4th European Banking Supervisors XBRL Workshop

Hands-on Customising COREP Taxonomies

COREP Project Team

Katrin Schmehl

Victor Morilla

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Agenda

- COREP taxonomy customisation requirements
- Concept and structure of national customisation
- Customisation of
  - Labels
  - References
  - Template structure
  - Typed dimensions
- Integrate general information
- Summary
- Questions

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- **COREP taxonomy customisation requirements**
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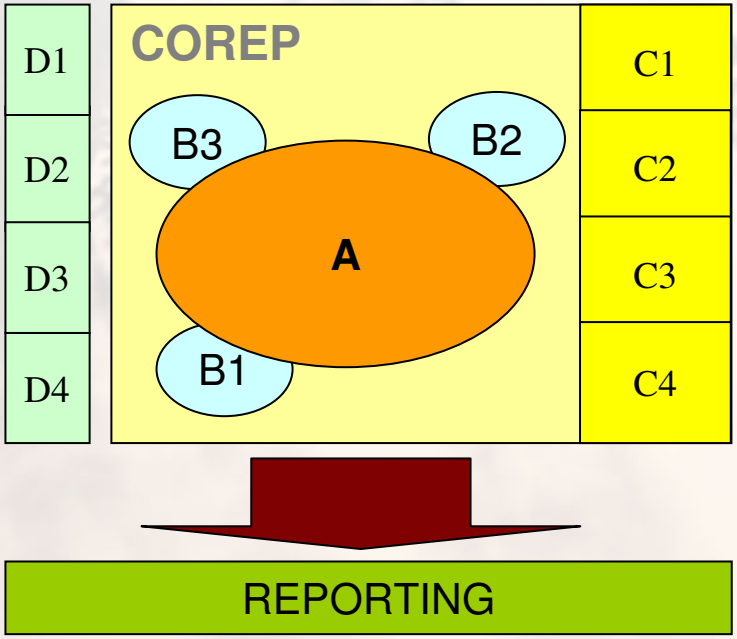
COREP taxonomy customisation requirements

- **COREP defines a superset of possible reporting items.**
- **Each country has the right to choose the level of detail.**



A → most essential information needed by all supervisors ('core' layer)

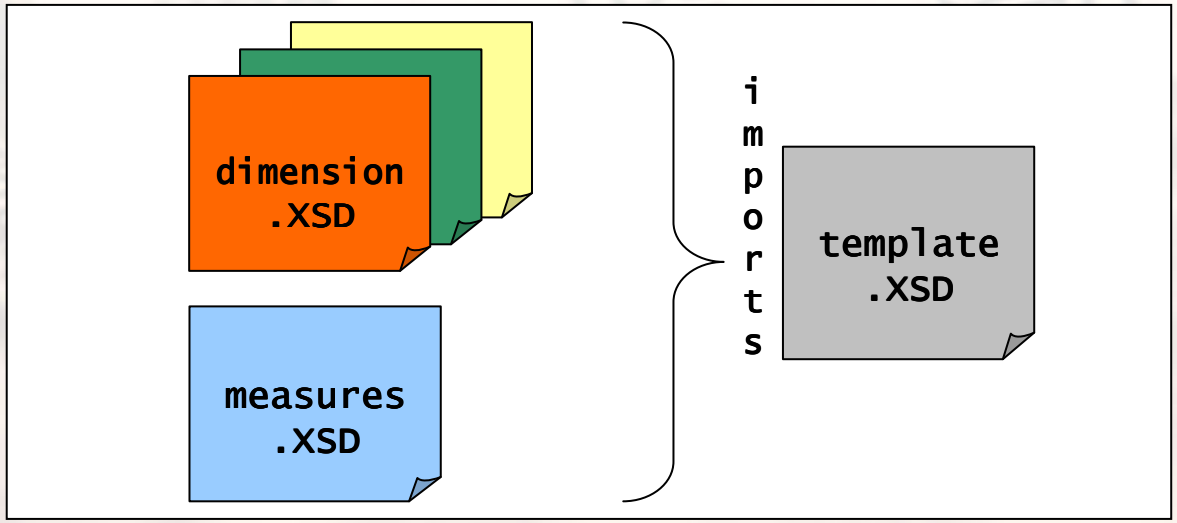
B → additional information that will be useful in interpreting the core data ('detailed' layer)

C → information that certain supervisors consider essential

D → data outside COREP (i.e. credit register…)

COREP taxonomy customisation requirements

- **The COREP framework must be highly flexible and extensible.**
- **To meet this goal the framework is as modular as possible.**



- **Some uniformity should be achieved throughout the national extensions of the COREP taxonomy.**

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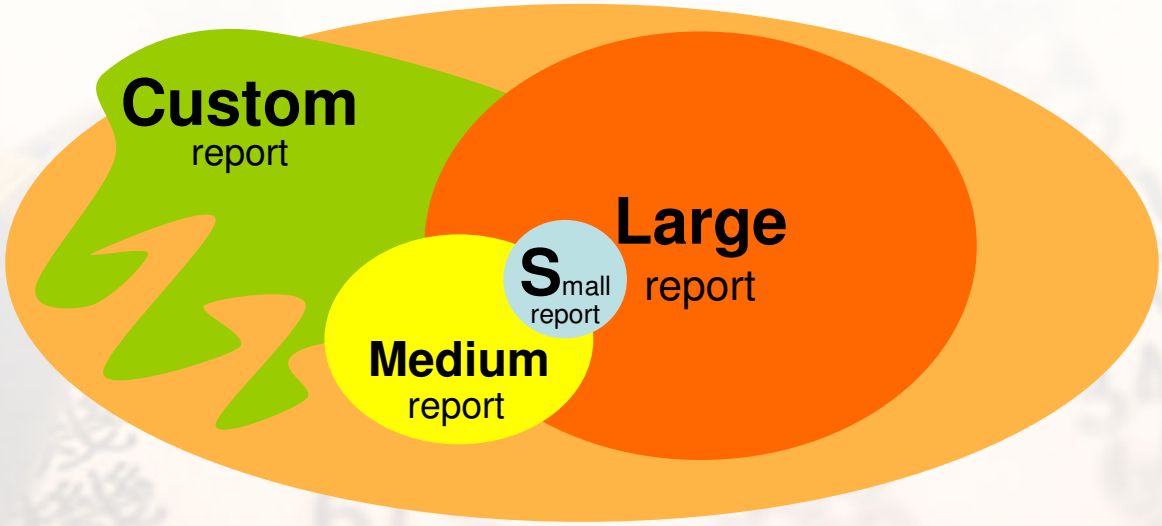
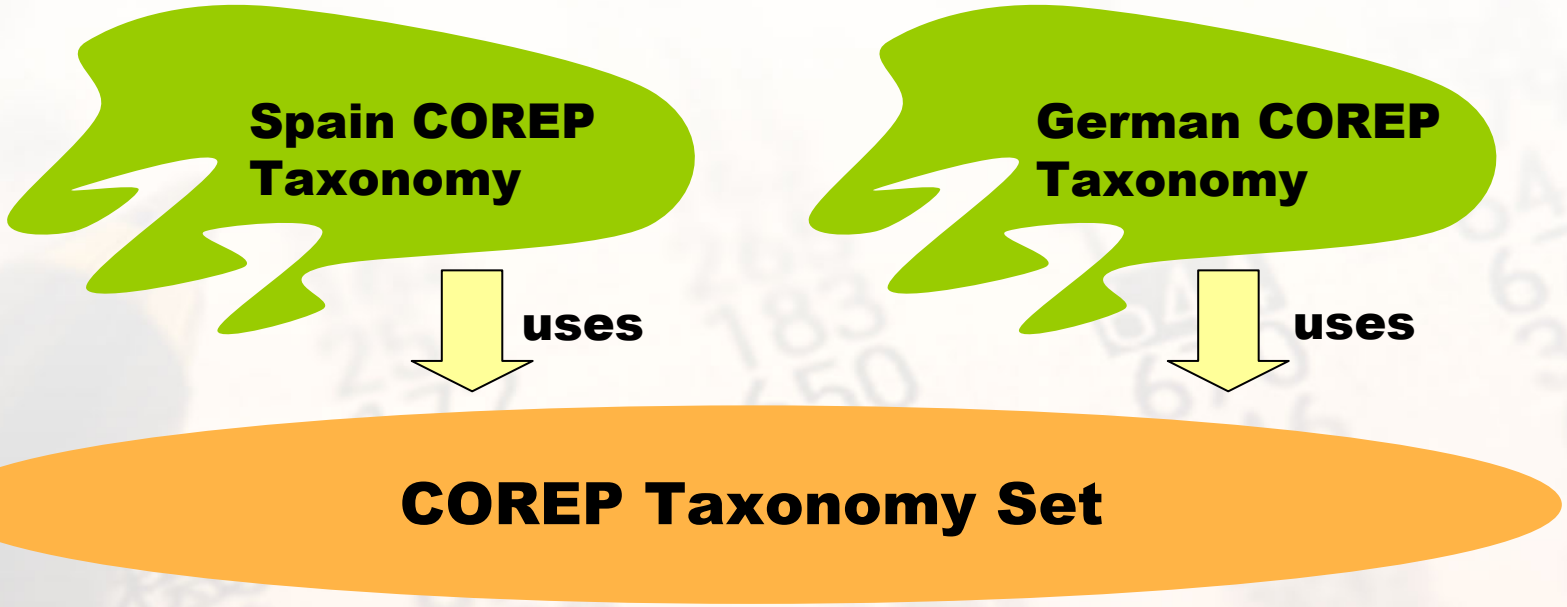
Concept of national customisation



