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CREATING VALUE FROM KNOWLEDGE

XBRL Control

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Agenda

- What is XBRL Control?
- Purpose and users
- What is needed?
- XBRL Control model
- Design principles
- XBRL Control further explained

What is XBRL Control?

The goal of xbrlControl is to allow any organization to setup and maintain business models to calculate new data from an XBRL Instance document and/or to define audit and control models to ensure the completeness, correctness and compliance with requirements.

Any financial professional should be able to define models and run the processes.

XBRL driven

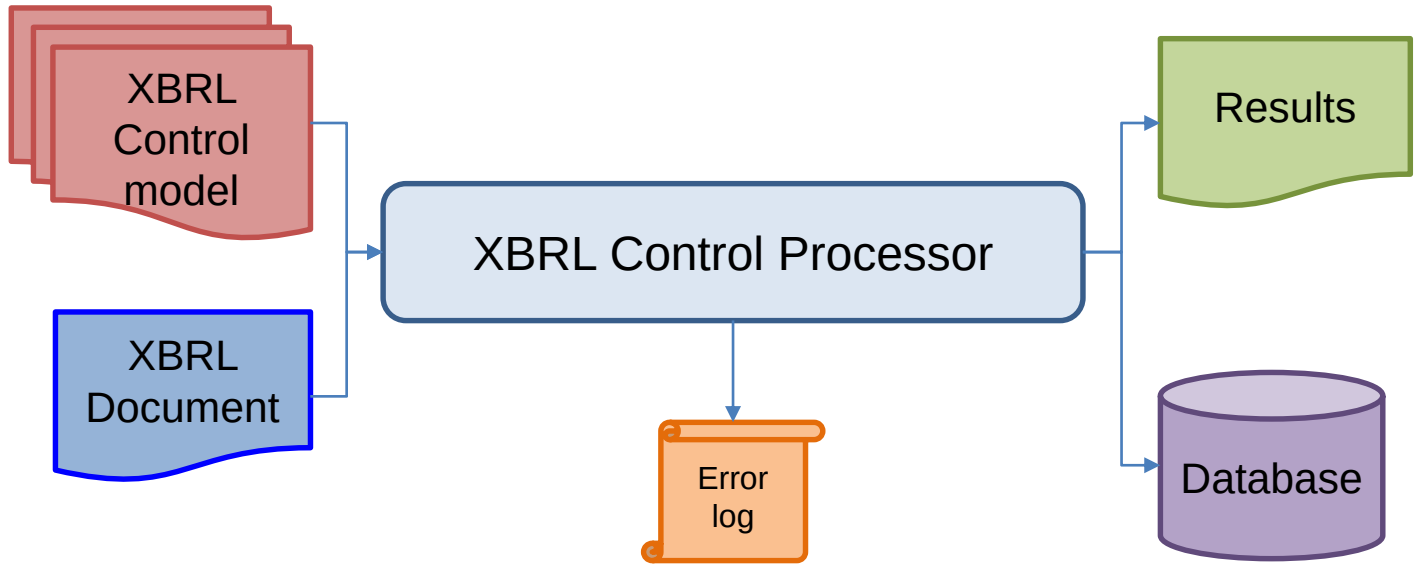
- XBRL Control is fully XBRL driven. The XBRL Control processor will recognize and work with any taxonomy, all data types, contexts, tuples, context schema and XBRL Dimensional taxonomies. XBRL Control can make maximum use of the XBRL concepts and components to compose the business models.
- XBRL Control models are described in standard XML files.

Purpose and users

- Different purposes
  - Business calculation models
  - Audit & Control processes
- For business users of XBRL data
- For internal and external auditors

What is needed?

