

# Framework

## ***Open global standards that are used to represent financial report and business report knowledge graphs***

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“For, if he does not know how to put each thing in its own place, he will find himself in great trouble and confusion as to all his affairs, according to the familiar saying, Where there is not order, there is confusion.” *Luca Pacioli*

### **Executive summary:**

- This resource provides a bottom up understanding of technical details of exchanging complex information.

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The purpose of this document is to provide a “bottom up” understanding of important details of the technical framework used for exchanging complex information. An inventory of the logical and technical artifacts used in XBRL-based reports and report models.

## Report Elements

*XML Schema Part 1 Structures*<sup>1</sup> is used to define report elements. This information exchange scheme uses report elements to define terms. There are exactly 6 types of report elements:

- Hypercube
- Dimension
- Member
- Lineltems
- Abstract
- Concept

There is one additional type of report element which is called a “Network” which is defined using a different technical mechanism.

Every report element is described such that the meaning of the report element can be clearly understood and differentiated from other report elements. Descriptions provide authoritative information, nonauthoritative information, interpretations of authoritative information, commentary, and other information. Descriptions are provided using:

- XBRL labels
- XBRL references

In addition, Concepts can be described using the data types which are used to explain the expected fact value data for a Concept.

While it is the case that all other types of report elements are required to have data types per the XBRL technical syntax specification, those data types have no logical meaning per the semantics.

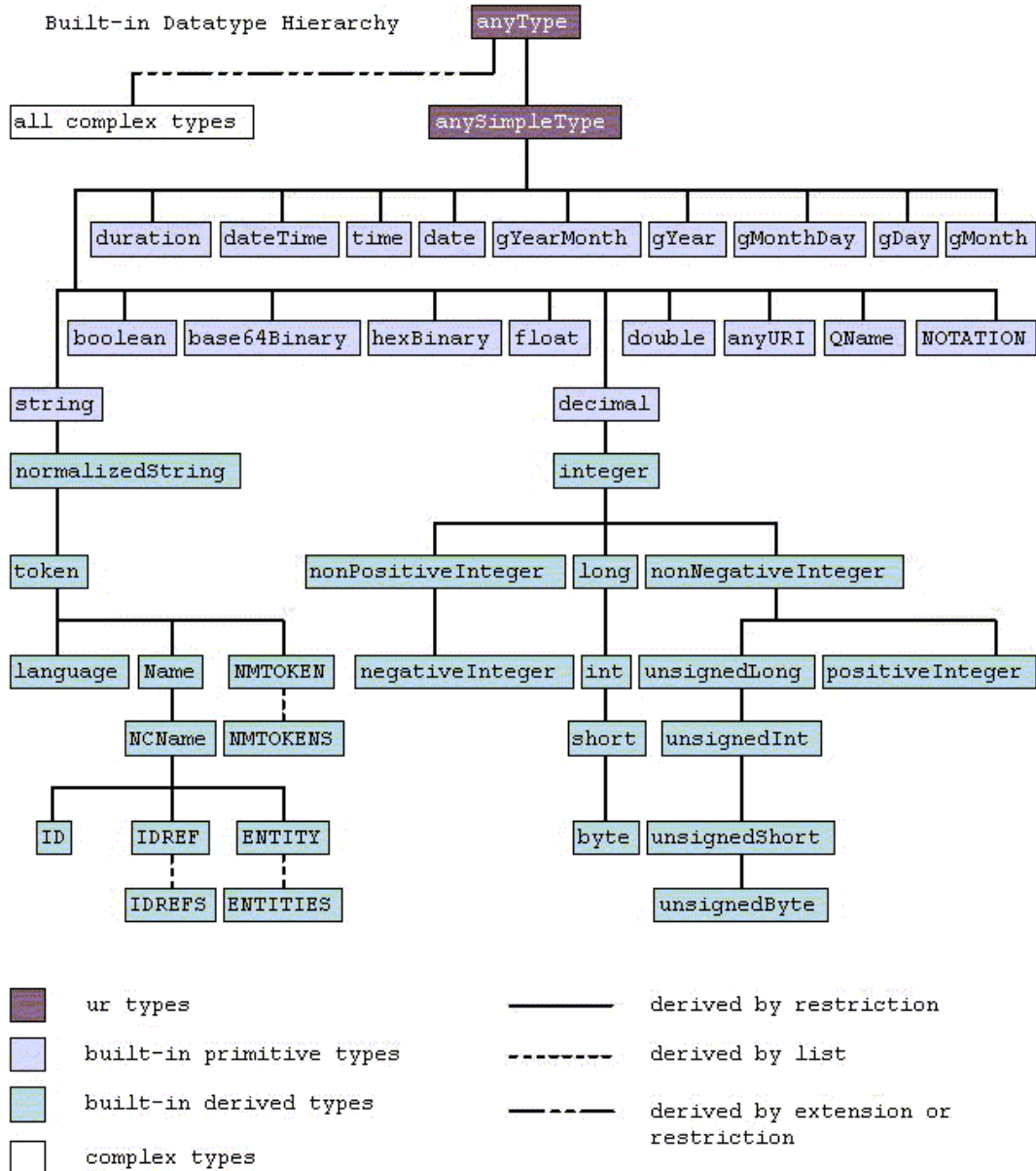
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<sup>1</sup> W3C, *XML Schema Part 1: Structures*, <https://www.w3.org/TR/xmlschema-1/>

