
xBRL™ and **BLOCKCHAIN**

THE BUSINESS REPORTING STANDARD

— G.Garrì/T.LeVan - Unical —



- eXtensible Business Reporting Language
- The open international standard for digital business reporting
- A standard way to communicate and exchange information between business systems
- XML syntax and XML technologies
- Mainly is used in financial areas like financial statements and reports
- Can be analysis by machine
- Used around the world, in more than 50 countries

Structure

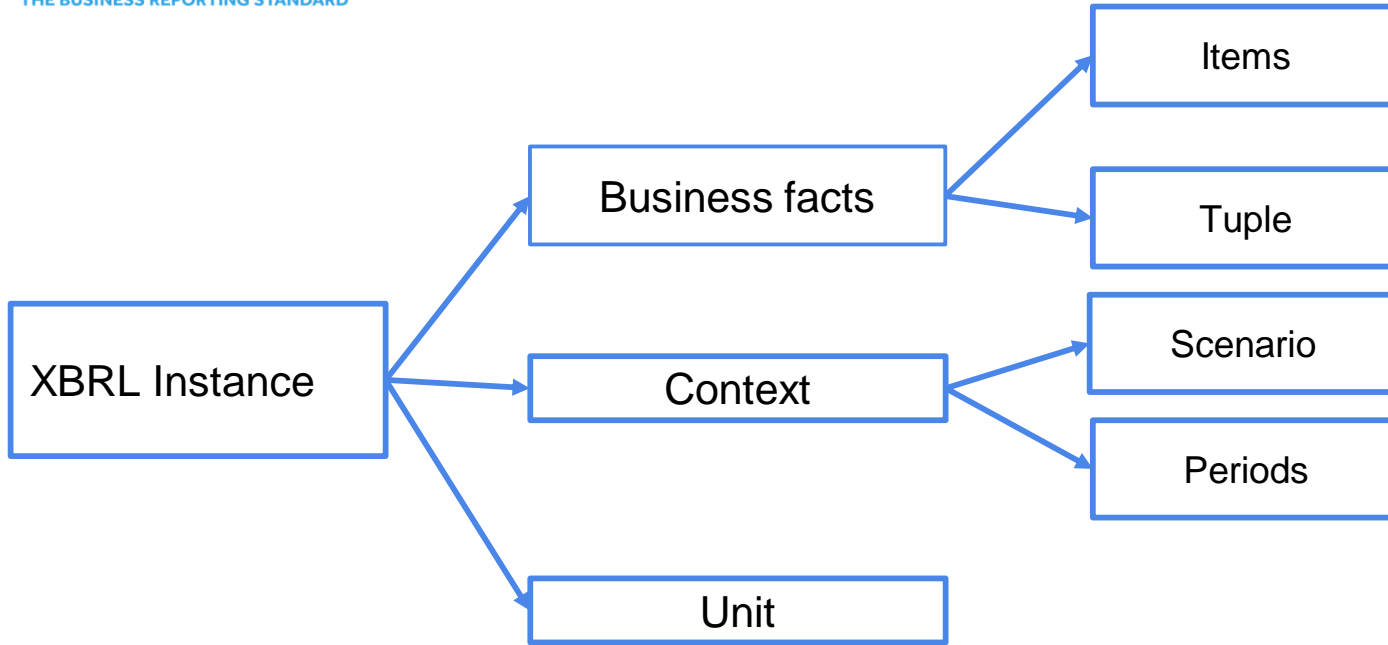
Financial Report

€ million	Subscribed capital
Balance at Jan. 1, 2014	1,191
Profit after tax	-
Other comprehensive income, net of tax	-
Total comprehensive income	-
Capital increase ¹	27
Dividend payment	-
Capital transactions involving a change in ownership interest ¹	-
Other changes	-
Balance at June 30, 2014	1,218
Balance at Jan. 1, 2015	1,218
Profit after tax	-
Other comprehensive income, net of tax	-
Total comprehensive income	-
Capital increase ¹	0
Dividend payment	-
Capital transactions involving a change in ownership interest	-
Other changes	-
Balance at June 30, 2015	1,218