- XBRL Instance Documents
- XBRL Control model



XBRL data

Context info:
- Periods
- Units
- Entity
- Dimensions

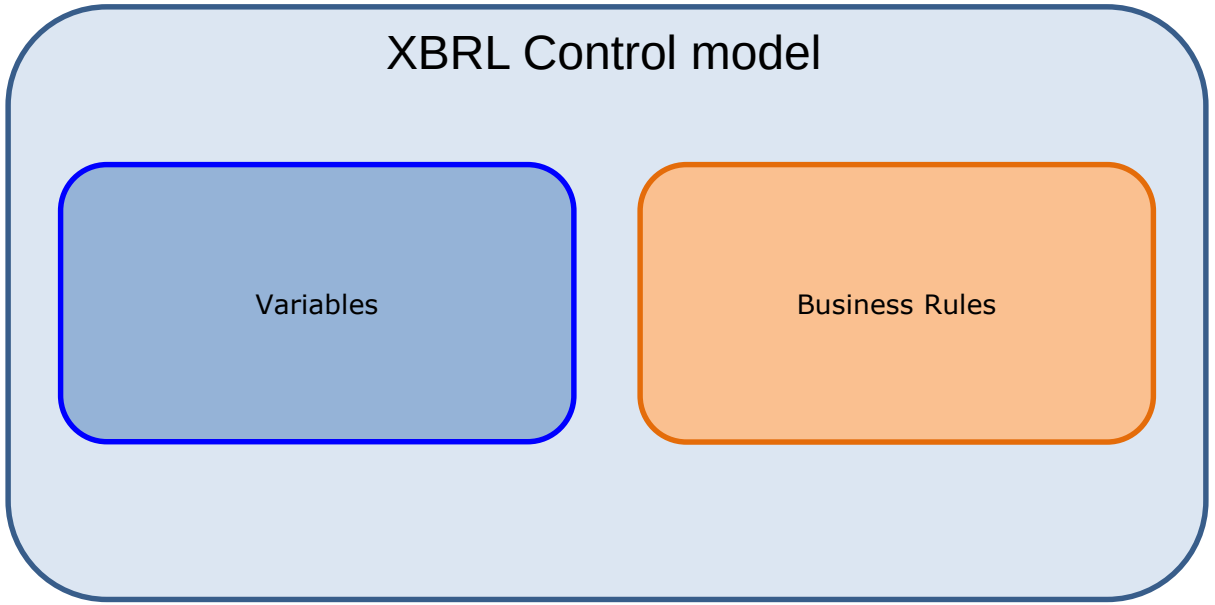
```
<xbrli:context id="Duration_2011">
    <xbrli:entity>
        <xbrli:identifier scheme="http://VirtualCompany.com" >Vico1</xbrli:identifier>
    </xbrli:entity>
    <xbrli:period>
        <xbrli:startDate>2011-01-01</xbrli:startDate>
        <xbrli:endDate>2011-12-31</xbrli:endDate>
    </xbrli:period>
</xbrli:context>
<xbrli:context id="Duration_2012">
    <xbrli:entity>
        <xbrli:identifier scheme="http://VirtualCompany.com" >Vico1</xbrli:identifier>
    </xbrli:entity>
    <xbrli:period>
        <xbrli:startDate>2012-01-01</xbrli:startDate>
        <xbrli:endDate>2012-12-31</xbrli:endDate>
    </xbrli:period>
</xbrli:context>
```

Fact info:
- Elements
- Values

```
<vico:Revenue id="i97" contextRef="Duration_2011" unitRef="u_eur" decimals="-3">22000</vico:Revenue>
<vico:Revenue id="i197" contextRef="Duration_2012" unitRef="u_eur" decimals="-3">44000</vico:Revenue>
<vico:CostSales id="i100" contextRef="Duration_2011" unitRef="u_eur" decimals="0">15066.064</vico:CostSales>
<vico:CostSales id="i6799" contextRef="Duration_2012" unitRef="u_eur" decimals="0">12820</vico:CostSales>
<vico:CostsThirdParties id="i101" contextRef="Duration_2011" unitRef="u_eur" decimals="0">32820</vico:CostsThirdParties>
<vico:CostsThirdParties id="i102" contextRef="Duration_2012" unitRef="u_eur" decimals="0">38570.064</vico:CostsThirdParties>
<vico:OperatingExpensesTotal id="i103" contextRef="Duration_2011" unitRef="u_eur" decimals="0">296000</vico:OperatingExpensesTotal>
<vico:OperatingExpensesTotal id="i104" contextRef="Duration_2012" unitRef="u_eur" decimals="0">149250.4</vico:OperatingExpensesTotal>
<vico:SalesMarketingCosts id="i105" contextRef="Duration_2011" unitRef="u_eur" decimals="0">48000</vico:SalesMarketingCosts>
<vico:SalesMarketingCosts id="i106" contextRef="Duration_2012" unitRef="u_eur" decimals="0">56409.6</vico:SalesMarketingCosts>
<vico:GeneralAdministrationCosts id="i107" contextRef="Duration_2011" unitRef="u_eur" decimals="0">101000</vico:GeneralAdministrationCosts>
<vico:GeneralAdministrationCosts id="i108" contextRef="Duration_2012" unitRef="u_eur" decimals="0">118695.2</vico:GeneralAdministrationCosts>
```

