

# Tutorial

## Data Point Model guidelines

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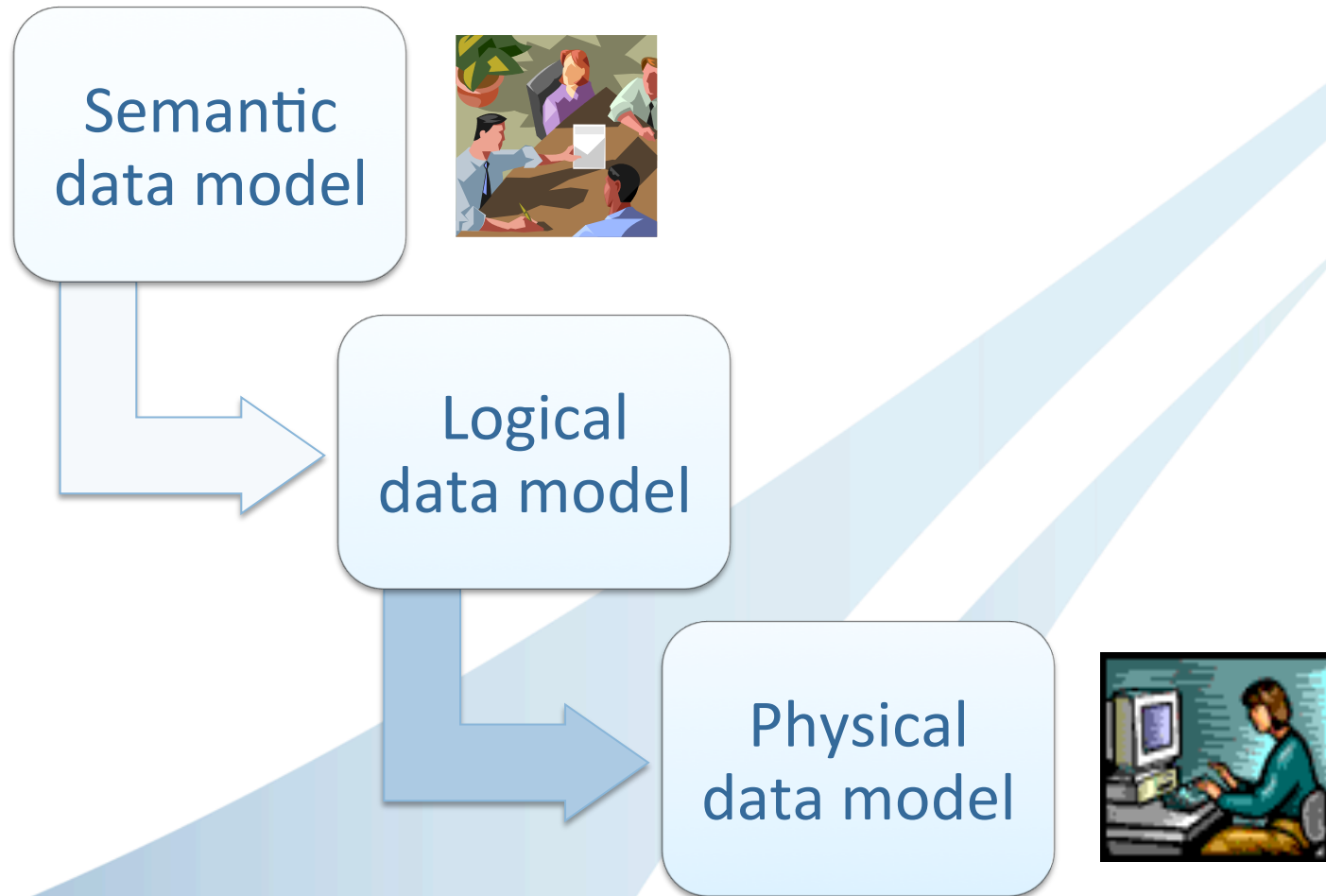
# Agenda

- **Basic Information on Data Point Models**
  - Intension
  - Terms
- **DPM essential for collection of supervisory information**
  - Increase of knowledge and understanding
  - Improvement of integration of changes
  - Reduction of risk of duplicate information
  - Higher harmonisation
- **Process of creation of Data Point Models**

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# Intention



# Semantic models

- Ease communication between business experts and IT specialists
- Viewpoint of a business user
- Contain definitions, documentations and explanations
- Independent of any physical implementation

