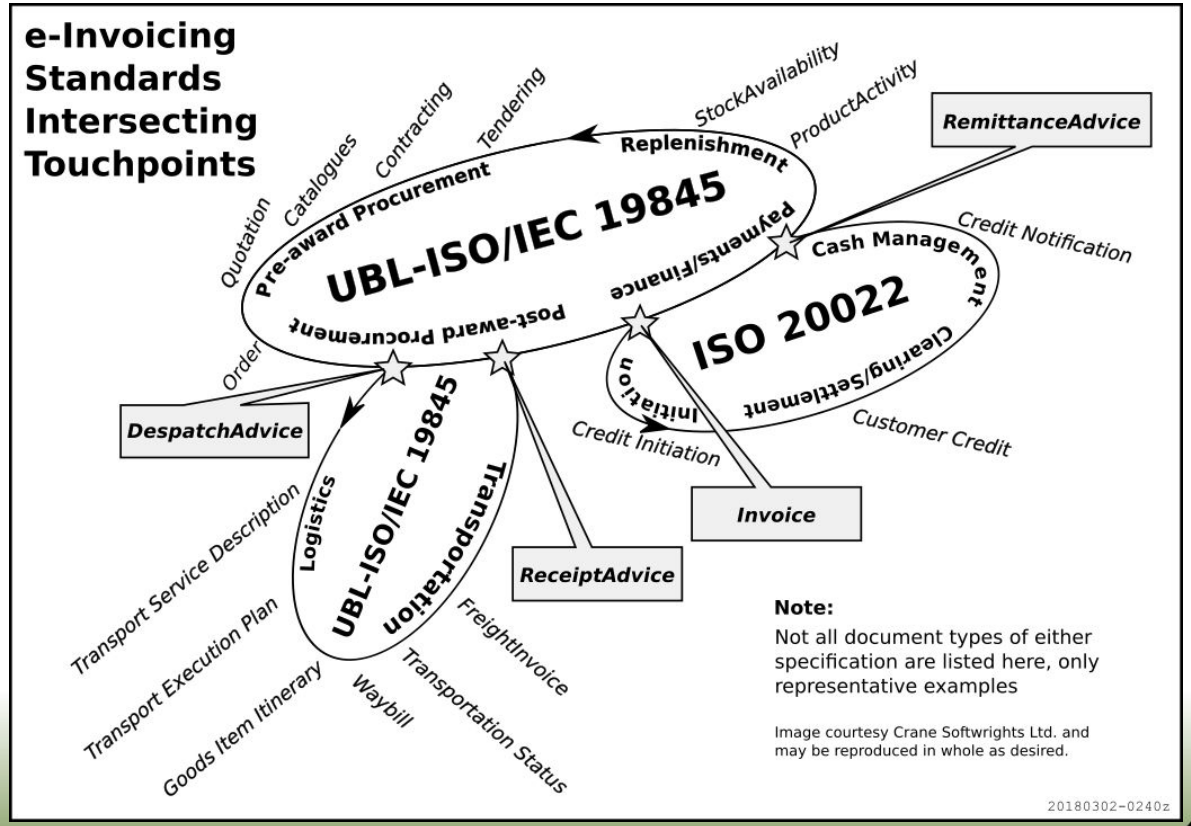
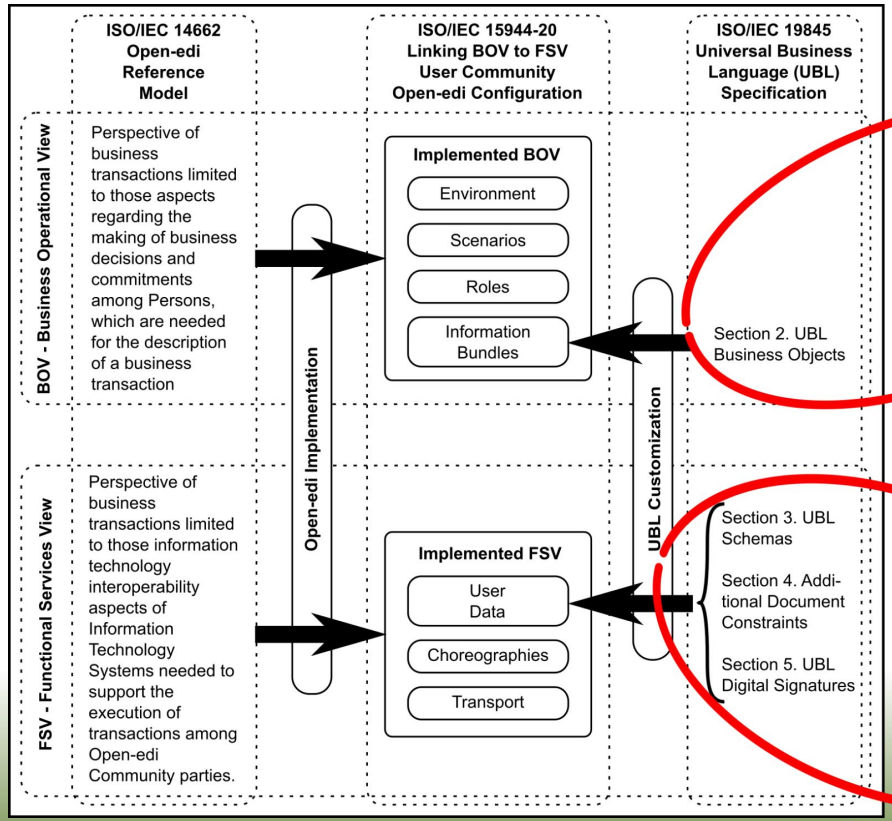
A case study of committee-based semantic model development of XSD and JSON schemas

