XBRL & SDMX

Parallel dimensions

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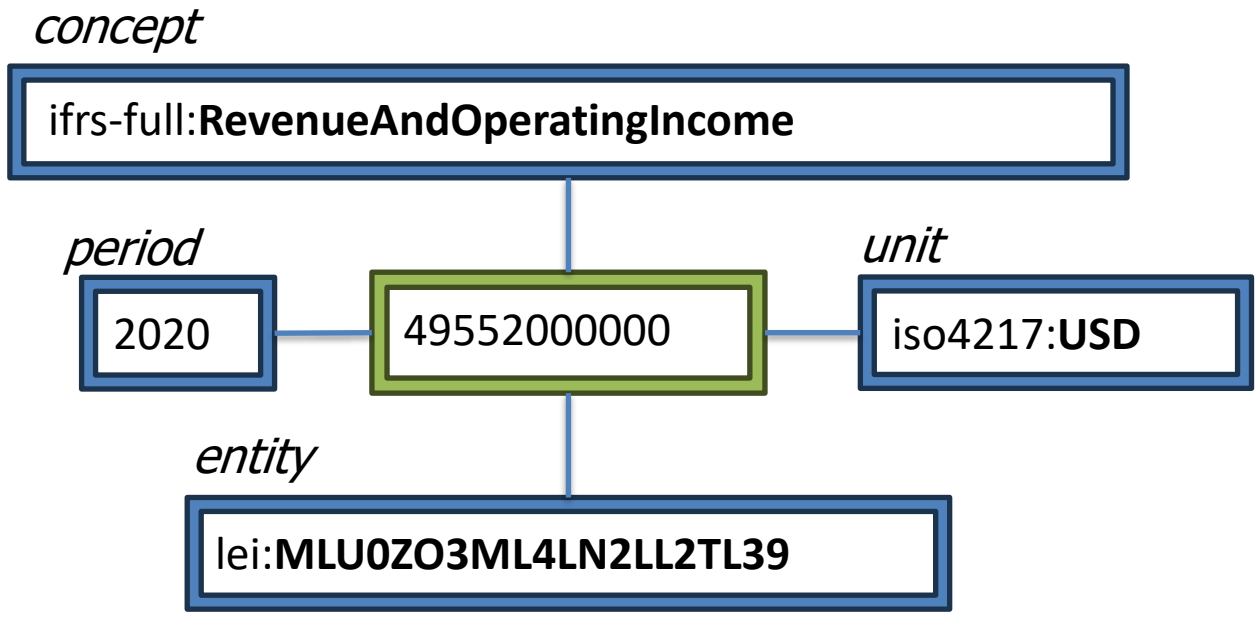
XBRL Reports

- Dimensional data for
  - Annual financials
  - Tax data
  - Credit risk
  - Water management
  - Sustainability
  - …
- Each **report** is an unordered collection of **facts** qualified by **dimensions**