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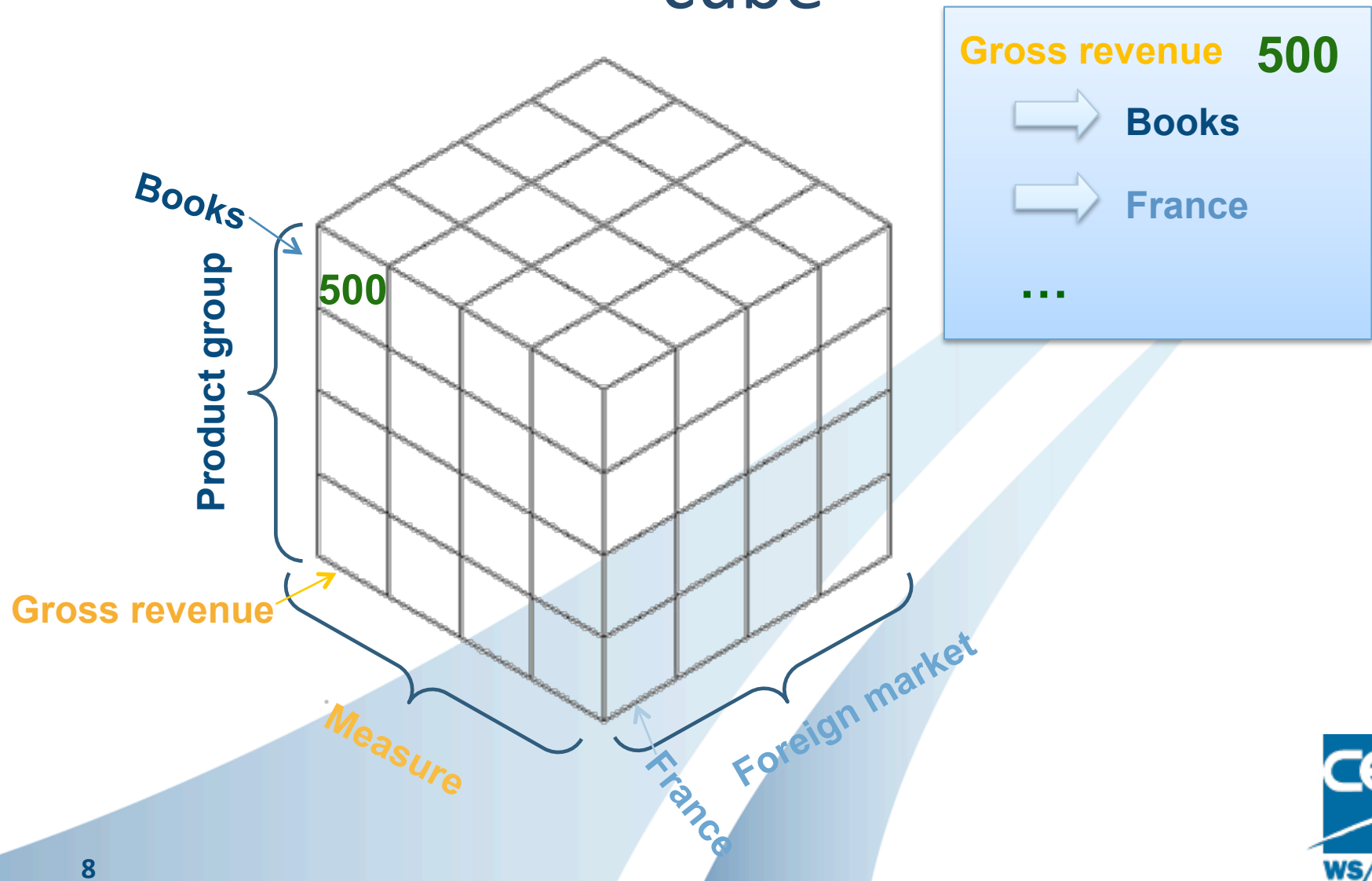
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# Multidimensionality of data- Facts

Dimensional view on **gross revenue**

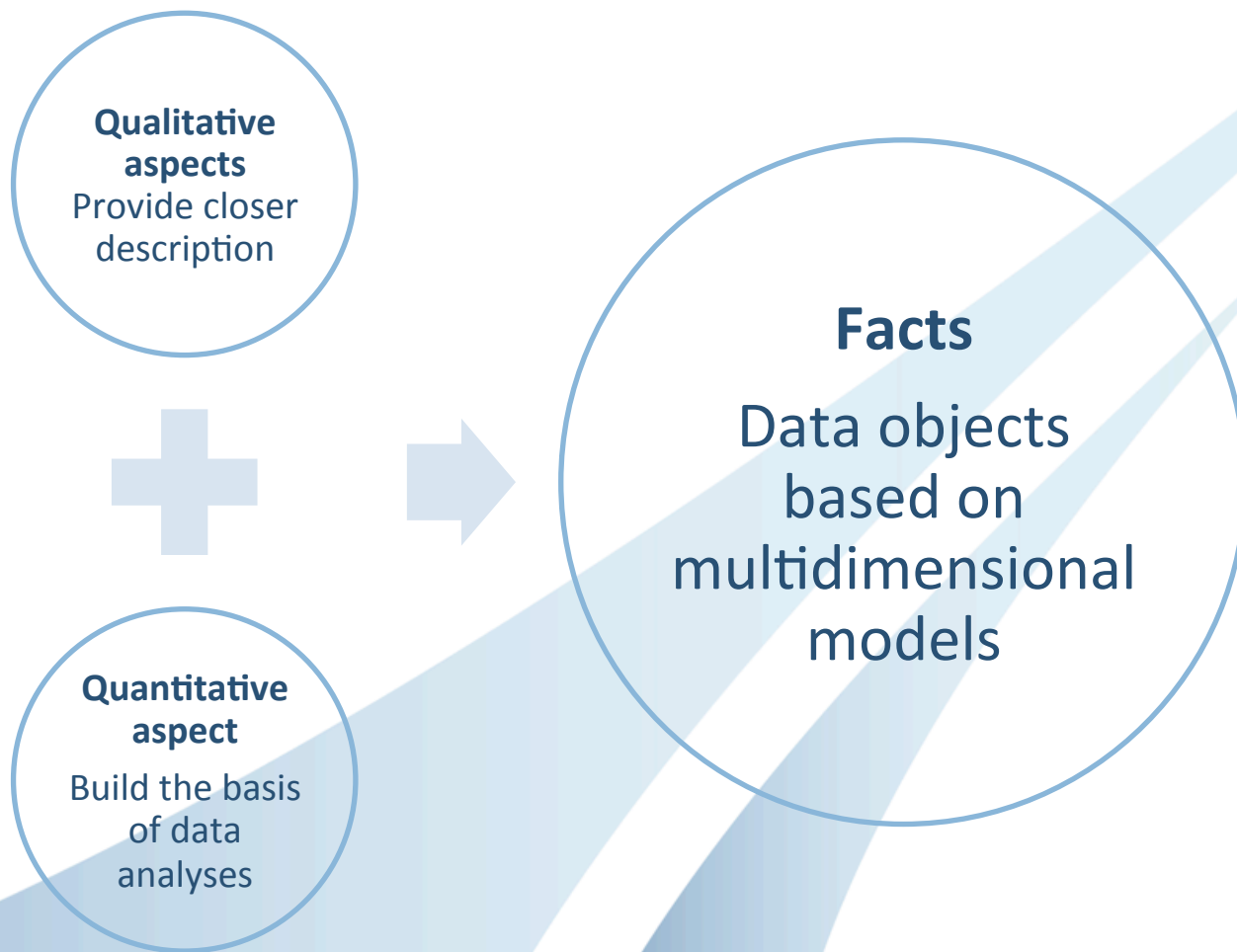
		Product group			
		Books	News papers	Magazines	Maps
Foreign market	France	500	452	124	35
	Spain	852	634	236	85
	Austria	632	234	963	45
	Belgium	459	325	456	96