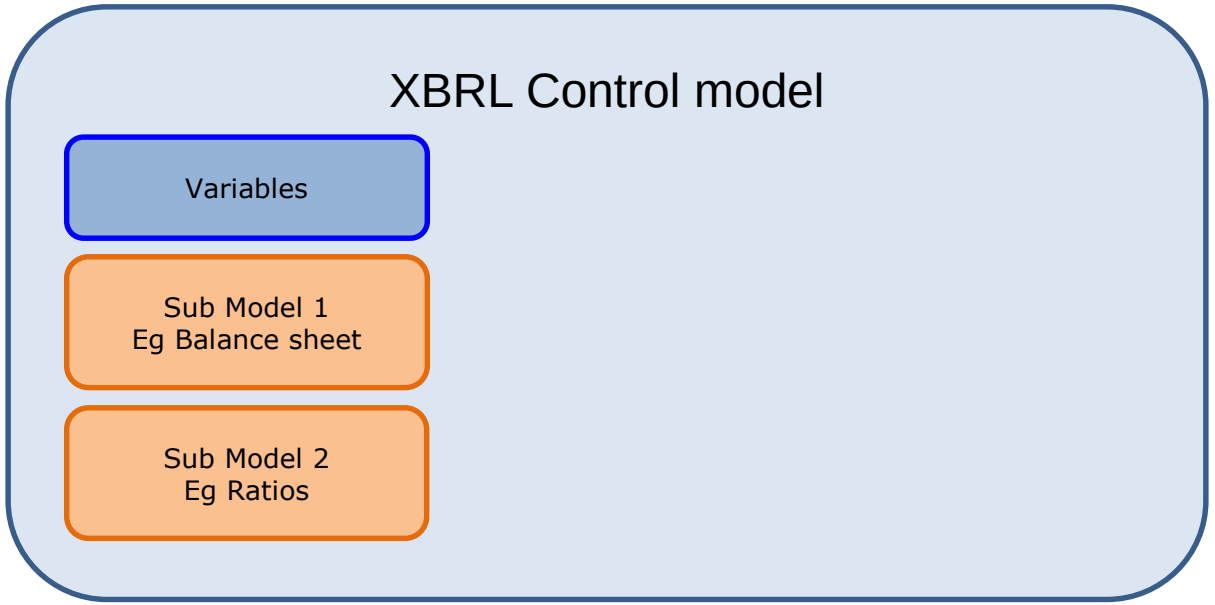
XBRL Control

Variables and business rules



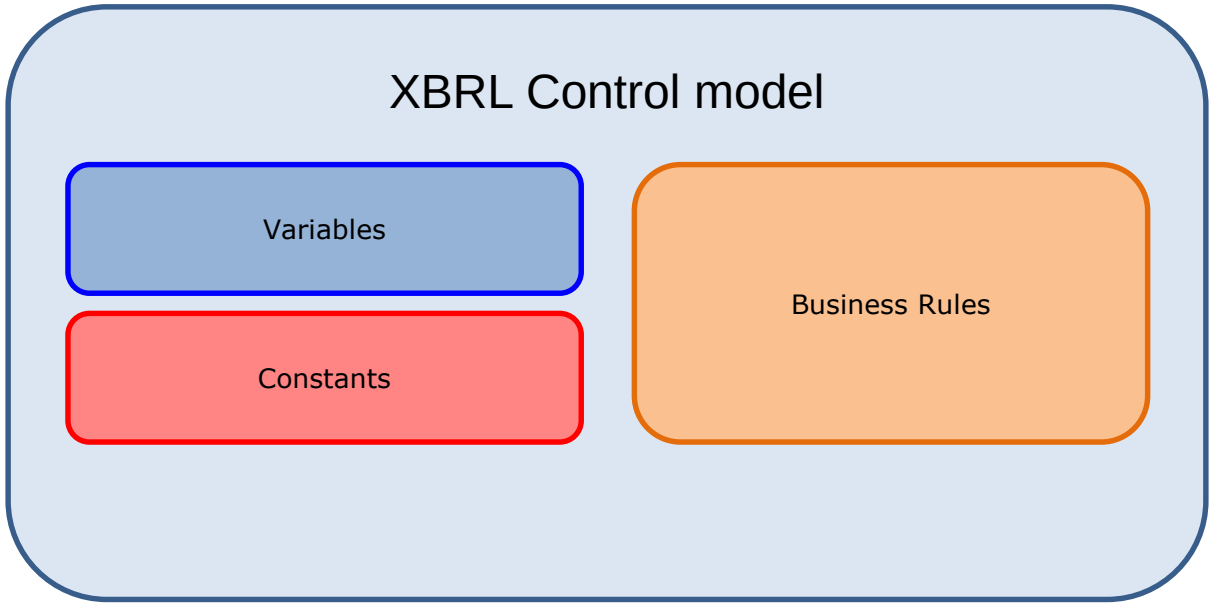
- Variables are used as identifiers for XBRL facts
- Business Rules are expressions used to generate new data or to validate existing XBRL facts

