 4.6.3.2.3 Table 62	ADS_ Approved_ Activity. Performed By. ADS_ System User
2	BBIE	1	Approved Date	Date	1..1	The date the record additions or changes was approved. see 4.6.3.2.3 Table 62	ADS_ Approved_ Activity. Occurred. Date

Last Modified Activity

No	BIE	D	Business Term	Semantic data type	O	Definition	Dictionary Entry Name
0	ASBIE	0	Last Modified Activity	—	0..1	The activity the record was last modified.	ADS Last Modified_ Activity
1	RLBIE	1	Last Modified By	Reference Identifier	0..1	The reference identifier for the system user who last modified the record. see 4.6.3.2.3 Table 63	ADS_ Last Modified_ Activity. Performed By. ADS_ System User
2	BBIE	1	Last Modified Date	Date	1..1	The date the record was last modified. see 4.6.3.2.3 Table 63	ADS_ Last Modified_ Activity. Occurred. Time

Hierarchical view of Purchase Order Line Item

No	BIE	D	Business Term	Semantic data type	O	Definition	Dictionary Entry Name
0	ABIE	0	Purchase Order Line Item	—	—	Line item details for purchase orders.	ADS Purchase Order_ Trade Line Item. Detail
1	RLBIE	1	Purchase Order ID	Reference Identifier	1..1	The reference identifier for the purchase order.	ADS Purchase Order_ Trade Line Item. Header. ADS Purchase Order_ Trade Transaction
2	IDBIE	1	Purchase Order Line ID	Identifier	1..1	The unique identifier for a purchase order line.	ADS Purchase Order_ Trade Line Item. Identification. Identifier
3	BBIE	1	Sequence Number	Numeric	0..1	The number of a purchase order line. This number is generated either by manual input or by the system.	ADS Purchase Order_ Trade Line Item. Sequence. Numeric
4	RLBIE	1	Purchase Contract ID	Reference Identifier	0..1	The reference identifier for the purchase contract.	ADS Purchase Order_ Trade Line Item. Defined. ADS Purchase_ Contract
5	RLBIE	1	Purchase Contract Line ID	Reference Identifier	0..1	The reference identifier for a purchase contract line.	ADS Purchase Order_ Trade Line Item. Defined. ADS Purchase_ Contract Line Item
6	RLBIE	1	Requisition ID	Reference Identifier	0..1	The unique identifier for the material purchase requisition.	ADS Purchase Order_ Trade Line Item. Defined. ADS Purchase Requisition_ Trade Transaction
7	RLBIE	1	Requisition Line ID	Reference Identifier	0..1	The unique identifier for a material purchase requisition line. A requisition form may apply for purchasing one or more materials. Each material requisitioned should be described in a separate row.	ADS Purchase Order_ Trade Line Item. Defined. ADS Purchase Requisition_ Trade Line Item
8	RLBIE	1	Settlement Organization Code[a]	Reference Identifier	0..1	The unique code of the settlement organization.	ADS Purchase Order_ Trade Line Item. Settlement Organization. ADS_ Business Segment
9	RLBIE	1	Receipt Organization Code[b]	Reference Identifier	1..1	The unique code of the receiving materials organization.	ADS Purchase Order_ Trade Line Item. Receipt Organization. ADS_ Business Segment
10	RLBIE	1	Project ID	Reference Identifier	0..1	The unique identifier for the project.	ADS Purchase Order_ Trade Line Item. Defined. ADS Project_ List
11	RLBIE	2	Product ID	Reference Identifier	1..1	The reference identifier for the product.	ADS Purchase Order_ Trade Line Item. Defined. ADS_ Product
12	BBIE	1	Due Date	Date	1..1	The last requested delivery of the purchased materials in the purchasing order. Completion of the delivery shall not be later than that date.	ADS Purchase Order_ Trade Line Item. Due. Date
13	BBIE	1	Basic UOM Quantity	Quantity	1..1	The quantity of the materials in purchase order by the basic measurement unit.	ADS Purchase Order_ Trade Line Item. Basic UOM. Quantity
14	BBIE	1	Order Quantity	Quantity	1..1	The quantity of the purchased materials in the purchase order.	ADS Purchase Order_ Trade Line Item. Defined. Quantity
15	BBIE	1	Tax Excluded Unit Price	Unit Price	1..1	The unit price (excluding tax).	ADS Purchase Order_ Trade Line Item. Tax Excluded. Unit Price
16	BBIE	1	Tax Excluded Unit Price	Unit Price	1..1	The unit price (including tax).	ADS Purchase Order_ Trade Line Item. Tax Included. Unit Price

Hierarchical view of Purchase Order Line Item (contd.)

