New work item proposal

Exchange formats for the Audit Data Collection Standard: XBRL

Semantic XBRL for Granular Data

SAMBUICHI, Nobuyuki

nobuyuki@sambuichi.jp

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

-5 Prerequisite knowledge

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

-4 Core Component Technical Specification
-3 Business Process defined in Universal Business Language (UBL)
-2 Business Process and Rules defined in EN 16931
-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

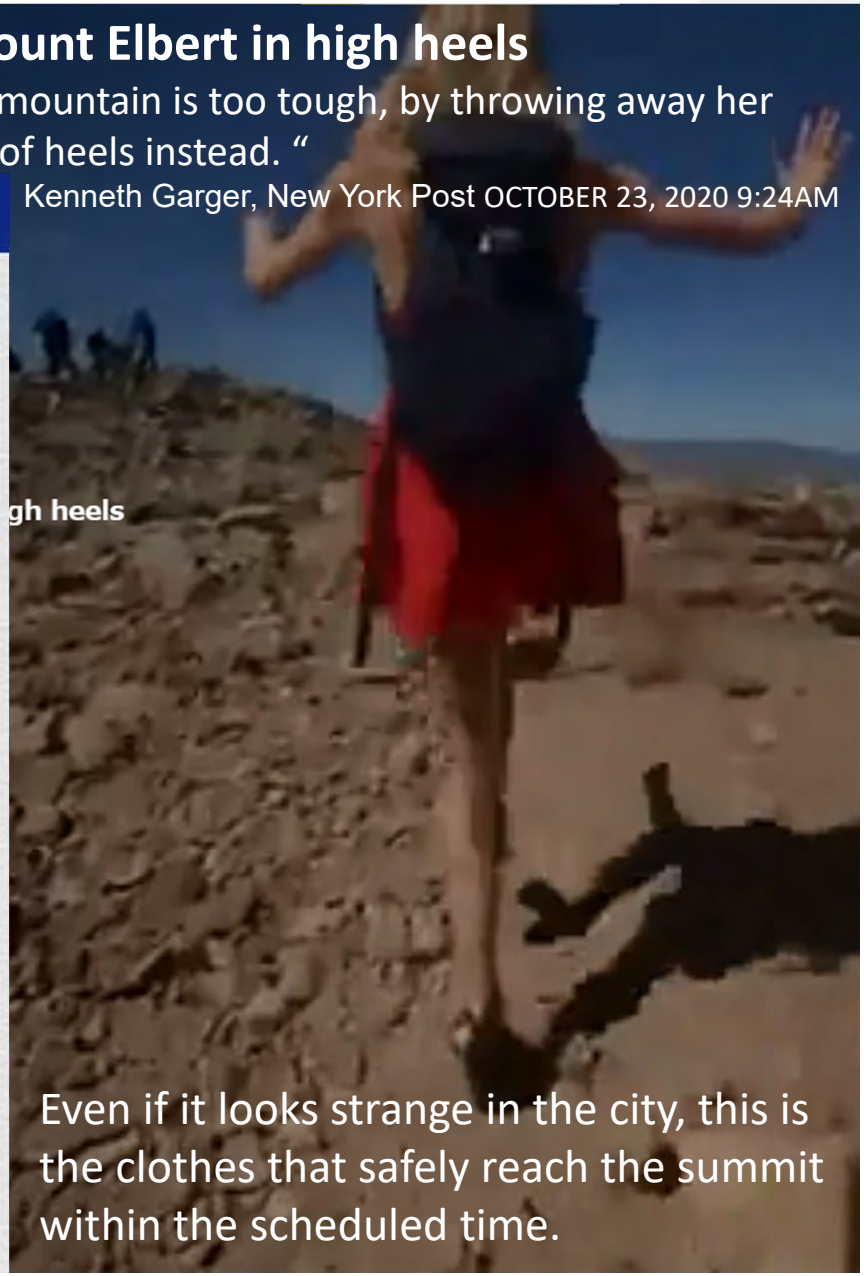
Bring a bag in which you can easily and securely carry your belongings. A waterproof bag that protect your belongings from the rain is best.

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.

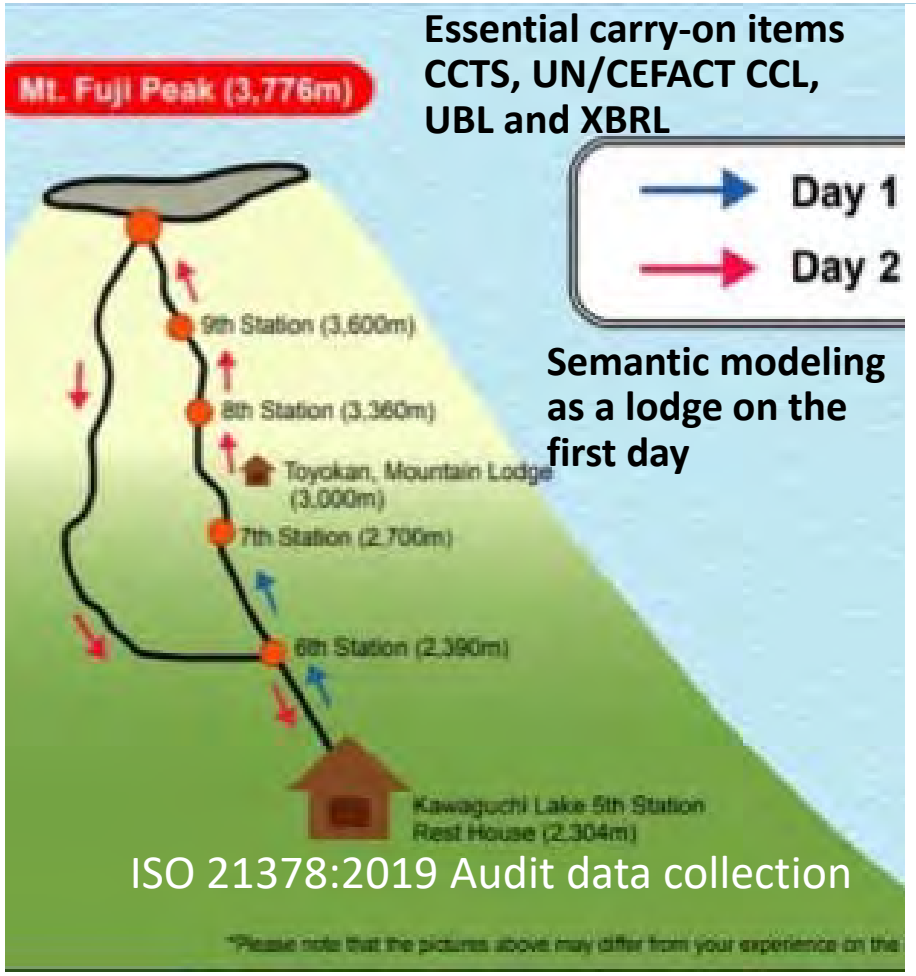
Shoes

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.



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 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**.

NOTE 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**". This concept has been traced to the 12th century, attributed to Bernard of Chartres. 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

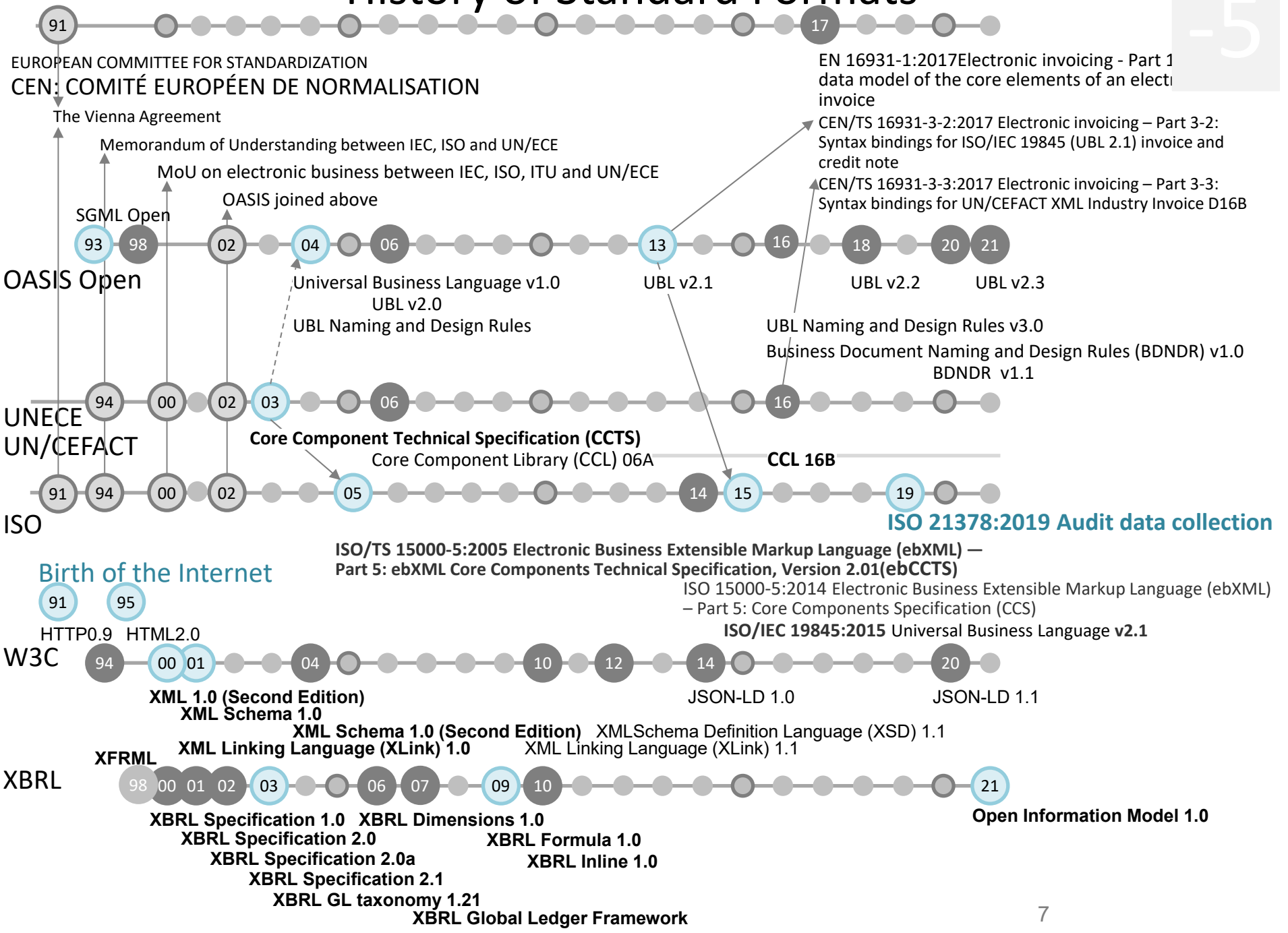
ISO/IEC Directives, Part 2
Principles and rules for the structure and drafting of ISO and IEC documents

5.7 Avoidance of duplication and unnecessary deviations

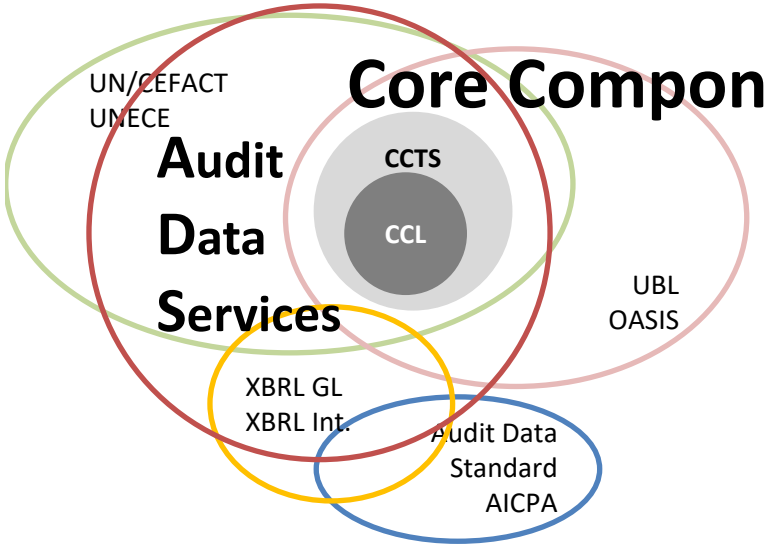
Before standardizing any item or subject, **the writer shall determine whether an applicable standard already exists**.
If it is necessary to invoke a requirement that appears elsewhere, this should be done by reference, not by repetition – see Clause 10.