G. Ken Holman

OASIS UBL ISO/IEC 19845



Open-edi standards

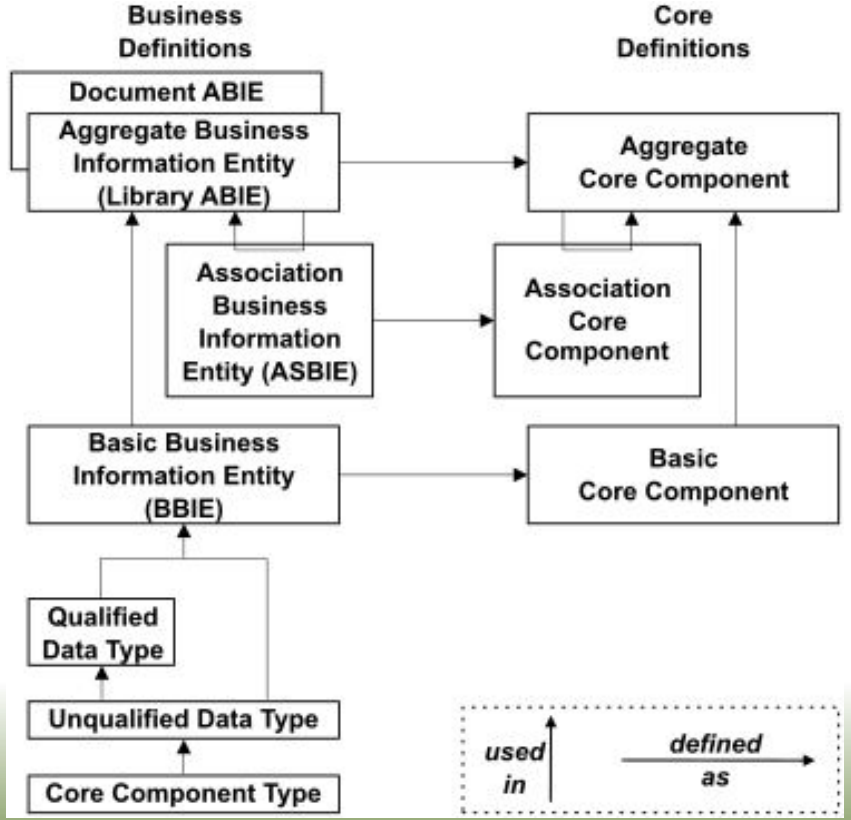


Base data types comparison

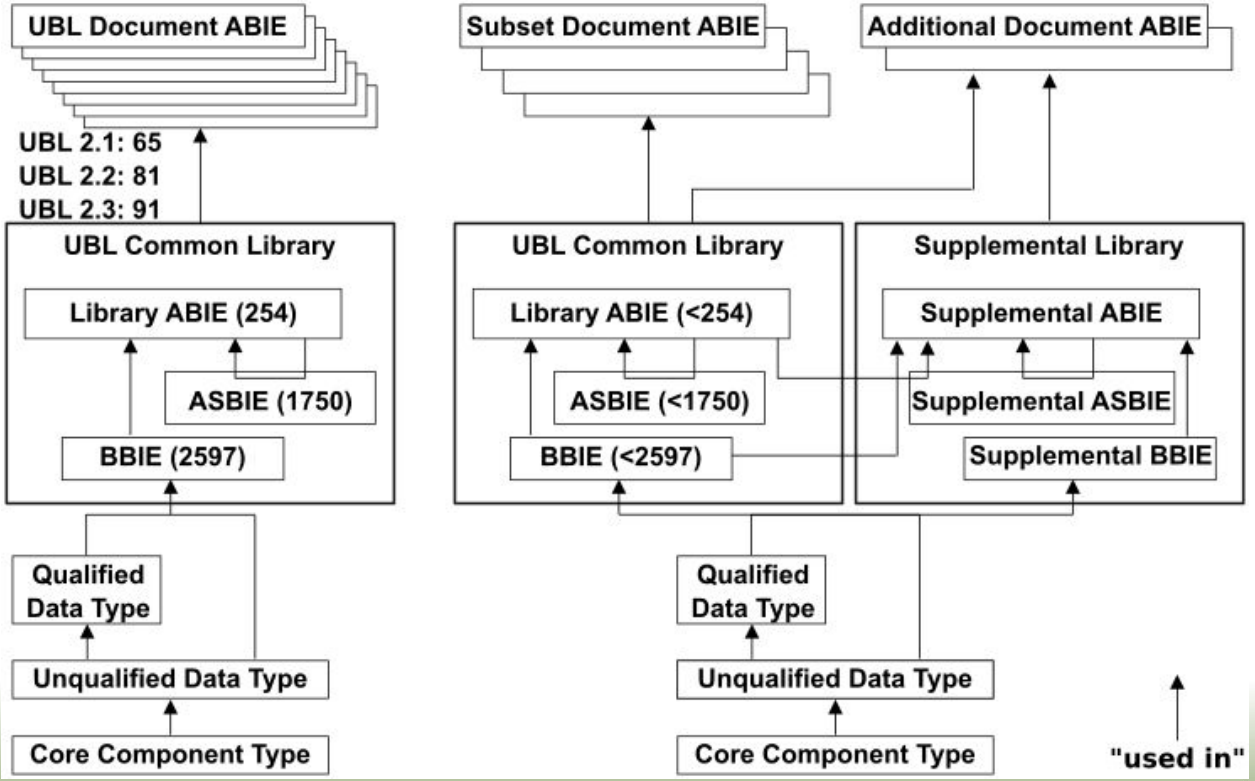
XSD	JSON
string and string sub-types	string
boolean	boolean
base64Binary	
hexBinary	
float	
decimal, integer, integer sub-types	
double	number
anyURI	
QName	
NOTATION	
duration, date, and time types	
	array
	object
	null

Core Component Type (CCT)	Supplementary Components
Amount	mandatory currency
Binary Object	mandatory MIME code
Code	optional properties
Date Time	constrained to XSD date/time
Identifier	optional properties
Indicator	constrained to XSD boolean
Measure	mandatory unit of measure
Numeric	
Quantity	optional unit of measure
Text	