COREP
superset of reports

- **The COREP taxonomy provides a large number of possible reporting items.**
- **Depending on the national requirements each European country will determine the level of detail.**

National extension structure



National taxonomies will:

- **use the COREP taxonomy set as a base.**
- **refer to the base taxonomy but will not change it.**

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Customisation of Labels: I

Exposure type:	Total

EXPOSURE CLASSES	ORIGINAL CREDIT & COUNTERPARTY RISK EXPOSURE PRE CREDIT CONVERSION FACTOR	EXPOSURE AFTER NETTING AGREEMENTS	UNFUNDED CREDIT ADJUSTED VA
			GUARANTEES: ADJUSTED VALUE (Ga)
	1	2	3
1. CENTRAL GOVERNMENTS AND CENTRAL BANKS			
1.1 Regional governments and local authorities			

English labels

Art der Adressenausfall-risikoposition	Gesamtsumme

IRBA-Forderungsklasse	IRBA-Bemessungs-grundlage **vor** Berücksichtigung von Aufrechnungs-vereinbarungen	IRBA-Bemessungs-grundlage **nach** Berücksichtigung von Aufrechnungs-vereinbarungen	Gewährleistunge Beträge
			Garantien: Angepasste Beträge
	1	2	3
1. Bundesregierungen und Zentralbanken			
1.1 Landesregierungen und Kreisverwaltungen			

German labels

- **meaningful names of the items to be reported**
- **are used in reports to hide the technical name**

Customisation of Labels: II

- **Each country defines its own dictionary in its national extension taxonomies.**
- **The measure and dimension items can refer to several translations.**

```
<GOLD id="p-ce-de_Gold"> technical name
```

Gold	en
Chrysos	gr
Gold	de
Oro	es

National labels

Exercise 1: Customisation of Labels

- **Create a national extension of the primary taxonomy for the German CR EQU IRB template and add the German labels for the measures by using the Fujitsu tool.**

  (detailed instructions: see handout; target time: 10 min.)

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Customisation of References

- **Each COREP reporting item refers to where it is derived from: the EU directive for Basel II.**
- **References to the national law can be added.**

ORIGINAL CREDIT & COUNTERPARTY RISK EXPOSURE…

Reference	
ref:Article	74
ref:Paragraph	1
ref:Publisher	EU
ref:Name	Directive 2000/12
ref:Note	Exposure value without taking into account value adjustments ...
Reference	
ref:Publisher	Greece
ref:Name	Law
ref:Article	23
ref:Paragraph	456
ref:Note	Some greek notes.

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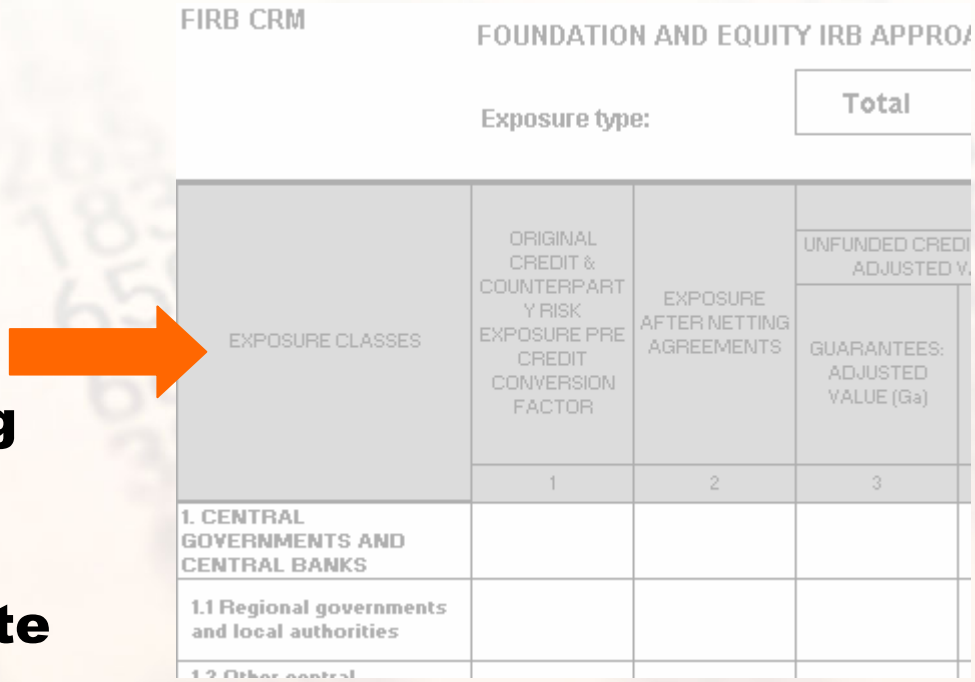
Customisation of the template structure

COREP Project

Possible changes:

- Adding or removing columns and rows
- Reordering the hierarchical structure
- Restrict cells from being reported
- Adding or removing dimensions on a template
- Provide choices between dimensions



FIRB CRM

FOUNDATION AND EQUITY IRB APPRO

Exposure type: Total

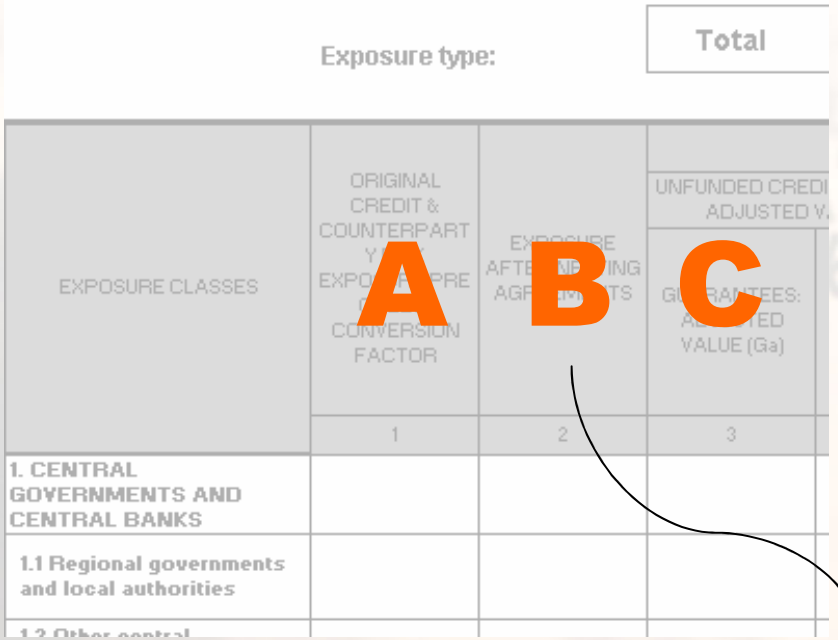
EXPOSURE CLASSES	ORIGINAL CREDIT & COUNTERPARTY RISK EXPOSURE PRE CREDIT CONVERSION FACTOR	EXPOSURE AFTER NETTING AGREEMENTS	UNFUNDED CREDI ADJUSTED V.
			GUARANTEES: ADJUSTED VALUE (Ga)
	1	2	3
1. CENTRAL GOVERNMENTS AND CENTRAL BANKS			
1.1 Regional governments and local authorities			
1.2 Other central			

XBRL eXtensible Business Reporting Language

CEBS

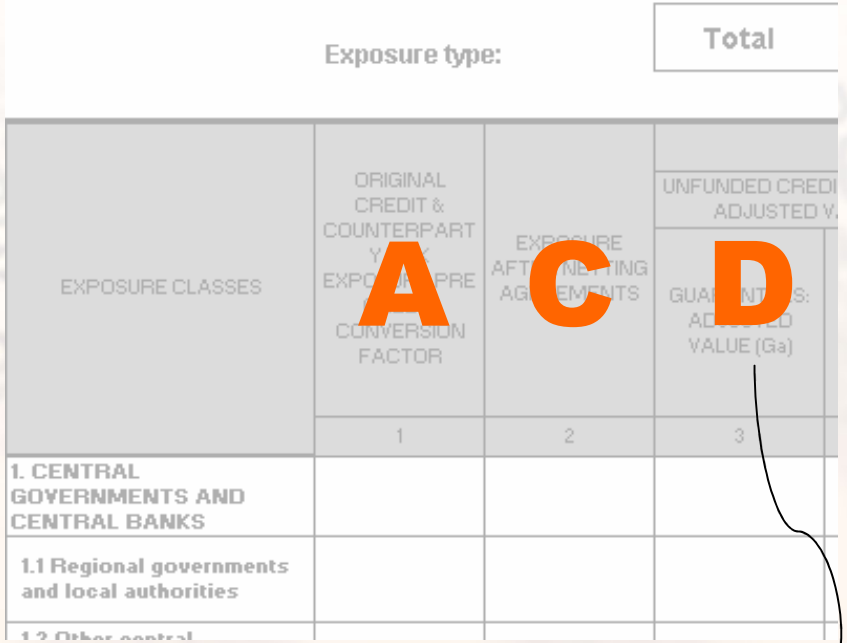
Adding or removing columns and rows I

COREP template



Column B has to be removed.