“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 Core Component Technical Specification (CCTS).

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

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

Universal Business Language (UBL) 2.3

-5

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

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]

-5

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

Committee Note Draft 02 12 April 2017

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 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(eb**CCTS**)
HAS BEEN REVISED BY

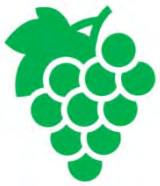
ISO 15000-5:2014 Electronic Business Extensible Markup Language (ebXML) — Part 5: Core Components Specification (CCS)

-3 Business Process defined in UBL
-2 Business Process and Rules defined in EN 16931
-1 eXtensible Business Reporting Language (XBRL) 2.1

Dictionary Entry Name

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

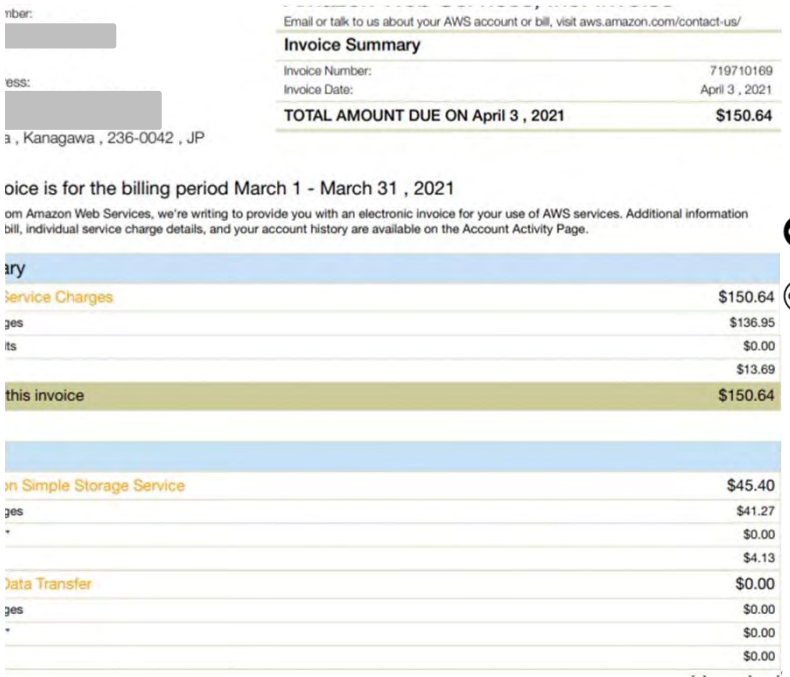
e.g. Fruits. Name. Text Strawberry

	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

The CCTS “Association” is an Aggregation of UML

-4

CCTS uses the word “Association” in a different way than UML.
In UML 2.4 **Association** is defined in **7.3.3 Association** as follows:
An **Association** describes a set of tuples whose values refer to typed instances.
An instance of an association is called a link. (**Aggregation** is a special kind of association representing a structural relationship between a whole and its parts. This can be thought of as a *has_a* or *is_part_of* relationship.) An association may represent a composite aggregation. **Composite Aggregation** is a strong form of aggregation that requires a part instance be included in at most one composite at a time.
Navigability means instances participating in links at runtime can be accessed efficiently from instances participating in links at the other ends of the association.


Email or talk to us about your AWS account or bill, visit aws.amazon.com/contact-us/

Invoice Summary

Invoice Number:	719710169
Invoice Date:	April 3 , 2021
TOTAL AMOUNT DUE ON April 3 , 2021	$150.64

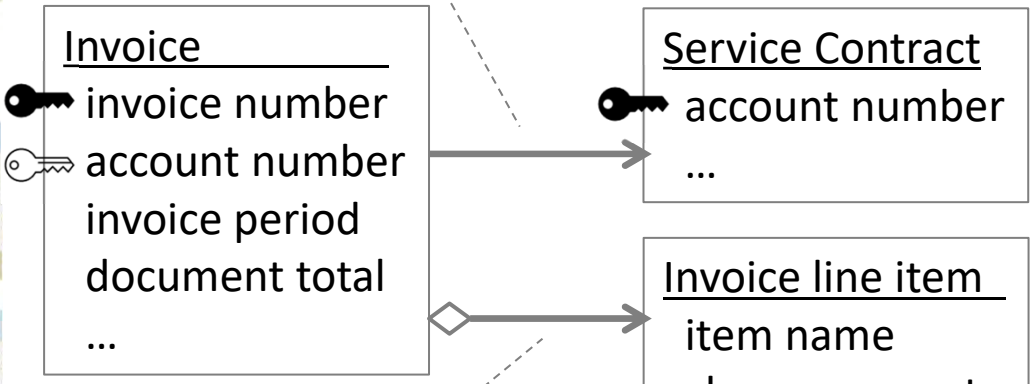
, Kanagawa , 236-0042 , JP

oice is for the billing period March 1 - March 1 , 2021

om Amazon Web Services, we're writing to provide you with an electronic invoice for your use of AWS services. Additional information bill, individual service charge details, and your account history are available on the Account Activity Page.

ary	
Service Charges	$150.64
ges	$136.95
its	$0.00
	$13.69
this invoice	$150.64
n Simple Storage Service	$45.40
ges	$41.27
	$0.00
	$4.13
Data Transfer	$0.00
ges	$0.00
	$0.00
	$0.00

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



The CCTS “Association” is an Aggregation used to contain many line items.

Core Components Specification

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

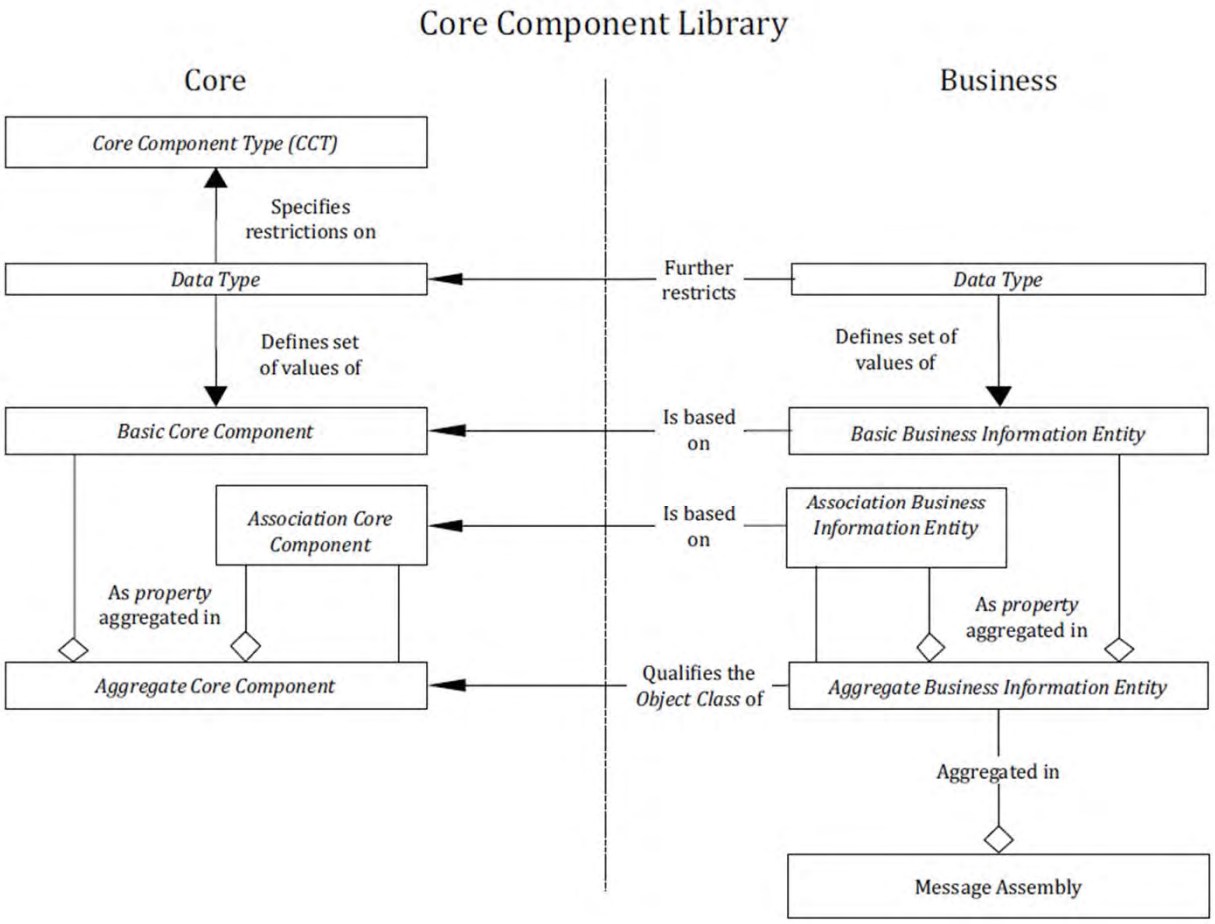


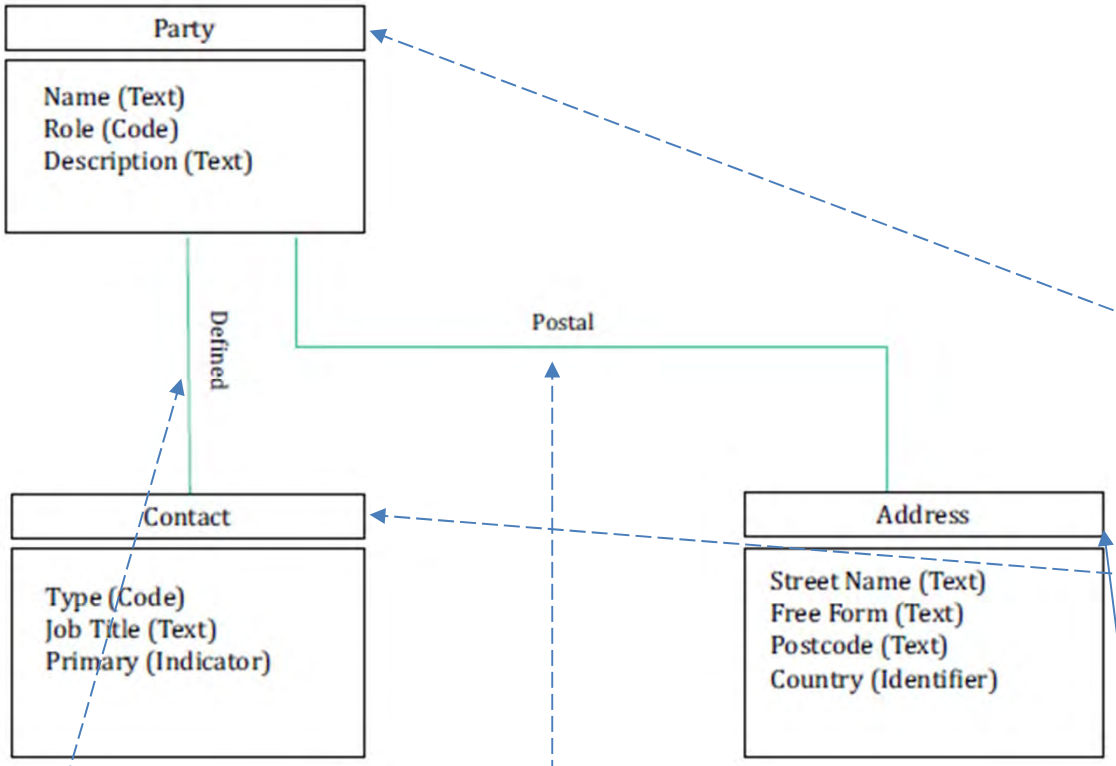
Figure 4 — Relationships between Core Components and Business Information Entities

There are 4 different categories of Core Components:
1) Basic Core Component (BCC);
2) Association Core Component (ASCC);
3) Core Component Type (CCT);
4) Aggregate Core Component (ACC);

Aggregate Business Information Entity qualifies the Object Class of Aggregate Core Component.