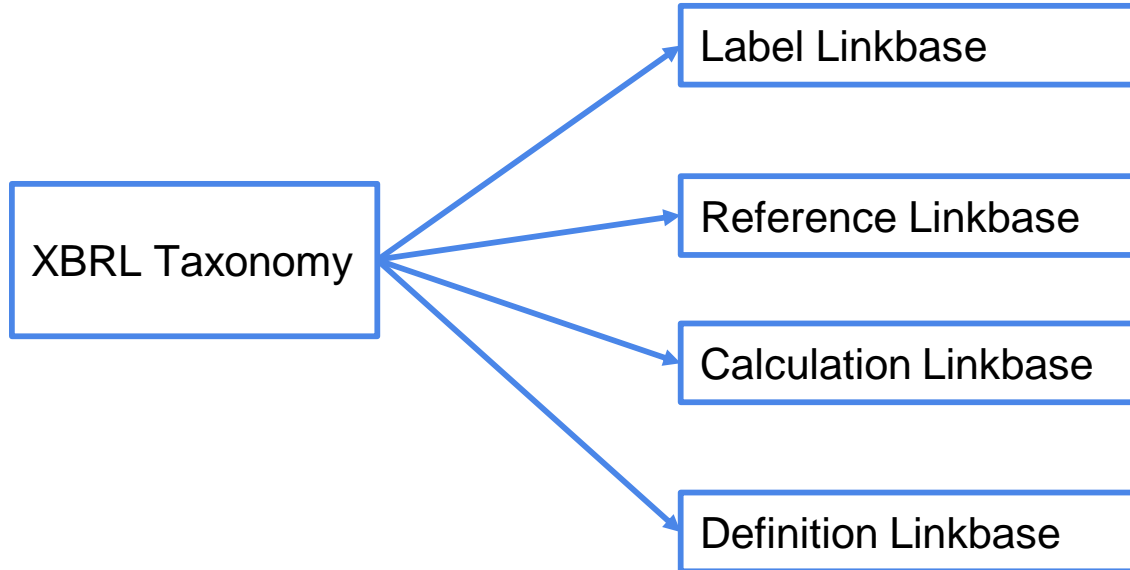
XBRL Instance

XBRL Taxonomy

Structure



Structure



Simple Calculation

Sample Company
December 31,
(thousands of dollars)

	<u>2007</u>	<u>2006</u>
ASSETS		
Property, Plant, and Equipment, Net		
Land	5,347	1,147
Buildings, Net	244,508	366,375
Furniture and Fixtures, Net	34,457	34,457
Computer Equipment, Net	4,169	5,313
Other Property, Plant, and Equipment, Net	6,702	6,149
	<hr/>	<hr/>
Property, Plant and Equipment, Net, Total	<u>295,183</u>	<u>413,441</u>

Simple Calculation

Sample Company
December 31,
(thousands of dollars)

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Buildings, Net	244,508	366,375
Furniture and Fixtures, Net	34,457	34,457
Computer Equipment, Net	4,169	5,313
Other Property, Plant, and Equipment, Net	6,702	6,149
	<hr/>	<hr/>
Property, Plant and Equipment, Net, Total	295,183	413,441

Simple Calculation

Sample Company
December 31,
(thousands of dollars)

ASSETS

Property, Plant, and Equipment, Net

Land

Buildings, Net

Furniture and Fixtures, Net

Computer Equipment, Net

Other Property, Plant, and Equipment, Net

Property, Plant and Equipment, Net, Total

	2007	2006
	5,347	1,147
	244,508	366,375
	34,457	34,457
	4,169	5,313
	6,702	6,149
	295,183	413,441

Simple Calculation

Sample Company
December 31,
(thousands of dollars)

ASSETS

Property, Plant, and Equipment, Net

Land

Buildings, Net

Furniture and Fixtures, Net

Computer Equipment, Net

Other Property, Plant, and Equipment, Net

Property, Plant and Equipment, Net, Total

	2007	2006
	5,347	1,147
	244,508	366,375
	34,457	34,457
	4,169	5,313
	6,702	6,149
	295,183	413,441