## Data Types

Data types related only to Concepts. Global standard data types are used for physically carrying data within the physical syntax for exchanging information. The standard data types are provided by the W3C *XML Schema Part 2: Datatypes*<sup>2</sup> specification.

There are two important things to understand in terms of datatypes. First, here is a hierarchy of the **core built-in datatypes** provided for<sup>3</sup>:



<sup>2</sup> W3C, *XML Schema Part 2: Datatypes*, <https://www.w3.org/TR/xmlschema-2/>

<sup>3</sup> W3C, *XML Schema Part 2: Datatypes, Built-in Datatypes*, <https://www.w3.org/TR/xmlschema-2/#built-in-datatypes>

Secondly, XML Schema Part 2: Datatypes provides a mechanism for the creation of **user-defined datatypes**. All user defined datatypes are derived from the set of core built-in data types, generally constraining/restricting the core build-in datatype.

Using the mechanism describe above, XBRL International has created and provides the following global standard data types<sup>4</sup>:

ns1:typeName	ns1:authoritativeHref
domainItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#domainItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#domainItemType</a>
escapedItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#escapedItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#escapedItemType</a>
xmlNodesItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#xmlNodesItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#xmlNodesItemType</a>
xmlItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#xmlItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#xmlItemType</a>
textBlockItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#textBlockItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#textBlockItemType</a>
percentItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#percentItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#percentItemType</a>
perShareItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#perShareItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#perShareItemType</a>
areaItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#areaItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#areaItemType</a>
volumeItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#volumeItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#volumeItemType</a>
massItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#massItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#massItemType</a>
weightItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#weightItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#weightItemType</a>
energyItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#energyItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#energyItemType</a>
powerItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#powerItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#powerItemType</a>
lengthItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#lengthItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#lengthItemType</a>
memoryItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#memoryItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#memoryItemType</a>
noDecimalsMonetaryItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#noDecimalsMonetaryItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#noDecimalsMonetaryItemType</a>
nonNegativeMonetaryItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#nonNegativeMonetaryItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#nonNegativeMonetaryItemType</a>
nonNegativeNoDecimalsMonetaryItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#nonNegativeNoDecimalsMonetaryItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#nonNegativeNoDecimalsMonetaryItemType</a>
insolationItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#insolationItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#insolationItemType</a>
temperatureItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#temperatureItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#temperatureItemType</a>
pressureItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#pressureItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#pressureItemType</a>
frequencyItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#frequencyItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#frequencyItemType</a>
irradianceItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#irradianceItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#irradianceItemType</a>
speedItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#speedItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#speedItemType</a>
planeAngleItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#planeAngleItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#planeAngleItemType</a>
voltageItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#voltageItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#voltageItemType</a>
electricCurrentItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#electricCurrentItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#electricCurrentItemType</a>
forceItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#forceItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#forceItemType</a>
electricChargeItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#electricChargeItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#electricChargeItemType</a>
guidanceItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#guidanceItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#guidanceItemType</a>
noLangTokenItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#noLangTokenItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#noLangTokenItemType</a>
noLangStringItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#noLangStringItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#noLangStringItemType</a>
prefixedContentItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#prefixedContentItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#prefixedContentItemType</a>
prefixedContentType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#prefixedContentType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#prefixedContentType</a>
SQNameItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#SQNameItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#SQNameItemType</a>
SQNameType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#SQNameType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#SQNameType</a>
SQNamesItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#SQNamesItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#SQNamesItemType</a>
SQNamesType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#SQNamesType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#SQNamesType</a>
gYearListItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#gYearListItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#gYearListItemType</a>
flowItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#flowItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#flowItemType</a>
massFlowItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#massFlowItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#massFlowItemType</a>
monetaryPerLengthItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#monetaryPerLengthItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#monetaryPerLengthItemType</a>
monetaryPerAreaItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#monetaryPerAreaItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#monetaryPerAreaItemType</a>
monetaryPerVolumeItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#monetaryPerVolumeItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#monetaryPerVolumeItemType</a>
monetaryPerDurationItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#monetaryPerDurationItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#monetaryPerDurationItemType</a>
monetaryPerEnergyItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#monetaryPerEnergyItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#monetaryPerEnergyItemType</a>
monetaryPerMassItemType	<a href="https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#monetaryPerMassItemType">https://www.xbrl.org/dtr/type/2020-01-21/types.xsd#monetaryPerMassItemType</a>

<sup>4</sup> XBRL International, Data Types Registry, <http://www.xbrl.org/dtr/dtr.xml>

In addition, there is a Interoperable Taxonomy Architecture (ITA) global data types initiative<sup>5</sup>.

## Units

Enhancing monetary data types, XBRL International provides global standard units and a standard units registry<sup>6</sup> of commonly used units to make comparisons easier:

unitId	unitName	nsUnit	status	versionDate	itemType	itemTypeDate	symbol	definition
acre	Acre	<a href="http://www.xbrl.org/2009/utr">http://www.xbrl.org/2009/utr</a>	REC	2012-10-31	areaItemType	2009-12-16	a	Acre
sqft	Square Foot	<a href="http://www.xbrl.org/2009/utr">http://www.xbrl.org/2009/utr</a>	REC	2012-10-31	areaItemType	2009-12-16	ft <sup>2</sup>	Square Foot
sqmi	Square Mile	<a href="http://www.xbrl.org/2009/utr">http://www.xbrl.org/2009/utr</a>	REC	2012-10-31	areaItemType	2009-12-16	mi <sup>2</sup>	Square Miles
sqyd	Square Yard	<a href="http://www.xbrl.org/2009/utr">http://www.xbrl.org/2009/utr</a>	REC	2012-10-31	areaItemType	2009-12-16	yd <sup>2</sup>	Square Yard
Boe	Barrel of Oil Equivalent	<a href="http://www.xbrl.org/2009/utr">http://www.xbrl.org/2009/utr</a>	REC	2012-10-31	energyItemType	2009-12-16	Boe	Barrel of Oil Equivalent
Btu	British Thermal Unit	<a href="http://www.xbrl.org/2009/utr">http://www.xbrl.org/2009/utr</a>	REC	2012-10-31	energyItemType	2009-12-16	BTU	British Thermal Unit
ft_lb	Foot-Pound	<a href="http://www.xbrl.org/2009/utr">http://www.xbrl.org/2009/utr</a>	REC	2012-10-31	energyItemType	2009-12-16	ft-lb	Foot-Pound Force
MBoe	Thousand Barrels of Oil Equivalent	<a href="http://www.xbrl.org/2009/utr">http://www.xbrl.org/2009/utr</a>	REC	2012-10-31	energyItemType	2009-12-16	MBoe	Thousand Barrels of Oil Equivalent
Mcfe	Thousand Cubic Foot Equivalent	<a href="http://www.xbrl.org/2009/utr">http://www.xbrl.org/2009/utr</a>	REC	2012-10-31	energyItemType	2009-12-16	Mcfe	Thousand Cubic Foot Equivalent
MBoe	Millions of Barrels of Oil Equivalent	<a href="http://www.xbrl.org/2009/utr">http://www.xbrl.org/2009/utr</a>	REC	2012-10-31	energyItemType	2009-12-16	MBoe	Millions of Barrels of Oil Equivalent
MMBTU	Millions of BTU	<a href="http://www.xbrl.org/2009/utr">http://www.xbrl.org/2009/utr</a>	REC	2012-10-31	energyItemType	2009-12-16	MMBTU	Millions of BTU
ft	Foot	<a href="http://www.xbrl.org/2009/utr">http://www.xbrl.org/2009/utr</a>	REC	2012-10-31	lengthItemType	2009-12-16	ft	Twelve Inches
in	Inch	<a href="http://www.xbrl.org/2009/utr">http://www.xbrl.org/2009/utr</a>	REC	2012-10-31	lengthItemType	2009-12-16	in	Inch