Basic Business Information Entity is based on Basic Core Component.
Association Business Information Entity is based on Association Core Component.

Association Core Component



— three Aggregate Core Components: "**Party**. Details"; "**Contact**. Details" and "**Address**. Details";
— each Aggregate Core Component has a number of Properties (i.e. business characteristics);
— the Aggregate Core Component "**Party**. Details" has five Properties ("Name", "Role", "Description", "Defined. Contact" and "Postal. Address");
— the Aggregate Core Component "**Contact**. Details" has three Properties ("Type", "Job Title" and "Primary");
— the Aggregate Core Component "**Address**. Details" has four Properties ("Street Name", "Free Form", "Postcode" and "Country").

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

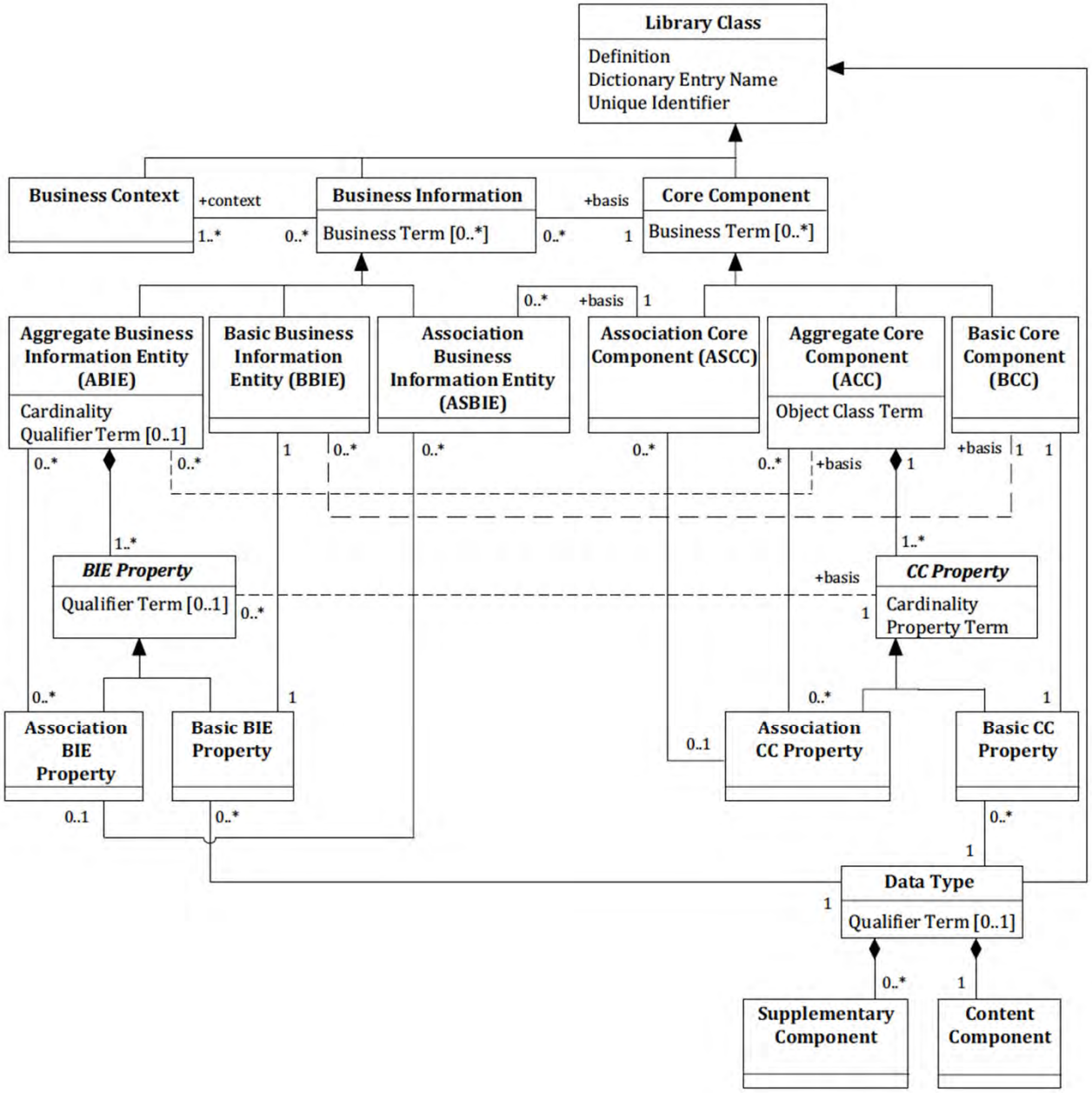
Example: Aggregate Core Component Party

No	ID	D	Business Term	Semantic data type	O
0	BG-0	0	Party	Aggregation	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	Association	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	Association	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					

This multi-line representation can also support occurrences in CSV.
ID columns with the occurrence number and ID specifies the occurrence in CSV.

ID				BT-1	BT-2	BT-3	BT-4	BT-5	BT-6	BT-7	BT-8	BT-9
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

Business Information Entities Basic Definition Model



Business information Entities are based on Core Components and are defined in the context defined in the business context.

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

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	

Naming rules for Dictionary Entry Name

-4

The **Business Information Entity naming rules** are also based on the following concepts as defined in ISO15000-5.

— **Object Class Term**: this represents the logical data grouping or aggregation (in a logical data model) to which a data element belongs. The Object Class is expressed as an Object Class Term. The Object Class is thus the part of a Business Information Entity's Dictionary Entry Name that represents an activity or object in a specific Context. Object Classes have explicit boundaries and meaning, and their Properties and behaviour follow the same rules.

— **Property Term**: this represents the distinguishing characteristic or Property of the Object Class and shall occur naturally in the definition.

— **Representation Term**: an element of the Business Information Entity name which describes the form in which the Business Information Entity is represented.

— Qualifier Term: a word or words which help define and differentiate a business information next table provides a list of permissible representation terms.

The Dictionary Entry Name shall consist of the following components in the specified order:

— the **Object Class Term** of the corresponding Basic Core Component;
— the **Property Term** of the corresponding Basic Core Component;
— the **Representation Term** of the Data Type.

Naming rules for Dictionary Entry Name

-4

Core Component naming rules are based on the rules as defined in ISO 15000-5.

[R1] The Dictionary Entry Name of a **Basic Core Component** shall consist of the following parts in the order specified:

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

— the Property Term of the corresponding Basic Core Component Property;

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

[R2] The Dictionary Entry Name of an **Association Core Component** shall consist of the following parts in the order specified:

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

— the Property Term of the corresponding Association Core Component Property;

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

Permissible Representation Terms

-4

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

-3

-3 Business Process defined in UBL

The UBL library and documents support an increased range of different business processes.

-2 Business Process and Rules defined in EN 16931

-1 eXtensible Business Reporting Language (XBRL) 2.1

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."

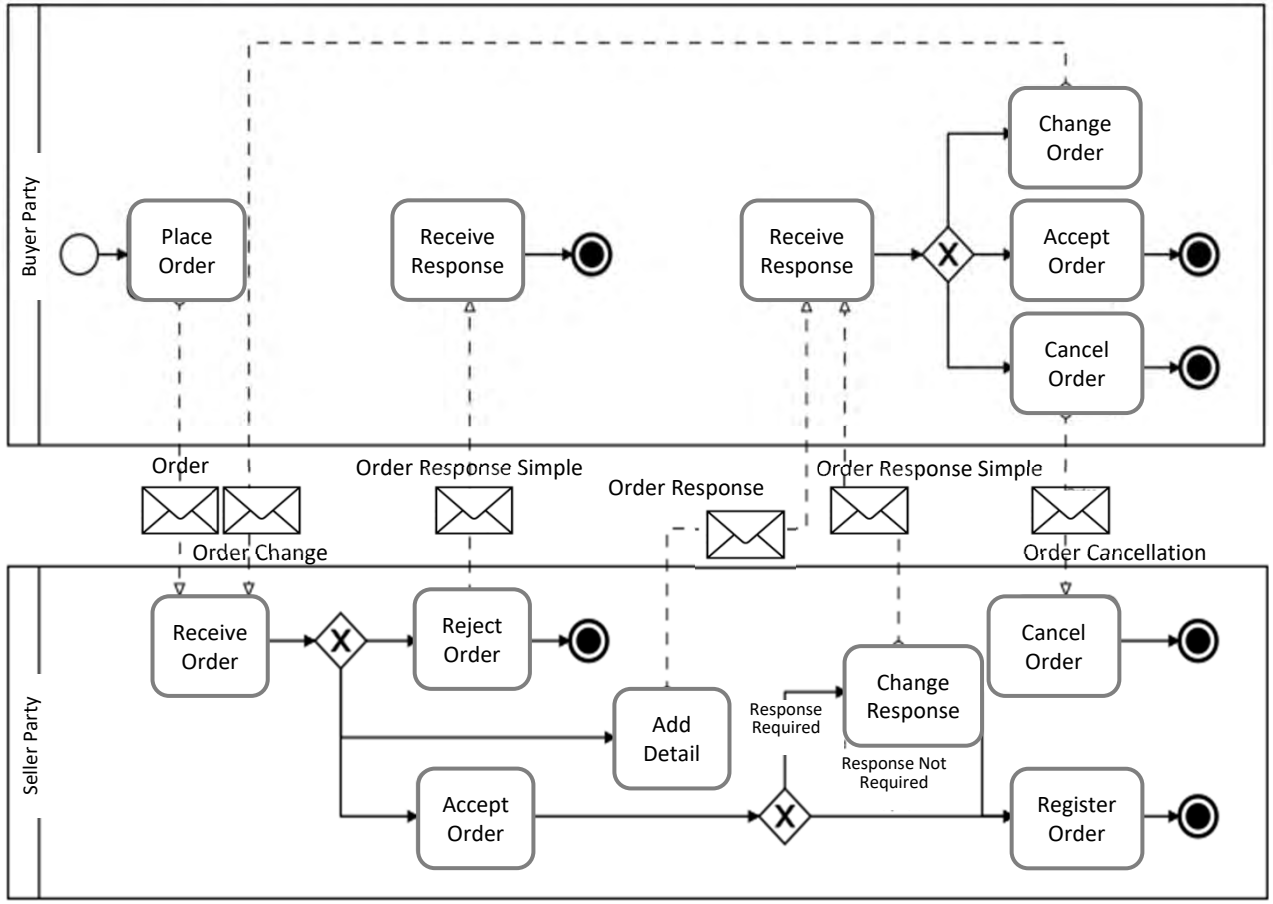
Table 1. Party Roles

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.
Supplier Party	Accounting Supplier	The party who claims the payment and is responsible for resolving billing issues and arranging settlement.

Only part of this table is quoted here.

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.