# Multidimensional representation as a cube

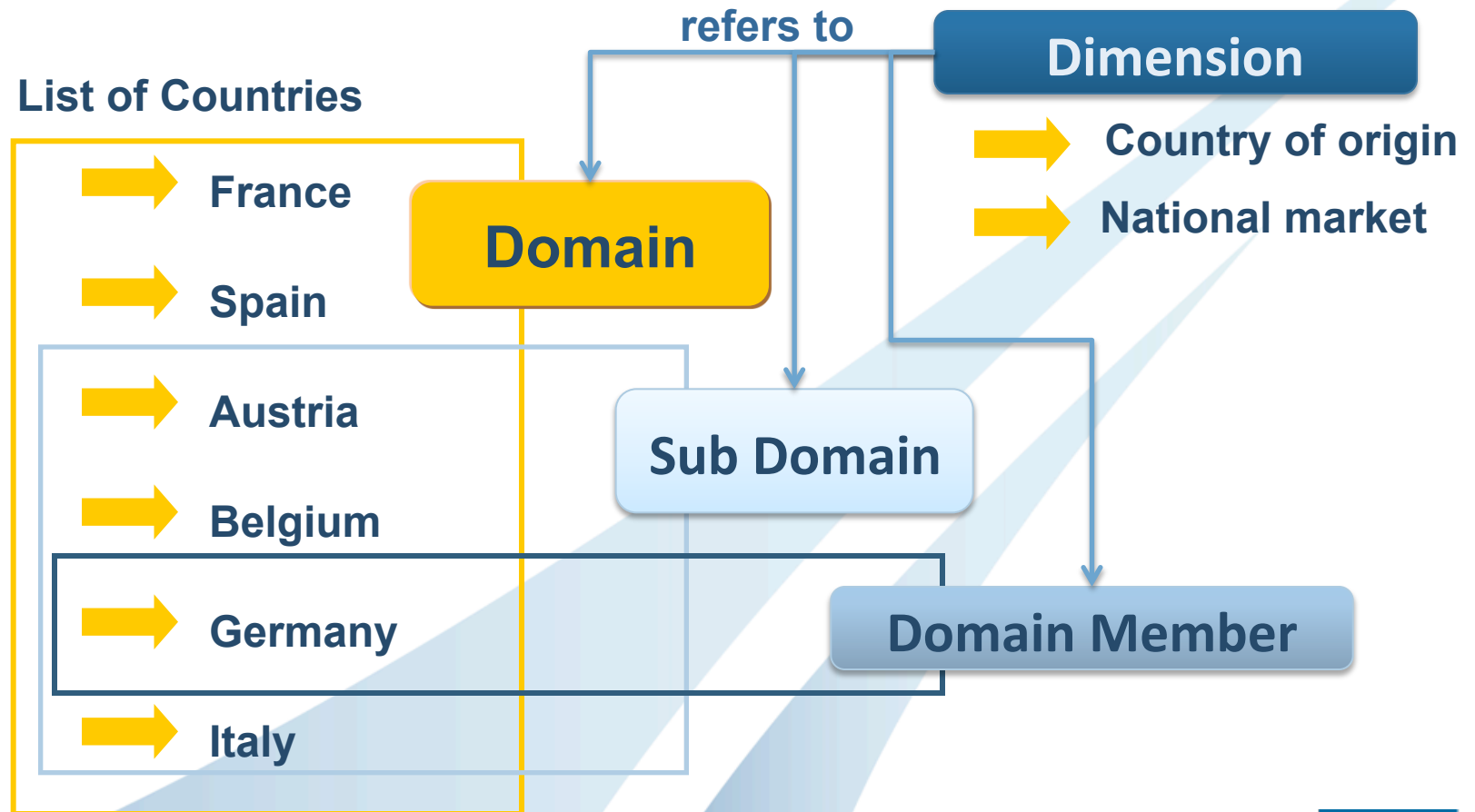




# The multidimensional model - Facts



# Multidimensionality of data- Dimensions, Domains, Members



# Multidimensionality of data - Definitions

## ■ **Dimensions:**

- Group information in a meaningful way
- Define "by"- conditions
- Provide structured information

