

Value of XBRL for banking supervision

P.J. Hulst

DeNederlandscheBank

EUROSYSTEEM

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Speaker



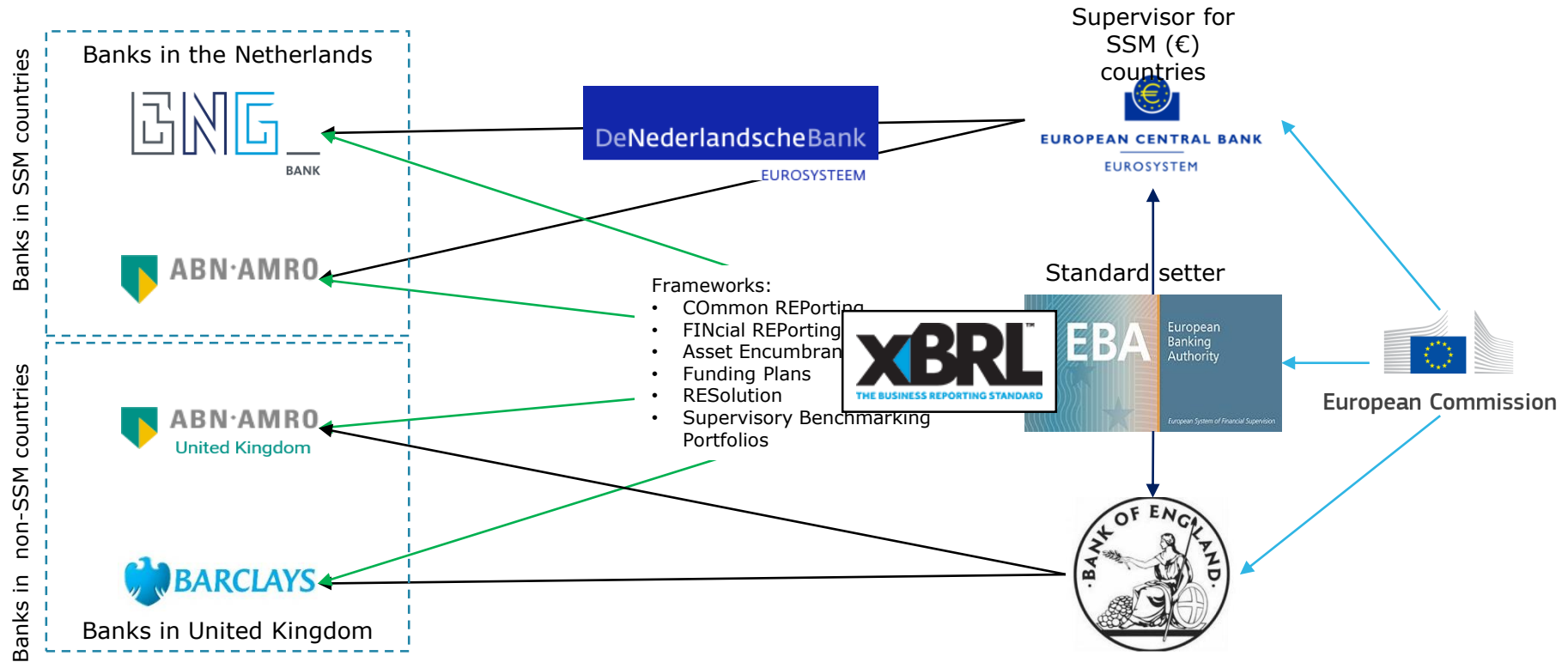
Paul Hulst

- Architect at De Nederlandsche Bank for the process of collecting, validating, exposing and dissemination structured data.
- Member of XBRL Int. Taxonomy Architecture Guidance Task Force
- Member of XBRL Int. Open Information Model Working Group
- Board member of XBRL Netherlands

Note:

This presentation contains the views and opinions of the speaker and is not an official position of De Nederlandsche Bank.

European supervision on banks



Why you need to know about XBRL

1. You need to use it if your are (going) to provide data to European supervisors.
2. XBRL can make data collection easier.
For supervisors and for reporters.

XBRL: what, who, where and how does it look like?

XBRL is a data exchange standard

XBRL is short for eXtensible Business Reporting Language.

XBRL is a global standard for the exchange of information.

Its main components are:

- A dictionary of the data that will be exchanged
- Presentation structures that tell the user how to look at the data
- Validation rules that check that consistent data is provided

contained in a single object called a taxonomy.