mi	Mile	<a href="http://www.xbrl.org/2009/utr">http://www.xbrl.org/2009/utr</a>	REC	2012-10-31	lengthItemType	2009-12-16	mi	5280 Feet
nmi	Nautical Mile	<a href="http://www.xbrl.org/2009/utr">http://www.xbrl.org/2009/utr</a>	REC	2012-10-31	lengthItemType	2009-12-16	nmi	1.15078 Miles (One Minute of Arc Latit
yd	Yard	<a href="http://www.xbrl.org/2009/utr">http://www.xbrl.org/2009/utr</a>	REC	2012-10-31	lengthItemType	2009-12-16	yd	Three Feet
lb	Pound	<a href="http://www.xbrl.org/2009/utr">http://www.xbrl.org/2009/utr</a>	REC	2012-10-31	massItemType	2009-12-16	lb	Pound of Mass, as Used in Commerce ( <a href="http://en.wikipedia.org/wiki/Pound">http://en.wikipedia.org/wiki/Pound</a> )
	Ounce	<a href="http://www.xbrl.org/2009/utr">http://www.xbrl.org/2009/utr</a>	REC	2012-10-31	massItemType	2009-12-16	oz	US Ounce

Additional units can be defined using a mechanism provided by XBRL.

## Structures

Structures are created by associating terms and rules to a specific named structure. In XBRL there are two approaches that can be used to represent structures:

- XBRL Networks (a.k.a. link group<sup>7</sup>) which are sets of XLink extended links with the same extended link role
- XBRL Dimensions Hypercubes

Structures are physically created using the W3C XML Linking Language (XLink) Version 1.1<sup>8</sup> global standard.

<sup>5</sup> Data Types Registry,

<sup>6</sup> XBRL International, Units Registry, <https://specifications.xbrl.org/work-product-index-registries-units-registry-1.0.html>

<sup>7</sup> XBRL International, Link Group, <https://www.xbrl.org/Specification/oim/REC-2021-10-13/oim-REC-2021-10-13.html#component-linkgroup>

<sup>8</sup> W3C, XML Linking Language (XLink) Version 1.1, <https://www.w3.org/TR/xlink11/>

## Rules

Rules are created using XBRL Formula<sup>9</sup> which leverages the W3C *XML Path Language (XPath) 2.0* specification<sup>10</sup>.

## Facts

Facts are defined by the XBRL 2.1 technical specification<sup>11</sup> and the Open Information Model<sup>12</sup>. Facts are discussed in the XBRL Dimensions technical specification.