## ■ **Enumerable Dimension:**

- Subclass of Dimension that specifies a finite number of Members

## ■ **NonEnumerable Dimension:**

- Subclass of Dimension that specifies an undefined number of Members
- Defines syntactic constraints on the values of the Members

# Multidimensionality of data - Definitions

## ■ **Measures:**

- Represent the nature of the data with a fixed and unchangeable meaning

## ■ **Domain:**

- Classification system to categorize items that share a common semantic identity

# Multidimensionality of data - Definitions

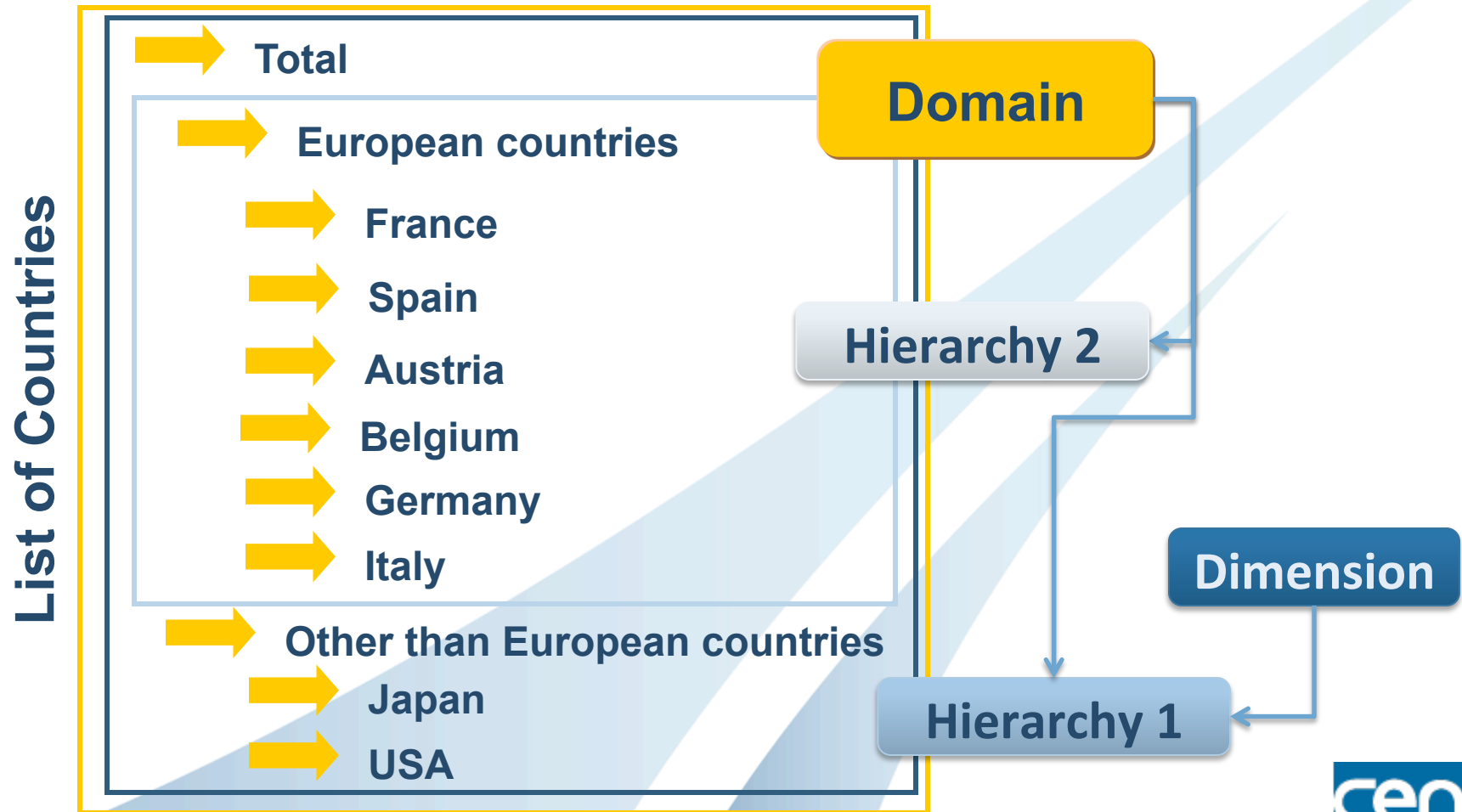
## ■ **Member:**

- Actual value of a Dimension
- Grouped in Domains

## ■ **Default Member:**

- Defined for explicit Dimensions
- Implicitly applied when the Dimension is not explicitly associated to a Data Point

# Multidimensionality of data - Hierarchy



# Multidimensionality of data - Definitions

## ■ Hierarchies:

- Arrange domain members
- Represent the relationships to one another
- Used for calculations and aggregations

# Data Point Methodology

- **Definition of a Data Point Model**
  - Dictionary of business concepts and their properties
  - Used in tables
  - Identifying the content of every data point
  - Its relation to other data points