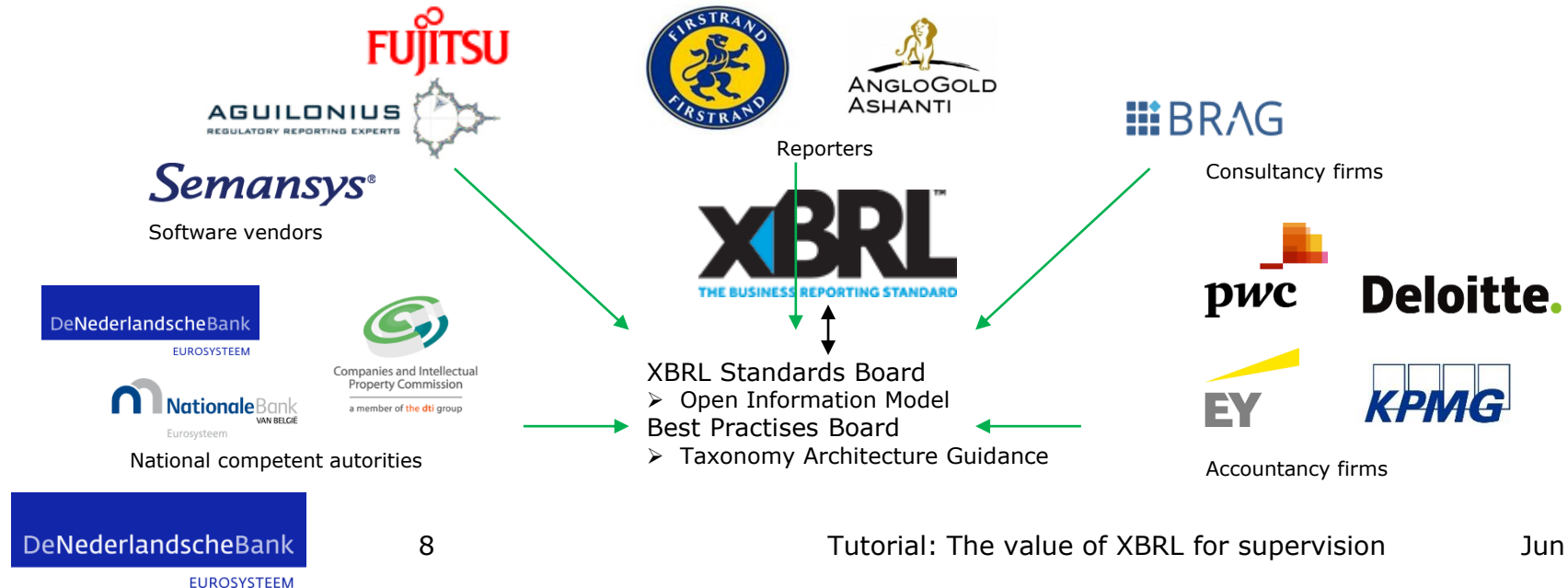
The data itself is stored in a file called an XBRL report which refers to the taxonomy it belongs to.

Being a global standard there is off-the-shelf software to create, validate and view the data, both commercial software and freeware.

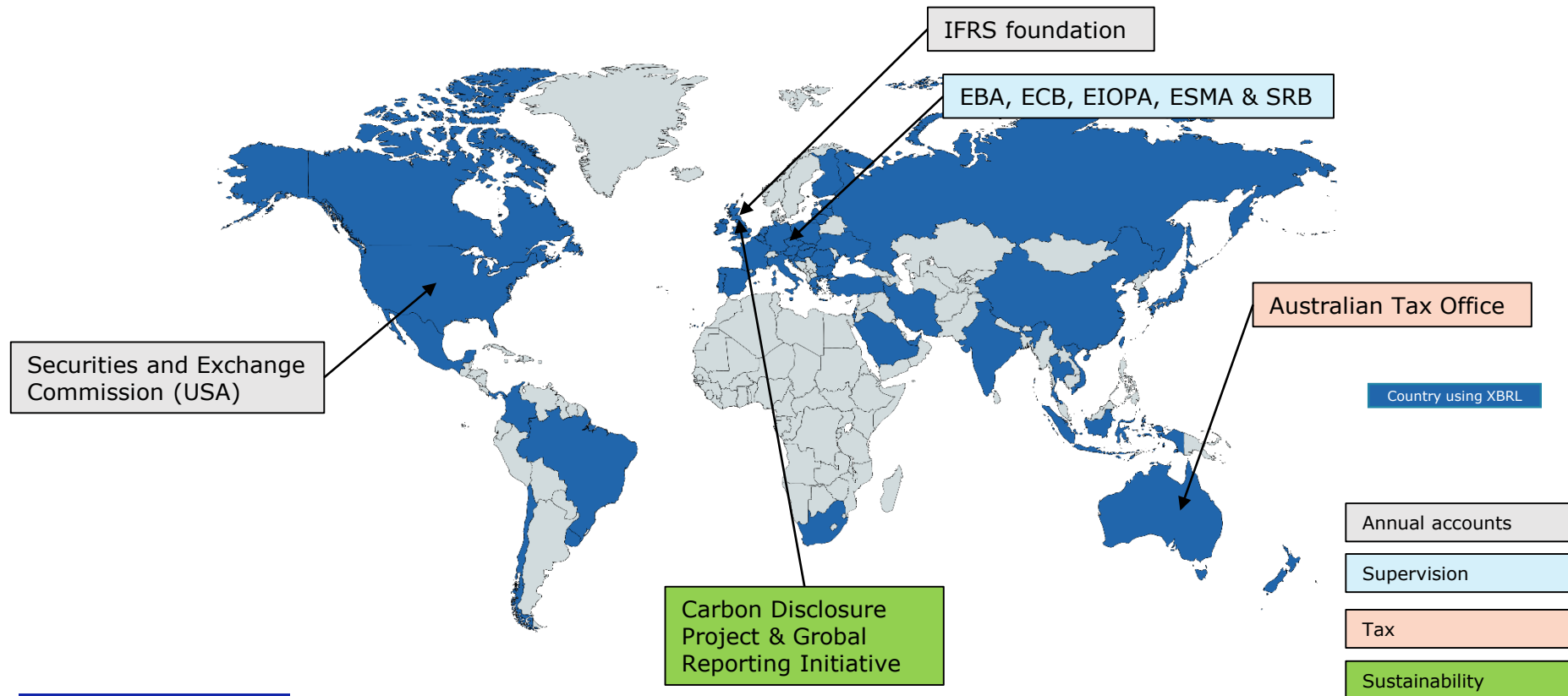
XBRL is an international community

XBRL international is a not-for-profit organisation based in the UK and USA.

It has both country based jurisdictions in which organisation work together to further the use of XBRL and direct members, usually organisations that work globally.



XBRL is all over the world and for many purposes



XBRL as seen by systems and humans

For systems it is an XML file:

What **set of data** it is, which **facts** are provided and what **values** are given to those facts.

