XBRL Europe Day - Rome

Error Messaging Panel Session
Monday, 5th May 2014

Panel

- **Emile Bartolé** – CSSF
- **Eric Jarry** – Banque de France
  ◦ XII Best Practices Board and Taxonomy Architecture Task Force
- **Maria Frantzi** – EIOPA
- **Mark Goodhand** – Corefiling
  ◦ Chairman of the XBRL Base Specification Working Group
- **Piotr Malczak** – GPM Systemy
- **Martin DeVille** – UBPartner

Exchanging 'ACCURATE' Information

▸ Error messaging is fundamental to XBRL
  ◦ Part of 'contract/protocol' between submitter and receiver
  ◦ Key to both parties analysing errors locally

XBRL Mechanisms for this

▸ Standard XBRL messages
▸ Generic messages
  ◦ Only used by formula specification today
  ◦ Enables taxonomy designer to generate meaningful messages
    • e.g. the <concept label> has the fact <y>, which is different from the calculated fact <x>
▸ Proposed specification enhancement – 'severity status'
  ◦ e.g. 'OK', 'Error', 'Warning'
▸ Plus
  ◦ Documentation
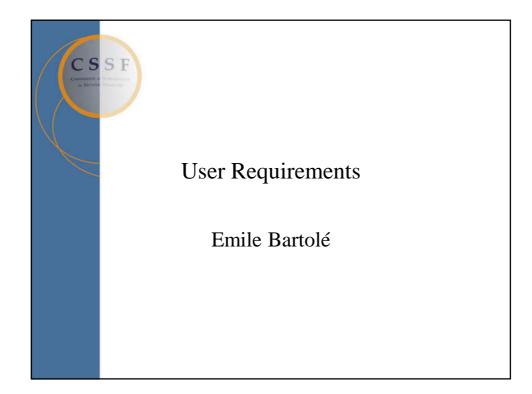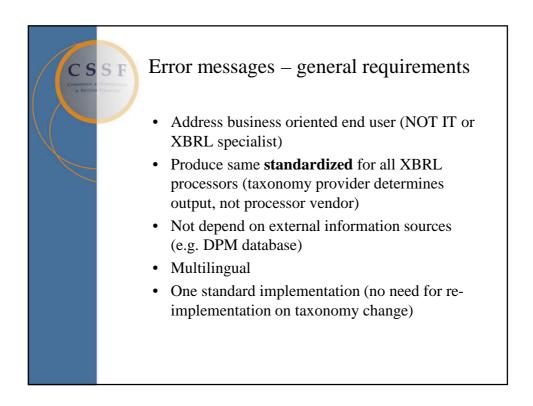 ◦ Reference linkbase

Error messaging – Example 1

Summary

Formulas Compiled	Formula Fired	Assertions Compiled	Assertions Fired	Assertions Satisfied	Assertions Not Satisfied	Contexts Created
0	0	700	3387	958	2429	0

Assertion Report

Value Assertions

id	satisfied	message
eba_v0050_h (evaluation 1)	notSatisfied	The value of the element in your XBRL submission does not match the expected result of the formula.
eba_v0763_m (evaluation 1)	notSatisfied	The value of the element in your XBRL submission does not match the expected result of the formula.
eba_v0764_m (evaluation 1)	notSatisfied	The value of the element in your XBRL submission does not match the expected result of the formula.
eba_v0767_m (evaluation 1)	notSatisfied	The value of the element in your XBRL submission does not match the expected result of the formula.
eba_v0768_m (evaluation 1)	notSatisfied	The value of the element in your XBRL submission does not match the expected result of the formula.
eba_v0769_m (evaluation 1)	notSatisfied	The value of the element in your XBRL submission does not match the expected result of the formula.
eba_v1694_m (evaluation 1)	notSatisfied	The value of the element in your XBRL submission does not match the expected result of the formula.
eba_v0057_h (evaluation 1)	notSatisfied	The value of the element in your XBRL submission does not match the expected result of the formula.
eba_v0058_h (evaluation 1)	notSatisfied	The value of the element in your XBRL submission does not match the expected result of the formula.
eba_v0059_h (evaluation 1)	notSatisfied	The value of the element in your XBRL submission does not match the expected result of the formula.
eba_v0129_h (evaluation 1)	notSatisfied	The value of the element in your XBRL submission does not match the expected result of the formula.
eba_v0130_h (evaluation 1)	notSatisfied	The value of the element in your XBRL submission does not match the expected result of the formula.