Facts have aspects that are defined in two ways:

- **Core aspects:** Defined by XBRL and are required; entity, period, concept.
- **Noncore aspects** (a.k.a. taxonomy defined dimension): Defined by creators of an XBRL taxonomy.

XBRL footnotes<sup>13</sup> can be used to represent parenthetical information that relates to a specific fact.

## Dimensional Model

XBRL Dimensions 1.0<sup>14</sup> defines a formal dimensional fact model<sup>15</sup> that is sufficient enough to realize a clear and exhaustive representation of multidimensional concepts. XBRL International provides additional guidance and technical considerations relating to XBRL Dimensions use<sup>16</sup>. Important specifics of that guidance include:

- **<segment> and <scenario> elements carry no meaning:** Where you put XBRL Dimensions information has no semantics. Whether you use the <segment> element of the context or the <scenario> element; the meaning is the same. XBRL International recommends using either <segment> or <scenario>; for new taxonomies they recommend using <scenario>.
- **Always close hypercubes:** All hypercubes (positive) should be closed. Don't use negative hypercubes without an associated positive hypercube.

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<sup>9</sup> XBRL International, *XBRL Formula Overview 1.0*, <https://www.xbrl.org/wgn/xbrl-formula-overview/pwd-2011-12-21/xbrl-formula-overview-wgn-pwd-2011-12-21.html>

<sup>10</sup> W3C, *XML Path Language (XPath) 2.0*, <https://www.w3.org/TR/xpath20/>

<sup>11</sup> XBRL International, XBRL 2.1 Technical Specification, Fact, <https://www.xbrl.org/Specification/XBRL-2.1/REC-2003-12-31/XBRL-2.1-REC-2003-12-31+corrected-errata-2013-02-20.html#fact>

<sup>12</sup> XBRL International, Open Information Model, <https://www.xbrl.org/Specification/oim/REC-2021-10-13/oim-REC-2021-10-13.html#component-fact>

<sup>13</sup> XBRL International, XBRL 2.1 Technical Specification, Footnotes, <https://www.xbrl.org/Specification/XBRL-2.1/REC-2003-12-31/XBRL-2.1-REC-2003-12-31+corrected-errata-2013-02-20.html# 4.11>

<sup>14</sup> XBRL International, *XBRL Dimensions 1.0*, <https://specifications.xbrl.org/work-product-index-group-dimensions-dimensions.html>

<sup>15</sup> Wikipedia, *Dimensional Fact Model*, [https://en.wikipedia.org/wiki/Dimensional\\_fact\\_model](https://en.wikipedia.org/wiki/Dimensional_fact_model)

<sup>16</sup> XBRL International, Technical Considerations for the use of XBRL Dimensions 1.0, <http://www.xbrl.org/WGN/dimensions-use/WGN-2015-03-25/dimensions-use-WGN-2015-03-25.html>

- **Don't mix dimensional and nondimensional models:** The statement (Recommendation 3.5), "*Where a taxonomy makes use of dimensions, all concepts should be associated with at least one hypercube, even if that hypercube has no associated dimensions.*" basically means don't mix a dimensional model and a nondimensional model.
- **Dimension defaults are used to represent a total:** The statement (Recommendation 5.1) "*Dimension defaults should only be used to specify a member which is the natural total for a domain.*" basically means that dimension defaults convey information about a total.
- **Don't use complex typed dimensions:** The statement (Recommendation 6.1) "*Typed dimensions should only use XML Schema simple types as their data type.*" basically means don't use complex typed dimensions, use only simple typed dimensions only.

## Restrictions of XBRL

XBRL technical specification rules are used to validate the syntax used to represent information within this framework.

The following section summarizes parts which exist within the XBRL 2.1 Specification, XBRL Dimensions 1.0 specification, and XBRL Formula 1.0 specification which **MUST NOT** exist within XBRL taxonomy schemas, XBRL linkbases, and XBRL instances which comply with this framework.