BIEs and CCTS Core Components



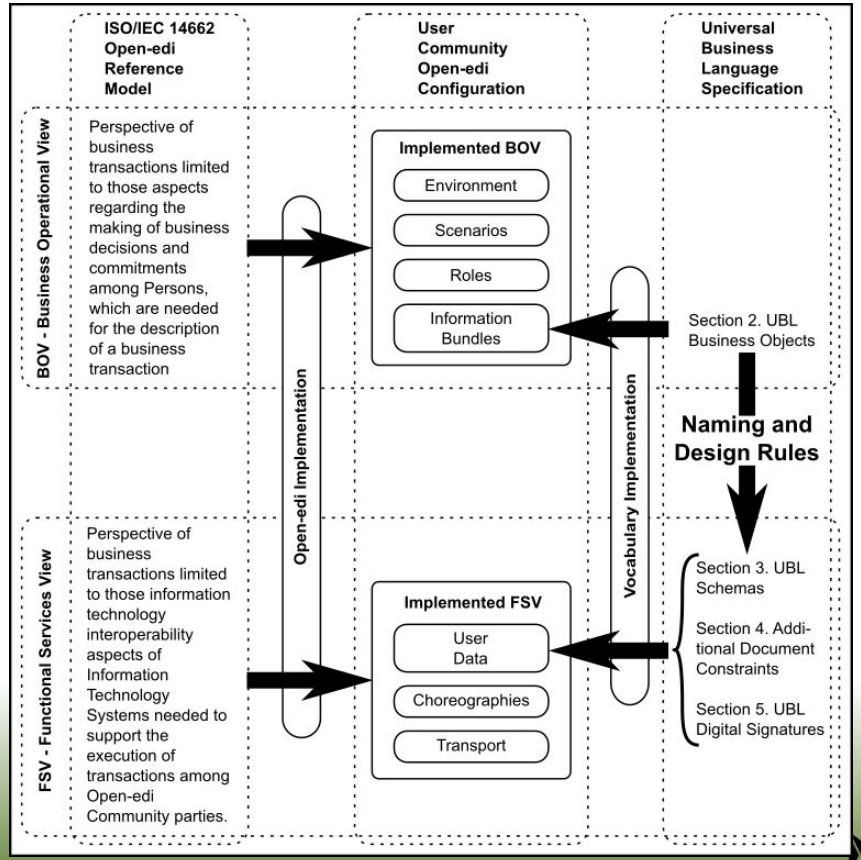
CCTS components in full UBL and subsets



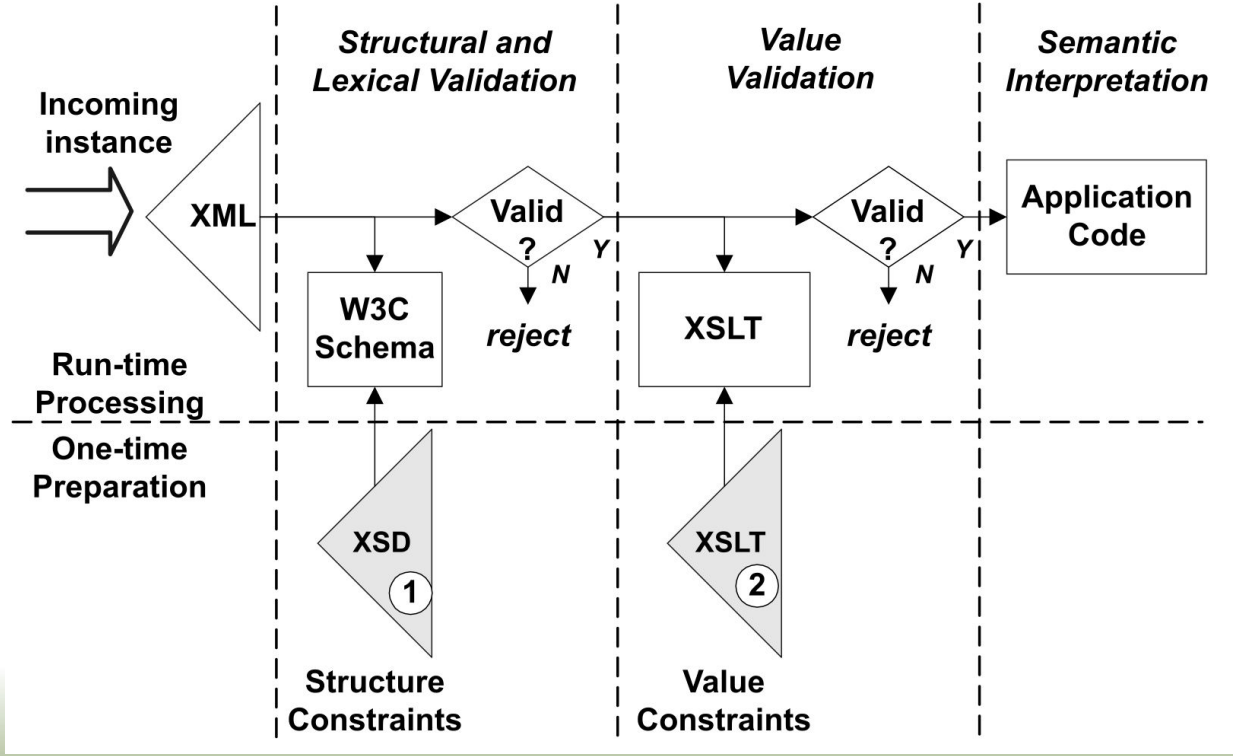
Committee spreadsheet

	A	B	C	D	E
11	ActivityProperty			A class to define a name/value pair for a property of an inventory planning activity.	
12	Name		1	The name of this activity property.	
13	Value		1	The value of this activity property.	
14	Address			A class to define common information related to an address.	
15	ID		0..1	An identifier for this address within an agreed scheme of address identifiers.	DetailsKey
16	AddressTypeCode		0..1	A mutually agreed code signifying the type of this address.	
17	AddressFormatCode		0..1	A mutually agreed code signifying the format of this address.	
18	Postbox		0..1	A post office box number registered for postal delivery by a postal service provider.	PostBox, PO Bo
19	Floor		0..1	An identifiable floor of a building.	SubPremiseNu
20	Room		0..1	An identifiable room, suite, or apartment of a building.	SubPremiseNu
21	StreetName		0..1	The name of the street, road, avenue, way, etc. to which the number of the building is attached.	Thoroughfare
22	AdditionalStreetName		0..1	An additional street name used to further clarify the address.	Thoroughfare
23	BlockName		0..1	The name of the block (an area surrounded by streets and usually containing several buildings) in which this address is located.	
24	BuildingName		0..1	The name of a building.	BuildingName
25	BuildingNumber		0..1	The number of a building within the street.	PremiseNumbe
26	Description		0..n	Text describing this address for clarification or specificity	
27	InhouseMail		0..1	The specific identifable location within a building where mail is delivered.	MailStop
28	Department		0..1	The department of the addressee.	Department
29	MarkAttention		0..1	The name, expressed as text, of a person or department in an organization to whose attention incoming mail is directed; corresponds to the printed forms "for the attention of", "FAO", and ATTN:".	
