



Eurofiling XBRL Taxonomies Framework
Architecture, naming, modelling, etc
Proposal and points for discussions

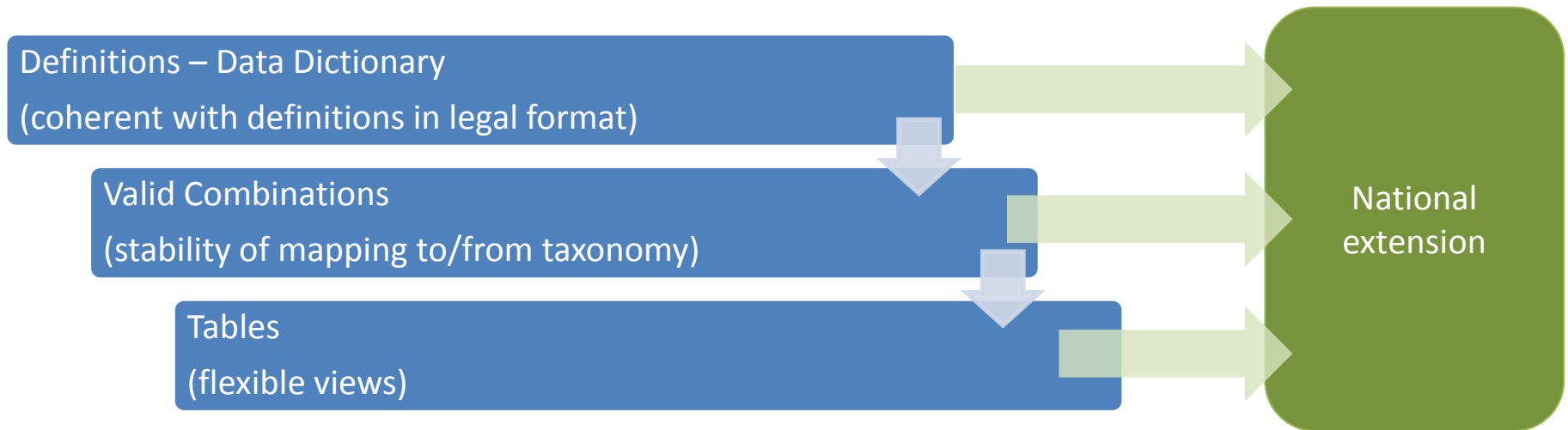
XIV Eurofiling Workshop

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EBA HQ, Tower 42, London, UK