All other aspects of XBRL 2.1, XBRL Dimensions 1.0, XBRL Formula 1.0, and Generic Linkbase 1.0 are allowed other than those items specifically prohibited within this section.

### ***Tuples MUST NOT exist.***

Tuples can always be detected because elements which define tuples have a substitutionGroup attribute value of "xbrli:tuple". No such elements are allowed under this profile.

**Reasoning:** Tuples are not allowed by the US GAAP Taxonomy Architecture or the IFRS XBRL Taxonomy architecture and are therefore not allowed within SEC XBRL financial filings. Tuples and XBRL Dimensions tend to provide the same functionality so both are not necessary. XBRL Dimensions provides better functionality than tuples.

### ***Complex typed members MUST NOT exist.***

Typed members can always be detected as they contain the xbrldt:typedDomainRef attribute which defines the typed member. No such attribute should ever be detected within a discoverable taxonomy set (DTS) which makes use of this profile.

**Reasoning:** Typed members are not allowed by the US GAAP XBRL Taxonomy or IFRS XBRL Taxonomy Architecture and are therefore not allowed within SEC XBRL financial filings. Explicit members can be created which serve the same general purpose as typed members.

### ***Precision attribute MUST NOT exist on facts.***



The precision attribute and the decimals attribute are both available in XBRL to provide information about the value of a numeric fact. Only the decimals attribute is allowed in this framework, the precision attribute should never be used.

**Reasoning:** The precision and decimals attribute provide nearly equivalent functionality in two different ways and it is impossible to convert bidirectionally precision to decimals. Both the ESMA and SEC make use of the decimals attribute exclusively.

## Association Roles

The following is a summary of the roles used on associations within a knowledge graph which are provided separated by the category of the associations.

### ***Disclosure Mechanics:***

The following is disclosure mechanics logic:

Association Role	Definition
disclosure-requiresConcept	Type of full-hasPart relation. Indicates that a disclosure (full) is required to have a specific concept (hasPart). This concept MUST always be present for the specified disclosure.
disclosure-requiresHypercube	Type of full-hasPart relation. Indicates that a disclosure (full) is required to have a specific concept (hasPart). This concept MUST always be present for the specified disclosure.
disclosure-requiresDimension	Indicates that the disclosure requires the specified Dimension to exist.
disclosure-requiresMember	Indicates that the disclosure requires the specified Member to exist.
disclosure-requiresConceptInContext	Type of full-hasPart relation. Indicates that a disclosure (full) is required to have a specific concept (hasPart). This concept MUST always be present for the specified disclosure AND in the same context.
disclosure-hasConceptArrangementPattern	Indicates that a disclosure is organized using the indicated concept arrangement pattern.
disclosure-hasMemberArrangementPattern	Indicates that a disclosure has an axis whose members are arranged using a particular member arrangement pattern.
disclosure-relatedPolicy	Indicates that a disclosure has a related policy.
disclosure-relatedLevel1NoteTextBlock	Indicates that a disclosure has related Level 1 Note [Text Block].
disclosure-equivalentTextblock	Indicates that the disclosure has the text block which can also be used to report the same information
disclosure-isSECType	Indicates that a disclosure is a specific SEC type (Document, Statement, Disclosure, Schedule) per the EFM.
disclosure-oftenContainsConcept	Evoking strength. A disclosure often contains this specific concept.
disclosure-mostlyContainsConcept	Evoking strength. A disclosure mostly contains this specific concept.
disclosure-rarelyContainsConcept	Evoking strength. A disclosure rarely contains this specific concept.
disclosure-practicallyAlwaysContainsConcept	Evoking strength. A disclosure practically always contains this specific concept.
disclosure-neverContainsConcept	Evoking strength. A disclosure never contains this specific concept.
concept-allowedAlternativeConcept	Type of class-subClass relation. Allow for an alternative concept to be used in place of another concept.
conceptArrangementPattern-requiresConcept	Indicates that a concept arrangement pattern requires a concept that will be the total of a roll up or balance or instant of a roll forward or total of an adjustment
dimension-allowedAlternativeDimension	Type of class-subClass relation. Allow for an alternative dimension to be used in place of another dimension.
disclosure-requiresFactSet	Indicates that a disclosure MUST contain a specified fact set