Models and sub models



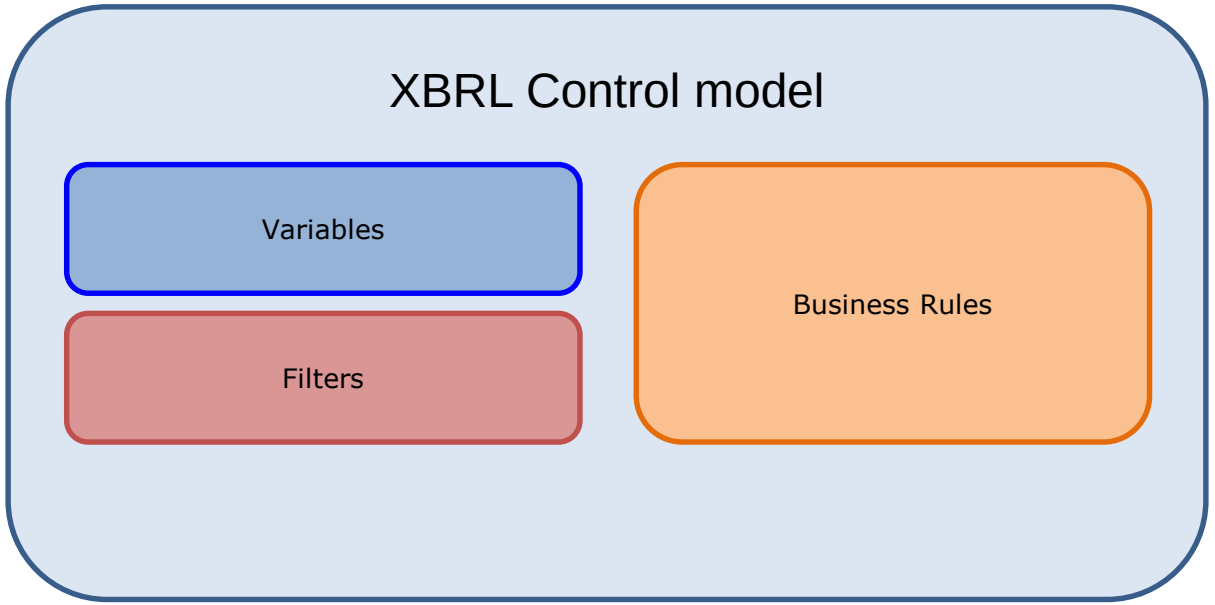
- Models can be designed in multiple sub models
- Sub models can use the same variables or have own variables
- Sub models can use results of other models