Architecture: Layers

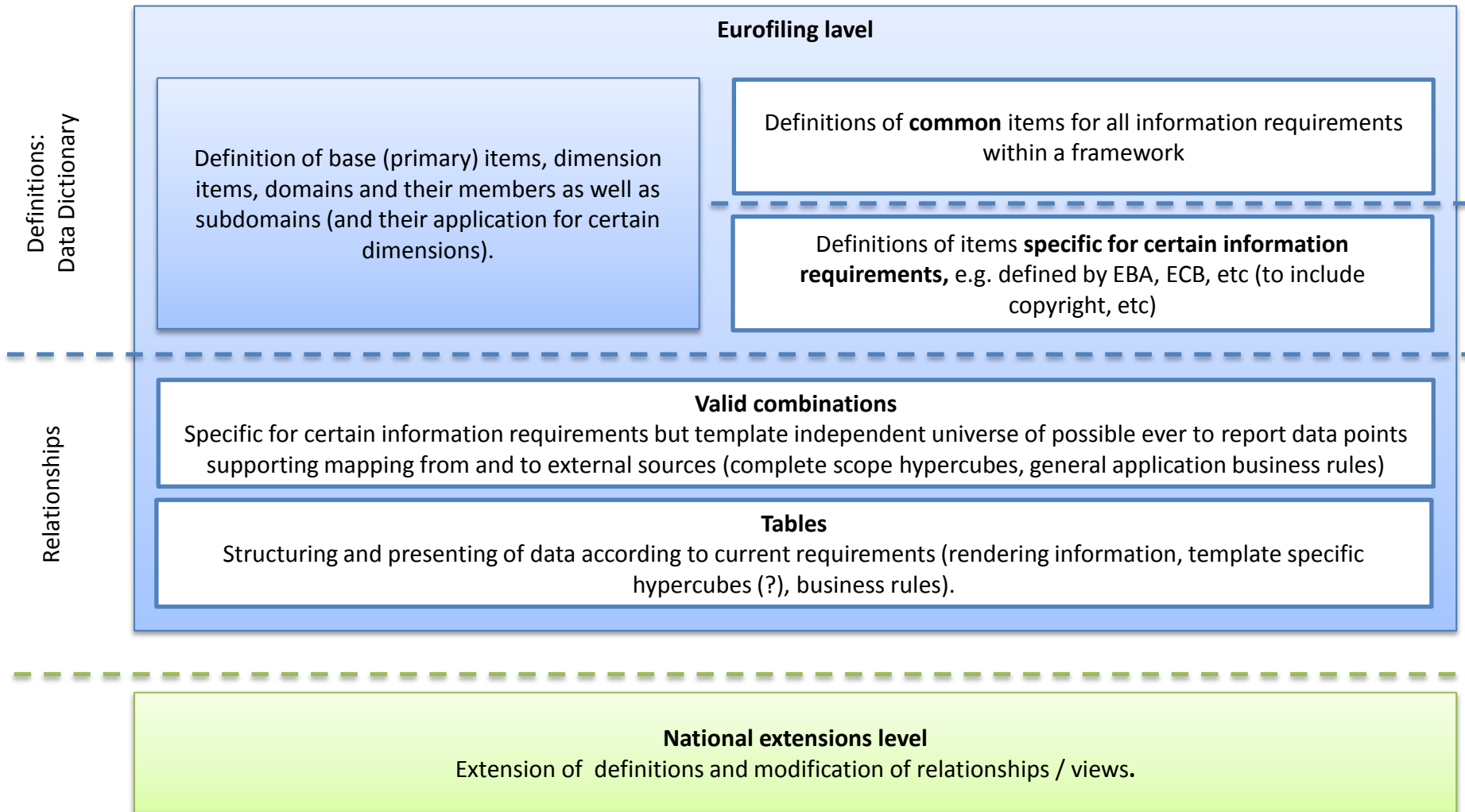
Overview and principles



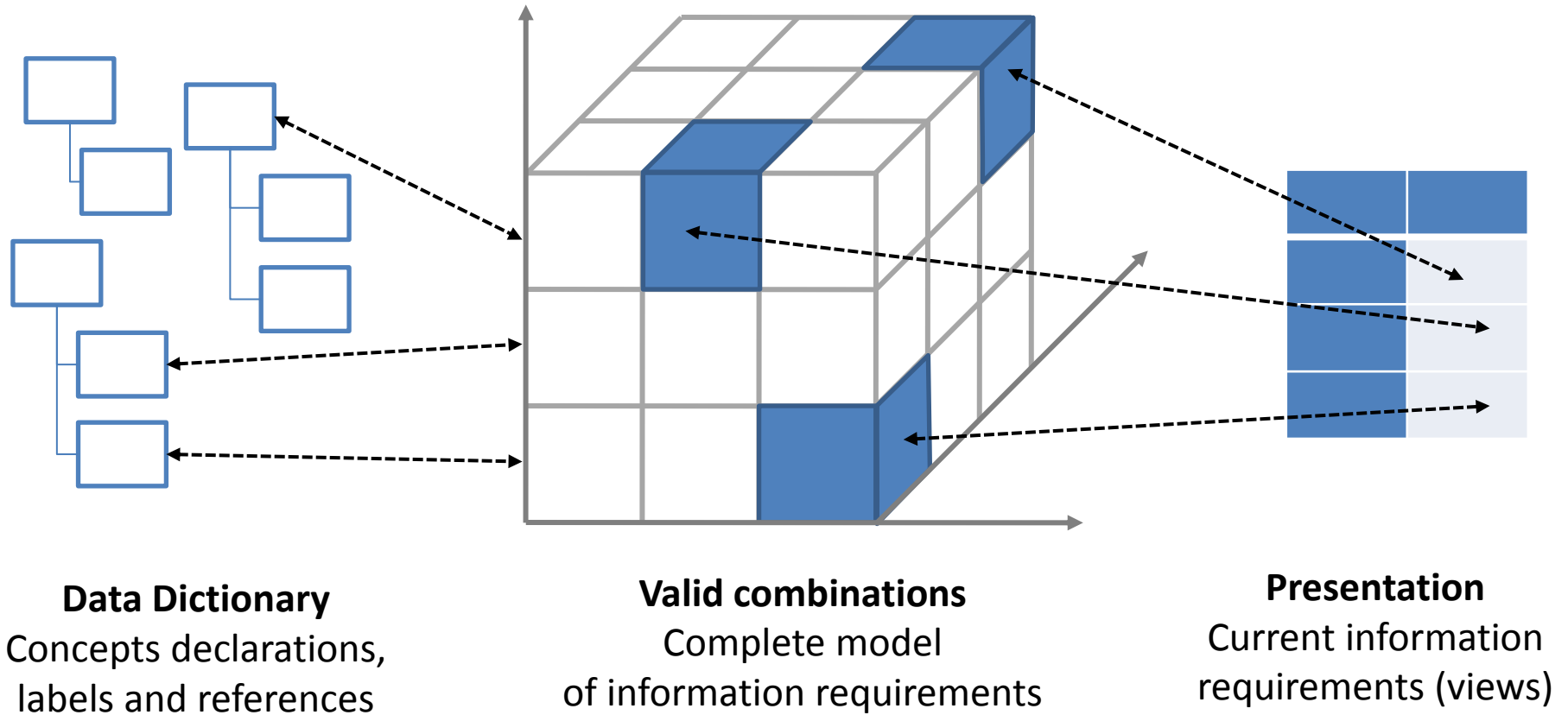
- aim: coherency, stability, flexibility (+ simplicity and efficiency)
- aspects: implementation and maintenance (both at filer and supervisor sides)