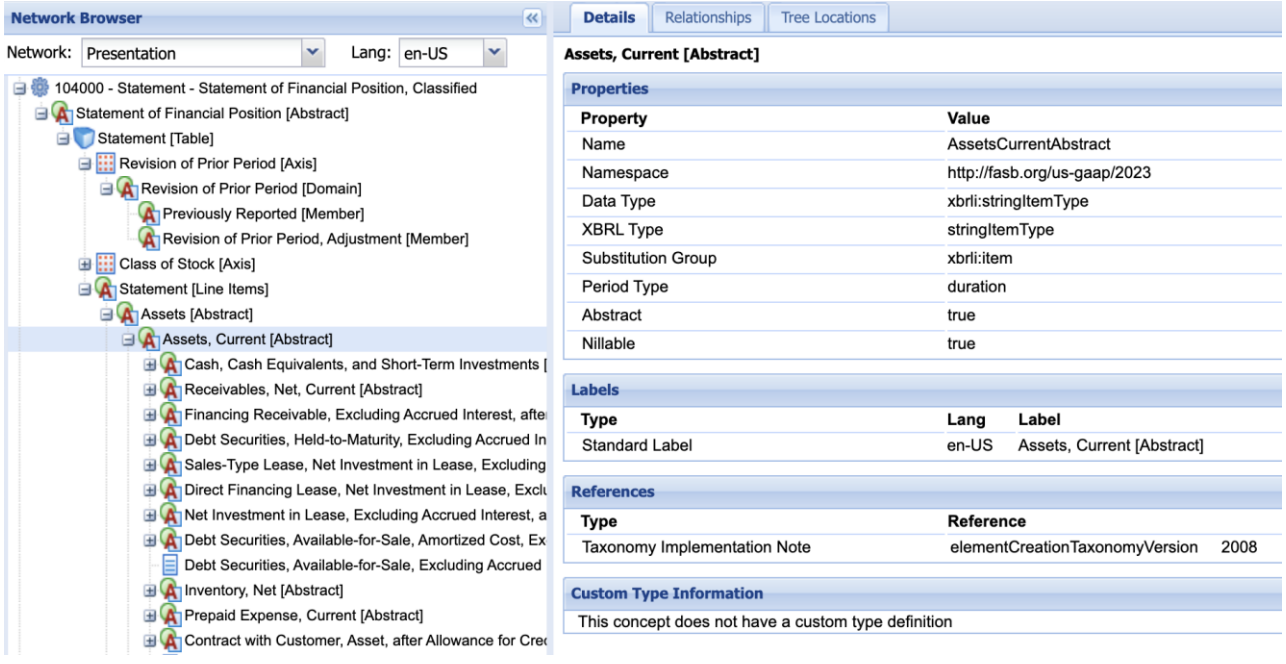
XBRL Taxonomies

- Concepts
- Dimensions
- Types

- Labels
- References

- Calculations
- Presentation trees

- Cube definitions
- Dimensional assertions
- Pivot table rendering instructions



https://xbrlview.fasb.org/

XBRL's historic strengths & weaknesses

- Reliability
  - Comprehensive validation
- Flexibility
  - Proven in many countries and domains
- Extensibility
  - Mix international, national and company-specific metadata
- Interoperability
  - Large range of mature commercial and open source software
  - Conformance suites and certification

- Verbosity
  - XML, XML Schema, XLink
- Complexity
  - DTS, DRS, Linkbases, arcroleTypes, substitution groups
- Comparability
  - Company-specific extensions can be overused

xBRL-JSON

- Clearest, simplest expression of the model
- Easy access to all the features of a fact

```
"f3536": {
  "value": "62465000000",
  "decimals": -6,
  "dimensions": {
      "concept": "ifrs-full:Revenue",
      "entity": "scheme:254900BLYIXBFFRLUJ90",
      "period": "2022-01-01T00:00:00/2023-01-01T00:00:00",
      "ifrs-full:ConsolidatedAndSeparateFinancialStatementsAxis": "ifrs-full:SeparateMember",
      "unit": "iso4217:USD"
  }
}
```


xBRL-CSV

- Multiple CSV files, linked by JSON metadata
- Most efficient XBRL format for granular data
- Supports a range of representations
  - One fact per row
  - Multiple facts per row
- Unlike hypercubes, xBRL-CSV can constrain built-in dimensions (period, entity, etc)

SDMX vs XBRL – Common features

Feature	SDMX	XBRL
Data document	Message	Report
Data item	Observation	Fact
Metadata document	DSD + MSD	Taxonomy Package
Metadata subsets	Dataflow + Metadataflow	Entry point
Metric definition	Indicator	Concept
Dimension definition	Dimension	Dimension
Enumeration	Code List	Explicit Domain
Value restrictions	Uncoded (optional format)	Type (XML Schema facets)
Cube definition	Concept scheme, constraints	Hypercubes
Value scaling	Unit multiplier	Scale (iXBRL only)
Dimensional validation rules	VTL	XBRL Formula

SDMX vs XBRL – Differences

- Attributes have no direct counterpart in XBRL
  - Can be modelled using facts/footnotes and links
- XBRL doesn’t have a built-in dimension for geographic area
  - Entity dimension might work?
- XBRL doesn’t model “frequency” (daily, weekly, yearly, etc)
  - xBRL-CSV Table Constraints does
- XBRL has an HTML embedding (iXBRL)
- XBRL captures precision, supports interval arithmetic
- XBRL metadata & extension mechanisms seem more flexible

Nice features of SDMX

- Short identifiers
  - XBRL uses QNames
- Ordered components
  - XBRL dimensions & members have no fixed order
- Explicit targeting of data structures
  - Facts in XBRL are checked against all hypercubes
- Standardized APIs

Collaboration opportunities

- SDMX-XBRL converters
- Learning from each other
  - Adding features
  - Aligning terminology
  - Sharing best practice
- Eventual convergence?

~~Business~~ ~~Statistical~~ *Dimensional* Reporting

- At its heart, XBRL isn't really a **Business** Reporting Language
- Like SDMX, XBRL standardizes the exchange of dimensional data with associated metadata
- Like SDMX, XBRL supports model-driven applications

The world is full of *Dimensional Data*

- Who
- What
- Where
- When
- … Why?

```
<!ATTLIST InstantaneousBeatsPerMinute
  bpm  CDATA #REQUIRED
  time CDATA #REQUIRED
>
]>
<HealthData locale="en_GB">
 <ExportDate value="2018-01-31 18:22:56 +0100"/>
 <Me HKCharacteristicTypeIdentifierDateOfBirth="1978-09-30" HKCharacteristicTypeIdentifierBiologicalSex="HKB
iologicalSexMale" HKCharacteristicTypeIdentifierBloodType="HKBloodTypeNotSet" HKCharacteristicTypeIdentifier
FitzpatrickSkinType="HKFitzpatrickSkinTypeNotSet"/>
 <Record type="HKQuantityTypeIdentifierBodyMass" sourceName="Mark's Apple Watch" unit="kg" creationDate="201
5-06-04 10:00:43 +0100" startDate="2015-06-04 10:00:43 +0100" endDate="2015-06-04 10:00:43 +0100" value="90.
4"/>
```

Expressed in a needless variety of formats