Instance

```
<context id="I-2007">
  <entity>
    <identifier scheme="http://www.SampleCompany.com">SAMP</identifier>
    <segment>
      <xbrldi:explicitMember dimension="pattern:EntityAxis">pattern:SampleCompanyMember</xbrldi:explicitMember>
      <xbrldi:explicitMember dimension="pattern:BusinessSegmentAxis">pattern:ConsolidatedGroupDomain</xbrldi:explicitMember>
    </segment>
  </entity>
  <period>
    <instant>2007-12-31</instant>
  </period>
</context>
<context id="I-2006">
  <entity>
    <identifier scheme="http://www.SampleCompany.com">SAMP</identifier>
    <segment>
      <xbrldi:explicitMember dimension="pattern:EntityAxis">pattern:SampleCompanyMember</xbrldi:explicitMember>
      <xbrldi:explicitMember dimension="pattern:BusinessSegmentAxis">pattern:ConsolidatedGroupDomain</xbrldi:explicitMember>
    </segment>
  </entity>
  <period>
    <instant>2006-12-31</instant>
  </period>
</context>
```



Instance

```
<unit id="U-Monetary">  
  <measure>iso4217:USD</measure>  
</unit>
```

```
<pattern:Land contextRef="I-2007" unitRef="U-Monetary" decimals="INF">5347000</pattern:Land>
```

```
<pattern:Land contextRef="I-2006" unitRef="U-Monetary" decimals="INF">1147000</pattern:Land>
```

```
<pattern:BuildingsNet contextRef="I-2007" unitRef="U-Monetary" decimals="INF">244508000</pattern:BuildingsNet>
```

```
<pattern:BuildingsNet contextRef="I-2006" unitRef="U-Monetary" decimals="INF">366375000</pattern:BuildingsNet>
```

```
<pattern:FurnitureAndFixturesNet contextRef="I-2007" unitRef="U-Monetary" decimals="INF">34457000</pattern:FurnitureAndFixturesNet>
```

```
<pattern:FurnitureAndFixturesNet contextRef="I-2006" unitRef="U-Monetary" decimals="INF">34457000</pattern:FurnitureAndFixturesNet>
```

```
<pattern:ComputerEquipmentNet contextRef="I-2007" unitRef="U-Monetary" decimals="INF">4169000</pattern:ComputerEquipmentNet>
```

```
<pattern:ComputerEquipmentNet contextRef="I-2006" unitRef="U-Monetary" decimals="INF">5313000</pattern:ComputerEquipmentNet>
```

```
<pattern:OtherPropertyPlantAndEquipmentNet contextRef="I-2007" unitRef="U-Monetary" decimals="INF">6702000</pattern:OtherPropertyPlantAndEquipmentNet>
```

```
<pattern:OtherPropertyPlantAndEquipmentNet contextRef="I-2006" unitRef="U-Monetary" decimals="INF">6149000</pattern:OtherPropertyPlantAndEquipmentNet>
```

```
<pattern:PropertyPlantAndEquipmentNet contextRef="I-2007" unitRef="U-Monetary" decimals="INF">295183000</pattern:PropertyPlantAndEquipmentNet>
```

```
<pattern:PropertyPlantAndEquipmentNet contextRef="I-2006" unitRef="U-Monetary" decimals="INF">413441000</pattern:PropertyPlantAndEquipmentNet>
```