For humans it is a table with data:

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <xbrli:xbrl xmlns:s2c_CN="http://eiopa.europa.eu/xbrl/s2c/diot/dom/CN" xmlns:s2c_CG="http://eiopa.europa.eu/xbrl/s2c/diot/dom/CG" xmlns:s2s
3 <link:schemaRef xlink:type="simple" xlink:href="http://eiopa.europa.eu/xbrl/s2md/fws/solvency/solvency2/2017-07-10/mod/fws.xsd"/>
4 <xbrli:context id="Context11">
5   <xbrli:entity>
6     <xbrli:identifier scheme="http://standards.iso.org/iso/17442">LegalIdentifier20POS</xbrli:identifier>
7   </xbrli:entity>
8   <xbrli:period>
9     <xbrli:instant>2017-06-30</xbrli:instant>
10   </xbrli:period>
11   <xbrli:scenario>
12     <xbrli:explicitMember dimension="s2c_dim:BL">s2c_id:119</xbrli:explicitMember>
13     <xbrli:explicitMember dimension="s2c_dim:VO">s2c_id:180</xbrli:explicitMember>
14   </xbrli:scenario>
15 </xbrli:context>
16 <xbrli:unit id="EUR">
17   <xbrli:measure>iso4217:EUR</xbrli:measure>
18 </xbrli:unit>
19 <s2md_met:millio decimals="-3" contextRef="Context11" unitRef="EUR" 10000<s2md_met:millio>
20 </xbrli:xbrl>
```

	A	B	C	D	E	F
1	S.02.01.02.01	Balance sheet				
2						Solvency II value
3						C0010
4	Assets					(Abstract)
5		Goodwill		R0010		-
6		Deferred acquisition costs		R0020		-
7		Intangible assets		R0030		10000
8		Deferred tax assets		R0040		20000
9		Pension benefit surplus		R0050		30000
10		Property, plant & equipment held for own use		R0060		0
11		Investments (other than assets held for own use)		R0070		0
12		Indefinite and unlinked contracts		R0080		0
13		Property (other than for own use)		R0090		0
14		Holdings in related undertakings, including participations		R0100		0
15		Equities				
16		Equities - listed		R0110		0
17		Equities - unlisted		R0120		0
18		Bonds				
19		Government Bonds		R0130		0
20		Corporate Bonds		R0140		0
21		Structured notes		R0150		0
		Collateralised securities		R0160		0
				R0170		0

XBRL functions: dictionary, presentation & validation

As part of a Data Point Model taxonomy

Illustration of XBRL components as used by the European supervisors EBA, ECB, EIOPA, SRB

XBRL: dictionary

The EBA collects a vast set of facts and needed a structured way to define it:

- usable by content oriented people ("business"),
- usable by technology oriented people ("IT").

It is called Data Point Modelling as it focusses on

- Naming the fundamental measure (metric)
- Naming the identifying attributes

Combined with descriptions it creates the basis for reporting.

Example

From regulation:

Net carrying amount of not yet impaired but already past due (over 180 days but less than a year) debt securities held, issued in EUR by MFIs located in EMU with original maturity under one year, measured at amortised cost and relating only to business activities conducted in EU?