Architecture: Layers

Building blocks



Architecture: Layers Relations

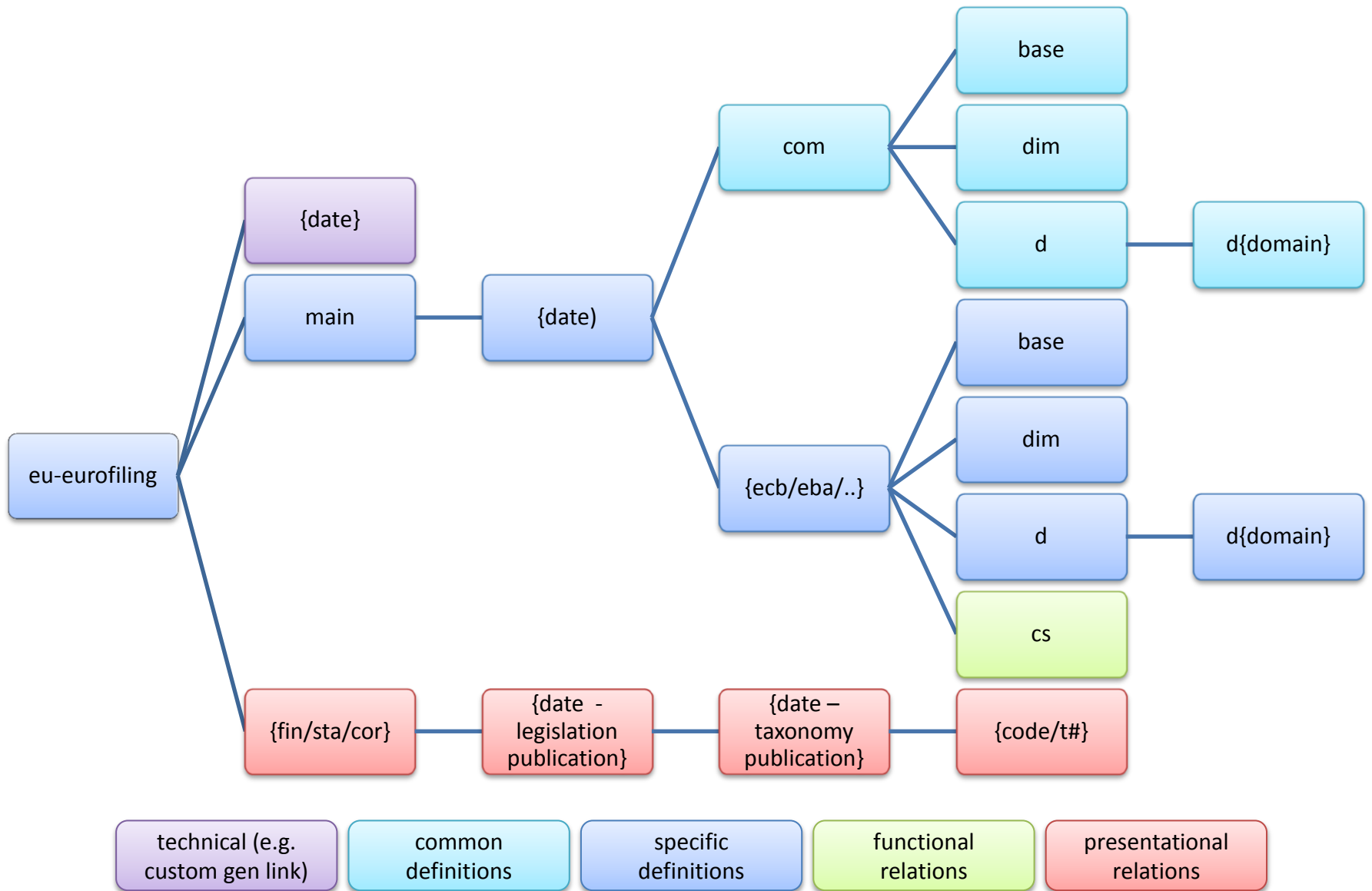


Architecture: Layers

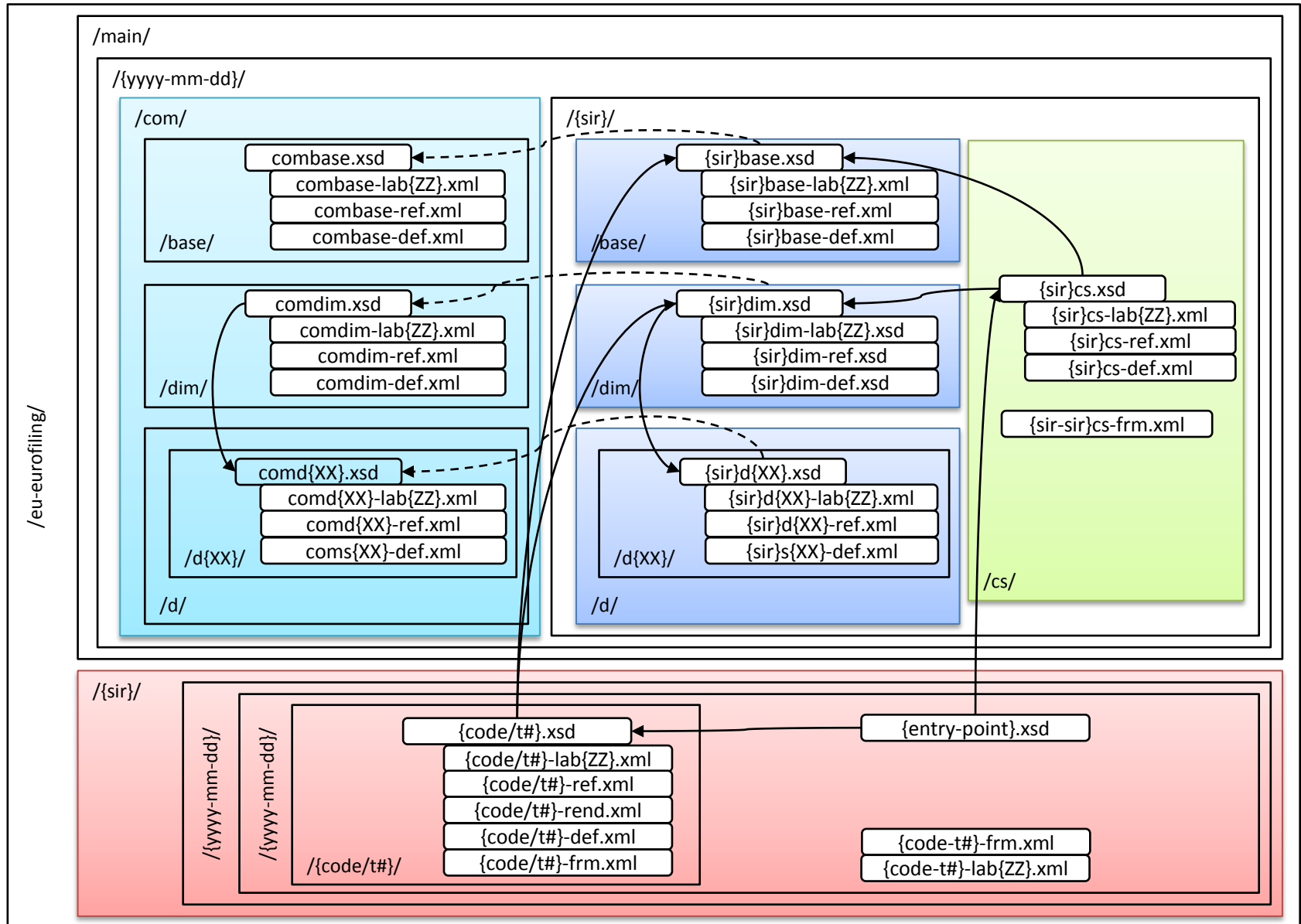
Content of taxonomy files

File type	Common dictionary	Specific (for certain information requirements) dictionary	Functional relationships	Presentational relationships (views)
schema	primary items, dimension items, domain members	primary items, dimension items, domain members	hypercube items	hypercube items (?)
label and generic label linkbase	general application labels for items, dimension (ELR) specific labels, labels for ELRs	application specific labels for items, dimension (ELR) specific labels, labels for ELRs	labels for data points, labels for ELRs	labels for rendering coordinates, labels for ELRs
reference and generic reference linkbase	general application references for items, dimension (ELR) specific references, references for ELRs	general application references for items, dimension (ELR) specific references, references for ELRs	references for data points, references for ELRs	references for rendering coordinates, references for ELRs
definition linkbase	structure/hierarchy of primary items and subdomains; application of subdomains for certain dimensions (targetRole + new ELRs ?)	structure/hierarchy of primary items and subdomains; application of subdomains for certain dimensions (targetRole + new ELRs ?)	complete scope hypercubes (primary items in dimensional breakdowns)	table specific hypercubes and exclusions
rendering linkbase				view of each template
formula linkbase			cross application (information requirements) rules	cross template and template by template rules