National template



Column D has to be added.

Adding or removing columns and rows II

COREP taxonomy structure

Foundation and Equity IRB Approach: Details of Exposure Value	
A Original Credit & Counterparty Risk Exposure Pre Credit Con	1.0
B Exposure After Netting Agreements	2.0
C Credit Risk Mitigation (CRM) Techniques with Redistribution E	3.0
Exposure After Netting and CRM Redistribution Effect	4.0
Exposure After Netting, CRM Redistribution Effect and Credit	5.0
Capital Requirements for Dilution Risk (Prior to Credit Risk Miti	6.0
Exposure Value	7.0

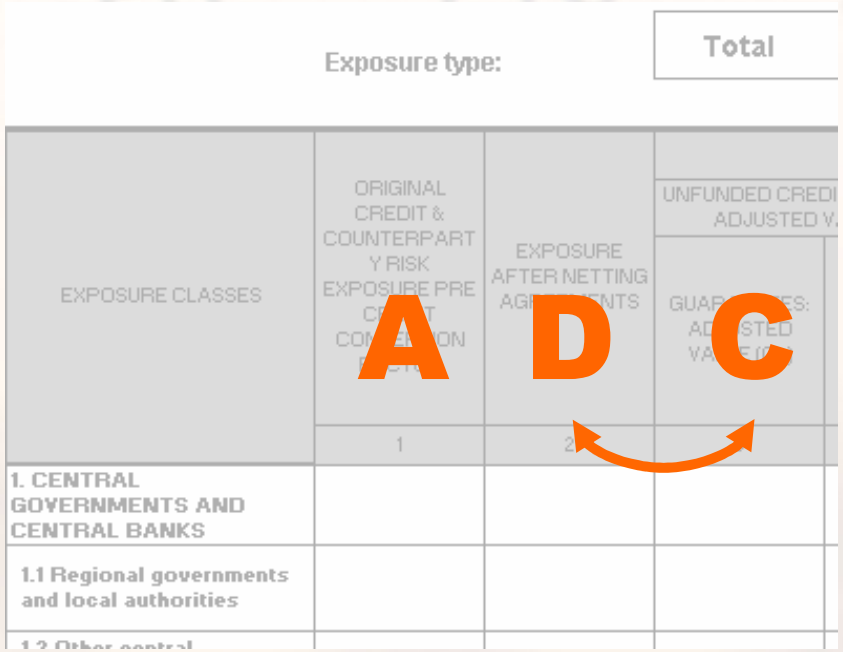
National taxonomy structure

Foundation and Equity IRB Approach: Details of Exposure Value	
A Original Credit & Counterparty Risk Exposure Pre Credit Con	1.0
X Exposure After Netting Agreements	2.0
C Credit Risk Mitigation (CRM) Techniques with Redistribution E	3.0
D Gold	3.5
Exposure After Netting and CRM Redistribution Effect	4.0
Exposure After Netting, CRM Redistribution Effect and Credit	5.0
Capital Requirements for Dilution Risk (Prior to Credit Risk Miti	6.0
Exposure Value	7.0

- **The hierarchical structure of the template has been changed.**
- **Column B is no longer allowed in the national taxonomy.**
- **Column D has been added to the national taxonomy.**

Reordering the hierarchical structure: I

- **New items can be positioned as necessary in the national template structure.**
- **Existing items can be reordered if required.**
- **Thus every country can personalise the presentation of its templates.**



Columns C and D have been exchanged.

Reordering the hierarchical structure: II

Structure before reordering:

Foundation and Equity IRB Approach: Details of Exposure Value	
A Original Credit & Counterparty Risk Exposure Pre Credit Con	1.0
Exposure After Netting Agreements	2.0
C Credit Risk Mitigation (CRM) Techniques with Redistribution E	3.0
D Gold	3.5
Exposure After Netting and CRM Redistribution Effect	4.0
Exposure After Netting, CRM Redistribution Effect and Credit	5.0
Capital Requirements for Dilution Risk (Prior to Credit Risk Miti	6.0
Exposure Value	7.0

New structure:

Foundation and Equity IRB Approach: Details of Exposure Value	
A Original Credit & Counterparty Risk Exposure Pre Credit Con	1.0
D Gold	1.5
Exposure After Netting Agreements	2.0
C Credit Risk Mitigation (CRM) Techniques with Redistribution E	3.0
Exposure After Netting and CRM Redistribution Effect	4.0
Exposure After Netting, CRM Redistribution Effect and Credit	5.0
Capital Requirements for Dilution Risk (Prior to Credit Risk Miti	6.0
Exposure Value	7.0

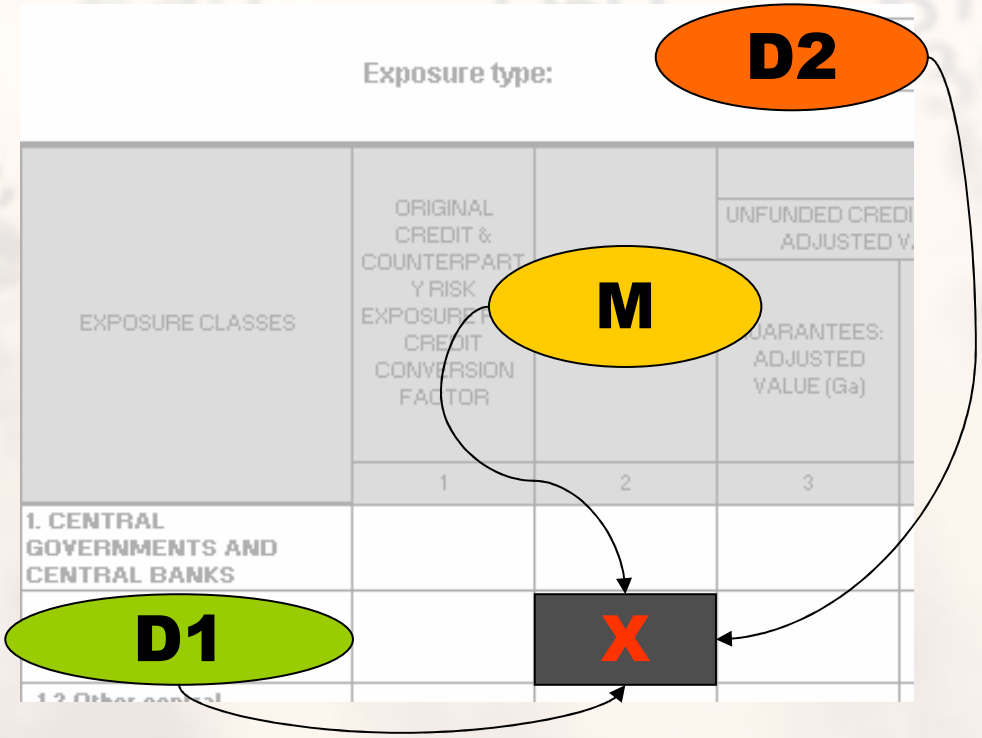
Exercise 2: Adding or removing columns and rows and reordering the hierarchical structure

- **Change the template structure according to the instructions of the handout. → A new column should be added, a row removed and the hierarchical structure be changed for national purposes.**

Exercise

Restrict cells from being reported: I

- **Every cell is a combination of a measure and its dimensions.**
- **Some row/column combinations are not valid inside the EU directive of Basel II and must not be reported. They are marked in grey inside the COREP templates.**
- **National taxonomies can override those restrictions.**