UBPARTNER

Error messaging – Example 2

Summary

Formulas	Formula	Assertions	Assertions	Assertions	Assertions	Contexts	Units	Facts

Summary

Formulas Compiled	Formula Fired	Assertions Compiled	Assertions Fired	Assertions Satisfied	Assertions Not Satisfied	Contexts Created	Units Created	Facts Created
0	0	210	12	10	2	0	0	0

Assertion Report

Value Assertions

Please click on the value assertion id for more detail.

id	satisfied	message
f-rcorp-2420 (evaluation 1)	notSatisfied	Les rubriques dans le cadre 'Taille de la société au sens du Code des sociétés' doivent obligatoirement être complétées. Les rubriques 'Nombre de travailleurs occupés, en moyenne annuelle', 'Chiffre d'affaires annuel, hors TVA' et 'Total du bilan' doivent obligatoirement être complétées. Si le nombre ou le montant est égal à zéro, vous devez compléter 0 (zéro).
f-rcorp-2421 (evaluation 1)	notSatisfied	L'annexe 'Rapports à l'assemblée générale et délibérations de celle-ci' doit obligatoirement être ajoutée dans l'onglet 'Documents et relevés divers'.

UBPARTNER

Application Level Messaging

Error messaging – observations

▸ **Taxonomy designers do not always use the standard**
  ◦ Which often leads to developers having to create application specific code
    · e.g. EBA CRDIV – formula descriptions outside taxonomy

▸ **Taxonomies do not make it easy to manage error messages**
  ◦ e.g. in Solvency II messages are in formula assertion definitions
  ◦ Easier to update and manage if error messages pointed to as an independent resource

▸ **Authors do not follow best practice or common approach**
  ◦ e.g. EBA and EIOPA both use DPM
  ◦ But different approaches to error reporting

▸ **As XBRL reports become larger there is a need to manage number and processing impact of error reporting**
  ◦ Error reports can become very large for simple, systematic errors
  ◦ Producing formatted output can take up a large amount of processing resources

User Requirements

Emile Bartolé

Error messages – general requirements

- Address business oriented end user (NOT IT or XBRL specialist)
- Produce same **standardized** for all XBRL processors (taxonomy provider determines output, not processor vendor)
- Not depend on external information sources (e.g. DPM database)
- Multilingual
- One standard implementation (no need for re-implementation on taxonomy change)

Items to consider

Area	Item	Restricted	Verbose	Remark
Context	<instant>	-	-	EBA taxonomy architecture: one single reference period, some data cells may deviate from that period via a dimension, but will then be in a dedicated table position
Fact	Unit	-	-	EBA Filing Rules: one single unit
Fact	Value	-	Yes	
Formula LB	Assertion code	Yes	Yes	
Formula LB	Assertion label	Yes *	Yes *	* Replacement of all variables by their actual table based presentation
External	Business label	-	Yes	Explanation of the error in business terms
Formula LB	Severity	Yes	Yes	
Table LB	Table	Yes	Yes	Per fact
Table LB	Axis orientation / ordinates	Yes *	Yes *	Implicit: via position in their table reference (inside parenthesis): X-axis code (column), X-axis code (row), Z-axis code
Processing	Pre-condition result	-	-	Pre-condition must evaluate to true otherwise no error could have shown up
Processing	Tolerance	-	-	No imminent advantage to add this to each error message
Processing	Left side result	Yes	Yes	
Processing	Right side result	Yes	Yes	

Restricted 1 – detailed explanation

ID	T1	T2	Rows	Columns	Sheets	Formula
v0102_h	C 40.00			(050;070)		{r020} = +{r040} + {r030}