-2 Business Process and Rules defined in EN 16931

Electronic Invoicing

- Semantic data model of the core elements of an electronic invoice

Core Invoice Usage Specification (CIUS)

and its invoice service Open Peppol

-1 eXtensible Business Reporting Language (XBRL) 2.1

Parties, roles and business process in EN 16931-1

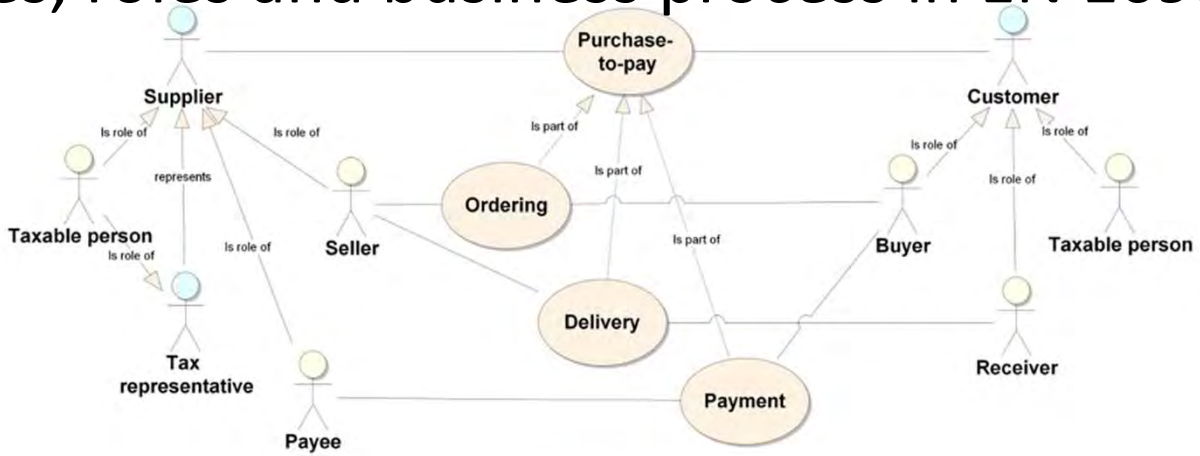


Figure 1 — Parties and roles

5.2.2 Invoicing of deliveries against purchase orders, based on a contract (P1)

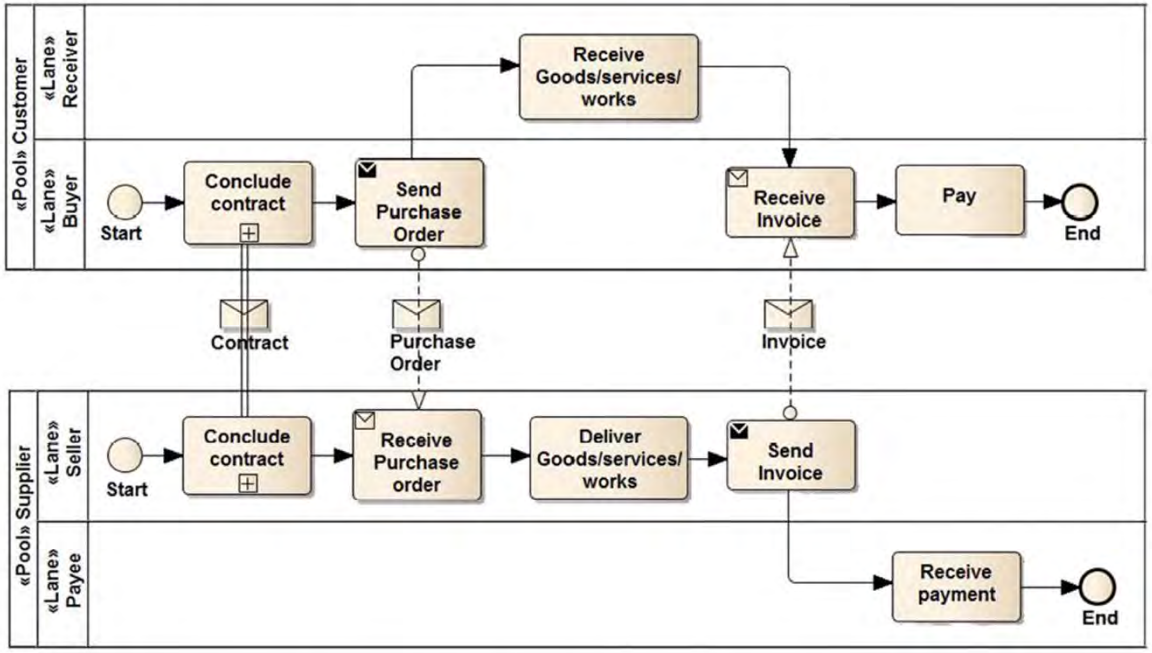
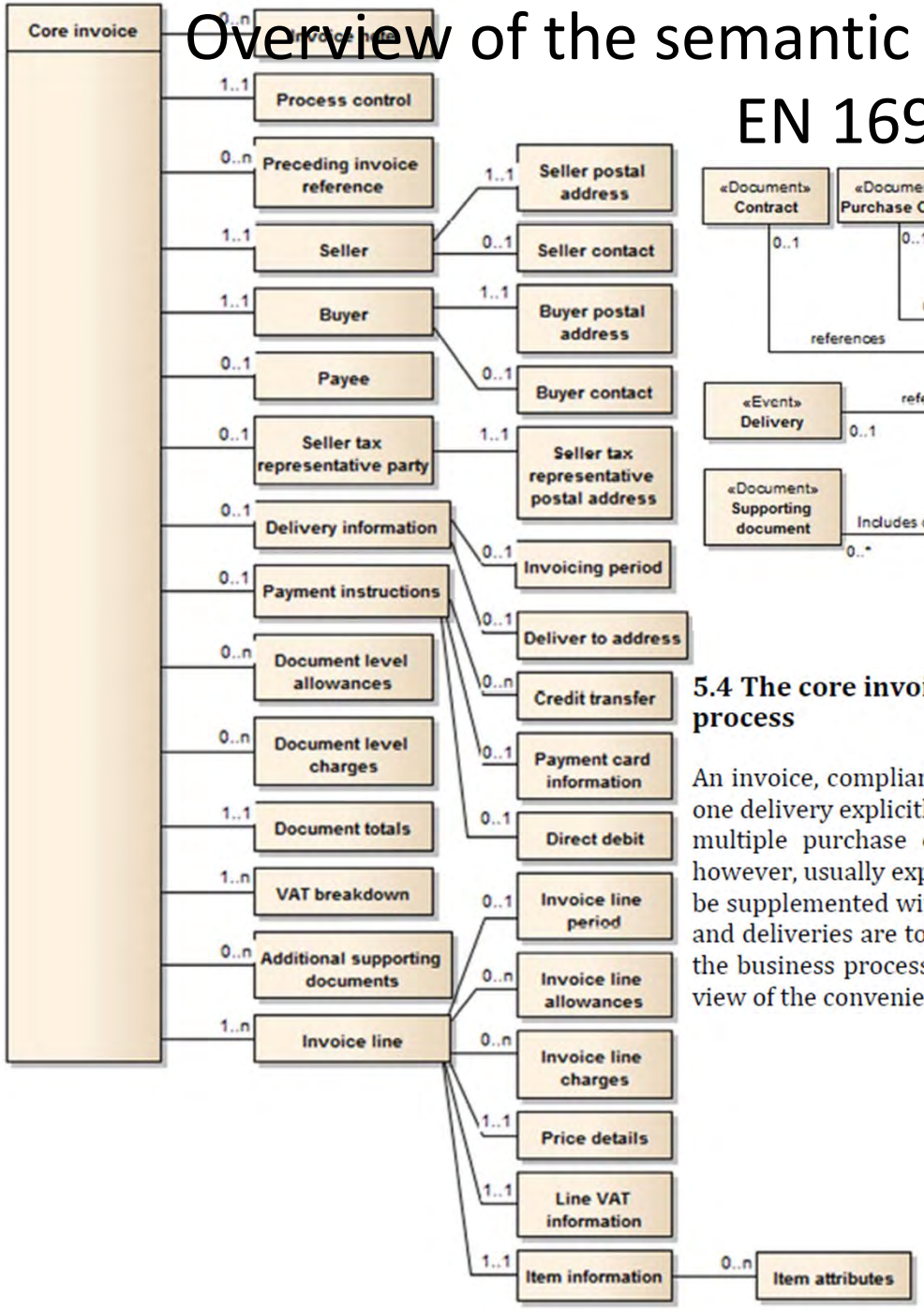


Figure 2 — Invoicing of deliveries against purchase orders, based on a contract

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



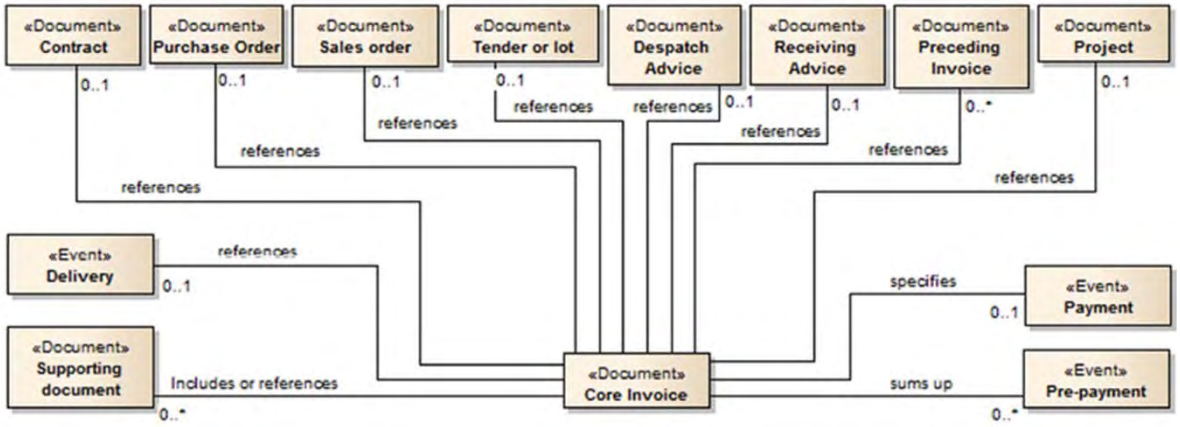


Figure 14 — Invoice relations

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.

Procure to Pay (3-way matching)