Locations of activities:	Portfolios:	Impairment status:	Time reference:
All / Not-applicable	Total (...)	All / Not-applicable	Current period end
EU	Fair value through profit or loss	Impaired	Previous period end
Other than EU (...)	Amortised cost	Unimpaired	Current period
Base terms:			Past due periods:
Assets			All
Liabilities			< 180 days
Equity			≥ 180 days < 1 year
Off-balance sheet			≥ 1 year
Exposures			
Categories:			Original maturity:
Total (...)			All
Cash			< 1 year
Loans			≥ 1 year < 2 year
Debt securities			≥ 2 years
Equity instruments			
Tangible and intangible			
Other than (...)			
Amount types (metric):			Counterparty sectors:
Carrying amount			All / Not-applicable
Gross carrying amount			MFIs
(Specific allowances)			MMFs
(Collective allowances)			MFIs other than MMFs
			Central Administration
			Other general government
			Non-MFIs other than government
Original currencies:			Counterparty residences:
All / Not-applicable			All / Not-applicable
EUR			EMU
Other than EUR			Other than EMU (...)

Based on EBA presentation, used with permission

Terminology of the dictionary

Locations of activities: All / Not-applicable EU Other than EU (...)	Portfolios: Total (...) Fair value through profit or loss Amortised cost	Impairment status: All / Not-applicable Impaired Unimpaired	Time reference: Current period end Previous period end Current period
Base terms: Assets Liabilities Equity Off-balance sheet Exposures			
Categories: Total (...) Cash Loans Debt securities Equity instruments Tangible and intangible Other than (...)			
Amount types (metric): Carrying amount Gross carrying amount (Specific allowances) (Collective allowances)			
Original currencies: All / Not-applicable EUR Other than EUR			
			Past due periods: All < 180 days ≥ 180 days < 1 year ≥ 1 year
			Original maturity: All < 1 year ≥ 1 year < 2 year ≥ 2 years
			Counterparty sectors: All / Not-applicable MFIs MMFs MFIs other than MMFs Central Administration Other general government Non-MMFs other than government
			Counterparty residences: All / Not-applicable EMU Other than EMU (...)

Domain

Domain Member

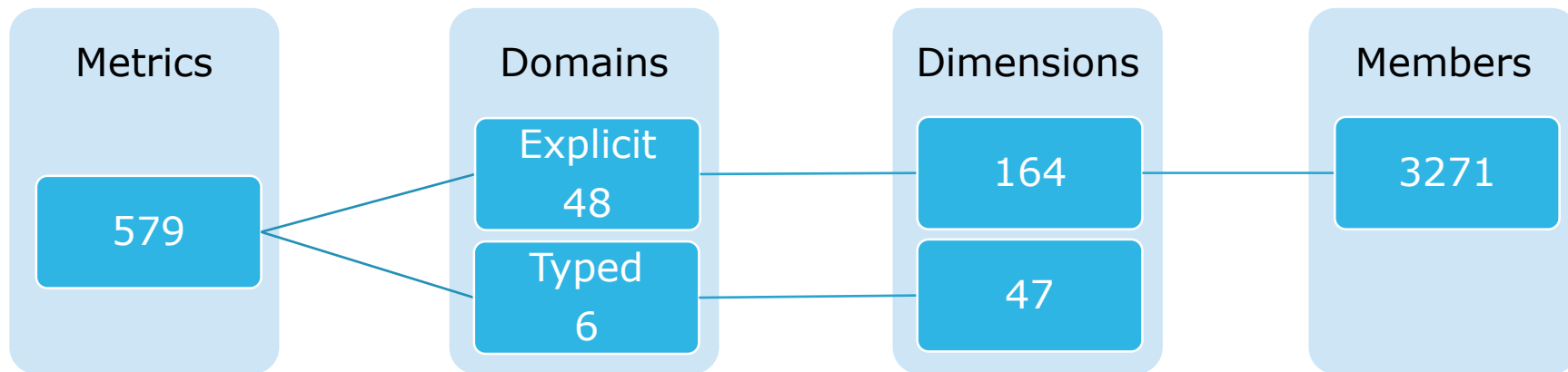
Metric

Dimension

Hierarchy

Based on EBA presentation, used with permission

EBA dictionary



Data Type	Member Label
Boolean [b]	Article 10 Waiver granted
Code [e]	Accounting standard
Date [d]	Legal final maturity date
Integer [i]	Number of counterparties
Monetary [m]	Acquisition cost
Percentage [p]	Capital buffer
String [s]	Holding company code

Domain Label	Is Type	Domain Description
Legal entity	TRUE	An association, corporation, partnership, proprietorship, trust, or individual that has