T C_40.00
 X Columns
 Y Rows

Severity (Info, Warning, Error, Fatal)   Assertion code

Assertion *ERROR v0102_h:* C 40.00 (050, 020,) = C 40.00 (050, 040,) + C 40.00 (050, 030,) *with results Left = 4567, Right =* 67890

Leftside results   Rightside results

Restricted 2 – z-dimension & generic

ID	T1	T2	Rows	Columns	Sheets	Formula
v0002_h	C 18.00			(060)	(All)	{r011} = +{r210} + {r020}

Assertion *ERROR v0147_h: C 18.00 (060, 011, Iceland Krona) = C 18.00 (060, 210, Iceland Krona) + C 18.00 (060, 020, Iceland Krona) with results Left = 4567, Right = 67890*

Assertion *ERROR v0147_h : C 18.00 (060, 011, Bulgarian Lev) = C 18.00 (060, 210, Bulgarian Lev) + C 18.00 (060, 020, Bulgarian Lev) with results Left = 1234, Right = 6644*

Restricted 3 – open table

ID	T1	T2	Rows	Columns	Sheets	Formula
v0147_h	C 06.00		(All)			{c150} = +{c210} +{c180}

Assertion *ERROR v0147_h: C 06.00 (120, myleicode,) = C 06.00 (210, myleicode,) + C 06.00 (180, myleicode,) with results Left = 4567, Right = 67890*

Restricted 4 – Intertable inequity

ID	T1	T2	Rows	Columns	Sheets	Formula
v0334_m	C 08.01.a	C 08.01.b	(010;070-180)		(All)	{C 08.01.b, c130} <= {C 08.01.a, c110}

C_08.01.a
- Columns
- Rows
- Sheets
  - Total with own estimates of LGD and/or cor
  - Total without own estimates of LGD or conv
  - Central governments and central banks with
  - Central governments and central banks with

C_08.01.b
- Columns
- Rows
- Sheets
  - Total with own estimates of LGD and/or cor
  - Total without own estimates of LGD or conv
  - Central governments and central banks with
  - Central governments and central banks with

Assertion *ERROR v0334_m: C 08.01.b (130, 070, Central governments and central banks with own estimates of LGD and/or conversion factors) = C 08.01.a (110, 070, Central governments and central banks with own estimates of LGD and/or conversion factors) with results Left = 4567, Right = 67890*

Example 5 – Sum on intertable

ID	T1	T2	Rows	Columns	Sheets	Formula
v0406_m	C 09.01.a	C 07.00.a				sum({C 09.01.a, r160, c080, (sNNN)}) = {C 07.00.a, r010,c215, s017}

C_09.01.a
- Columns
- Rows
- Z [N/A]

C_07.00.a
- Columns
- Rows
- Sheets
  - Total
  - Central governments or central banks
  - Regional governments or local authorities

Assertion *ERROR v0406_m: C 09.01.a (080, 160, Portugal) + C 09.01.a (080, 160, Romania) + C 09.01.a (080, 160, France) = C 07.00.a (215, 010, Other items) with results Left = 4567, Right = 67890*

Restricted 5 – Sum on intertable

ID	T1	T2	Rows	Columns	Sheets	Formula
v0406_m	C 09.01.a	C 07.00.a				sum({C 09.01.a, r160, c080, (sNNN)}) = {C 07.00.a, r010,c215, s017}

Assertion *ERROR v0406_m: C 09.01.a (080, 160, Portugal) + C 09.01.a (080, 160, Romania) + C 09.01.a (080, 160, France) = C 07.00.a (215, 010, Other items) with results Left = 4567, Right = 67890*

Verbose 5 – Sum on intertable

ID	T1	T2	Rows	Columns	Sheets	Formula
v0406_m	C 09.01.a	C 07.00.a				sum({C 09.01.a, r160, c080, (sNNN)}) = {C 07.00.a, r010,c215, s017}

Assertion *ERROR v0406_m: C 09.01.a (080, 160, Portugal) [123.126] + C 09.01.a (080, 160, Romania) [89.132] + C 09.01.a (080, 160, France) [1.789.132] = C 07.00.a (215, 010, Other items) [2.556.534] with results Left = 2.001.390, Right = 2.556.534 , Explanation = "Sum of countries must be equal to Other items"*

Thanks for your attention

C S S F

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Comments or questions?