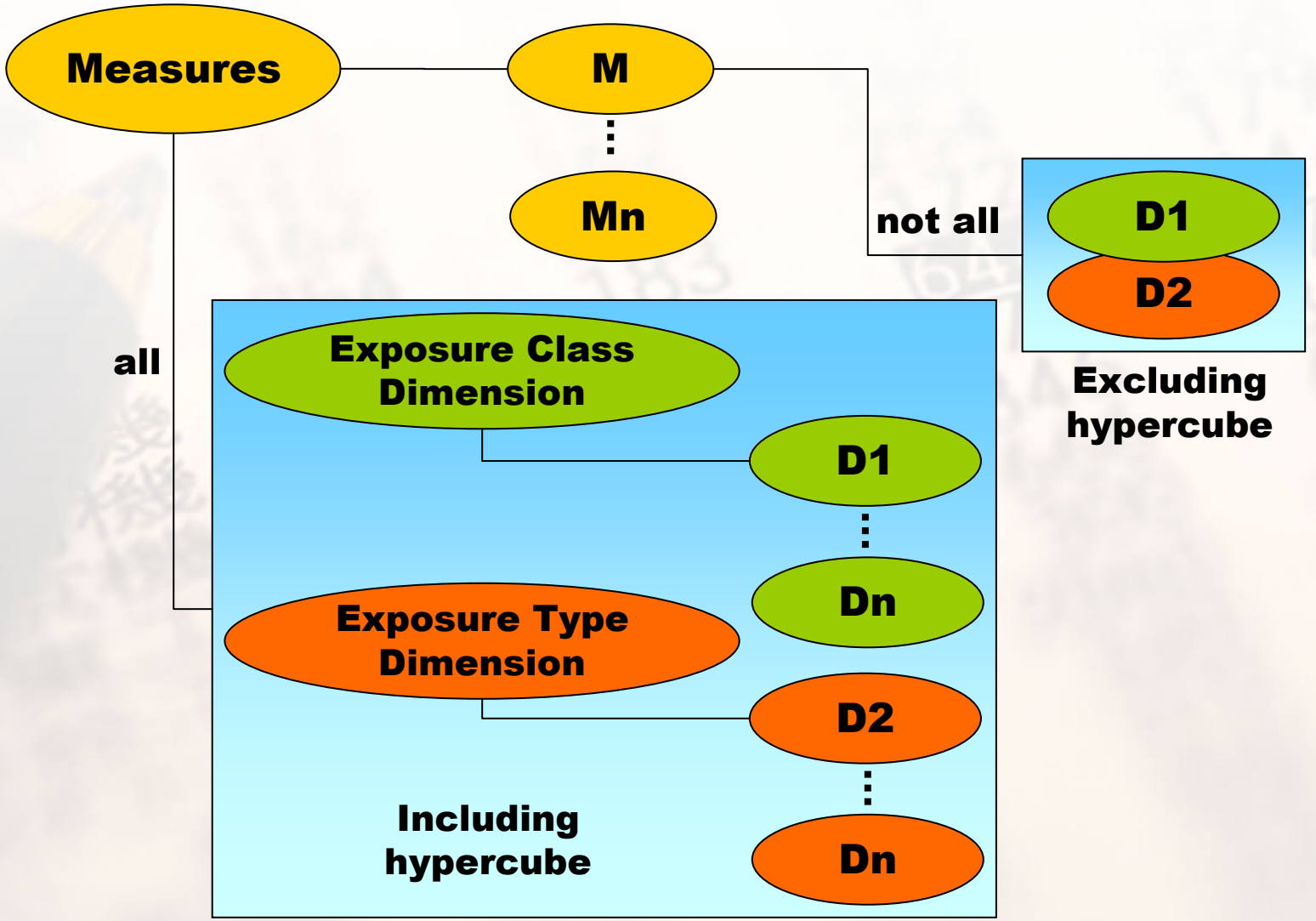


M: Measure

D1: Dimension 1

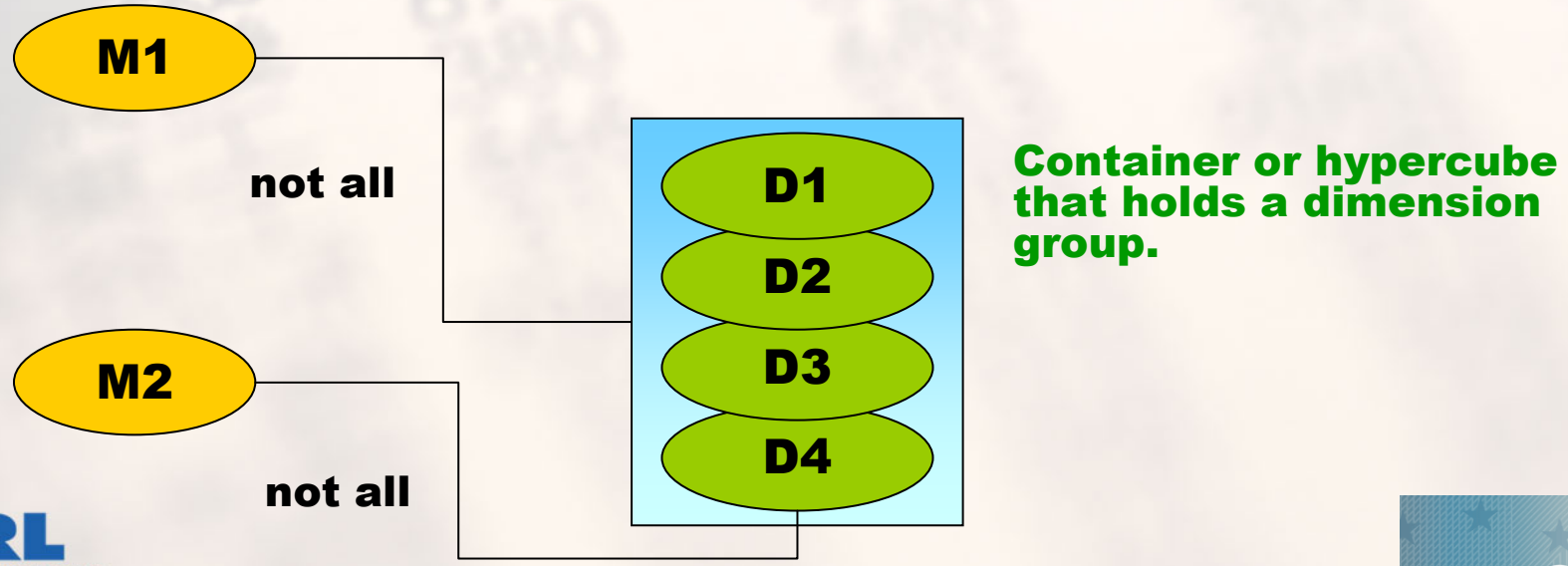
D2: Dimension 2

Restrict cells from being reported: II



Restrict cells from being reported: III

- **Restricted cells can be grouped together, i.e. several cells in one column.**
- **Inside the taxonomy they are added in a container that holds all the invalid dimensions.**
- **The container can be reused for other measures of the template.**



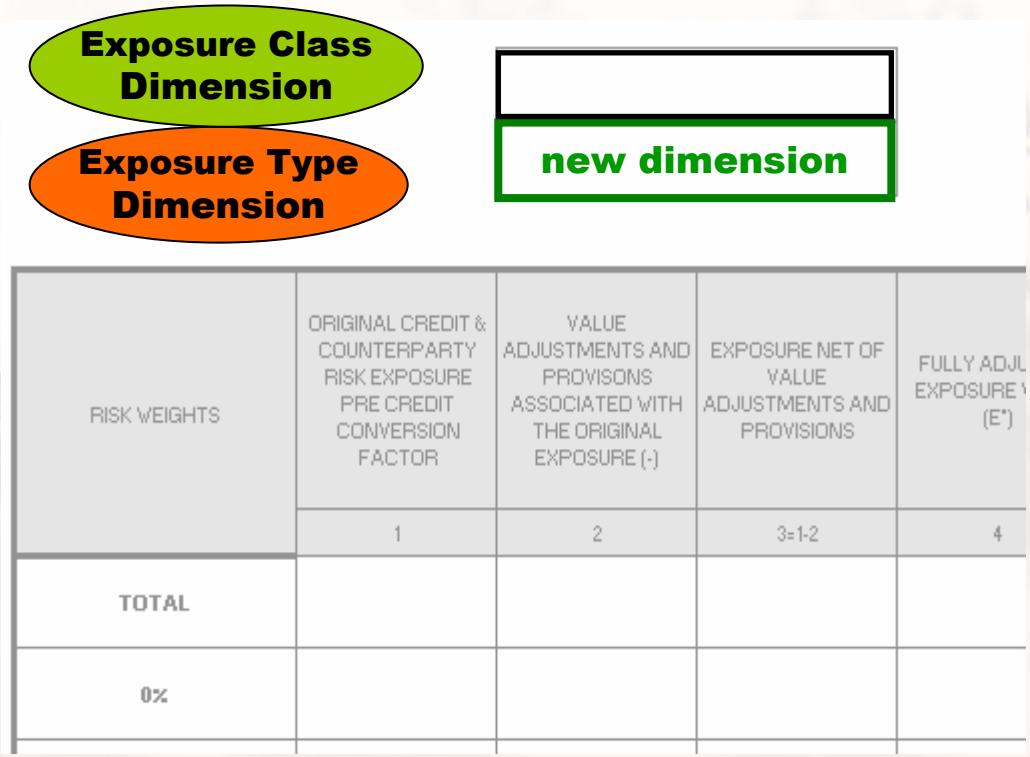
Container or hypercube that holds a dimension group.