Constants



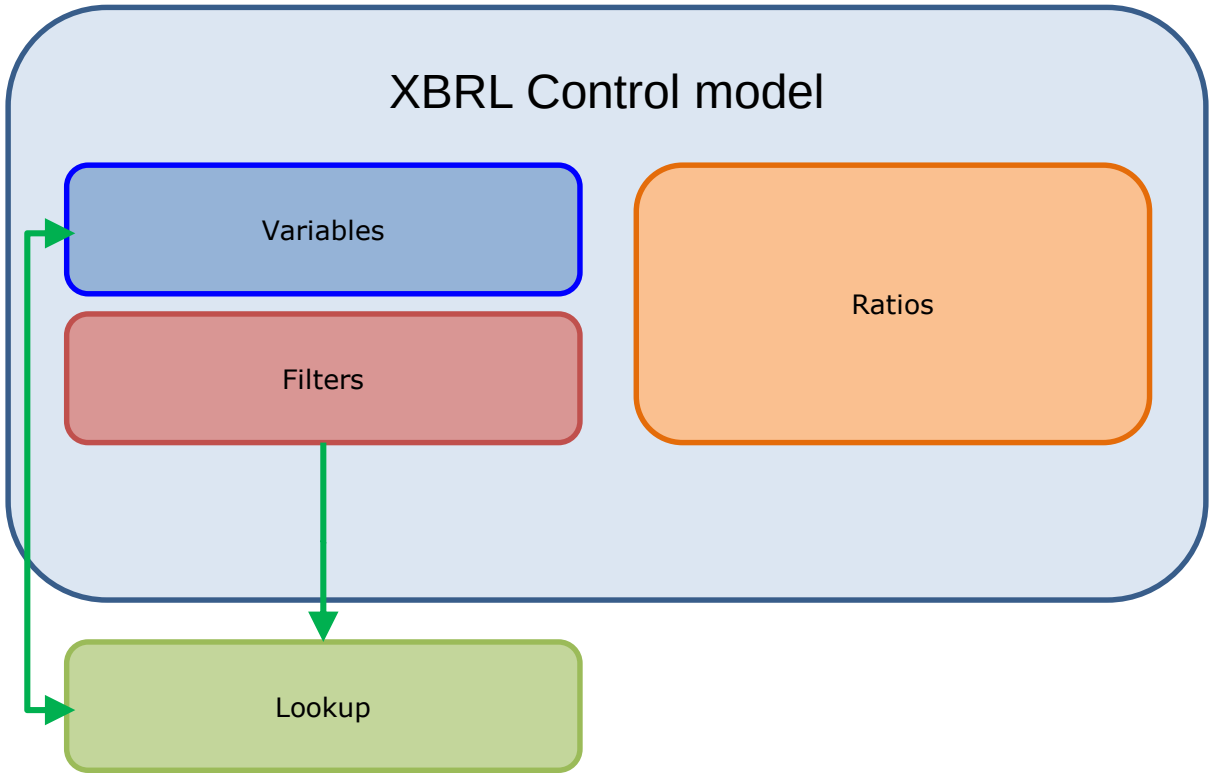
- A value can be defined as a constant with a predefined value
- Constants can be defined on global level and per sub model

Filters



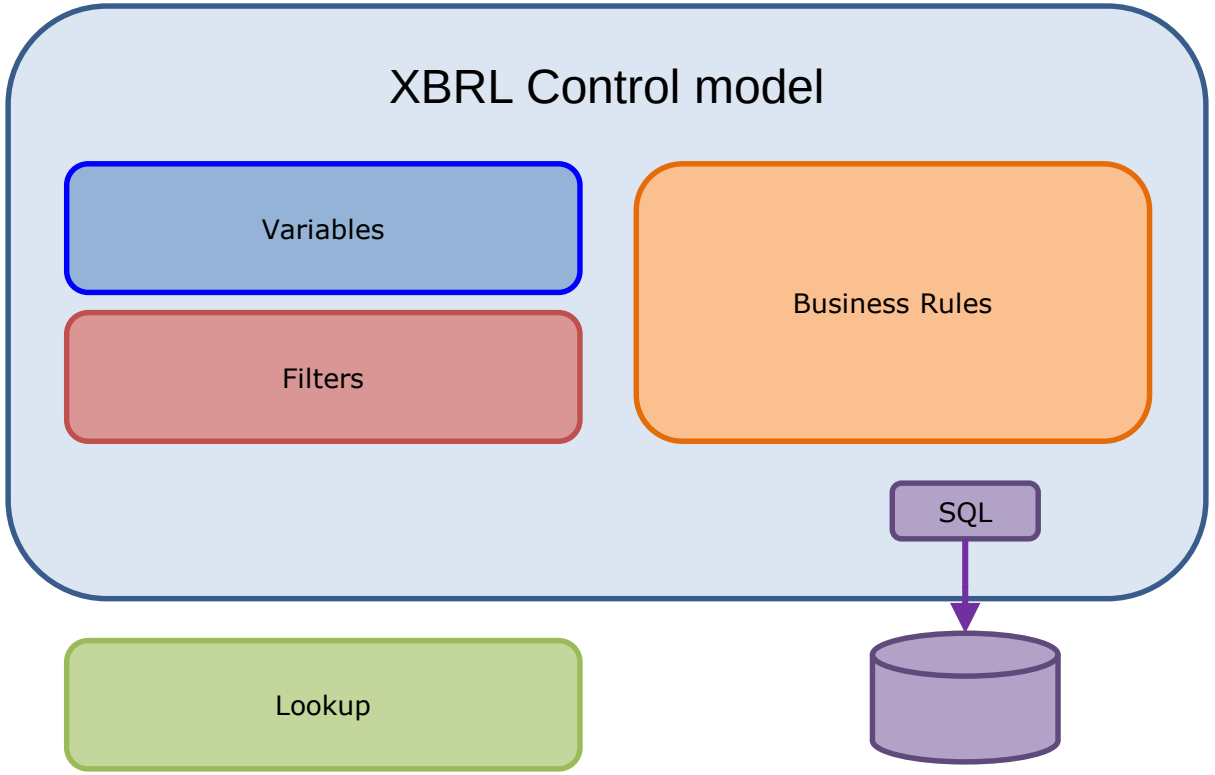
- Filters can be used to create subsets of the XBRL data filtered on any aspect or level.
- Filters can be defined on global level, per sub model and per individual object in the model.