No	BIE	D	Business Term	Semantic data type	O	Definition	Dictionary Entry Name
17	BBIE	1	Tax Exclude Amount	Amount	1..1	The amount (excluding tax).	ADS Purchase Order_ Trade Line Item. Tax Excluded. Amount
18	BBIE	1	Tax Exclude Amount	Amount	1..1	The amount (including tax).	ADS Purchase Order_ Trade Line Item. Tax Included. Amount
19	ASBIE	1	Charged Tax	—	1..n	A tax charged. see 4.6.3.2.4 Table 66	ADS Purchase Order_ Trade Line Item. Charged. ADS_ Tax
20	BBIE	2	Tax Type Code	Code	1..1	A code specifying a type of tax, such as a code for a Value Added Tax (VAT) [Reference United Nations Code List (UNCL) 5153]. see 4.6.3.2.4 Table 66	ADS_ Tax. Type. Code
21	BBIE	2	Tax Transaction Amount	Amount	1..1	A monetary value resulting from the calculation of a tax. see 4.6.3.2.4 Table 66	ADS_ Tax. Calculated. Amount
22	BBIE	1	Status	String	0..1	The status of a purchase order line. Describe changes in the execution of the order line item. Different status will affect the execution and control of the business. EXAMPLE Termination, frozen and closed.	ADS Purchase Order_ Trade Line Item. Status. Code
23	RLBIE	1	Business Segment [X][c]	Reference Identifier	1..1	The reference identifier for the Business Segment.	ADS Purchase Order_ Trade Line Item. [X]. ADS Business Segment_ Code

a Organization of the payment, can be different from the receiving organization. May be the purchase organization or the receipt organization.
b Receiving organization, can be different from the settlement organization. The organization receiving materials may be a warehouse or an administration organization.
c X indicates the organization type. For example, division, department, business unit, purchasing organization, project or legal entity. A reserved field that shall be used for business segments / structures.

Purchase Order to XBRL

No	Business Term	D	O	Dictionary Entry Name	XBRL item ID
0	Purchase Order	0	—	ADS Purchase Order_ Trade Transaction. Details	PurchaseOrder
1	Purchase Order ID	1	1..1	ADS Purchase Order_ Trade Transaction. Identification. Identifier	PurchaseOrder-ID
2	Purchase Order Number	1	1..1	ADS Purchase Order_ Trade Transaction. Number_ Information. Text	PurchaseOrder-Number
3	Period	1	1..1	ADS Purchase Order_ Trade Transaction. Defined. ADS_ Fiscal Period	PurchaseOrder-Period
4	Fiscal Year	2	1..1	ADS_ Fiscal Period. Fiscal Year. Code	PurchaseOrder-Period-fiscalYear
5	Accounting Period	2	1..1	ADS_ Fiscal Period. Accounting ADS_ Period. Code	PurchaseOrder-Period-accountingPeriod
6	Purchase Order Type	1	1	ADS Purchase Order_ Trade Transaction. Type. Code	PurchaseOrder-purchaseOrderType
7	Purchase Order Date	1	1	ADS Purchase Order_ Trade Transaction. Issue. Date Time	PurchaseOrder-purchaseOrderDate
8	Purchase Organization ID	1	1..1	ADS Purchase Order_ Trade Transaction. Purchase Organization. ADS_ Business Segment	PurchaseOrder-purchaseOrganizationID
9	Purchaser ID	1	0..1	ADS Purchase Order_ Trade Transaction. Purchaser. ADS_ Employee	PurchaseOrder-purchaserID
10	Supplier ID	1	1..1	ADS Purchase Order_ Trade Transaction. Specified. ADS Supplier_ Party	PurchaseOrder-supplierID
11	Settlement Method Code	1	1..1	ADS Purchase Order_ Trade Transaction. Specified. ADS Settlement Method_ Code	PurchaseOrder-settlementMethodCode
12	Payment Term Code	1	1..1	ADS Purchase Order_ Trade Transaction. Specified. ADS Payment Term_ Document	PurchaseOrder-paymentTermCode
14	Transaction Amount	1	1..1	ADS Purchase Order_ Trade Transaction. Specified. ADS_ Monetary Value	PurchaseOrder -transactionAmount
15	Created Activity	1	1..1	ADS Purchase Order_ Trade Transaction. Specified. ADS Created_ Activity	PurchaseOrder-Created
16	Created By	2	1..1	ADS_ Created_ Activity. Performed By. ADS_ System User	PurchaseOrder-Created-user
17	Created Date	2	1..1	ADS_ Created_ Activity. Occurred. Date	PurchaseOrder-Created-date
18	Created Time	2	0..1	ADS_ Created_ Activity. Occurred. Time	
19	Approved Activity	1	0..1	ADS Purchase Order_ Trade Transaction. Specified. ADS Approved_ Activity	PurchaseOrder-Approved
20	Approved By	2	0..1	ADS_ Approved_ Activity. Performed By. ADS_ System User	PurchaseOrder-Approved-user
21	Approved Date	2	1..1	ADS_ Approved_ Activity. Occurred. Date	PurchaseOrder-Approved-date
22	Last Modified Activity	1	0..1	ADS Purchase Order_ Trade Transaction. Specified. ADS Last Modified_ Activity	PurchaseOrder-LastModified
23	Last Modified By	2	0..1	ADS_ Last Modified_ Activity. Performed By. ADS_ System User	PurchaseOrder-LastModified-user
24	Last Modified Date	2	1..1	ADS_ Last Modified_ Activity. Occurred. Date	PurchaseOrder-LastModified-date
25	Status	1	0..1	ADS Purchase Order_ Trade Transaction. Stattus. Code	PurchaseOrder-status
26	Remark	1	1..1	ADS Purchase Order_ Trade Transaction. Remark. Text	PurchaseOrder-remark
27	Business Segment [X]	1	1..1	ADS Purchase Order_ Trade Transaction. [X]. ADS Business Segment_ Code	PurchaseOrder-businessSegment[X]