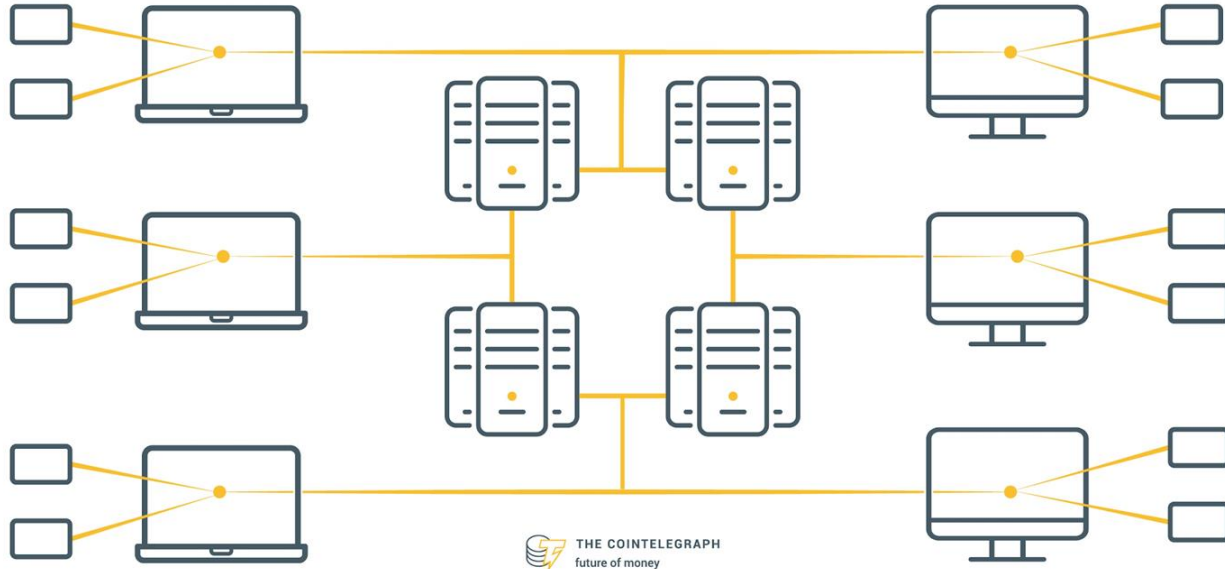


Taxonomy - Calculation linkbase

```
<calculationArc xlink:type="arc"
  xlink:arcrole="http://www.xbrl.org/2003/arcrole/summation-item"
  xlink:from="pattern_PropertyPlantAndEquipmentNet" xlink:to="pattern_Land"
  order="1"
  weight="1"
  use="optional" />
<calculationArc xlink:type="arc"
  xlink:arcrole="http://www.xbrl.org/2003/arcrole/summation-item"
  xlink:from="pattern_PropertyPlantAndEquipmentNet" xlink:to="pattern_BuildingsNet"
  order="2"
  weight="1"
  use="optional" />
<calculationArc xlink:type="arc"
  xlink:arcrole="http://www.xbrl.org/2003/arcrole/summation-item"
  xlink:from="pattern_PropertyPlantAndEquipmentNet" xlink:to="pattern_FurnitureAndFixturesNet"
  order="3"
  weight="1"
  use="optional" />
```