Lookup tables



- Lookup tables allows to include non-XBRL data into the business rules
- Lookup can be applied using filters
- Lookup can be seen as translate tables

Data base integration



- All model information can be stored in a database.
  - The model
  - The business rules
  - The fact values
  - The calculation results

Design principles

- Flexible design principles can be considered
  - Create holistic models
  - Separate modules in sub models
  - Maintain separate files for lookup, variable definitions, constants and/or sub models
  - Separate files are re-usable over different models
  - Load locally or from web server

XBRL Control further explained

- Reason to have proprietary solution
- XBRL Control vs XBRL formulas
- Showing ease of use

XBRL Control vs XBRL Formulas

XBRL Control

- Easy to use
- Minimal XBRL knowledge
- Use of external data
- Connectivity to Databases
- Rapid development
- For new data and control

Formulas

- Complex technology
- Mainly for XBRL experts
- XBRL data only
- No Database connectivity
- Expensive to develop
- Mainly for validation

XBRL Control vs XBRL Formulas

Easy to use

```
...
...
period>          2011-12-31                  </xc:period>
period>          2011-01-01/2011-12-31       </xc:period>
period>          2011                        </xc:period>

Unit>            ISO4217:EUR                 </xc:Unit>
Unit>            Euro                        </xc:Unit>

entity_scheme>   http://www.bank.nl/bank-id  </xc:entity_scheme>
entity>          Vico1                       </xc:entity>

concept>         vico:CashCashEquivalents    </xc:concept>

dm dimension="   bank-kr-dim:BasisOfPreparationAxis">
                 bank-dm-bop:CommercialMember    </xc:dm>

dm dimension="   my:TypedDimension">my:Laptops</xc:dm>

dm dimension="   my:CompanySchema">Forecast</xc:dm>

...
...
```

Lookup

Lookup

Explicit

Typed

Custom

Complex

```
targetNamespace="                                sertion/existence"
elementFormDefault="qualified"
xmlns="http://www.w3.org/2001/XMLSchema"
xmlns:ea="http://xbrl.org/2008/assertion/existence"
xmlns:validation="http://xbrl.org/2008/validation"
xmlns:variable="http://xbrl.org/2008/variable"


<import namespace="http://www.xbrl.org/2003/XLink"
  schemaLocation="http://www.xbrl.org/2003/xl-2003-12-31.xsd"/>

<import namespace="http://xbrl.org/2008/variable"
  schemaLocation="variable.xsd"/>

<import namespace="http://xbrl.org/2008/validation"
  schemaLocation="validation.xsd"/>

<element id="xml-existence-assertion"
name="existenceAssertion"
substitutionGroup="validation:variableSetAssertion">
  <complexType mixed="true">
    <complexContent mixed="true">
      <extension base="validation:assertion.variableSet.type">
        <attribute name="test"
          type="variable:expression" use="optional" />
      </extension>
    </complexContent>
  </complexType>
</element>
```