30	MarkCare		0..1	The name, expressed as text, of a person or organization at this address into whose care incoming mail is entrusted; corresponds to the printed forms "care of" and "c/o".	
31	PlotIdentification		0..1	An identifier (e.g., a parcel number) for the piece of land associated with this address.	
32	CitySubdivisionName		0..1	The name of the subdivision of a city, town, or village in which this address is located, such as the name of its district or borough.	
33	CityName		0..1	The name of a city, town, or village.	LocalityName
34	PostalZone		0..1	The postal identifier for this address according to the relevant national postal service, such as a ZIP code or Post Code.	PostalCodeNun
35	CountrySubentity		0..1	The political or administrative division of a country in which this address is located, such as the name of its county, province, or state, expressed as text.	AdministrativeA Country, Shire,
36	CountrySubentityCode		0..1	The political or administrative division of a country in which this address is located, such as a county, province, or state, expressed as a code (typically nationally agreed).	AdministrativeA State Code
37	Region		0..1	The recognized geographic or economic region or group of countries in which this address is located.	LocalityName, E Zone
38	District		0..1	The district or geographical division of a country or region in which this address is located.	LocalityName, A
39	TimezoneOffset		0..1	The time zone in which this address is located (as an offset from Universal Coordinated Time (UTC)) at the time of exchange.	
40	AddressLine		0..n	An unstructured address line.	
41	Country		0..1	The country in which this address is situated.	
42	LocationCoordinate		0..n	The geographical coordinates of this address.	
43	AddressLine			A class to define an unstructured address line.	
44	Line		1	An address line expressed as unstructured text.	