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# Increase of knowledge and understanding

- Data is arranged comprehensible for supervisory department
- Relationships between Data Points become apparent
- Underpins existing knowledge of supervisory experts
- Makes transformation of the information to the IT specialists possible

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# Improvement of integration of changes

- Data structure is defined explicitly and without redundancies
- No single Fact is described by two different ways
- If more information to a Fact is required qualifying aspects may be added to the Fact

# Example of Data Point Model visualised

Country of market
Total
Austria
Belgium
Bulgaria
Cyprus
Czech Republic
Denmark
Estonia
Finland
France
Germany
Greece
Hungary
Ireland
Italy
Latvia
Lithuania
Luxembourg
Malta
Netherlands
Poland
Portugal
Romania
Slovakia
Slovenia
Spain
Sweden
United Kingdom
Albania
Japan
Macedonia
Russian Federation
Serbia
Switzerland
Turkey
Ukraine
USA
Other

Main category
Financial instruments which can be subject to EQU market risk requirements
Derivatives which can be subject to EQU market risk requirements
Exchange traded stock-index futures broadly diversified
Financial instruments which can be subject to EQU market risk requirements other than exchange traded stock-index futures broadly diversified
Options which can be subject to EQU market risk requirements

Country of market	Germany
dataType	Monetary
Reporting period	31.03.2013
Amount type	Value used for market risk, gross
Main category	Derivates which can be subjected to EQU market risk requirements
Base items	Exposures
Positions in the instrument	Long position
Risk type	MKR EQU General risk
Approach	Approach for general risk for equities

Risk type
MKR EQU risk
MKR EQU General risk
MKR EQU Specific risk
MKR not lookthrough CIUs risk

Approach
Standardised approach for equity risk
Approach for general risk for equities
Approach for specific risk for equities
Particular approach for CIUs reported as equity
Approaches for options

Reporting period
31.03.2013
30.06.2013
30.09.2013
31.12.2013

Positions in the instrument
Long position
Short position

Base items
Exposures

dataType
monetary

Amount type
Value used for market risk, gross
Value used for market risk, net
Value used for market risk, subject to capital
Own funds requirements
Total risk exposure amount

# New requirements

- Portfolio Dimension is needed in order to distinguish Facts related to banking book and trading book
- Unproblematic to add new Dimensions
- No change in analysis results for out-dated requests

# Extensibility of DPM shown by adding portfolio-Dimension

Country of market	Main category	Risk type	Approach
Total	Financial instruments which can be subject to EQU market risk requirements	MKR EQU risk	Standardised approach for equity risk
Austria	Derivatives which can be subject to EQU market risk requirements	MKR EQU General risk	Approach for general risk for equities
Belgium	Exchange traded stock-index futures broadly diversified	MKR EQU Specific risk	Approach for specific risk for equities
Bulgaria	Financial instruments which can be subject to EQU market risk requirements other than exchange traded stock-index futures broadly diversified	MKR not lookthrough CIUs risk	Particular approach for CIUs reported as equity
Cyprus	Options which can be subject to EQU market risk requirements		Approaches for options
Czech Republic			
Denmark			
Estonia			
Finland			
France			
Germany			
Greece			
Hungary			
Ireland			
Italy			
Latvia			
Lithuania			
Luxembourg			
Malta			
Netherlands			
Poland			
Portugal			
Romania			
Slovakia			
Slovenia			
Spain			
Sweden			
United Kingdom			
Albania			
Japan			
Macedonia			
Russian Federation			
Serbia			
Switzerland			
Turkey			
Ukraine			
USA			
Other			

Country of market	Portfolio	dataType	Reporting period	Amount type	Main category	Base items	Positions in the instrument	Risk type	Approach
Germany	Trading book	Monetary	31.03.2013	Value used for market risk, gross	Derivates which can be subjected to EQU market risk requirements	Exposures	Long position	MKR EQU General risk	Approach for general risk for equities
			30.06.2013	Value used for market risk, net			Short position		
			30.09.2013	Value used for market risk, subject to capital					
			31.12.2013	Own funds requirements					
			...	Total risk exposure amount					