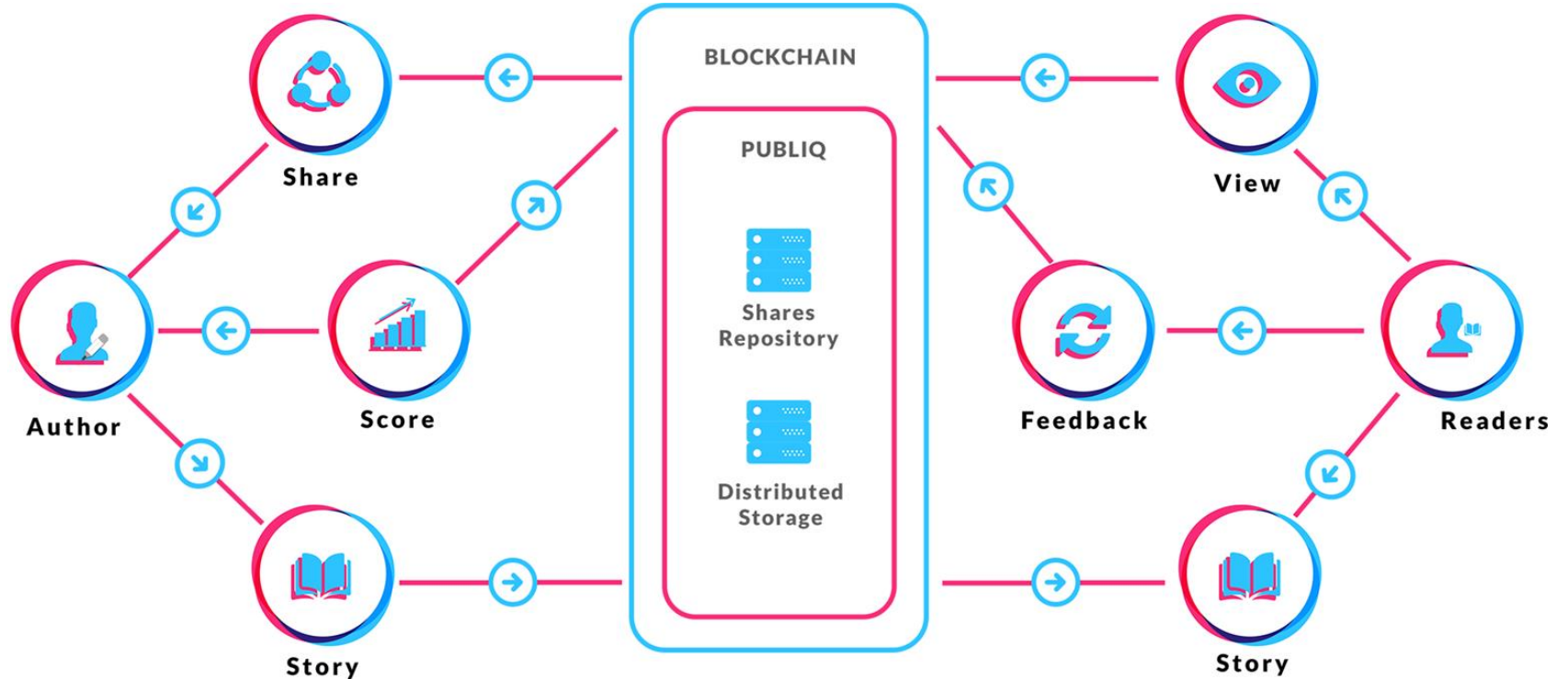
BLOCKCHAIN record XBRL data



Distributed Storage system



BLOCKCHAIN record XBRL data





BLOCKCHAIN record XBRL data

- Trust and notarization system
- Validate and publish XBRL report into blockchain system
- The owner of the report can update and validate again
- Every customer can check its consistency



Configure User

Validate XBRL and push into
blockchain

Update Report

Wallet

Configure User

E38C13Eb22f778a34E6aeb206a3c

Your password

Save

[Validate XBRL and push into
blockchain](#)

[Update Report](#)

[Transaction simulation](#)

[Come back home](#)

Submit company name

You need to submit your company name

[Come back home](#)

Your company information :

Address:0x694683d6d05fe38c13eb22f778a34e6aeb206a3c

Company name:HM

Choose your file

Choose your file

Ready for 3708891630006.xbrl

Translating => I-DLV Validate

Validated: true
File size:25157 B
Time to read data:49 ms
Time to translate to DLV:97 ms
Time to validate:68 ms

Push to blockchain
Your reportId:

Your report Id

Push report

Validated: true

File size:25157 B

Time to read data:49 ms

Time to translate to DLV:97 ms

Time to vaidate:68 ms

Push to blockchain
Your reportId:

Report 2018

Push report

Published your report Id, costed :0.002350727999999691 ETH

247 transactions are in queue to submit

Push to blockchain
Your reportId:

Push report

Published your report Id, costed :0.002350727999999691 ETH

All transactions are executed, costed :1.0708707420000003 ETH

Updating validated value

Push to blockchain
Your reportId:

Report 2018

Push report

Published your report Id, costed :0.002350727999999691 ETH

All transactions are executed, costed :1.0708707420000003 ETH

Finished

[Come back home](#)