Folders structure



Files and folders: Relations



Naming convention

Principles

- General
 - Names should be short, represented by code
- File names
 - File names should be terse and coded according to the architectural diagram to facilitate performance during processing of taxonomies and instances; no dates on file names
- Namespaces
 - Namespaces should adhere to the general architecture allowing separation of common primaries, dimensions and domains; no dates on namespaces
- QNames:
 - critical for mapping to XBRL
 - applied in XBRL Formulas, Eurofiling Rendering, etc (instead of XLink + XPointer *href*).
 - stable and independent from potential taxonomy changes
 - *include* instead of *import* for referencing common definitions from specific (FINREP/COREP/BSI-MIR/...) definitions

Naming convention: File names

Definitions: primary and dimension items

Primary items definitions:

Schema:	{com/ecb/eba/...}base.xsd
Label linkbase:	{com/ecb/eba/...}base-lab{language-code}.xml
Reference linkbase:	{com/ecb/eba/...}base-ref.xml
Definition linkbase:	{com/ecb/eba/...}base-def.xml

Dimension items definitions:

Schema:	{com/ecb/eba/...}dim.xsd
Label linkbase:	{com/ecb/eba/...}dim-lab{language-code}.xml
Reference linkbase:	{com/ecb/eba/...}dim-ref.xml
Definition linkbase:	{com/ecb/eba/...}dim-def.xml

Language codes: according to the value of xml:lang attribute on label resource

Naming convention: File names

Definitions: domains

Schema:	{com/ecb/eba/...}d{domain-code}.xsd
Label linkbase:	{com/ecb/eba/...}d{domain-code}-lab{language-code}.xml
Reference linkbase:	{com/ecb/eba/...}d{domain-code}-ref.xml
Definition linkbase:	{com/ecb/eba/...}d{domain-code}-def.xml

Examples of domain codes:

FINREP:	{AL, BA, CC, CN, IM, LV, MA, OC, PL, RP, RS, RT}
Statistics:	{AI, CU, LT, MR, PI, TI}
Common:	{AT, CD, CG, CT, GA, MC, TR}

Naming convention: File names

Complete scope hypercubes

Schema:	{com/ecb/eba/...}cs.xsd
Label linkbase:	{com/ecb/eba/...}cs-lab{language}.xml
Reference linkbase:	{com/ecb/eba/...}cs-ref.xml
Definition linkbase:	{com/ecb/eba/...}cs-def.xml
Formula:	{com/ecb/eba/...}cs-frm.xml
Formula (cross-area):	{com-ecb-eba/com-ecb/ecb-eba/...}-frm.xml

Naming convention: File names

Complete scope hypercubes

- based on original names and codes used:

- COREP: cr, mq, ss, ...

- FINREP: t01, t02, ...

- Eg:

Schema: t{NN}.xsd

Label linkbase: t{NN}-lab{language}.xml

Reference linkbase: t{NN}-ref.xml

Definition linkbase: t{NN}-def.xml

Rendering linkbase: t{NN}-ren.xml

Formula: {template(s)/rule number or code}-frm.xml

Naming convention: Namespaces and prefixes

Schemas	Prefix	Namespace	Applies to files
Primary items	base	http://www.eurofiling.info/base	Applies to Common, COREP, FINREP, Statistics and future modules
Dimension items	dim	http://www.eurofiling.info/dim	
Domains	d{domain}	http://www.eurofiling.info/d/{domain}	
Templates	t{#} ci	http://www.eurofiling.info/{fin/...}/t{#} http://www.eurofiling.info/{cor/...}/ci	
Complete scope hypercubes	{fin/sta}cs	http://www.eurofiling.info/{com/eba/ebc/...}/cs	

no date (only on official location and processing instruction inside of each file <?...?>):
 <?officialURI <http://www.eurofiling.info/eu/fr/xbrl/2010-01-27/sta/d/dTR/stadTR.xsd>?>