-2

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

-2

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

-2

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

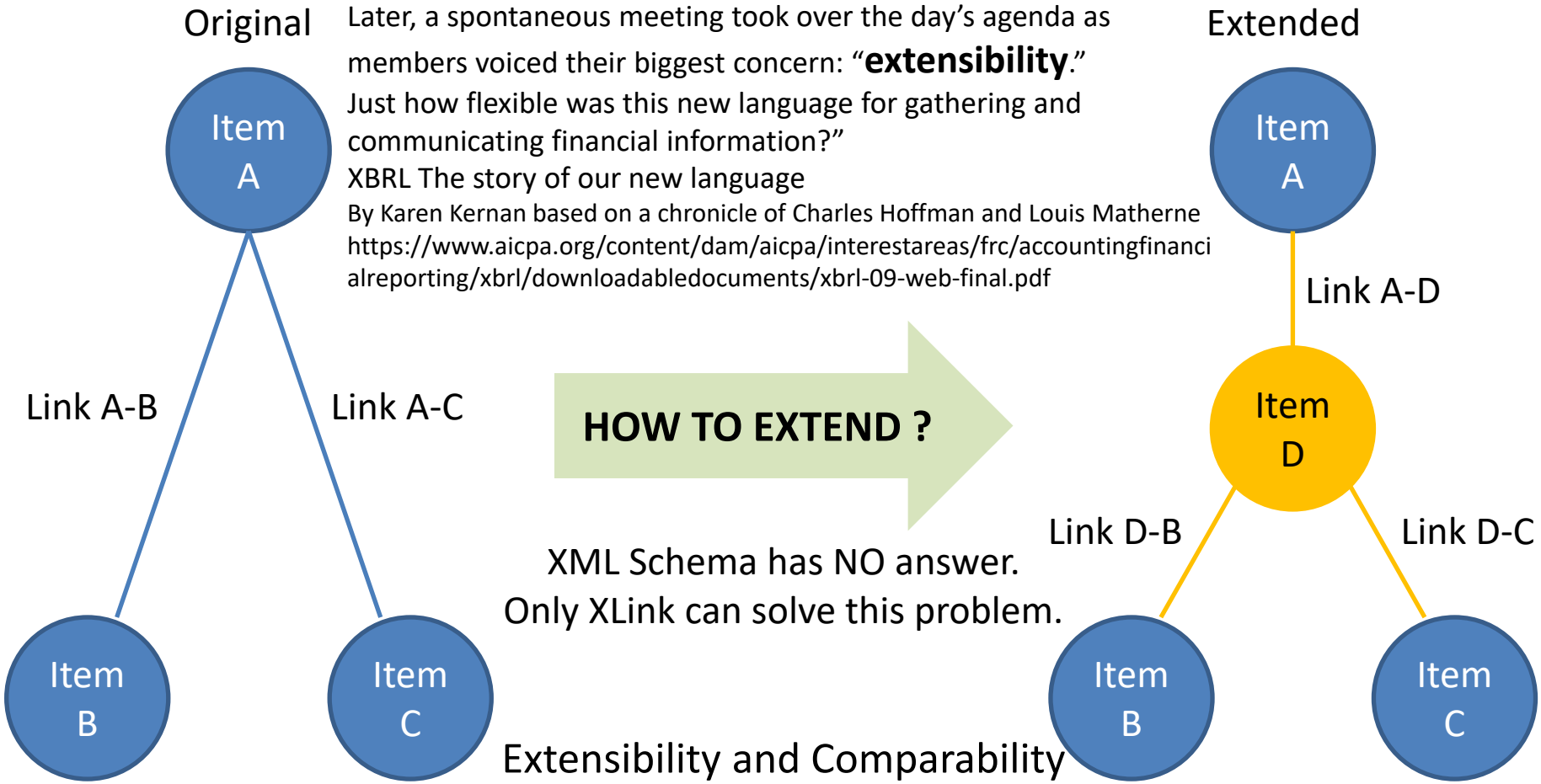
-1

-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

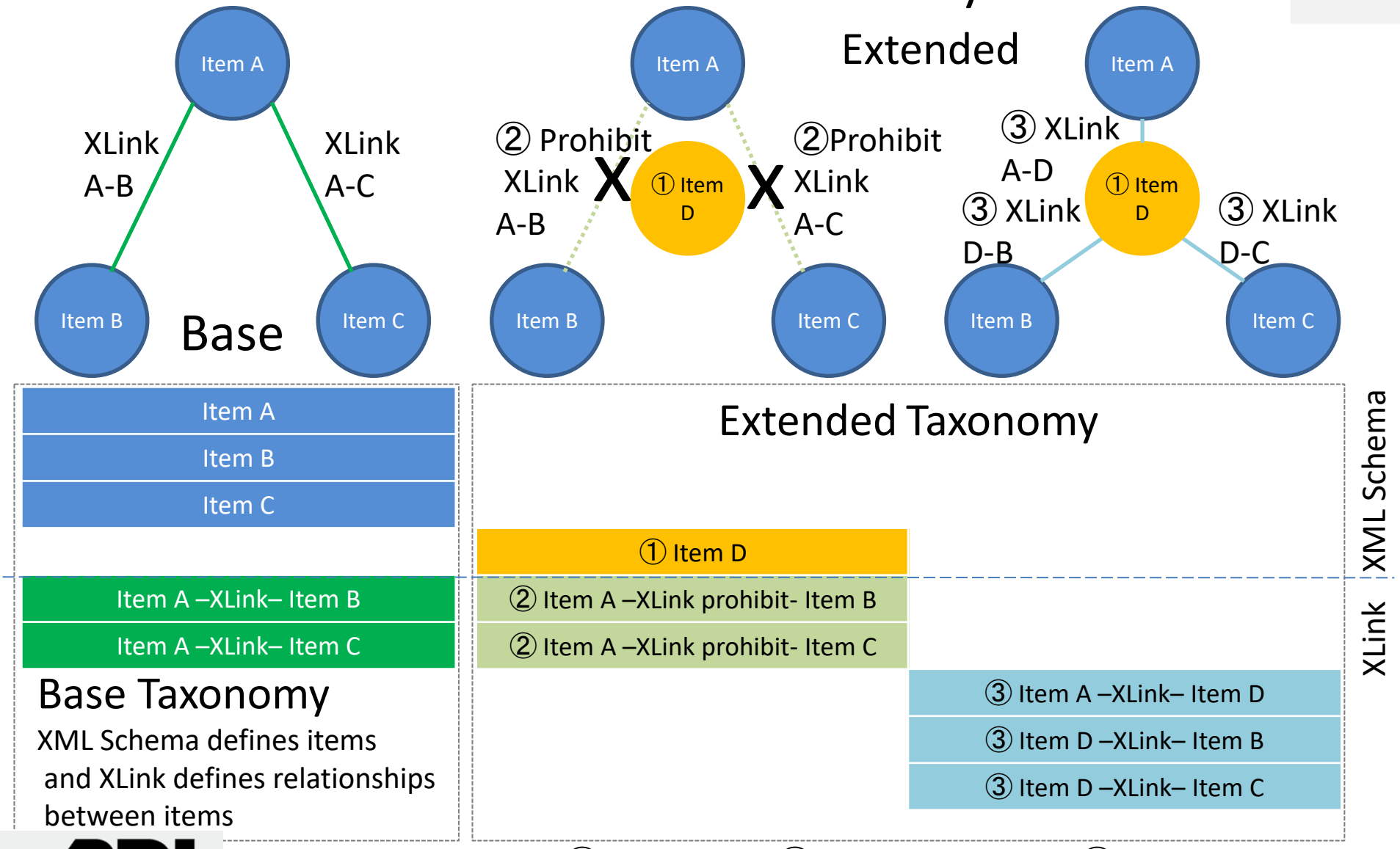
"At the first international conference, in London in January 2001, one European raised his hand to pointedly ask what the bunch of Americans up front knew about the world's accounting standards. Later, a spontaneous meeting took over the day's agenda as members voiced their biggest concern: "**extensibility**." 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.

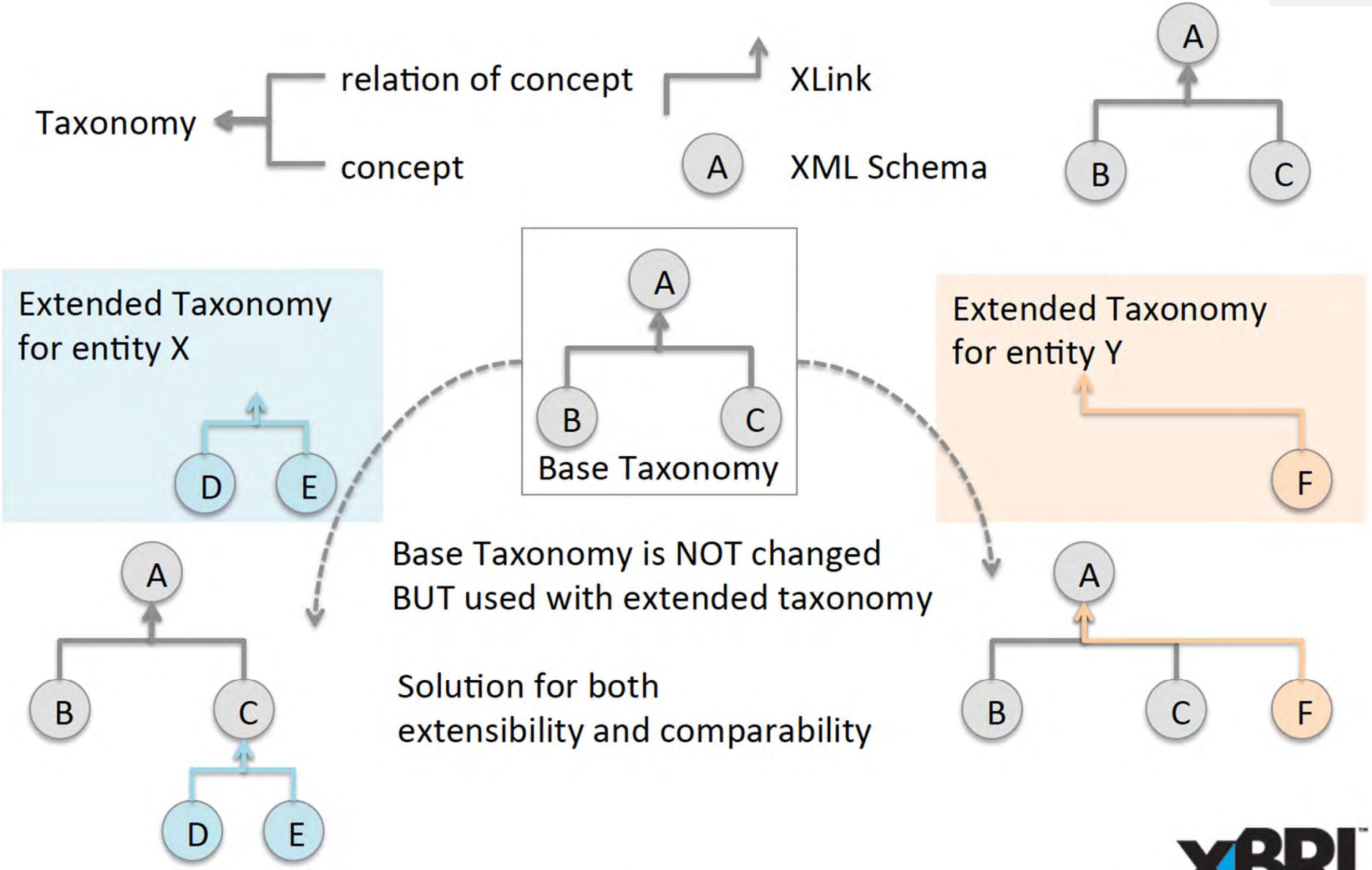
Extensibility and Comparability
are silver bullets with
eXtensible Business Reporting language (XBRL)

XBRL style extension method
Use of XLink in Taxonomy



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

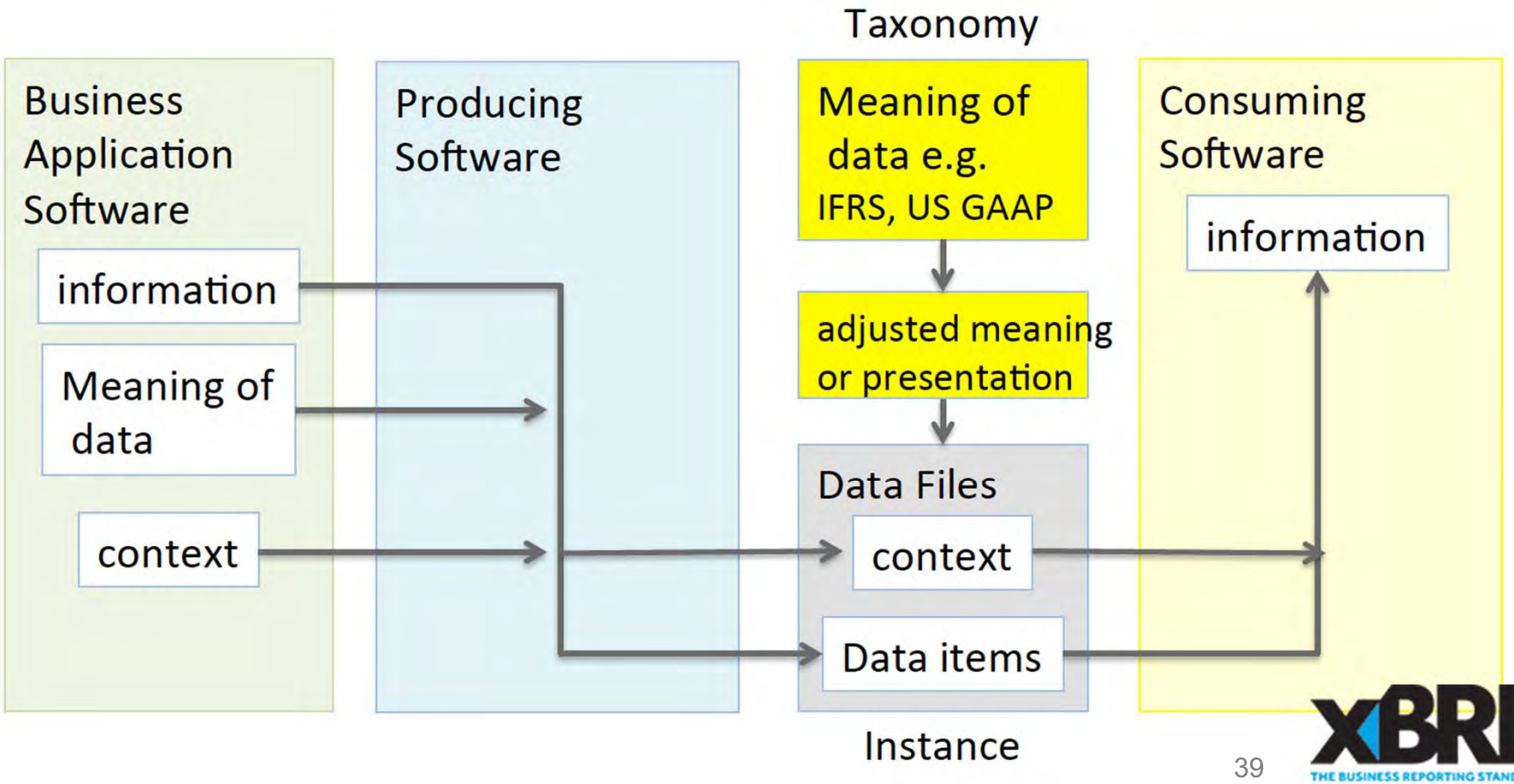
Extensibility and Comparability



Taxonomy based Reporting Data Value Chain

-1

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.