Security	TRUE	Financial instrument represented by an
Securitisation	TRUE	Pool of individual assets packaged as a
Integers	TRUE	Integers
Exposure classes	FALSE	Defines the exposure class for capital
External ratings	FALSE	Concepts related with external credit
Event type	FALSE	Defines the type of event that has generated an operational loss.
Geographical area	FALSE	Geographical area

Domain Label	Dimension Label
Exposure classes	Exposure class
Exposure classes	Exposure class before reassignment
Exposure classes	Exposure class of the collateral given
Exposure classes	Exposure class of the collateral received
Geographical area	Country of incorporation of guarantor
Geographical area	Country of the market
Geographical area	Country where the exposure is generated
Geographical area	Jurisdiction of incorporation

Domain Label	Member Label
Exposure classes	Other items
Exposure classes	Equity exposures
Exposure classes	Retail exposures
Geographical area	CHAD
Geographical area	CUBA
Geographical area	FIJI

Identify these items in your data systems and you can create all CRDIV reports!

XBRL functions: dictionary, presentation & validation

As part of a Data Point Model taxonomy

Illustration of XBRL components as used by the European supervisors EBA, ECB, EIOPA, SRB

XBRL: presentation structure via table linkbase (1)

Included in the taxonomy are structures describing the layout of data:

Common usages are:

- 1) data presentation (XBRL -> Excel, HTML)
- 2) data collection (Excel -> XBRL)

Different types:

- Closed table
- Open explicit table
- Open typed table

A		B	C	D	E	F	G	H
1	TOC	F 06.01 Breakdown of non-trading loans and advances to non-financial corporations by NACE codes						
2		Non-financial corporations						
3		Gross carrying amount			Accumulated impairment		Accumulated negative changes in fair value due to credit risk on non-performing exposures	
4				of which: loans and advances subject to impairment	Of which: non-performing			
5				010	011	012	021	022
6	Loans and advances	A Agriculture, forestry and fishing	010					
7		B Mining and quarrying	020					
8		C Manufacturing	030					
9		D Electricity, gas, steam and air conditioning supply	040					
10		E Water supply	050					
11		F Construction	060					
12		G Wholesale and retail trade	070					

F 06.01 Breakdown of non-trading loans and advances to non-financial corporations by NACE codes

XBRL: presentation structure via table linkbase (2)

Different types:

- Closed table
- Open explicit table
- Open typed table

1	2	A	B	C	D	E	F
1	TOC	Residence of counterparty:	ALBANIA		Nominal amount		
2			ALBANIA		Of which: debt forbearance	Of which: non-performing	
3			AUSTRIA		022	025	
4			BELGIUM				
5			BULGARIA				