Purchase order Line Item to XBRL

No	Business Term	D	O	Dictionary Entry Name	XBRL item ID
0	Purchase Order Line Item	0	—	ADS Purchase Order_ Trade Line Item. Detail	PurchaseOrderLineItem
1	Purchase Order ID	1	1..1	ADS Purchase Order_ Trade Line Item. Header. ADS Purchase Order_ Trade Transaction	PurchaseOrderLineItem- purchaseOrderID
2	Purchase Order Line ID	1	1..1	ADS Purchase Order_ Trade Line Item. Identification. Identifier	PurchaseOrderLineItem-ID
3	Sequence Number	1	0..1	ADS Purchase Order_ Trade Line Item. Sequence. Numeric	PurchaseOrderLineItem-sequenceNumber
4	Purchase Contract ID	1	0..1	ADS Purchase Order_ Trade Line Item. Defined. ADS Purchase_ Contract	PurchaseOrderLineItem-purchaseContractID
5	Purchase Contract Line ID	1	0..1	ADS Purchase Order_ Trade Line Item. Defined. ADS Purchase_ Contract Line Item	PurchaseOrderLineItem-purchaseContractLineID
6	Requisition ID	1	0..1	ADS Purchase Order_ Trade Line Item. Defined. ADS Purchase Requisition_ Trade Transaction	PurchaseOrderLineItem-requisitionID
7	Requisition Line ID	1	0..1	ADS Purchase Order_ Trade Line Item. Defined. ADS Purchase Requisition_ Trade Line Item	PurchaseOrderLineItem-requisitionLineID
8	Settlement Organization Code	1	0..1	ADS Purchase Order_ Trade Line Item. Settlement Organization. ADS_ Business Segment	PurchaseOrderLineItem-settlementOrganizationCode
9	Receipt Organization Code	1	1..1	ADS Purchase Order_ Trade Line Item. Receipt Organization. ADS_ Business Segment	PurchaseOrderLineItem-receiptOrganizationCode
10	Project ID	1	0..1	ADS Purchase Order_ Trade Line Item. Defined. ADS Project_ List	PurchaseOrderLineItem-projectID
11	Product ID	2	1..1	ADS Purchase Order_ Trade Line Item. Defined. ADS_ Product	PurchaseOrderLineItem-productID
12	Due Date	1	1..1	ADS Purchase Order_ Trade Line Item. Due. Date	PurchaseOrderLineItem-dueDate
13	Basic UOM Quantity	1	1..1	ADS Purchase Order_ Trade Line Item. Basic UOM. Quantity	PurchaseOrderLineItem-basicUOMQuantity
14	Order Quantity	1	1..1	ADS Purchase Order_ Trade Line Item. Defined. Quantity	PurchaseOrderLineItem-orderQuantity
15	Tax Excluded Unit Price	1	1..1	ADS Purchase Order_ Trade Line Item. Tax Excluded. Unit Price	PurchaseOrderLineItem-taxExcludeUnitPrice
16	Tax Excluded Unit Price	1	1..1	ADS Purchase Order_ Trade Line Item. Tax Included. Unit Price	PurchaseOrderLineItem-taxIncludeUnitPrice
17	Tax Exclude Amount	1	1..1	ADS Purchase Order_ Trade Line Item. Tax Excluded. Amount	PurchaseOrderLineItem-taxExcludeAmount
18	Tax Exclude Amount	1	1..1	ADS Purchase Order_ Trade Line Item. Tax Included. Amount	PurchaseOrderLineItem- taxIncludeAmount
19	Charged Tax	1	1..n	ADS_ Price. Charged. ADS_ Tax	PurchaseOrderLineItem-Product-TotalPrice-ChargedTax
20	Tax Type Code	2	1..1	ADS_ Tax. Type. Code	PurchaseOrderLineItem-Product-TotalPrice-ChargedTax-typeCode
21	Tax Transaction Amount	2	1..1	ADS_ Tax. Calculated. Amount	PurchaseOrderLineItem-Product-TotalPrice-ChargedTax -transactionAmount
22	Status	1	0..1	ADS Purchase Order_ Trade Line Item. Status. Code	PurchaseOrderLineItem-status
23	Business Segment [X]	1	1..1	ADS Purchase Order_ Trade Line Item. [X]. ADS Business Segment_ Code	PurchaseOrderLineItem-businessSegement[X]

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Q&A

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