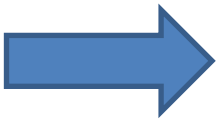
Source: Defining Reporting Requirements https://specifications.xbrl.org/reporting-requirements.html

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

Exchange formats for the Audit Data Collection Standard: XBRL

Semantic data modeling and syntax binding for XBRL

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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Semantic data modeling and syntax binding for XBRL

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?

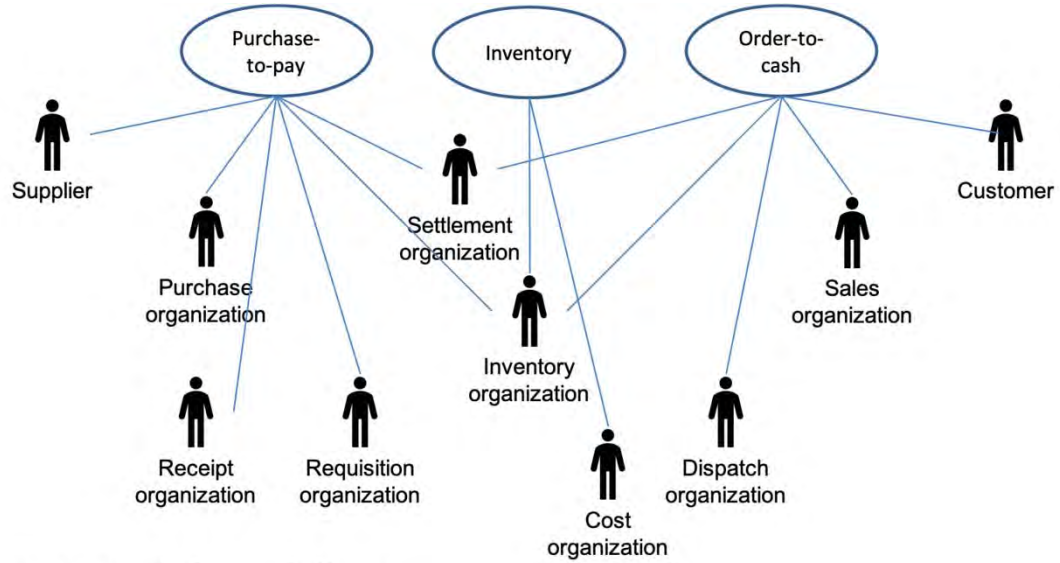
Semantic XBRL can be used to define firm business rules as internal control, detect abnormalities against them, deal with problems, and, depending on the type of problem, improve internal control rules.

Exchange formats for the Audit Data Collection Standard: XBRL

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

1. Parties involved and their roles and relationships

Parties involved and their roles and relationships



For example, EN 16931 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.

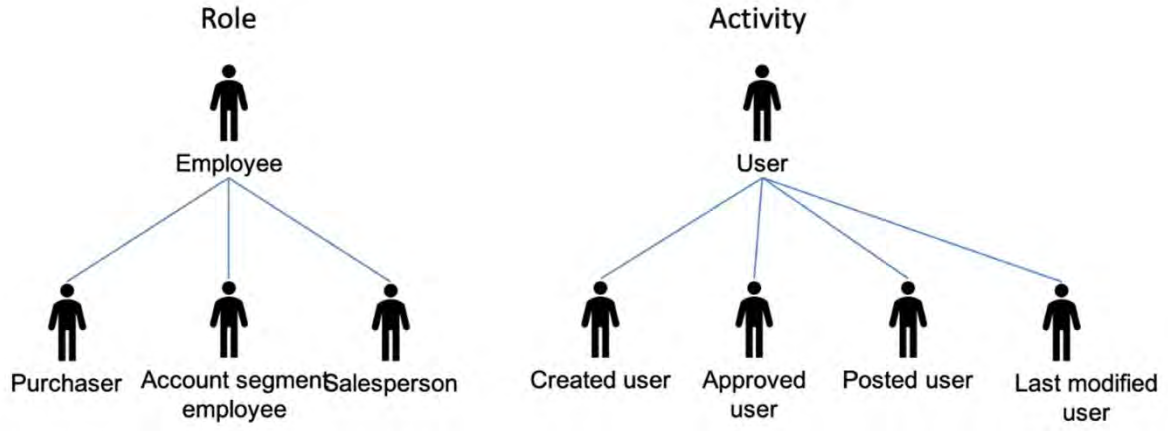
Roles

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.

2. Employee roles and user activities

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.

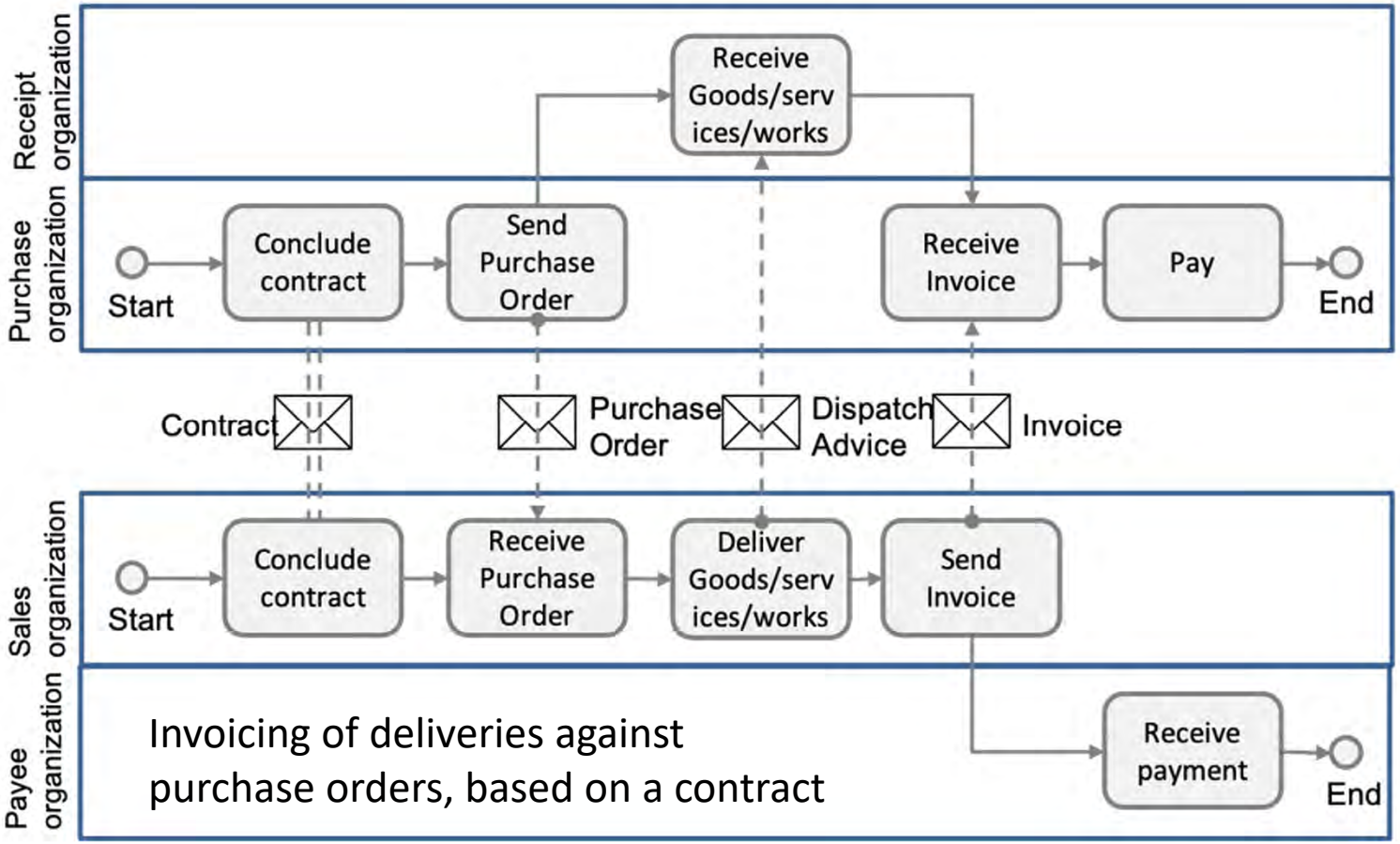
The party shall log every transactional event that can provide information on activity, changes happened in the ERP system, every verification activity performed related to transaction and / or accounting.
In case of every log entry, the following data shall be stored:

- 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

3. Business processes

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.

4. Business controls and audit trails

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

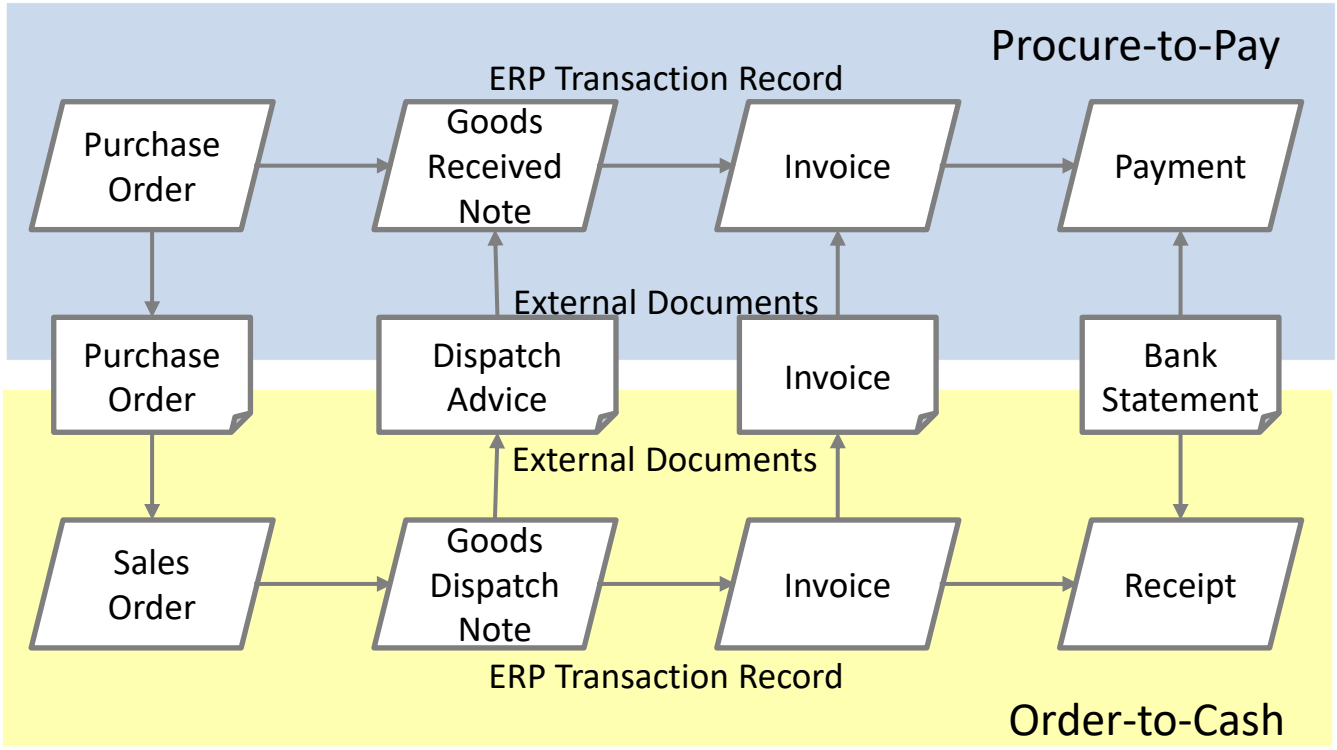
An audit trail is:

> 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

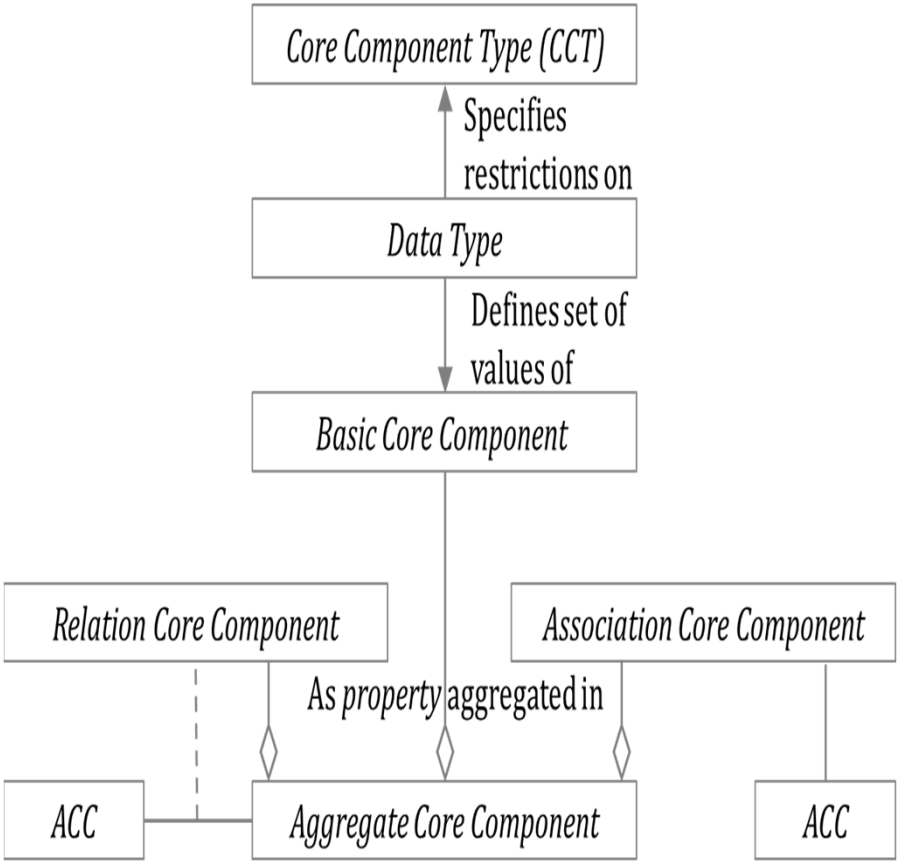
5.1. Extend Core Components Specification definition for audit data collection

5. Semantic data modeling

Extend Core Components

5.1

Semantic data modeling of ADS is based on the Core Components Specification (CCS) defined in ISO 15000-5 Electronic Business Extensible Markup Language (ebXML) — Part 5: Core Components Specification (CCS).



Add 2 categories of Core Components:

- Basic Core Component (BCC);
- Association Core Component (ASCC);
- Core Component Type (CCT);
- Aggregate Core Component (ACC);

a) Identifier Core Component (IDCC); and

b) Relation Core Component (RLCC).

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

Extend Semantic data types

5.1

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 single 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 described in the table below. Here 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

5.1

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	

Extend naming rules for Dictionary Entry Name 5.1

The following naming rules are extended to the rules defined in ISO 15000-5.

[R3] 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 Association Core Component Property;

— the Property Term of the corresponding Relation Core Component Property;

— the Object Class Term of the Aggregate Core Component to which the corresponding Relation Core Component is referencing.

5.2. Core Components

5. Semantic data modeling

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.

Extension Methodology

5.2

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

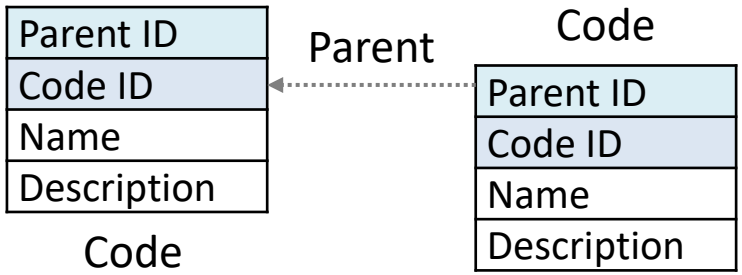
Relation Core Component [New]

5.2

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



Document and line item

5.2

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 headers and list 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

5.2

Transaction documents

Header	H1	D11	D12
Line item	L1	L1a	L1b
	L2	L2a	L2b

	H2	D21	D22
	L3	L3a	L3b
	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

identifier Header

ID	d1	d2
H1	D11	D12
H2	D21	D22

reference identifier Line item

RL	L_id	La	Lb
H1	L1	L1a	L1b
H1	L2	L2a	L2b
H2	L3	L3a	L3b
H2	L4	L4a	L4b
H2	L5	L5a	L5b

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

Step 1 Select

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

5.2

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.

"TradeTransaction" and "TradeLine 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.

Step 2 Extend CCL in ADCS

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

5.2

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”.

5.3. Business Information Entities

5. Semantic data modeling

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.

Base architecture type A

ASBIE for line items

In the first method, the line items are defined as ASBIE in the header ABIE. The following example illustrates this approach.

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.
x	**ASBIE**	1	**Line Item**	—.	1..n	line items of this document	ADS Header_ Trade Transaction. Defined. ADS Line Item_ Trade Line Item
x+1	IDBIE	2	Line Item ID	Identifier	1..1	The unique identifier for the document line item.	ADS Line Item_Trade Line Item. 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	IDBIE	1	Line Item ID	Identifier	1..1	The unique identifier for the document line item.	ADS Line Item_Trade Line Item. Identification. Identifier

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. One is a list of headers and the other is a list of line items.

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.

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

Extend Trade Transaction and Trade Line Item

Invoices Received & Line Item

5.3

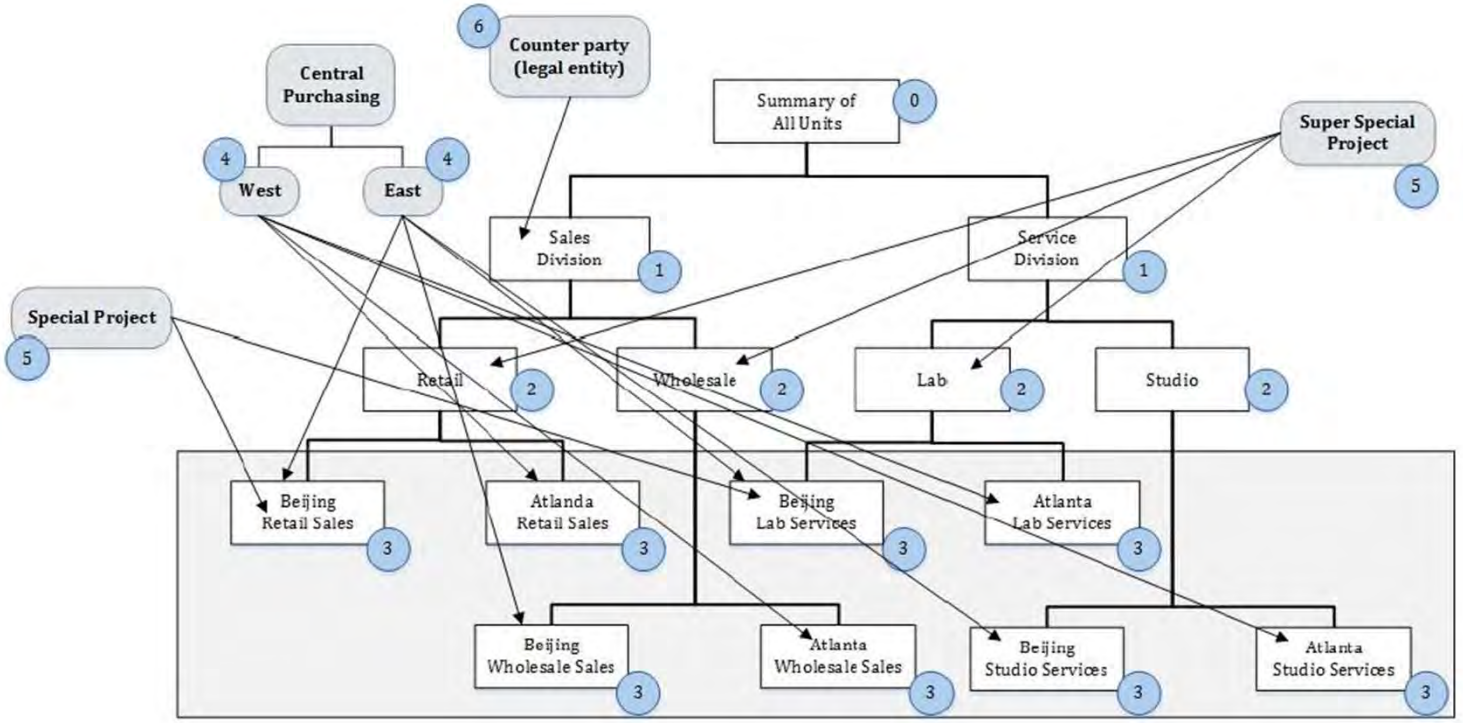
Syntax mappings to physical files are defined from business information entities.

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

Another example extend Code

ISO 21378:2019 Annex A Business Segment



Key

Components

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

Connections and lines

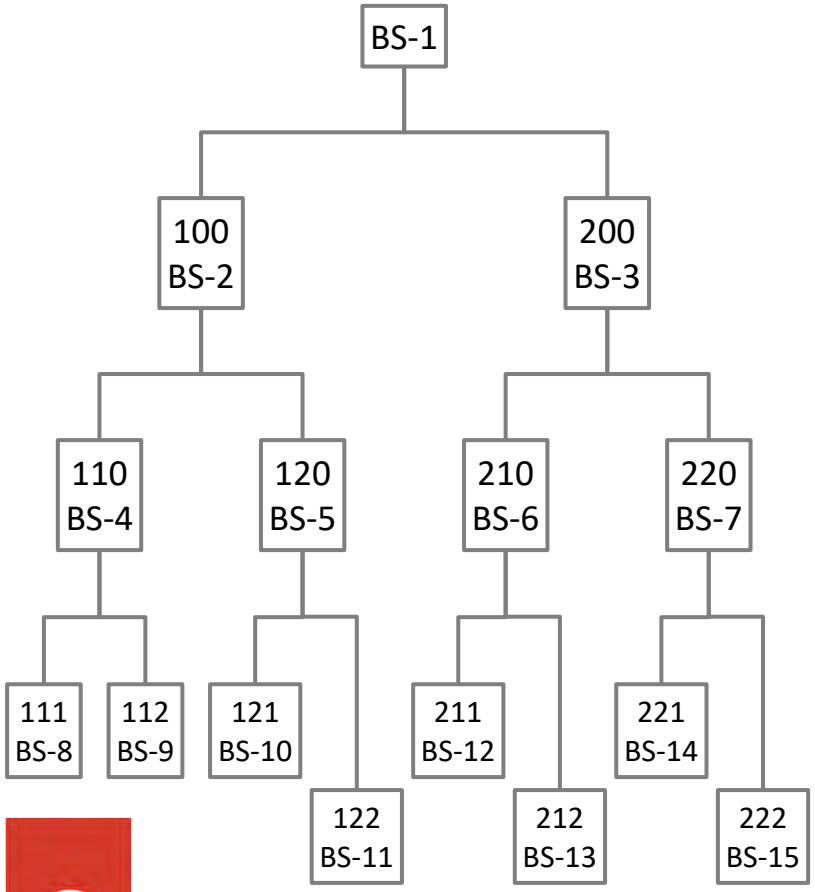
- — connection between organizational entities
- → connection between additional relationships and organizational entities