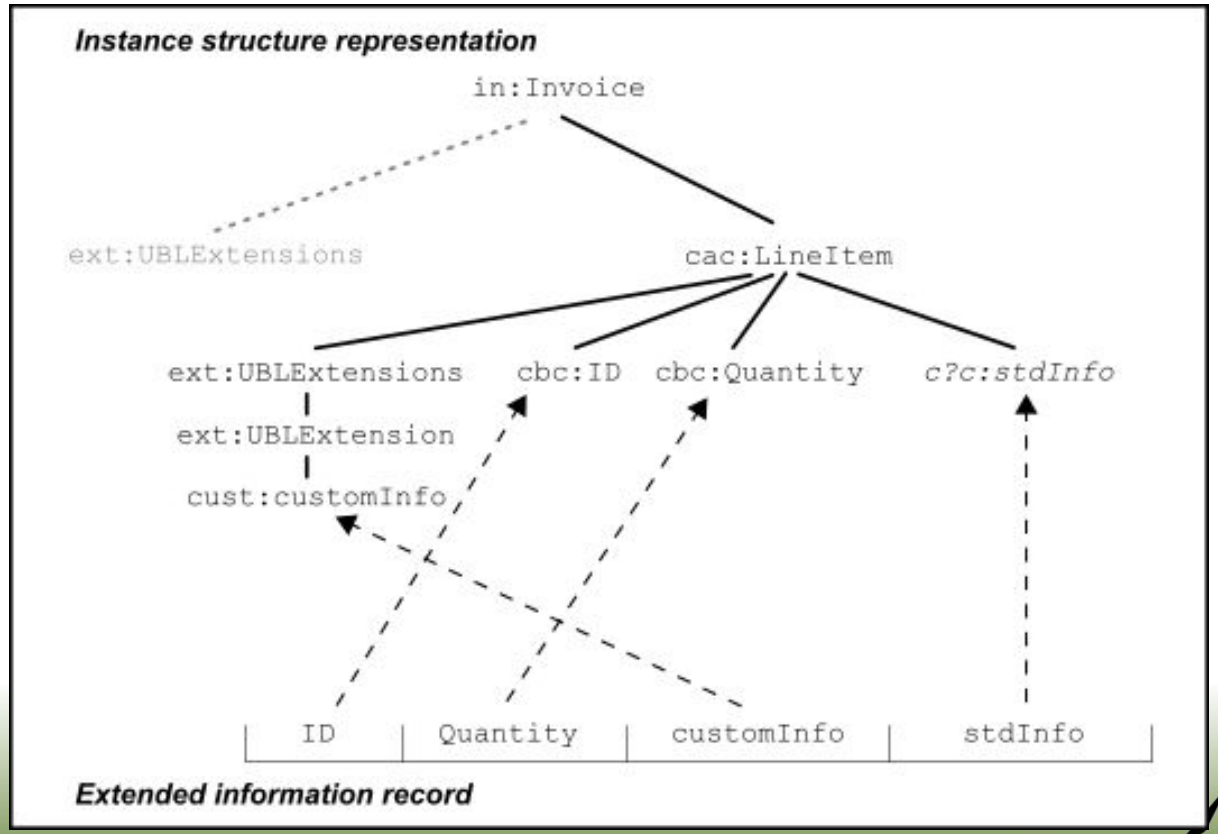
Role for naming and design rules



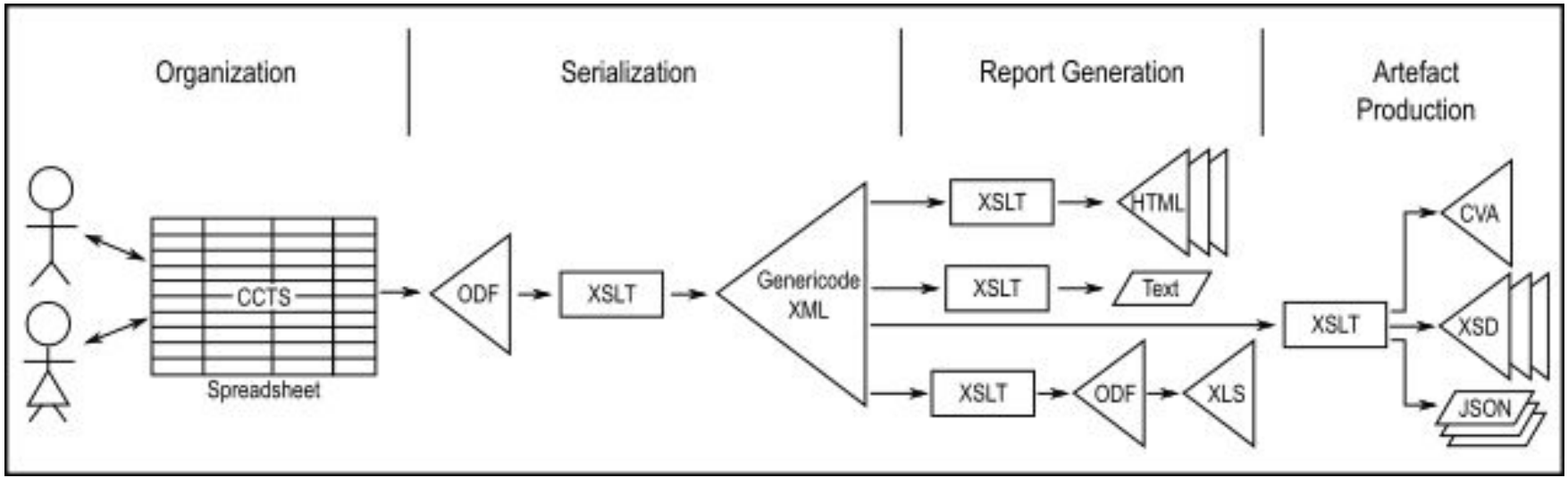
Two-pass validation



Extension content

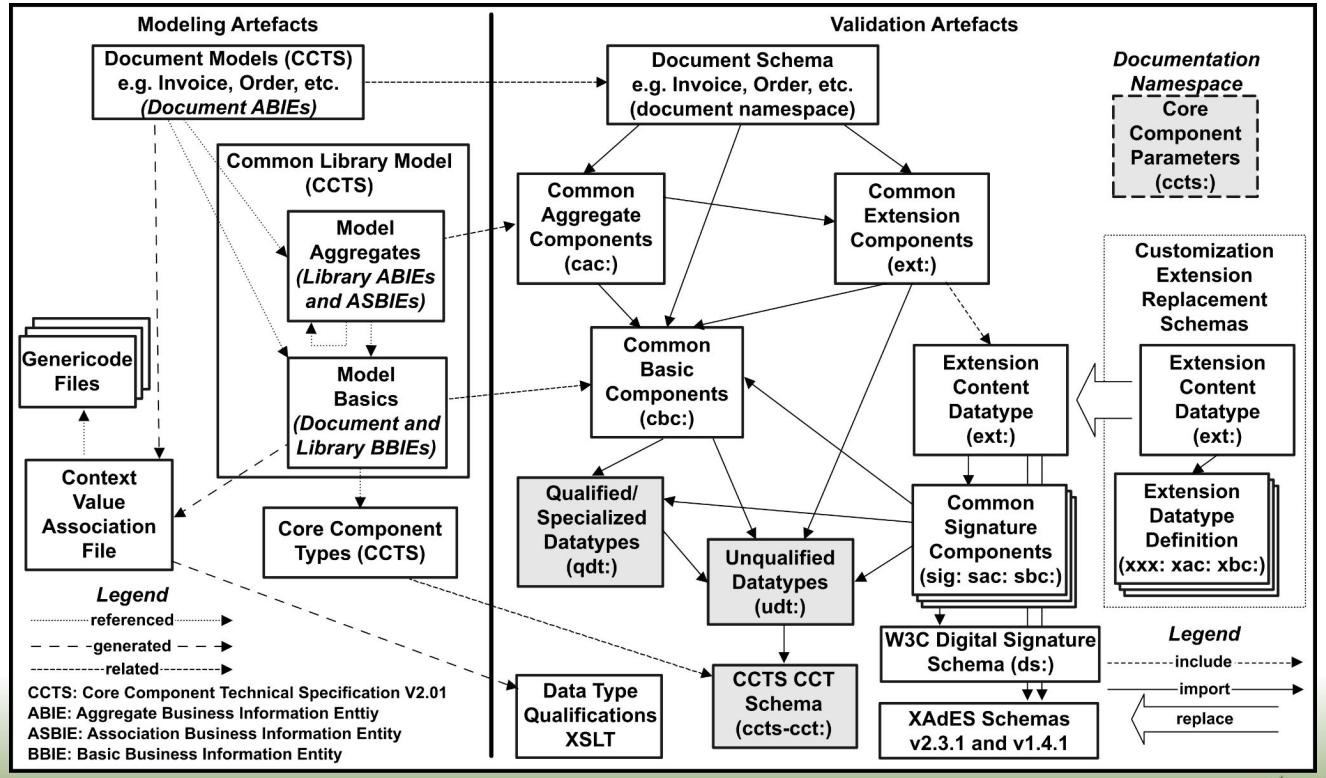


Artefact generation from spreadsheets

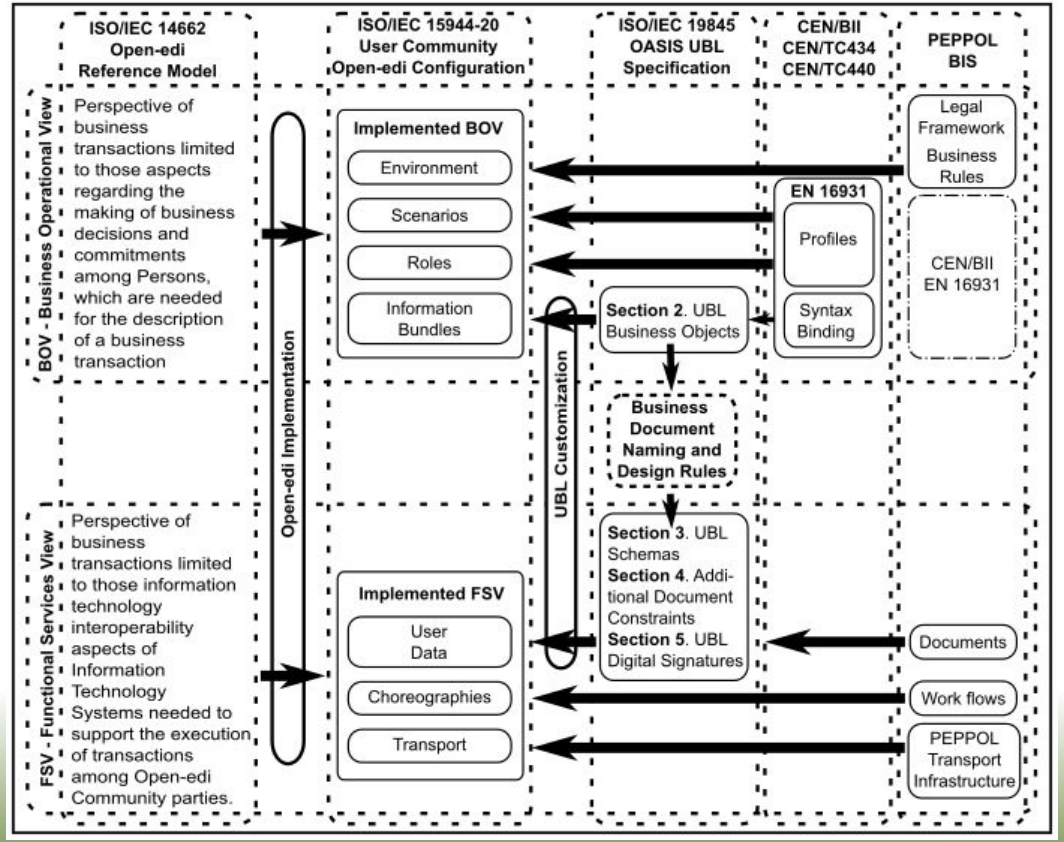


All transformation sources including GitHub actions available in https://github.com/oasis-tcs/ubl

Schema fragment hierarchy



Application of document semantics in context



Implications

What semantics govern your information set?

- find an abstraction
- determine the mechanical rules of producing schema expressions
- model your document using the abstraction
- generate the validation artefacts

And don't forget to expect the unexpected

- prepare for it inevitably to arrive

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