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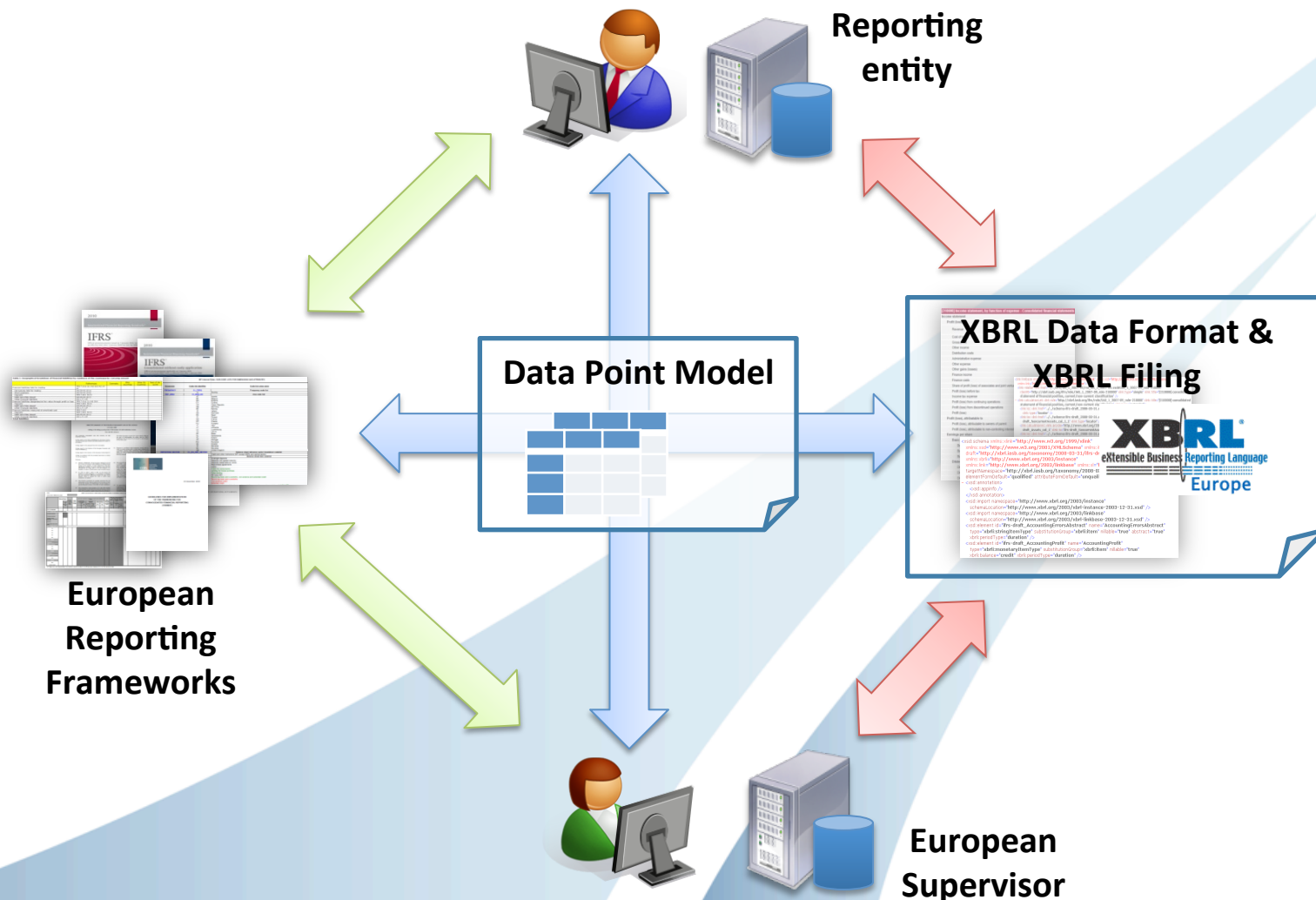
# Reduction of risk of duplicate information

- Redundancies avoided as Dimensions and Members are reused
- Hierarchies improve understanding and can help to define rules for calculations

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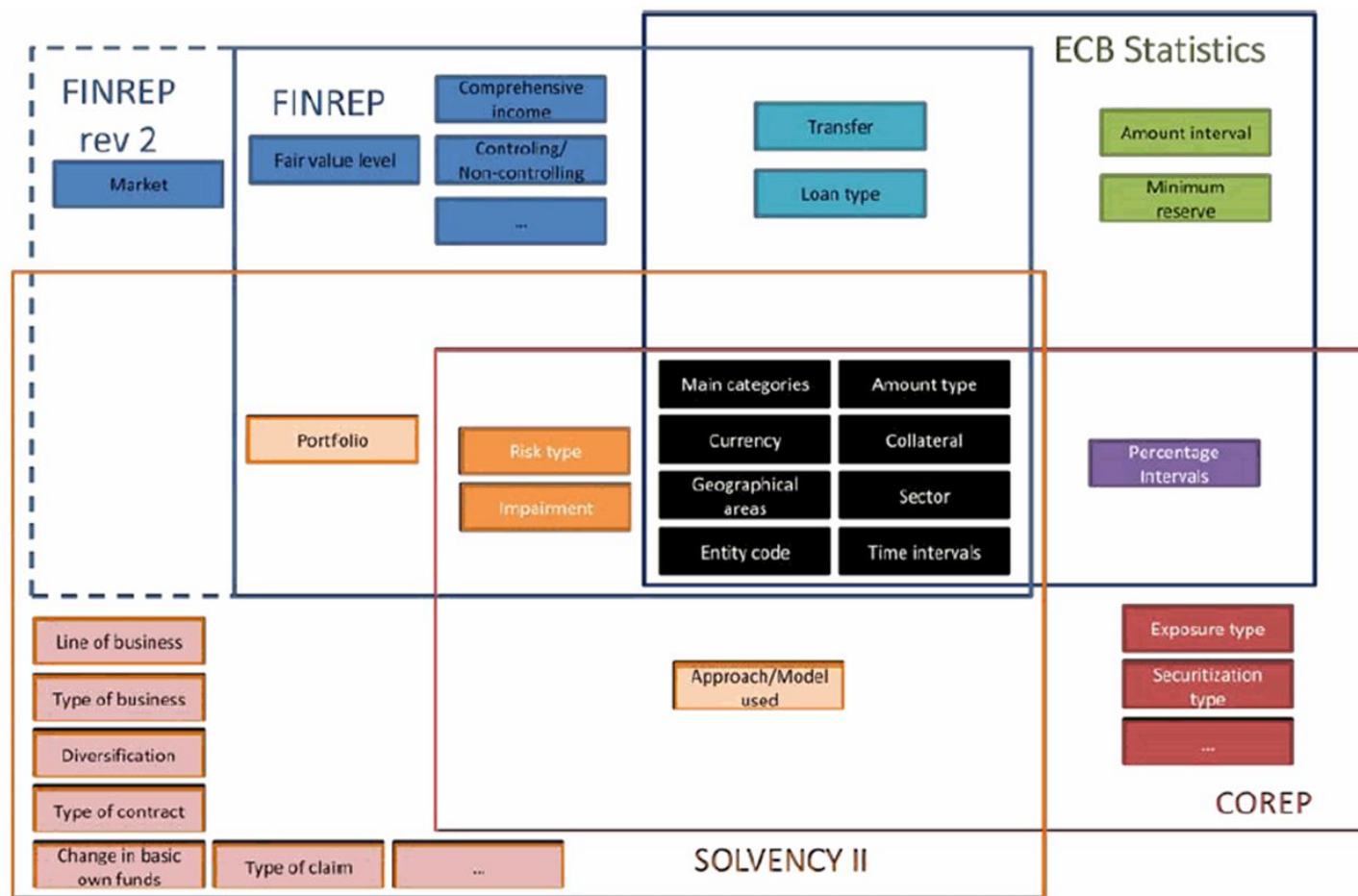
# Level of Harmonisation in Europe