Exercise 3: Restrict cells from being reported

- **Add an additional hypercube in a national taxonomy.**
  (detailed instructions: see handout; target time: 15 min.)

Adding or removing dimensions on a template: I

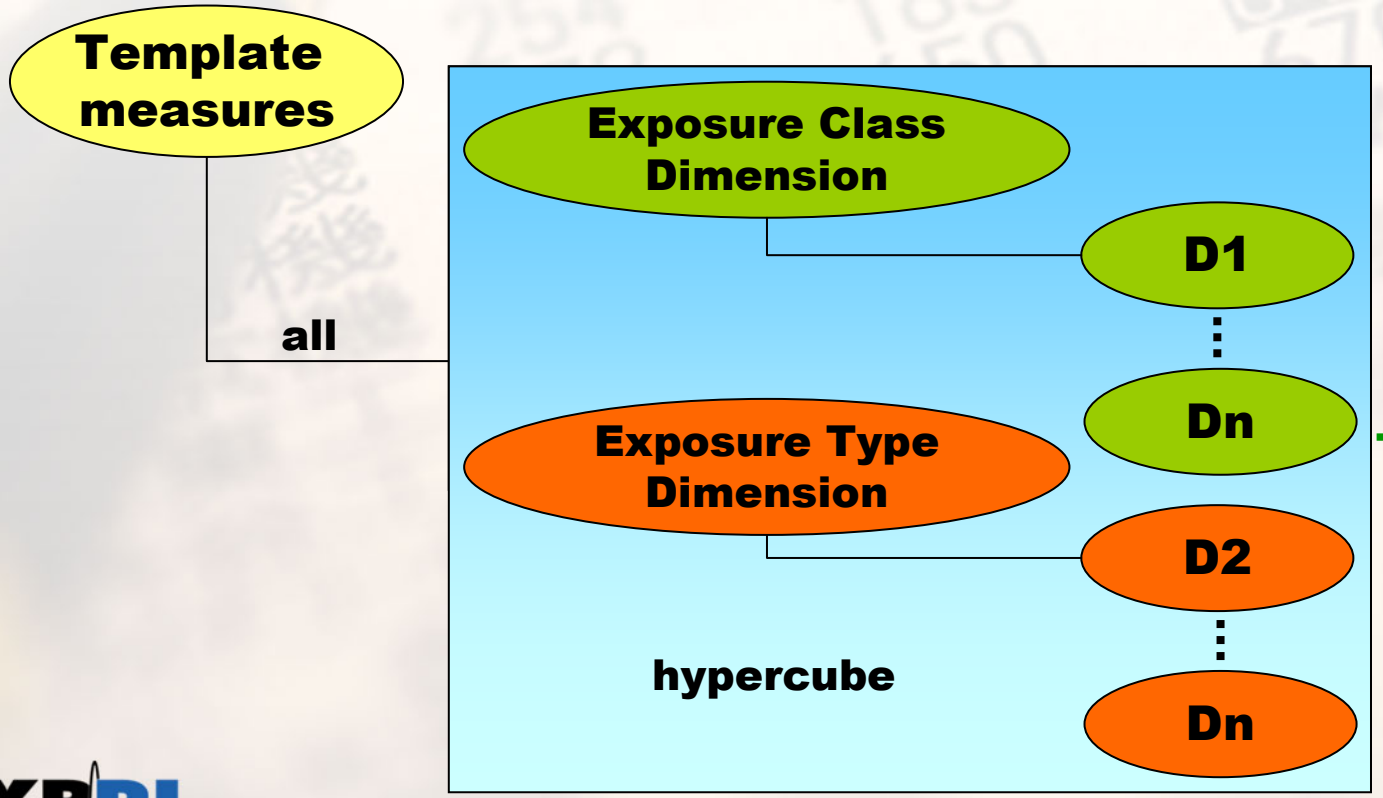
- **A new dimension should be added to the national template to get a more detailed view on the data.**



RISK WEIGHTS	ORIGINAL CREDIT & COUNTERPARTY RISK EXPOSURE PRE CREDIT CONVERSION FACTOR	VALUE ADJUSTMENTS AND PROVISONS ASSOCIATED WITH THE ORIGINAL EXPOSURE (-)	EXPOSURE NET OF VALUE ADJUSTMENTS AND PROVISIONS	FULLY ADJU EXPOSURE (E*)
	1	2	3=1-2	4
TOTAL				
0%				

Adding or removing dimensions on a template: II

- **A new dimension to a template can be created by expanding hypercubes and adding a new dimension element [arc role: hypercube-dimension].**
- **Special care must be taken in templates with several sections.**



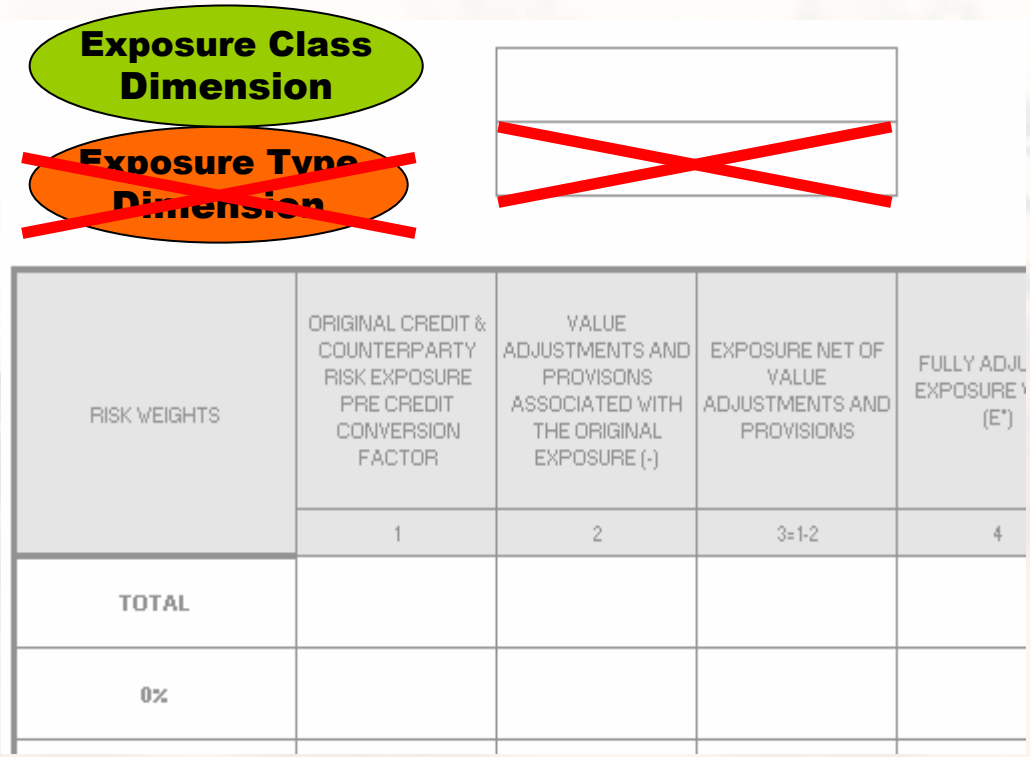
The new dimension 'Exposure Type' is added to an existing hypercube.

Exercise 4: Adding a dimension on a template

- **Add a new dimension for "Risk Weight" to the national "CR IRB" template. The risk weight dimension taxonomy of COREP can be reused.**
  (detailed instructions: see handout; target time: 10 min.)