Figure A.3— Example of the level assignments

Business Segment Code

5.3

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

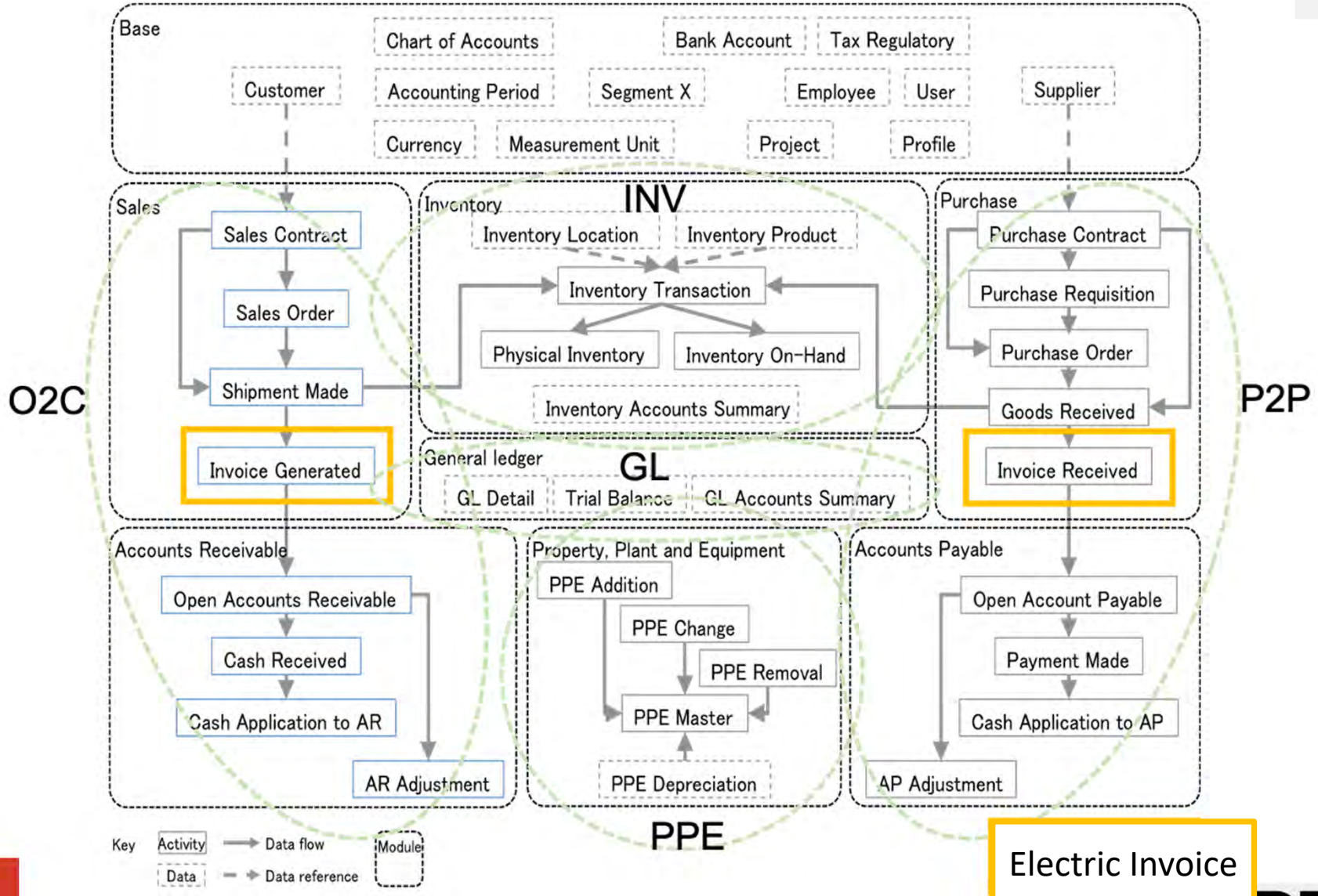


ID	Organization Type	Code	Name	L	Parent ID
BS-1	Consolidated business		All Units Segment	0	
BS-2	Division	100	Sales Division Segment	1	BS-1
BS-3	Division	200	Service Division Segment	1	BS-1
BS-4	Department	110	Retail Segment	2	BS-2
BS-5	Department	120	Wholesale Segment	2	BS-2
BS-6	Department	210	Lab 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	

Head of dele

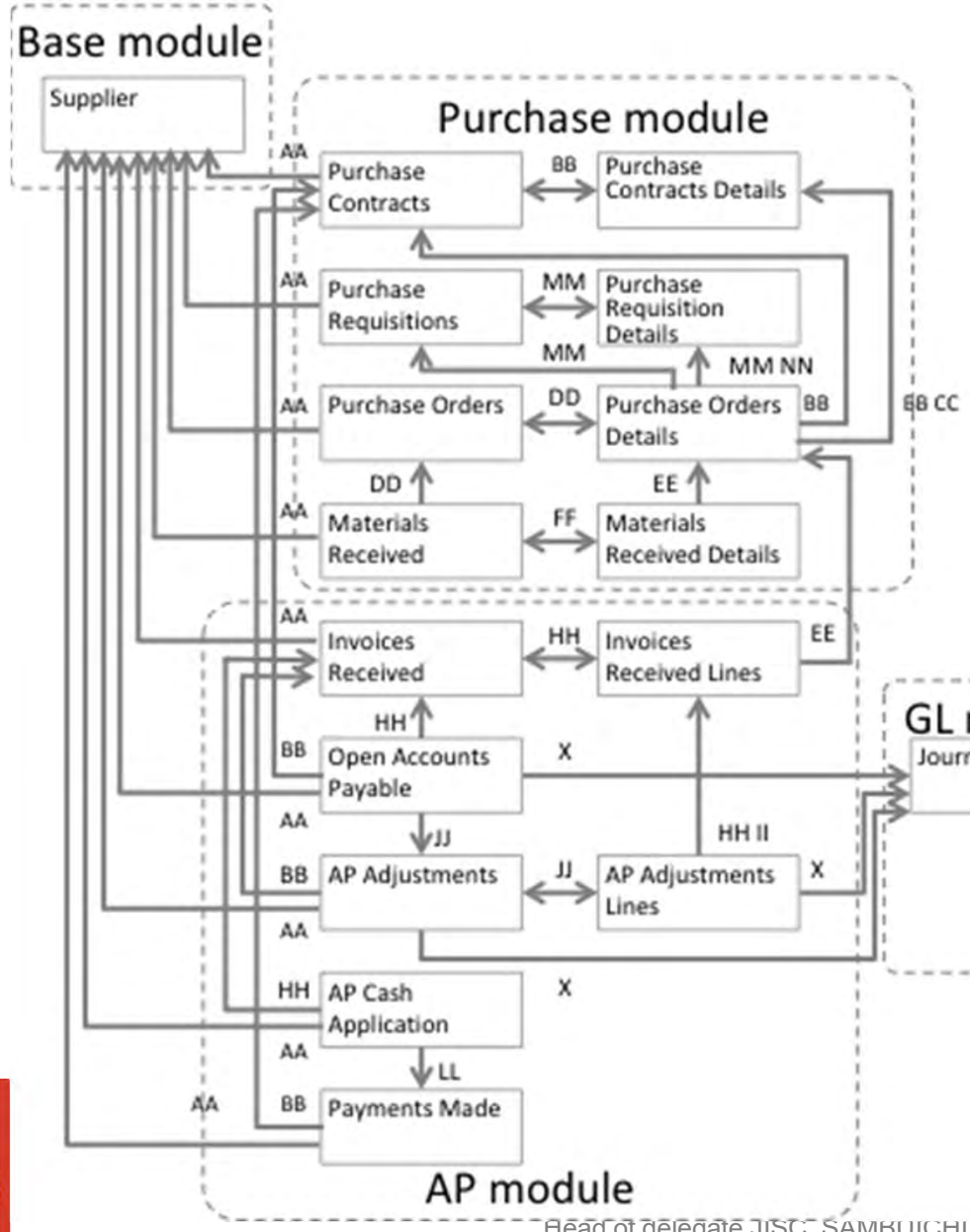
6. Business rules

ISO 21378:2019 Audit data collection



Electric Invoice

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

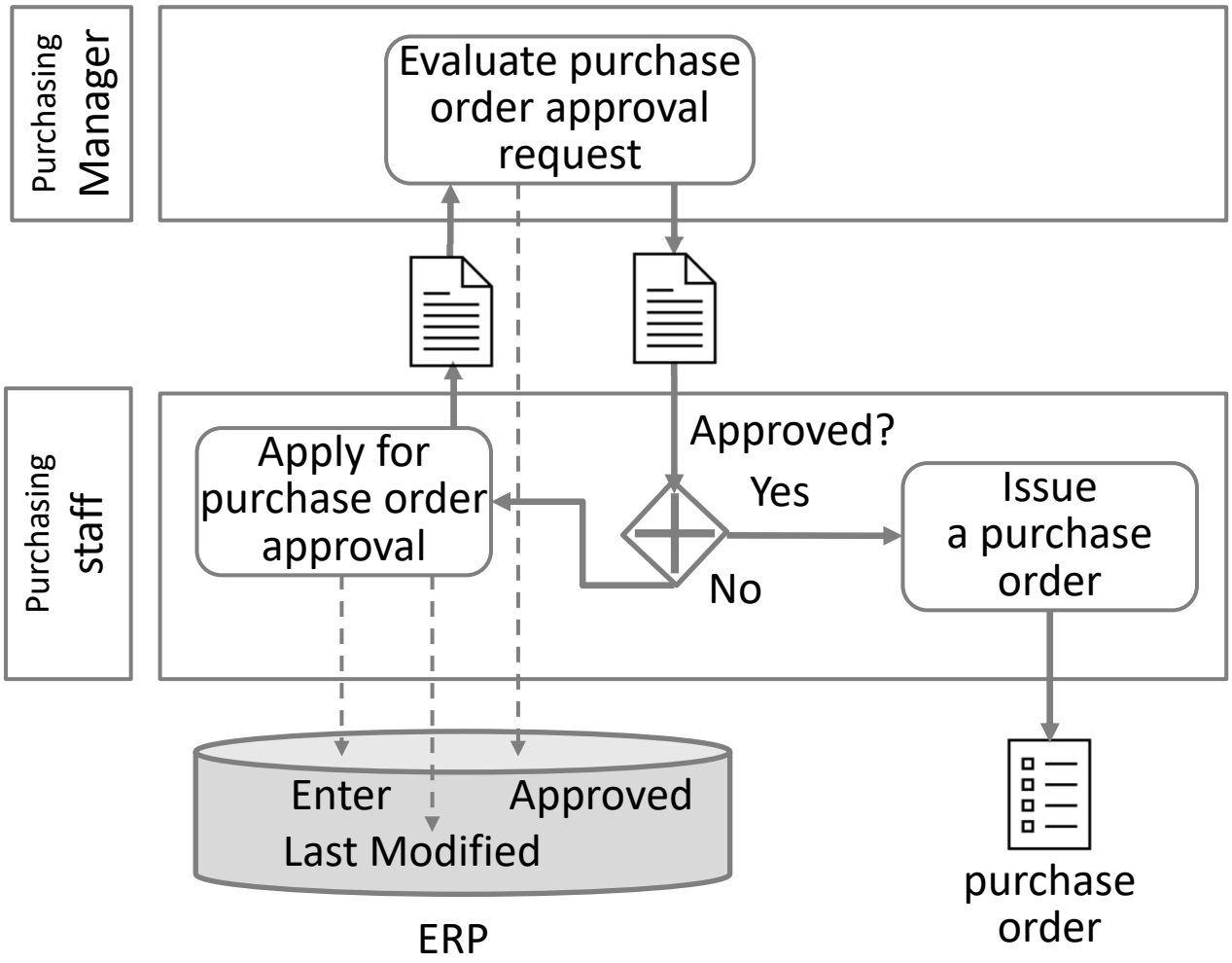
LL Payment ID

MM Requisition ID

NN Requisition Line ID

X GL Detail ID

Enter and Approve process



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?

7. Syntax binding for XBRL

Semantic XBRL for Granular Data

7. Syntax binding for XBRL

7

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 for data profiling report and data questionnaire in ISO 21378, as well as more general rules for business processes.

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.

XBRL can define computer-readable business rules for calculation and / or validation in taxonomy with formula and other linkbase.

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?

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

https://www.Sambuichi.jp

Q&A

SAMBUICHI, Nobuyuki
nobuyuki@sambuichi.jp
ISO/TC 295 Audit data services
Head of delegate Japanese Industrial Standards Committee (JISC)