# Higher harmonisation

- Harmonisation is achieved by meeting the before mentioned three objectives
- Sharing of Data Points supports harmonisation process
- Dimensions and Members are shared throughout the European reporting frameworks

# Dovetail connection between different common reporting frameworks



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# DPM Process

Starting with one business  
template



Distinguish between  
quantitative and qualitative  
aspects for each Data Point

# DPM Process (continued)

Add measure to  
quantitative aspect



Distinguish between  
stock and flow on  
measures



# DPM Process (continued)

Classify the qualitative aspects in different categories

Create Domains to prevent redundancies

# Example: Identification of Aspects

Portfolio

Country of Market

Base Type

MKR SA EQU

National market:

MARKET RISK: STANDARDISED APPROACH FOR POSITION RISK IN EQUITIES

Dimensions:

Total  
Austria  
Belgium  
Bulgaria  
Cyprus  
Czech Republic  
Denmark  
Estonia  
Finland  
France  
Germany  
Greece  
Hungary  
Ireland  
Italy  
Latvia  
Lithuania  
Luxembourg  
Malta  
Netherlands  
Poland  
Portugal  
Romania  
Slovakia  
Slovenia  
Spain  
Sweden  
United Kingdom  
Albania  
Japan  
Macedonia  
Russian  
Federation  
Serbia  
Switzerland  
Turkey  
Ukraine  
USA

	<div>Main Category</div> <div>Risk Type</div> <div>Approach</div>	POSITIONS					RISK CAPITAL CHARGE (%)	OWN FUNDS REQUIREMENTS	TOTAL RISK EXPOSURE AMOUNT
		ALL POSITIONS		NET POSITIONS		POSITIONS SUBJECT TO CAPITAL CHARGE			
		LONG	SHORT						
				LONG	SHORT				
		010	020	030	040	050		060	070
010	EQUITIES IN TRADING BOOK								Cell linked to C
020	General risk						8,00		
021	Derivatives								
022	Other assets and liabilities								
030	Exchange traded stock-index futures broadly diversified subject to particular approach								
040	Other equities than exchange traded stock-index futures broadly diversified								
050	Specific risk						8,00		
080	Particular approach for position risk in CIUs								
090	Additional requirements for options (non-delta risks)								

# DPM Process (continued)

Assign Members to a  
Domain

Pair of a Dimension  
and a Member is one  
qualitative aspect of a  
Data Point

Define Dimensions  
that refer to a  
Domain

# DPM Process (continued)

Define default Members for  
explicit Dimensions



Build up relations between the  
Domain Members by defining  
hierarchical relationships

# Definition of Hierarchies

Domain code	Member	Label	Default	Comment	Hierarchy	Name	Sign	Weight
BA	x1	Exposure						
BA	x2	Equity						
BA	x3	Memorandum Item						
AP	x0	Not applicable	yes		AP1: Hierarchy for MKR SA EQU			
AP	x1	Standardised approach			Not applicable	x0	=	
AP	x2	Particular approach for CIUS			Standardised approach	x1	+	
AP	x3	Approach for Options			Particular approach for CIUS	x2	+	
					Approach for Options	x3	+	
MC	x0	Not applicable	yes		MC1: Hierarchy General risk			
MC	x1	Financial instruments subject to market risk			Financial instruments subject to market risk	x1	=	
MC	x2	Derivatives subject to market risk			Derivatives subject to market risk	x2	+	
MC	x3	Other assets and liabilities subject to market risk			Other assets and liabilities subject to market risk	x3	+	
MC	x4	Exchange traded stock-index futures			MC2: Hierarchy General risk			
MC	x5	Other than exchange traded stock-index futures			Financial instruments subject to market risk	x1	=	
MC	x6	CIUS			Exchange traded stock-index futures	x4	+	
MC	x7	Options subject to market risk			Other than exchange traded stock-index futures	x5	+	
RT	x0	Not applicable/All risks	yes		RT1: Hierarchy for Equity Market risks			
RT	x1	Equity risk			Equity risk	x1	=	
RT	x2	General risk for equity instruments			General risk for equity instruments	x2	+	
RT	x3	Specific risk for equity instruments			Specific risk for equity instruments	x3	+	
RT	x4	Market risk not look-through CIU risks			Market risk not look-through CIU risks	x4	+	
RT	x5	Non-delta risks			Non-delta risks	x5	+	
PL	x0	Not applicable	yes		PL1: Hierarchy for Portfolios			
PL	x1	Banking and Trading book			Not applicable	x0		
PL	x2	Banking book			Banking and Trading book	x1		
PL	x3	Trading book			Banking book	x2		
					Trading book	x3		
PI	x0	Not applicable/All positions	yes		PI: Hierarchy für Positions on instruments			
PI	x1	Long positions			Not applicable/All positions	x0	=	
PI	x2	Short positions			Long positions	x1	+	
					Short positions	x2	+	
GA	x0	Not applicable/All countries	yes		GA: Hierarchy for National Market			
GA	x1	Austria			Not applicable/All countries	x0	=	
GA	x2	Germany			Austria	x1	+	
GA	x3	Belgium						
GA	x4	Bulgaria						
GA	x5	Cyprus						