Adding or removing dimensions on a template: I

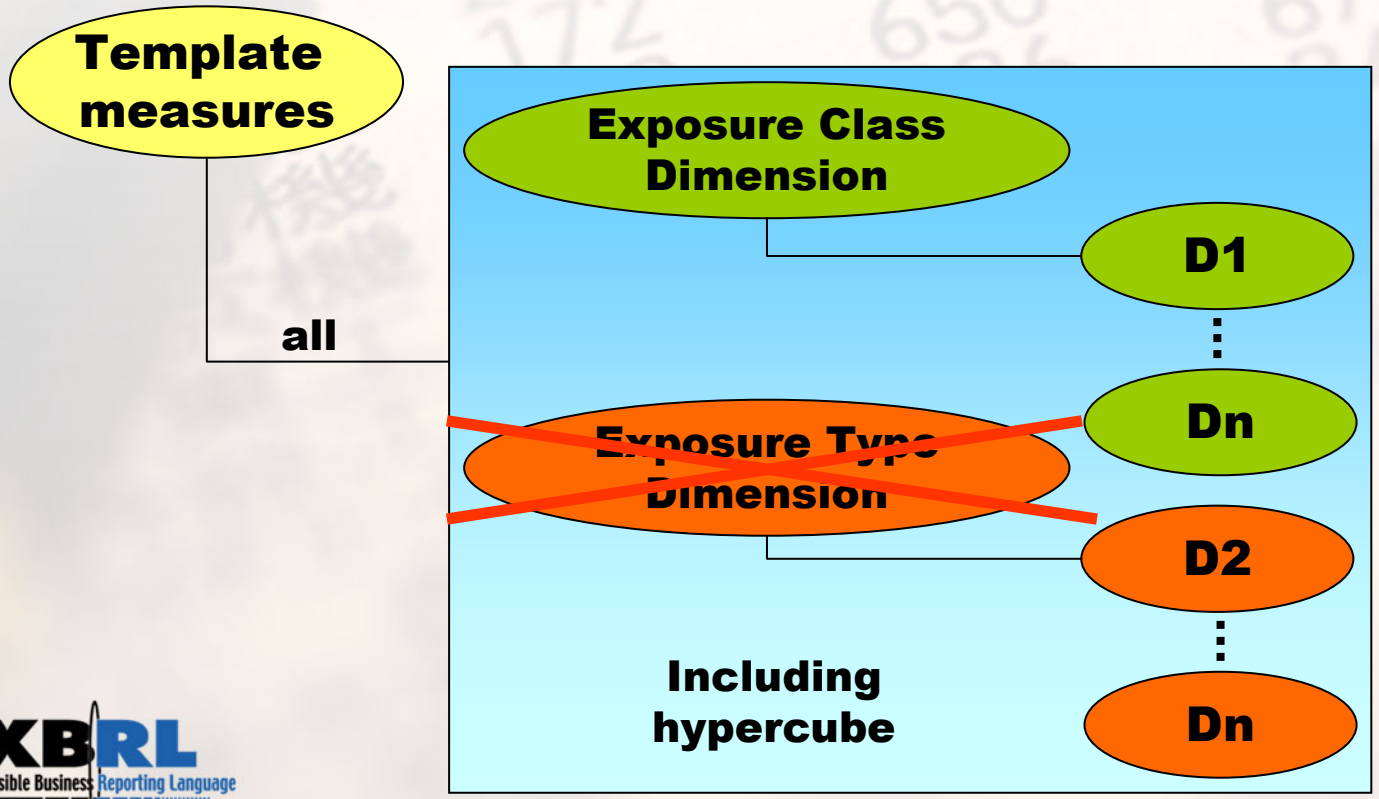
- **The national banking supervisor decides that a dimension is not needed in a template.**



RISK WEIGHTS	ORIGINAL CREDIT & COUNTERPARTY RISK EXPOSURE PRE CREDIT CONVERSION FACTOR	VALUE ADJUSTMENTS AND PROVISONS ASSOCIATED WITH THE ORIGINAL EXPOSURE (-)	EXPOSURE NET OF VALUE ADJUSTMENTS AND PROVISIONS	FULLY ADJU EXPOSURE (E*)
	1	2	3=1-2	4
TOTAL				
0%				

Adding or removing dimensions on a template: II

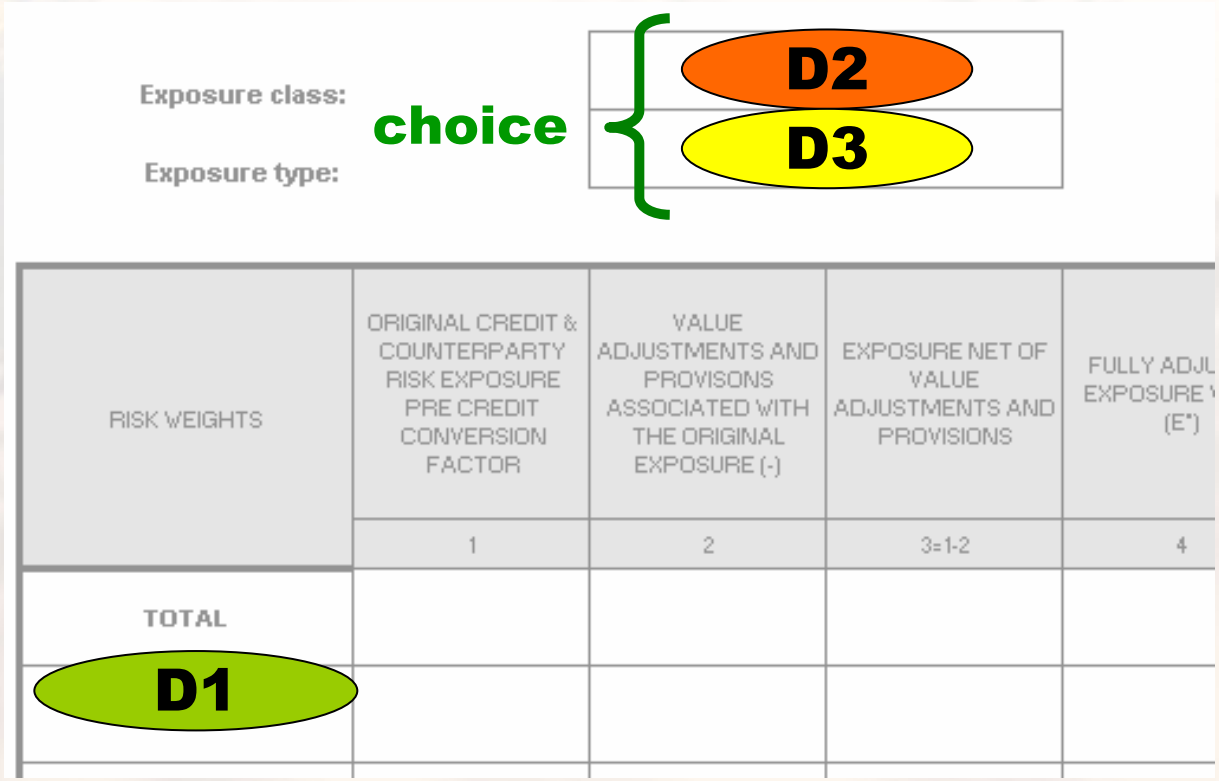
- **The national taxonomy can be created to reflect this requirement by removing the connection (hypercube-dimension) between the hypercube and the dimension that is not needed.**



Dimension Exposure Type is no longer allowed.

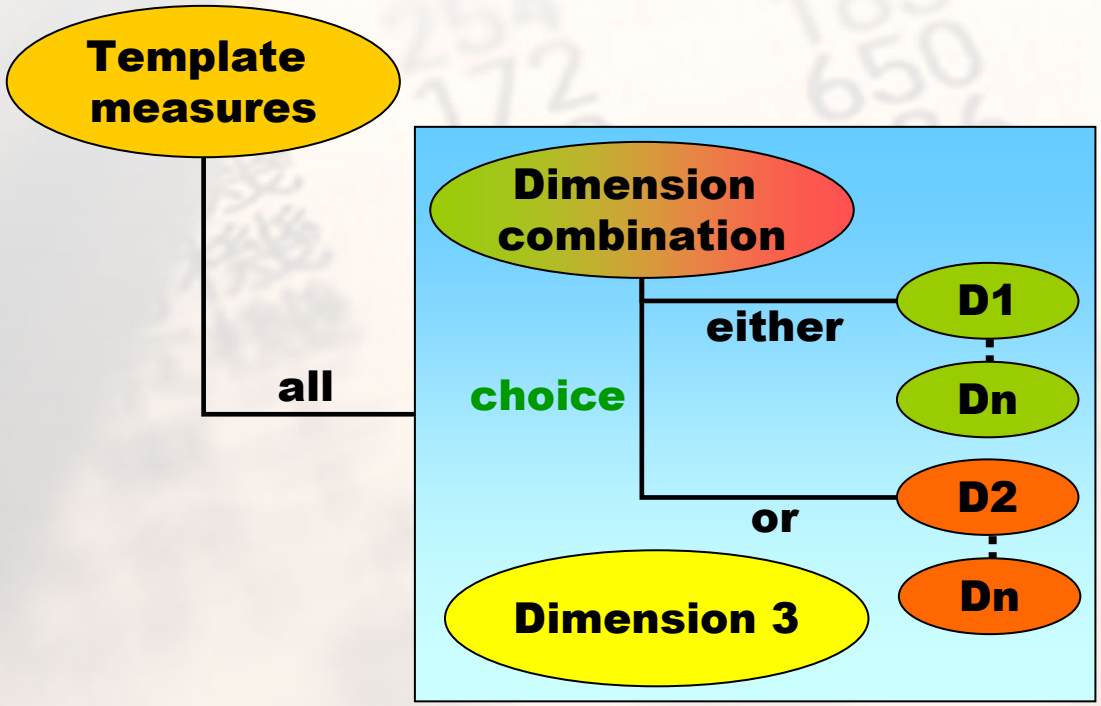
Provide choices among dimensions: I

- **For this template either Dimension 2 or Dimension 3 can be used.**



Provide choices among dimensions: II

- **If a banking supervisor decides that one of two or more possible dimensions has to be used for a national COREP template, it can define this choice inside the template taxonomy.**



Either an item of dimension 1 or an item of dimension 2 has to be used in the instance document.