More User Requirements

Eric Jarry

ACPR
BANQUE DE FRANCE

Requirement for data-centric error reporting

- ▸ Form-centric error reports are fine for small reporters but:
  - ◦ Requirements exists for big companies that want to process error reports automatically
  - ◦ Companies may use templates different from the regulatory templates (There are different kinds of template in Solvency II: Regulatory – QRTs as Quantitative Reporting Templates – and Annotated templates)
  - ◦ Some evaluations are exactly the same in two different templates (with different coordinates); this case exist in COREP reporting.
  - ◦ XBRL should be data-centric
- ▸ There is a need for data-centric error reporting
  - ◦ These data-centric feed-backs may be translated into form-centric, if needed
  - ◦ XBRL validation engines works with facts and dimensions, not coordinates in forms
  - ◦ Fall-back values must be taken into account (the message should be clear even in case of fall-back values)

Maria Frantzi – EIOPA

Solvency II Level 2 Reporting Line
Error handling

eiopa

EIOPA Reporting Data Management Module (RDMM) is in charge of Level 2 Error Handling.

In the RDMM, there is a need for generating Notification Messages:
- o Acknowledgements (Success/Failure)
- o Alerts
- o Errors

Data elements to be reported:
- o Taxonomy version
- o Assertion Id
- o Impacted Template/Cell
- o Message
- o Language
- o Severity
- o Other

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Solvency II Level 2 Reporting Line
Error handling

eiopa

EIOPA is considering to adopt CWA2 specifications for Error Handling in Level 2 reporting line.

Open issues:

• Need to handle errors not directly related to 'taxonomical validations'
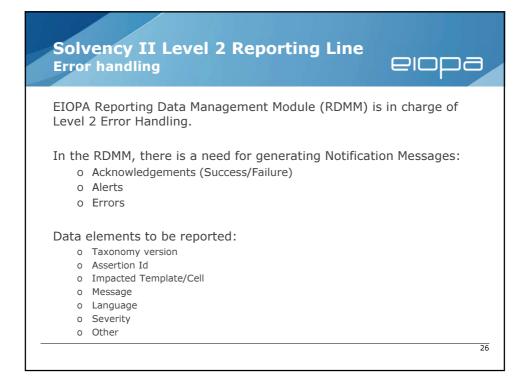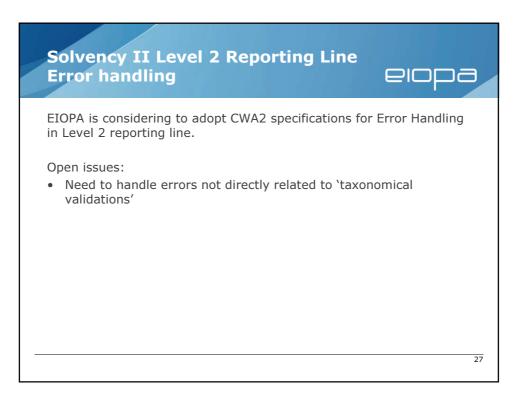
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Piotr Malczak GPM

Error messages – lessons learned

Business users expect that error messages will be presented using rendering layer. Messages with references to data model (DPM) are not 'user-friendly'.

This is fundamental expectations-capabilities gap: a missing link between table-linkbase and XBRL Messages.

These feature can be implemented (and actually IT IS implemented) in business applications, but this is a custom extension not standard.

Application Level Messaging (another example)

Possible extensions – discussion

▸ The pattern: 'A = B + C'

▸ The table-based user friendly formula:
  C 40.00 (050, 020,) = C 40.00 (050,040,)
                  + C 40.00 (050, 030,)

  with results Left = 4567, Right = 67890

▸ The implementation (XBRL Formula):

```
iaf:numeric-equal($a, iaf:sum(($b, $c)))
```

**No left- nor right- side !!
and what about interval arithmetic?**

Possible extension

In order to achieve that:
   XBRL Formula generation pattern should be known and stable

Questions