6			CYPRUS				
7			CZECH REPUBLIC				
8			DENMARK				
9			ESTONIA				
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F 20.05.a Geographical breakdown of off-balance sheet items subject to credit risk by residence of the counterparty (a)

1	2	A	B	C	D	E	F	G
1	TOC	F 40.01 Scope of the group: "entity-by-entity"						
2		LEI code	Entity name	Entry date	Share capital of investee	Equity of Investee	Total assets of Investee	
3	Legal entity	010	030	040	050	060	070	
4	Open							

F 40.01 Scope of the group: "entity-by-entity"

XBRL functions: dictionary, presentation & validation

As part of a Data Point Model taxonomy

Illustration of XBRL components as used by the European supervisors EBA, ECB, EIOPA, SRB

XBRL: validation

Why?

To obtain high quality data from reporting banks.

Meaning the NCA is looking at relevant data.

But also the banks have correct data for their own processes and decision making.

XBRL contains a lot of features to achieve that high quality data:

1. XML syntax and XML datatype
2. XBRL base specification
3. XBRL dimensional validity
4. XBRL enumeration validity
5. XBRL formula rule validity

Limitation:

It won't tell if the data is right, it will tell you if data is consistent.

XBRL validation (1)

XML syntax and XML datatype

If it not XML compliant, it can't be processed at all.

All data provided must comply to the data types defined in the taxonomy (e.g. being a valid data or number).

XBRL base specification

Comply with XBRL requirements. E.g. all metrics, dimensions and members used are defined in the taxonomy.

XBRL dimensional validity

Only defined combinations of metrics, dimensions and members are allowed.

XBRL enumeration validity

Only allowed values for specific metrics. E.g. accounting framework must be IFRS or GAAP

XBRL validation (2)

XBRL formula rule validity

Types of rules:

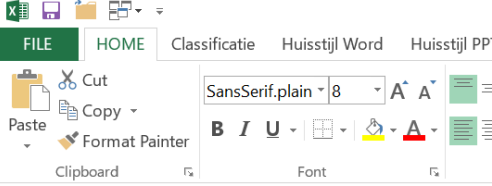
- existence,
- numerical consistency,

Can be logical.

E.g. if (\$a > 0) then (\$b + \$c > 0) else (true())

Can take rounding errors into consideration (interval arithmetic).

E.g. $100.000(\pm 500) = 60.000(\pm 500) + 20.000(\pm 500) + 18.000(\pm 500)?$

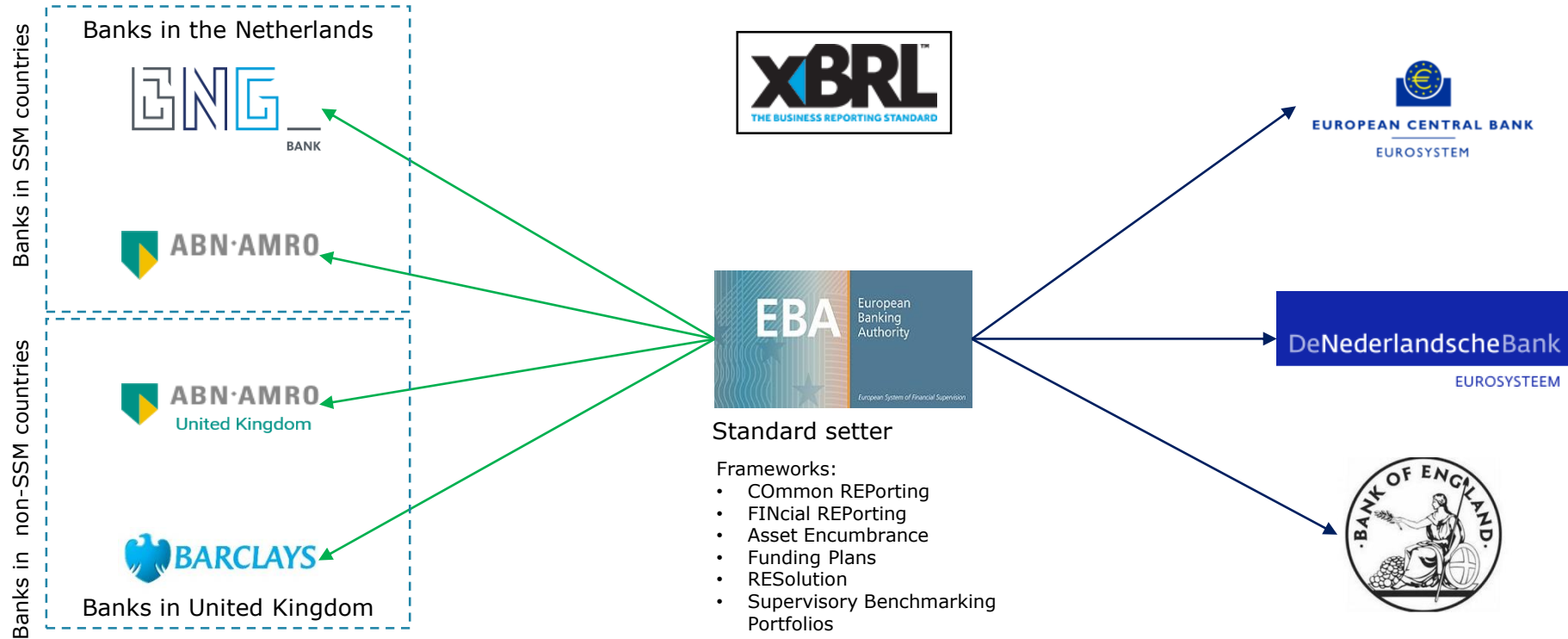


	A	B	C	D
1	TOC	F 00.01 Nature of Report (FINREP)		
2			Nature of Report	
3			010	
4	Accounting framework	010		
5	Reporting Level	020	National GAAP	
6			IFRS	

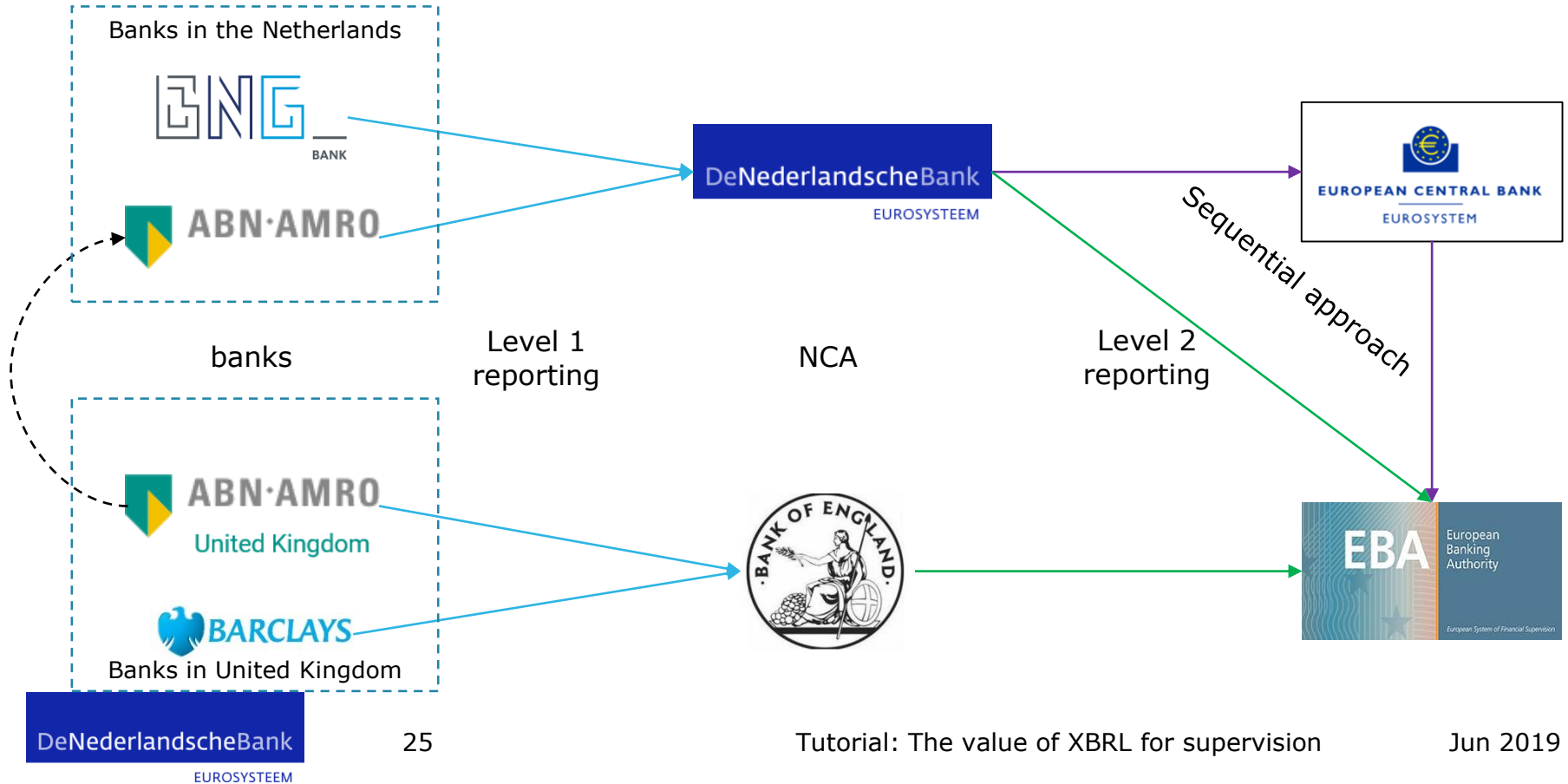
	A	B	C	D
1	TOC	F 31.01 Related parties: amounts payable to		
2				Parent and entities with joint control or significance influence
3				
4				010
5	Selected financial assets =	+	Equity instruments	010 100000,00
6		+	Debt securities	020 60000,00
7		+	Loans and advances	030 20000,00
8			of which: Non-performing	040 18000,00