Validation rules can support the identification hierarchies!

Validation rules

Table	ColumnRegion	RowRegion	TableBasedFormula
MKR SA EQU	(010-040)		{r020}={r030}+{r040}
MKR SA EQU			{r020;c050}*0,08={r020;c060}
MKR SA EQU			{r050;c050}*0,08={r050;c060}
MKR SA EQU			{r010;c060}*12,5={r010;c070}
MKR SA EQU			{MKR SA EQU;r010;c070}={CA2;r550;c010}

# DPM Process (continued)

Iterating through this process for  
each business template

# Data Points – Visualized in Annotated Templates

MKR SA EQU		MARKET RISK: STANDARDISED APPROACH FOR POSITION RISK IN EQUITIES					Dimensions: Total Austria Belgium Bulgaria Cyprus Czech Republic Denmark Estonia Finland France Germany Greece Hungary Ireland Italy Latvia Lithuania Luxembourg Malta Netherlands Poland Portugal Romania Slovakia Slovenia Spain Sweden United Kingdom Albania Japan Macedonia Russian Federation Serbia Switzerland Turkey Ukraine USA Other		
National market:		GA:CM/Not applicable/All geographical areas (example)  PL:PL/Trading book							
		POSITIONS				RISK CAPITAL CHARGE (%)	OWN FUNDS REQUIREMENTS	TOTAL RISK EXPOSURE AMOUNT	
		ALL POSITIONS		NET POSITIONS					POSITIONS SUBJECT TO CAPITAL CHARGE
		LONG	SHORT	LONG	SHORT				
		010	020	030	040	050	060	070	
EQUITIES IN TRADING BOOK								Cell linked to CA	
General risk						8,00			
Derivatives									
Other assets and liabilities									
Exchange traded stock-index futures broadly diversified subject to particular approach									
Other equities than exchange traded stock-index futures broadly diversified									
Specific risk						8,00			
Particular approach for position risk in CIUs									
Additional requirements for options (non-delta risks)									
		dataTypeName/monetary BAS:BAS/Exposures AT:AT/Gross value PI:IN/Long position	dataTypeName/monetary BAS:BAS/Exposures AT:AT/Gross value PI:IN/Short position	dataTypeName/monetary BAS:BAS/Exposures AT:AT/Net value PI:IN/Long position	dataTypeName/monetary BAS:BAS/Exposures AT:AT/Net value PI:IN/Short position	dataTypeName/monetary BAS:BAS/Exposures AT:AT/Value subject to Capital Charge	dataTypeName/monetary BAS:BAS/Exposures AT:AT/Own Funds Requirements	dataTypeName/monetary BAS:BAS/Exposures AT:AT/Total Risk Exposure amount	

MC:MC/Financial instruments subject to market risk  
 RT:RT/Equity risk  
 AP:AP/Standardised approach

MC:MC/Financial instruments subject to market risk  
 RT:RT/MKR EQU General risk  
 AP:AP/Standardised approach

MC:MC/Derivatives subject to market risk  
 RT:RT/General risk for equity  
 AP:AP/Standardised approach

MC:MC/Other assets and liabilities subject to market risk  
 RT:RT/General risk for equity instruments  
 AP:AP/Standardised approach

MC:MC/Exchange traded stock-index futures  
 RT:RT/General risk for equity instruments  
 AP:AP/Standardised approach

MC:MC/Other than exchange traded stock-index futures  
 RT:RT/General risk for equity instruments  
 AP:AP/Standardised approach

MC:MC/Financial instruments subject to market risk  
 RT:RT/Specific risk for equity instruments  
 AP:AP/Standardised approach

MC:MC/CIUs  
 RT:RT/Market risk not look-through CIU  
 AP:AP/Particular approach for CIUs

MC:MC/Options subject to market risk  
 RT:RT/Non-delta risks  
 AP:AP/Approach for Options

# Requirements on a DPM

- Prevent duplicated Data Points within the same table
- Take care of clarity and explicitness of definitions by defining Members, Domains and Dimensions
- DPM concept needs a unique label
- Associate a Dimension to a Data Point only once
- Take care of relations between hierarchies
- Every Member should be part of a hierarchy
- Take care of the consistency of hierarchies when expanding the model



# Thanks for your attention

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Comments or questions?