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Agenda (Typed dimensions)

- Typed dimensions in XBRL
- How to define typed dimensions
- Simple XML Schema types
- Restricting Simple XML Schema Types
- Complex XML Schema Types
- Extending COREP typed dimensions
- References
- Questions

Typed dimensions in XBRL

- A explicit dimension defines its content by a list of values
- A typed dimension defines its content by a set of rules (a XML Schema type)
- Typed dimensions allow the definition of large or infinite set of members

Simple XML Schema Types

Text types:

- string
- normalizedString
- ...

Number types:

- decimal
- integer
- negativeInteger
- positiveInteger
- ...

Date and Time types:

- date
- duration
- time
- ...

Simple XML Schema Types (t-ce template example)

```
<element name="ObligorGrade"
    type="integer"
    id="t-ce_ObligorGrade" />

<element name="ObligorGradeDimension"
    xbrldt:typedDomainRef="t-ce-2005-12-31.xsd#t-ce_ObligorGrade"
    type="xbrli:stringItemType"
    abstract="true"
    substitutionGroup="xbrldt:dimensionItem"
    nillable="true"
    id="t-ce_ObligorGradeDimension" ... />
```

Exercise 5

- **Build a taxonomy to model Incomes by Customer**
- **Customers will be represented by its name (a string)**

Constraining Simple XML Schema Types

Simple types can be constrained using “facets” to feet our requirements. For instance:

- **Strings**
  - **xs:length, xs:minLength and xs:maxLength**
  - **xs:pattern**
- **Numbers**
  - **xs:minInclusive, xs:maxInclusive, xs:totalDigits, xs:fractionDigits**
  - **xs:pattern**

Constraining Simple XML Schema Types

- **Pattern example:**

```
<element name="Customer" id="id_customer">
    <xsd:simpleType>
      <xsd:restriction base="xsd:string">
      <xsd:pattern value="[A-Z]*"/>
      </xsd:restriction>
    </xsd:simpleType>
</element>
```

- **Min and max values example:**

```
<element name="ObligorGrade" id="t-ce_ObligorGrade">
      <xsd:simpleType>
            <xsd:restriction base="xsd:integer">
                  <xsd:minInclusive value="1"/>
                  <xsd:maxExclusive value="100"/>
            </xsd:restriction>
      </xsd:simpleType>
<element/>
```

Constraining Simple XML Schema Types: Pattern examples

Pattern	Matchs
“A”	“A”
“AB”	“AB”
“(true)|(false)”	“true” or “false”
“[A,B]”	“A” or “B”
“[A-E]”	“A” or “B” or “C” or “D” or “E”
“A*”	“” or “A” or “AA” or “AAA” …
“A+”	“A” or “AA” or “AAA” …
A?	“” or “A”
A{5}	“AAAAA”
.	Any single character
\.	.

Exercise 6

- **Change taxonomy from exercise 1 so that Customer names must be made up of a capital letter followed by one or more lower case letters**

Complex XML Schema Types

- **Thee different content models allow the composition of complex types:**
  - **sequence**
  - **choice**
  - **all**

Complex XML Schema Types (t-gd template example)

```
<element name="ConsolidatedSubgroupsAndRegulatedEntitiesTypedDomain"
    id="t-gd_ConsolidatedSubgroupsAndRegulatedEntitiesTypedDomain">
    <complexType>
        <sequence>
            <element name="Name" type="string"/>
            <element name="Code" type="string"/>
        </sequence>
    </complexType>
</element>

<element name="ConsolidatedSubgroupsAndRegulatedEntitiesDimension"
    type="xbrli:stringItemType"
    xbrldt:typedDomainRef="t-gd-2005-12-31.xsd#t-
    gd_ConsolidatedSubgroupsAndRegulatedEntitiesTypedDomain"
    abstract="true"
    substitutionGroup="xbrldt:dimensionItem"  ... />
```

Exercise 7

- Change taxonomy from exercise 2 so that Customer name is a complex type made up of must be made up of a “First Name” and a “Surname”.
- Both names must be formed by a capital letter followed by one or more lower case letters

Extending COREP typed dimensions

- Relation between dimensions and typed domains is not modelled using arcs, but using an attribute (xbrldt:typedDomainRef) at the abstract dimension member
- We cannot change member attributes in extending taxonomies
- So, we must build a new dimension member and override the hypercuber-dimension arc

Exercise 8

- **Build a new taxonomy extending t-ce.**
- **The new taxonomy must limit obligor-grade possible values from 1 to 100**

CR EQU IRB

	INTERNAL RATING SYSTEM	ORIGINAL EXPOSURE PRE CONVERSION FACTORS	CREDIT RISK MITIGATION (CRM) TECHNIQUES WITH SUBSTITUTION EFFECTS ON THE EXPOSURE				EXPOSURE AFTER CRM SUBSTITUTION EFFECTS PRE CONVERSION FACTOR		EXPOSURE VALUE		EXPOSURE WEIGHTED AVERAGE LGD (%)	RISK WEIGHTED EXPOSURE AMOUNTS	CAPITAL REQUIREMENTS	MEMORANDUM ITEM:	
			UNFUNDED CREDIT PROTECTION		SUBSTITUTION OF THE EXPOSURE DUE TO CRM									EXPECTED LOSS AMOUNT	VALUE ADJUSTMENTS AND PROVISIONS
	PD ASSIGNED TO THE OBLIGOR GRADE (%)		GUARANTEES	CREDIT DERIVATIVES	TOTAL OUTFLOWS (-)	TOTAL INFLOWS		OF WHICH: OFF BALANCE SHEET ITEMS		OF WHICH: OFF BALANCE SHEET ITEMS					
	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
TOTAL IRB EQUITY EXPOSURES												SectionTotalExposuresAndInternalModelsApproach			
1. PD/LGD APRROACH: TOTAL	SectionPDLGDAndSimpleRiskWeight														
BREAKDOWN OF TOTAL EXPOSURES UNDER THE PD/LGD APRROACH BY OBLIGOR GRADES:															
OBLIGOR GRADE(a): 1 2 ..... N	SectionObligorGradeBreakdown														
2. SIMPLE RISK WEIGHT APPROACH: TOTAL	SectionPDLGDAndSimpleRiskWeight														
BREAKDOWN OF TOTAL EXPOSURES UNDER THE SIMPLE RISK WEIGHT APPROACH BY RISK WEIGHTS:															
RISK WEIGHT: 190% 290% 370%		SectionRiskWeightBreakdown													
3. INTERNAL MODELS APPROACH												SectionTotalExposuresAndInternalModelsApproach			

(a) Order from the lower to the higher according to the PD assigned to the obligor grade

Exercise

References

- **W3C XML Schema:**

  http://www.w3.org/XML/Schema

- **Quick reference to XML Schema Types:**

  http://www.xml.dvint.com

- **XML Schema Tutorials:**

  http://www.w3schools.com/schema/default.asp

Add general information to the national taxonomy

- The COREP taxonomy represents the content of the COREP templates that was agreed on European level.
- It does not contain organisational or general information that is needed for the reporting between the national central banks and the credit institutes as well as investment firms.

Each European supervisor that want to use the COREP taxonomy has to define how this information has to be delivered.