Your company information :
 Address:0x694683d6d05fe38c13eb22f778a34e6aeb206a3c
 Company name:HM
 Number of report:2

Your reports

ReportId	Date	Factsize	Validated	Show
Report2017	Wed Mar 14 2018 21:42:38 GMT+0100 (CET)	3	true	Read Report
Report 2018	Wed Mar 14 2018 21:50:22 GMT+0100 (CET)	129	true	Read Report

Facts

Concept	Context	Value	Unit	FactGroup	Update
itcc_ci_Patrimonio	contextiEsC	4000	euro	fgroupGlobal	Update
itcc_ci_Patrimonio	contextiEsP	4000	euro	fgroupGlobal	Update
itcc_ci_Patrimonio	contextiEsP	204403	euro	fgroupGlobal	Update
itcc_ci_ValoreProdotto	contextdEsP	1670680	euro	fgroupGlobal	Update
itcc_ci_ValoreProdotto	contextdEsC	14068	euro	fgroupGlobal	Update
itcc_ci_CostiProdotto	contextdEsP	6275	euro	fgroupGlobal	Update
itcc_ci_CostiProdotto	contextdEsC	84371	euro	fgroupGlobal	Update
itcc_ci_CostiProdotto	contextdEsP	81462	euro	fgroupGlobal	Update
itcc_ci_CostiProdotto	contextdEsC	-163680	euro	fgroupGlobal	Update
itcc_ci_TotalePartecipazioni	contextdEsP	1	euro	fgroupGlobal	Update
itcc_ci_RisultatoPrincipale	contextdEsC	20696	euro	fgroupGlobal	Update

Arcs

ConceptFrom	ConceptTo	Weight	CallLinkBase	Update
itcc_ci_UtilePerditaEsercizio	itcc_ci_RisultatoPrincipale	1	http_www_infoca	Update
itcc_ci_CostiProduzioneA	itcc_ci_CostiProduzioneA	1	http_www_infoca	Update
itcc_ci_TotaleValoreProdotto	itcc_ci_ValoreProduzioneA	1	http_www_infoca	Update
itcc_ci_TotaleValoreProdotto	itcc_ci_ValoreProduzioneA	1	http_www_infoca	Update
itcc_ci_RisultatoPrincipale	itcc_ci_TotaleProventiOn	1	http_www_infoca	Update
itcc_ci_RisultatoPrincipale	itcc_ci_TotaleProventiOn	1	http_www_infoca	Update
itcc_ci_RisultatoPrincipale	itcc_ci_TotalePartiteStrutturali	1	http_www_infoca	Update

Translating => I-DLV Validate

Validated: false

File size:138162 B

Time to read data:829 ms

Time to translate to DLV:1823 ms

Time to validate:191 ms

```
[
  {
    "conceptId":" itcc_ci_VariazioniEsercizioTotaleVariazioniTotaleImmobilizzazioniMateriali",
    "contextId":"contextd_this",
    "calculationLinkbase":"http_www_infocamere_it_itnn_fr_itcc_role_NotaIntegrativaAttivoTotale",
    "factGroup":"fgroupGlobal ",
    "currentResult":"23734.0",
    "expectedResult":"10850.0",
    "threshold":"1187"
  },
  {
    "conceptId":" itcc_ci_VariazioniEsercizioTotaleVariazioniTotaleImmobilizzazioniImmateriali",
    "contextId":"contextd_this",
    "calculationLinkbase":"http_www_infocamere_it_itnn_fr_itcc_role_NotaIntegrativaAttivoTotale",
    "factGroup":"fgroupGlobal ",
    "currentResult":"49322.0",
    "expectedResult":"16224.0",
    "threshold":"2040"
  },
]
```

Push to blockchain

Your reportId:

Your Report Id

Push report



BLOCKCHAIN

record XBRL data

Future work

- Reduce the cost and time
- Automatically fix invalid XBRL if it is possible
- Check connections between XBRL reports



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BLOCKCHAIN

Thank for your listening