## Reporting Checklist:

The following is reporting checklist logic:

Association Role	Definition
report-requiresDisclosure	Type of full-hasPart relation. Indicates that a financial report (full) is required to have a specific disclosure (hasPart). This disclosure MUST always be present.
report-possibleDisclosure	Indicates that a financial report might possibly provide a specific disclosure.
report-reportsConcept	Indicates that a financial report contains a specific reported fact which has a characteristic of a specific concept.
disclosure-allowedAlternativeDisclosure	Type of class-subClass relation. Allow for an alternative disclosure to be used in place of another disclosure.
reportingLineItem-requiresDisclosure	Indicates that if a specific line item is reported, then a financial report is required to have a specific disclosure. If the line item is present, the disclosure is required.
reportedDisclosure-requiresDisclosure	Indicates that if a specified disclosure exists, then another disclosure is also required to exist.
reportedFact-requiresReportedFact	Indicates that if a specified reported fact exist, then another reported fact is also required.
reportedFact-prohibitsReportedFact	Indicates that if a specified reported fact exist, then another reported fact is MUST NOT exist.

## Model Structure of Presentation Associations:

The following is model structure associations rules logic.

Association Role	Definition
parentCategory-allowedChildCategory	The parent report element category allows this report element category as a child.
parentCategory-disallowedChildCategory	The parent report element category allows this report element category as a child.
parentCategory-discouragedChildCategory	The parent report element category discourages this report element category as a child (warning).

(Allows for the creation of the allowed and disallowed XBRL presentation relations)

		Parent						
		Network	Table	Axis	Member	Line Items	Abstract	Concept
Child	Network	Illegal XBRL	Illegal XBRL	Illegal XBRL	Illegal XBRL	Illegal XBRL	Illegal XBRL	Illegal XBRL
	Table	OK	Disallowed	Disallowed	Disallowed	Disallowed	OK	Disallowed
	Axis	Disallowed	OK	Disallowed	Disallowed	Disallowed	Disallowed	Disallowed
	Member	Disallowed	Disallowed	OK	OK	Disallowed	Disallowed	Disallowed
	Line Items	Disallowed	OK	Disallowed	Disallowed	Disallowed	Disallowed	Disallowed
	Abstract	OK	Disallowed	Disallowed	Disallowed	OK	OK	Disallowed
	Concept	Disallowed	Disallowed	Disallowed	Disallowed	OK	OK	Disallowed

## Type-subtype Associations:

The following is type-subtype associations logic:

Association Role	Definition
class-subclass	The parent class has an allowed subclass of the child.
general-special	The parent is a generalization of the child which is a specialization of the more general parent.
wider-narrower	The parent is a wider version of the child which is a narrower version of the wider parent.
has-part	The parent is a whole which contains the part defined by the child.
whole-part	The parent is a whole which contains the part defined by the child.
essence-alias	The parent and the child are effectively interchangeable alternatives.

## Properties:

The following is properties associations logic:

Association Role	Definition
property-hasProperty	Creates a relation between a property and a report element that has that property.
property-disjointedProperty	Creates a relation between a property and another property to indicate that the two properties are disjointed.

## Country codes:

The following are ISO 3166 country codes<sup>17</sup> represented using XBRL that are usable by XBRL taxonomies, linkbases, and instances:

<https://eurofiling.info/eu/fr/xbrl/dict/dom/ga/mem.xsd>

ISO 3166 <sup>[1]</sup>			ISO 3166-1 <sup>[2]</sup>			ISO 3166-2 <sup>[3]</sup>	Internet ccTLD <sup>[9]</sup>
Country name <sup>[5]</sup>	Official state name <sup>[6][a]</sup>	Sovereignty <sup>[6][7][8]</sup>	Alpha-2 code <sup>[5]</sup>	Alpha-3 code <sup>[5]</sup>	Numeric code <sup>[5]</sup>	Subdivision code links <sup>[3]</sup>	
 Afghanistan	The Islamic Republic of Afghanistan	UN member state	AF	AFG	004	ISO 3166-2:AF	.af
 Åland Islands	Åland	Finland	AX	ALA	248	ISO 3166-2:AX	.ax
 Albania	The Republic of Albania	UN member state	AL	ALB	008	ISO 3166-2:AL	.al
 Algeria	The People's Democratic Republic of Algeria	UN member state	DZ	DZA	012	ISO 3166-2:DZ	.dz
 American Samoa	The Territory of American Samoa	United States	AS	ASM	016	ISO 3166-2:AS	.as

<sup>17</sup> Wikipedia, ISO 3166 Country Codes, [https://en.wikipedia.org/wiki/List\\_of\\_ISO\\_3166\\_country\\_codes](https://en.wikipedia.org/wiki/List_of_ISO_3166_country_codes)

## Currency Codes:

The following are ISO 4166 currency codes<sup>18</sup> represented using XBRL that are usable by XBRL taxonomies, linkbases, and instances:

<https://eurofiling.info/eu/fr/xbrl/dict/dom/cu/mem.xsd>

Code ↕	Num ↕	D <sup>[a]</sup> ↕	Currency ↕	Locations listed for this currency <sup>[b]</sup> ↕
AED	784	2	<a href="#">United Arab Emirates dirham</a>	 <a href="#">United Arab Emirates</a>
AFN	971	2	<a href="#">Afghan afghani</a>	 <a href="#">Afghanistan</a>
ALL	008	2	<a href="#">Albanian lek</a>	 <a href="#">Albania</a>
AMD	051	2	<a href="#">Armenian dram</a>	 <a href="#">Armenia</a>
ANG	532	2	<a href="#">Netherlands Antillean guilder</a>	 <a href="#">Curaçao (CW)</a> ,  <a href="#">Sint Maarten (SX)</a>
AOA	973	2	<a href="#">Angolan kwanza</a>	 <a href="#">Angola</a>
				 <a href="#">Argentina</a>

## Representing Standard Financial Accounting Logic:

The following is information related to representing financial accounting logic<sup>19</sup> that is published by XBRL International in their Link Role Registry (LRR)<sup>20</sup>:

Association Role	Definition
instant-inflow	Indicates that the inflow duration concept adds to the balance of the instant concept. (used with roll forwards)
instant-outflow	Indicates that the outflow duration concept reduces the balance of the instant concept. (used with roll forwards)
instant-contra	Indicates that the target instant contra concept is an offset against the concept on the source instant end of the arc.
instant-accrual	Indicates the relationship between an instant concept and a durational accrual concept representing the provision of expense or income against the instant concept (Typically an asset or liability) to represent use or interest costs during a reporting period where no cash transaction occurs
trait-concept	Indicates the relationship between a source duration trait domain member and a target concept. Trait concepts are abstract concepts with a domain item type. Trait-concept relationships describe the qualities or states of being of a target concept. Trait source concepts define a single trait such as Operating, Financing, Investing, Current, Noncurrent, Estimated Accrual, Continuing, Discontinued etc.
class-subclass	Indicates the relationship between a source class concept and a target subclass concept. Class-subclass relationships describe that the target concept has the same attributes of the class concept with further qualifiers.
trait-domain	Defines a relationship between the trait type concept and the domain which represents a set of possible trait values.

<sup>18</sup> Wikipedia, ISO 4217 Currency Codes, [https://en.wikipedia.org/wiki/ISO\\_4217](https://en.wikipedia.org/wiki/ISO_4217)

<sup>19</sup> XBRL International, Accounting Logic, <http://www.xbrl.org/lrr/arcrole/accounting-arcrole-2023-01-04.xsd>

<sup>20</sup> XBRL International, Link Role Registry (LRR), <https://specifications.xbrl.org/work-product-index-registries-lrr-2.0.html>