Add general information to the national taxonomy

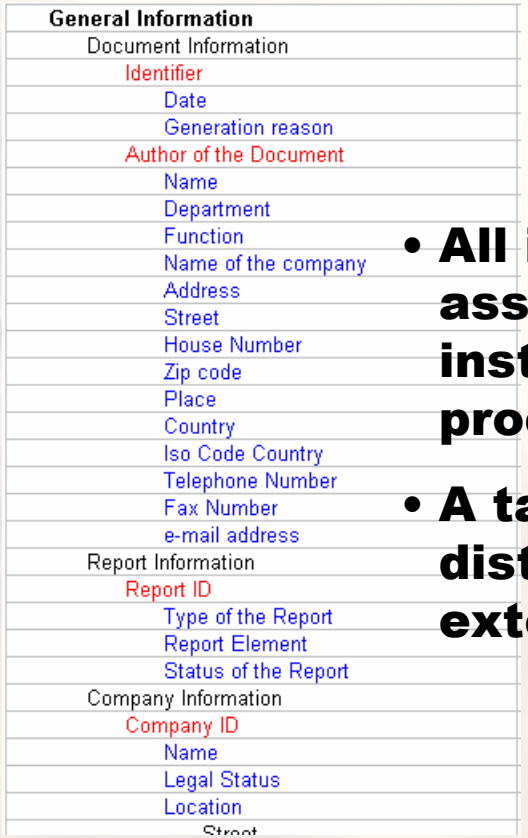
- **2 possible ways to add this information to an XBRL report:**

Create an own taxonomy for all organisational items that have to be reported

Use the GCD taxonomy of XBRL International that contains a huge amount of predefined items

Add general information to the national taxonomy

Create an own taxonomy for all organisational items that have to be reported



- **All items that are necessary for the assignment to a reporting institution and for the further processing should be collected.**
- **A taxonomy can be created and distributed with the national extension of the COREP taxonomy.**

Add general information to the national taxonomy

Use the GCD taxonomy of XBRL International that contains a huge amount of predefined items

- **GCD → Global Common Document (PWD)**

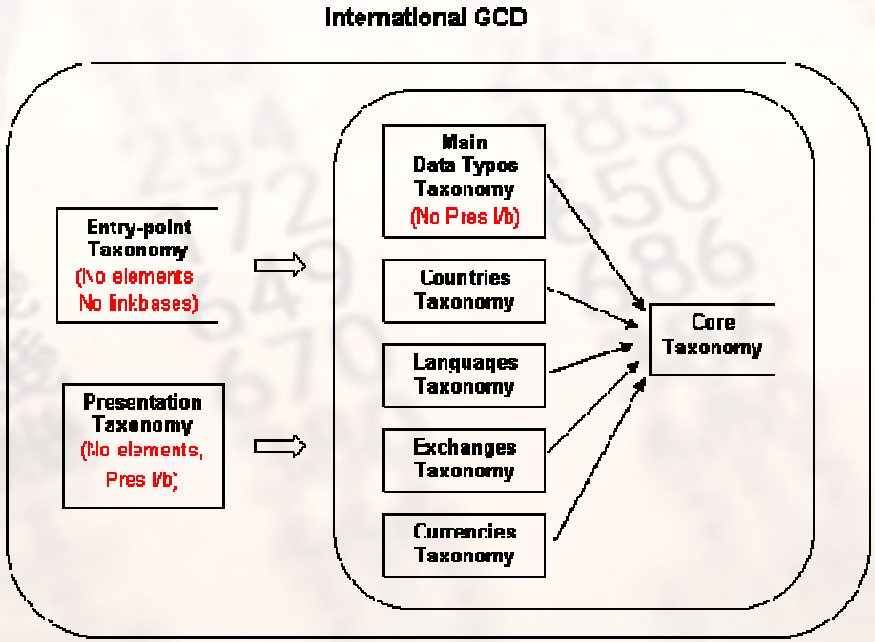
Purpose:

- to cover common information which may typically be required in business reporting,
- to represent this data in XBRL in a standard way,
- to support interoperability and comparison between XBRL implementations around the world.

- to offer a core set of taxonomies which taxonomy authors may import, saving time and effort.

Add general information to the national taxonomy

Use the GCD taxonomy of XBRL International that contains a huge amount of predefined items



The core taxonomy provides basic elements and structures and a number of extension "data type" taxonomies which define particular sets of data, including elements representing countries and languages.

Add general information to the national taxonomy

Use the GCD taxonomy of XBRL International that contains a huge amount of predefined items

National COREP Taxonomy

uses

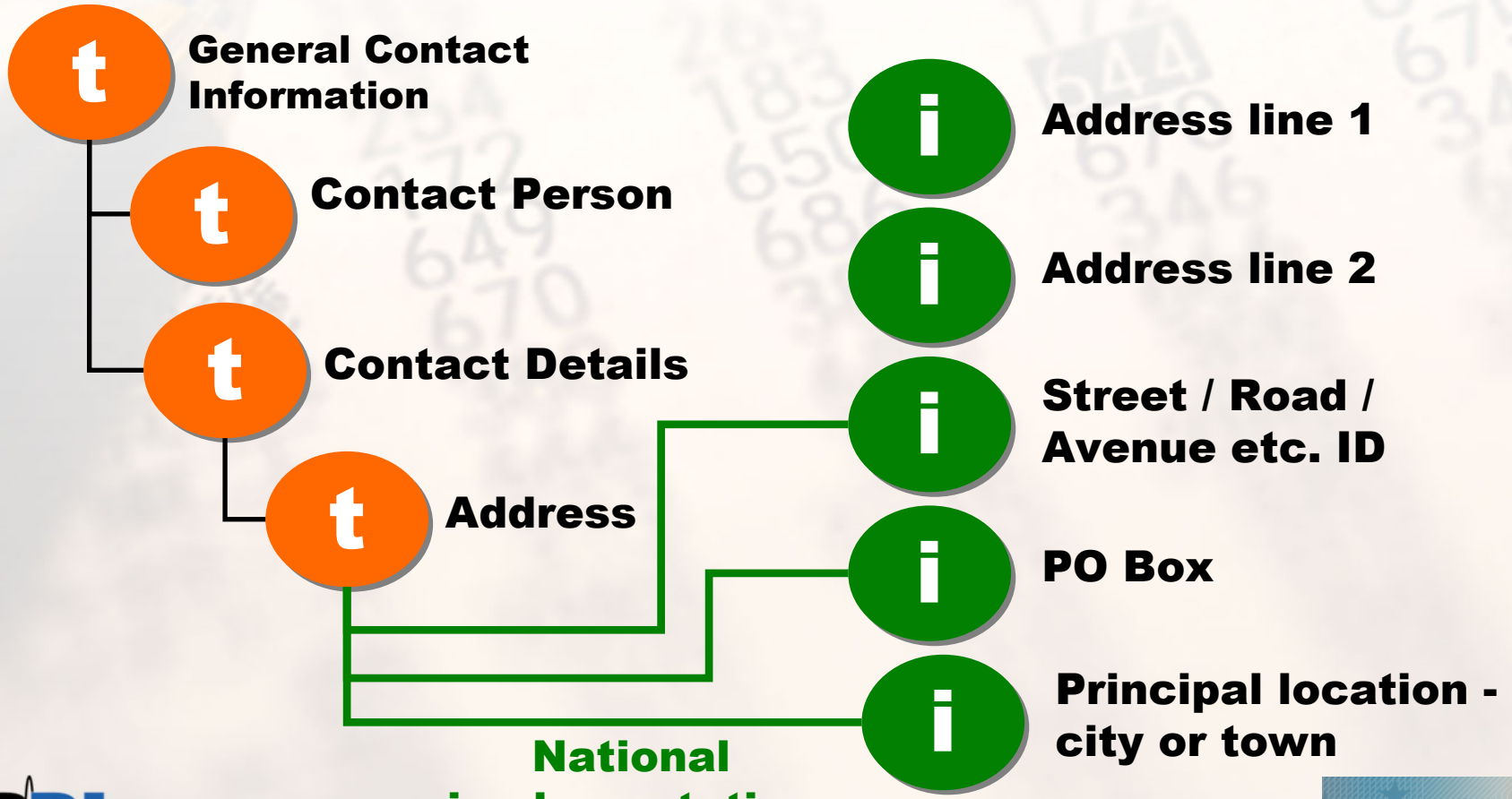
COREP Taxonomy Set

GCD Taxonomy Set

National supervisor can decide which parts of both taxonomies should be imported for the national taxonomy extension.

Add general information to the national taxonomy

Use the GCD taxonomy of XBRL International that contains a huge amount of predefined items



Add general information to the national taxonomy

Use the GCD taxonomy of XBRL International that contains a huge amount of predefined items

The GCD provides:

- **taxonomy modules,**
- **generic tuples and**
- **substitution groups.**

The GCD allows:

- **clear and consistent definition,**
- **easy and efficient reuse of components and**
- **flexible and meaningful extension.**

Agenda

- COREP taxonomy customisation requirements
- Concept and structure of national customisation
- Customisation of
  - Labels
  - References
  - Template structure
  - Typed dimensions
- Integrate general information
- **Summary**
- Questions

Summary: I

- The comprehensive nature of the COREP framework provides each national supervisor with an excellent basis to develop a national data model.
- The flexibility of the COREP framework means that a national data model can be achieved with the minimum of effort.
- All national structural changes of the COREP templates can be done in XBRL using the new dimensional approach.
- The modularity of the taxonomies enables changes to be made on selected templates.

Summary: II

- **The extension taxonomies can be developed using labels in the national language and incorporating the requirements of the national law.**
- **Changes can be made to the calculation rules defined inside the COREP taxonomy.**
- **COREP FRAMEWORK offers:**
  - **FLEXIBILITY**
  - **EXENSIBILITY**
  - **EASE OF USE.**

Questions

Thank you for your attention!

Time for your questions!