XBRL Control

Variable definitions

- Simple variable definitions
- Linked to taxonomy elements
- Understandable custom naming

```
....
....
xsi:schemaLocation="http://xbrlone.com/xbrl/xsd/2012/xbrlControl.xsd"-03-31
xmlns:vico="http://www.virtualcompany.com/xbrl/vico/int/br/gaap/gp/2009-01-01"

<!-- Begin Balance sheet -->
<xc:var name="Plant_and_machinery">                <xc:concept>vico:PlantMachinery</xc:concept>
<xc:var name="Total_Tangible_fixed_assets">        <xc:concept>vico:TangibleFixedAssetsTotal</xc:concept>
<xc:var name="Goodwill">                           <xc:concept>vico:Goodwill</xc:concept>
<xc:var name="Patents">                            <xc:concept>vico:Patents</xc:concept>
<xc:var name="Total_Intangible_fixed_assets">      <xc:concept>vico:IntangibleFixedAssetsTotal</xc:concept>
<xc:var name="Total_Fixed_assets">                 <xc:concept>vico:FixedAssetsTotal</xc:concept>
<xc:var name="AccountsReceivable">                 <xc:concept>vico:AccountsReceivable</xc:concept>

dm dimension="  bank-kr-dim:BasisOfPreparationAxis">
                bank-dm-bop:CommercialMember    </xc:dm>

dm dimension="  my:TypedDimension">my:Laptops</xc:dm>

dm dimension="  my:CompanySchema">Forecast</xc:dm>

...
...
```

XBRL Control

Business Calculation

- Simple rules
- Easy to understand
- Descriptive

```
...
...

<!-- Business Calculations -->
name          "AssetsTotal"
title         Totale Activa
description   Totaal Activa als berekend
expression    AccountsReceivable + CashCashEquivalents
              + Inventories + Stock

name=         Account_revenue"
title         Account_revenue
description   Account_revenue
expression    (AccountsReceivable + Revenue)

name          "RevenueAssetRatio"
title         Omzet % Assets
description   Omzet % Assets
expression    (Revenue / AssetsTotal) * Percent
 ...
 ...
```

Constant

XBRL Control

Business Calculation

- Conditions for validation purposes
- Nested rules allowed
- Include of variables and/or calculation results

```
<xc:ratio name="Balance_Check" >
    <xc:    title>Total assets is equal to Equity and Liabilities                    </xc:title>
    <xc:    description>Balance sheet Total equity and liabilities should be the same as Total Assets    </xc:description>

    <xc:    expression>(Total_equity_and_liabilities = Total_Assets?
                        if True  : "Total_equity_and_liabilities are EQUAL to Total_Assets"
                        if False : "Total_equity_and_liabilities are NOT EQUAL to Total_Assets"    </xc:expression>

</xc:ratio>
```

Filters

- Simple filters
- Available for all aspects
- Can be based on lookup values

```
<!-- Global filters for the model -->

...
...
<xc:filter>
    <xc:unit>EURO</xc:unit>
</xc:filter>

...

<xc:filter>
    <xc:Period>2012</xc:unit>
</xc:filter>

...
...
```

Lookup

- Easy lookup system
- Applied for filtered values

```
<xc:lookup name="ExchangeRate">

<!-- Defines Exchange rate EUR/USD for 2011 - 2013     -->
      period>2012</xc:period>
      Unit>US Dollar</xc:Unit>
      value>1.31</xc:value>

      period>2013</xc:period>
      Unit>US Dollar</xc:Unit>
      value>1.33</xc:value>
<!--   Defines Exchange rate EUR/GBP for 2012 - 2013     -->

      period>2012</xc:period>
      Unit>British Pound</xc:Unit>
      value>0.89</xc:value>

      period>2013</xc:period>
      Unit>British Pound</xc:Unit>
      value>0.83</xc:value>
</xc:lookup>
```

Lookup (2)

- Lookup on equal
- Replace by value

```
<xc:    eq>http://www.xbrl.org/2003/iso4217:EUR        </xc:eq>
<xc:    value>Euro                                     </xc:value>

<xc:    eq>http://www.xbrl.org/2003/iso4217:USD        </xc:eq>
<xc:    value>UD Dollar                                </xc:value>

<xc:    eq>http://www.xbrl.org/2003/iso4217:GBP        </xc:eq>
<xc:    value>British Pound                            </xc:value>
```

- Lookup in range
- Applied for filtered values

```
<xc:    key>Free operating cash flow / total debt (%)
<xc:    min>1.00                                       </xc:min>
<xc:    max>0.85                                       </xc:max>
<xc:    value>AAA                                      </xc:value>

<xc:    key>Free operating cash flow / total debt (%)
<xc:    min>0.85                                       </xc:min>
<xc:    max>0.5                                        </xc:max>
<xc:    value>AA+                                      </xc:value>
```