9				050 21000,00

Data flows for European supervision on banks

Data requirements for banks



Data flows for European supervision on banks



Data flows continued



?



XML

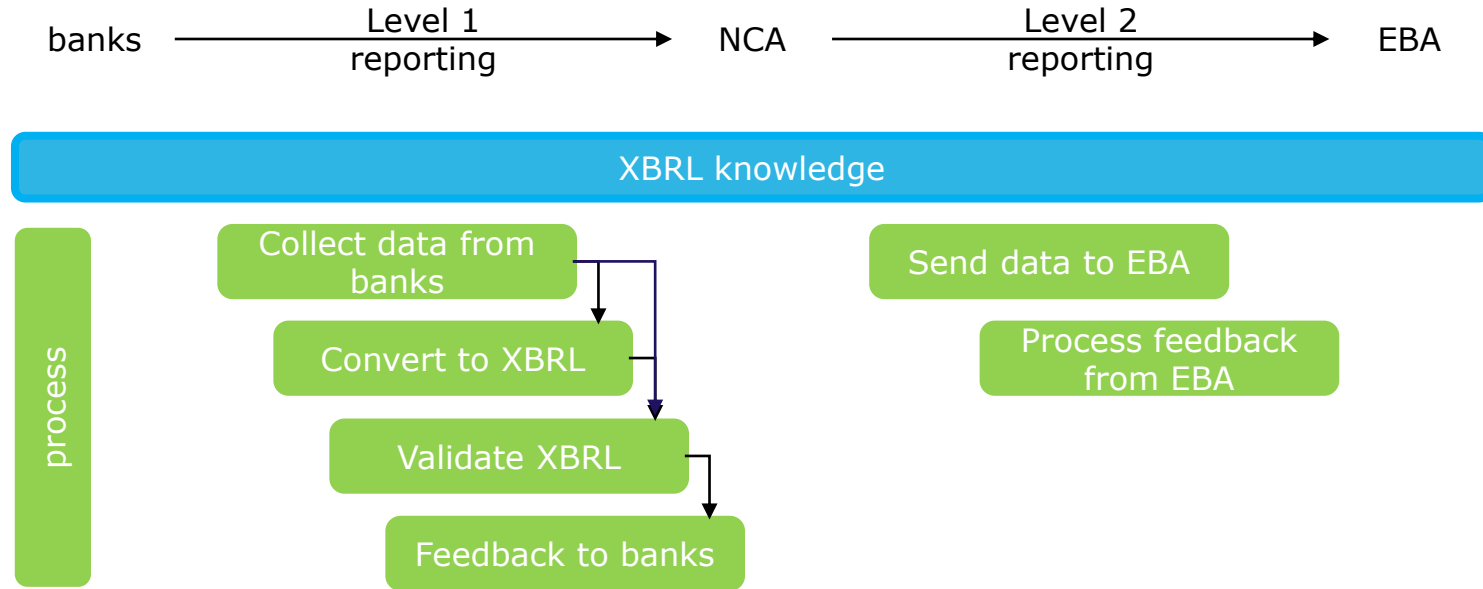


sdmx

CSV

Impact on National Competent Authority

Major aspects of EBA reporting



NCA: considerations for level 1 reporting format

Level 1 is XBRL

1. Which validation software to use?
2. How to provide feedback to the banks
(data + errors when found).

Level 1 is other format

1. Which format suits the NCA and reporters best?
2. Define your own structure and update the structure to cover new requirements of the EBA
3. Create/buy software to convert the data into the XBRL-format? How to maintain that application? Is the that expertise in house?
4. In case of an error found by the EBA, who caused it? NCA of bank? And who is going to fix that?
5. How to provide feedback based on XBRL to a bank used to another format?

Challenges posed by XBRL reporting to the EBA

Knowledge of XBRL is the main challenge to overcome.

Not abundantly available and training is limited. How much you need to depends on your intended use.

- Basic understanding to write the business case.
- Medium understanding when implementing your own XBRL process and to assist your banks with their implementation. E.g. explain errors found when validating a report.
- Deep understanding if you want to create your own taxonomies.

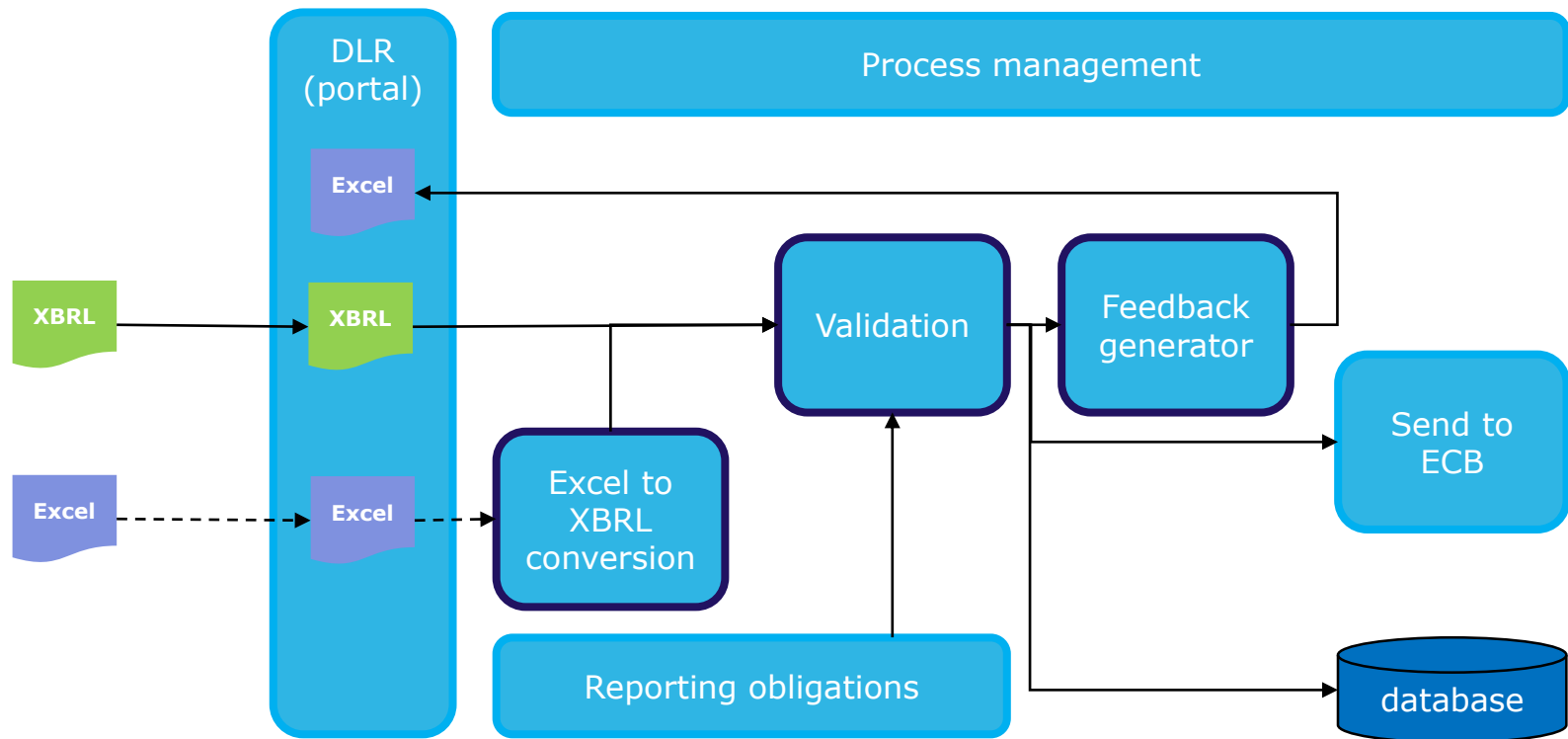
Software to create taxonomies is the other challenge:

Limited availability, can be technology focused instead of domain focused.

Good freeware software (DPM Architect) is available, though being freeware no support.

Process at De Nederlandsche Bank

EBA data collection and processing at DNB



What else does DNB do with XBRL?

We create our own taxonomies for Dutch specific data collection

To standardise on as few formats as possible, reporters are used to XBRL, tools exist to create and validate reports.

We create our own additional validation rules in XBRL, in order to enhance the data quality.

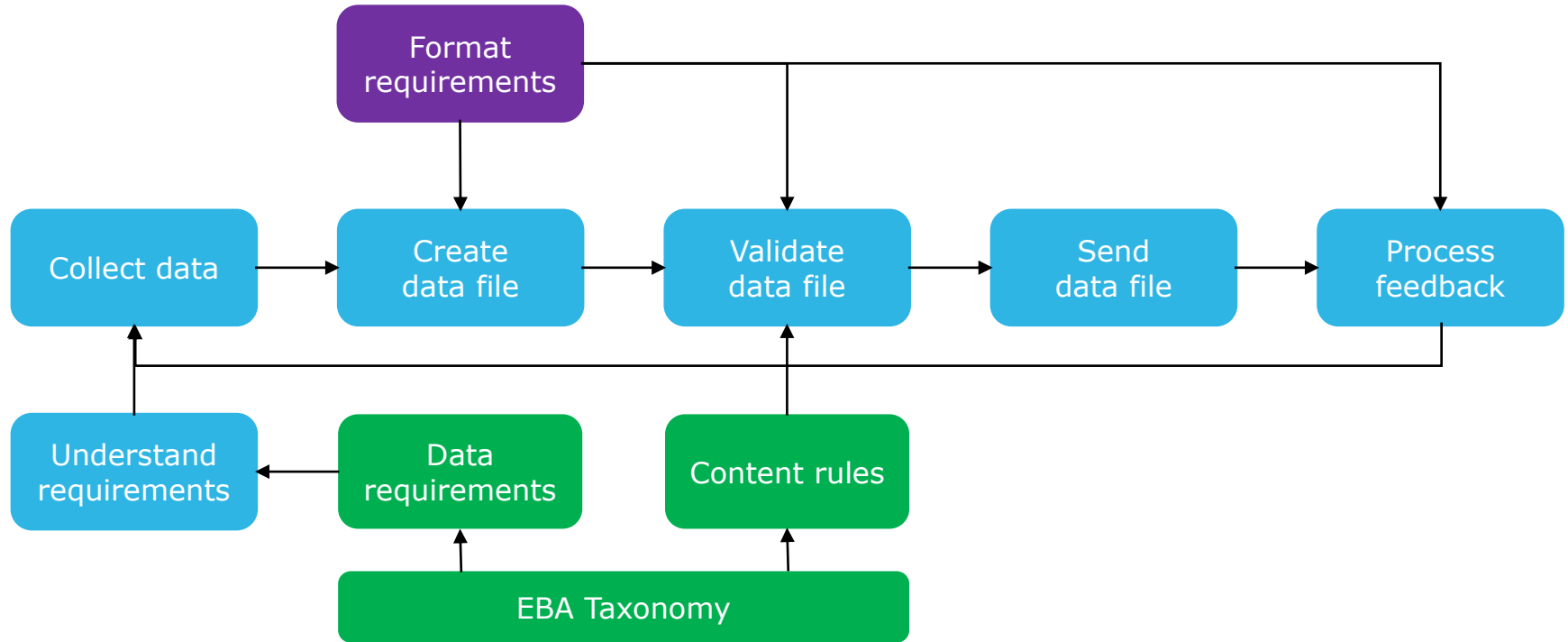
As rules in this format can easily be integrated in our process, but also in the process of the bank. DNB codes the rule, the bank just runs it

How many people?

Small team of 5-6 people to create taxonomies, maintain EBA/EIOPA/SRB taxonomies, help internal users, help reporters (3rd level).

Process at and impact on banks

Process at bank and the impact of level 1 decision



Dutch banks

Use various approaches to create the XBRL (offered by many, international, vendors).

Some use an advanced application that has XBRL file creation and validation built in (built or bought).

Others use an Excel-based application in which they fill in the numbers and the tool creates (usually not validates) the XBRL.

In the ,XML-based, past banks had create their own as there no standard software was available.

Do they complain?

They have to report a lot of data and it needs to submitted on time without errors.

Validation rules force the banks to increase data quality.

EBA taxonomy changes frequently and it contains errors, which complicates usage.

Do they blame XBRL?

Yes, XBRL is complex. In my opinion though, the problems are primarily in the content, not in the format.

Challenges posed by XBRL reporting to the EBA

Knowledge of XBRL is the main challenge to overcome.

Not abundantly available and training is limited. How much you need to depends on your intended use.

- Basic understanding if you use a fully integrated application for EBA reporting or use an Excel to XBRL convertor.
- Deep understanding if your building your own XBRL-reporting using only an API.

Software is available from many vendors, so is not a challenge.

The frequent changes to EBA taxonomy mean that software must be updated as well. So you need a good process to update that software.

Recommendations on implementing XBRL

Recommendations

1. Start early to get XBRL skills at the NCA.

XBRL is certainly not an easy standard to implement, certainly not rocket science either.

Attend XBRL conferences to learn from other users.

Reach out to other regulators and create a community to support each other.

Get support and assistance from other regulators who have already implemented XBRL.

2. Communicate a roadmap to the banks outlining which report when to be submitted in XBRL.

So go with XBRL for level 1 reporting.

3. Consider offering an Excel template with conversion to XBRL at the NCA for a limited timeframe.

This will give banks an easy escape if they fail to implement the system on time, while knowing they have to get it done eventually.

4. Mandatory pilot.

This will force banks to implement and test systems at the time of the pilot, not at the time of first submission.

Summary

Key take aways

Summary

An XBRL taxonomy defines the data to be reported, with rules to guarantee consistency and a presentation structure to easily identify specific data points.

An XBRL report contains clear defined data, that can be validated against the rules set and easily viewed.

Being a globally used standard, software is available for both reporters and NCAs to work with XBRL data.

Yes, XBRL is complex,

because it can do so many things: document, validate and present data.

It is used all over the world, so it must be possible in your country as well.