Naming convention: primary items

- single character to represent concept's characters or data type:
 - m: monetary item type
 - i: integer item type
 - d: date item type
 - s: string item type
 - c: decimal item type
 - p: percent item type
 - n: pure item type
 - a: abstract concepts used for grouping (string, duration)
- single character to represent the period type (doesn't apply to abstract items)
 - i: instant
 - d: duration
- sequential number (starting from 1) making each concept unique
- two representations of a single concept – instance and duration: same sequential number

Naming convention:

Domain members and dimension items

- domain: unique abbreviation/code (see slide 10)
- explicit domain member, either (unique within a domain):
 - first character: x + sequential number (starting from 0/1)
 - standard codes (e.g. ISO) or abbreviations:
 - currencies: eur, pln, usd, ...
 - geographical and political areas: pl, de, fr, gb, emu - ?, oecd - ?, ... (but e.g. x14 for „Other than EMU“)
 - time intervals: le1y, gt90d_le180d, (but e.g. x5 for „Overnight“) - ?
- typed domain member: regular naming convention (e.g. „code“)
- dimension: unique two or more letters abbreviation/code (e.g. OM, RM, CR, CS, ...)

Naming convention: Examples

prefix:localName	Description
base:mi9	monetary item, instant period type (eg. „Assets“)
base:md9	monetary item, duration period type (eg. „Changes in assets“)
base:pd10	percent item, duration period type (eg. „Voting rights“)
base:sd15	string item, duration period type (e.g. „Entity name“)
base:dd18	date item, duration period type (e.g. „Entry/removal date“)
ma:x1	member of „Market“ domain (e.g. „OTC“)
ga:pl	member of „Geographical and political areas“ domain: „Poland“
li:gt90d_le180d	member of „Time interval“ domain: „> 90 days and ≤ 180 days“
cd:code	typed domain: code

ELRs

Data Definitions layer

roleURI: <http://www.eurofiling.info/>

- level:
 - /com/ - common
 - /eba/ - EBA specific
 - /ecb/ - ECB specific
 - ...
- type of items:
 - /base/ - primary items
 - /d{AA}/ - subdomains
 - /dim/ - *dimensions (referring to applicable subdomains – under discussion)*

+ sequential number starting from 01

definition/label:

- primary items – information on type of concepts, e.g.:
 - on balance sheet items
 - off balance sheet items
 - income statement items
 - memorandum items
 - ...
- description of a subdomain:
 - classification of assets
 - time intervals under 1 year and over 1 year
 - CRD classification of sectors
- dimensions:
 - original maturity
 - counterparty sectors (alternative classification)

ELRs

Templates layer

roleURI: <http://www.eurofiling.info/>

- level:
 - /com/ - common
 - /fin/ - finrep
 - /cor/ - corep
 - ...
- /cs/ - complete scope hypercube
- template number: /t{NNA}/ or name /crirb/
 - /s{N}/ - section of a template for rendering and formulas (if needed)
 - /hc{N}/ - „all” hypercube (template specific definition linkbase)
 - /exc{N}/ - „notAll” hypercube (template specific definition linkbase)

definition/label

- description of complete scope hypercube, e.g.
 - „Loans by sectors, geographical and political areas and time intervals”
 - „Derivatives held for trading by risk, market, product and counterparty sector”
- templates
 - full name of a template:
 - „Table 1.1. Assets”
 - „CR-IRB”
 - followed by:
 - „Section {N}” – for rendering
 - „Hypercube {N} - „all” hypercube (template specific definition linkbase)
 - „Exclusion {N} - „notAll” hypercube (template specific definition linkbase)

ELRs

Other properties and uses

used on

- link:definitionLink
 - structure of base items and subdomains
 - complete scope hypercubes
 - template specific hypercubes and exclusions
- link:labelLink
 - subdomain specific labels
 - template specific labels
- link:referenceLink
 - subdomain specific references
 - template specific references
- gen:link
 - rendering linkbase
 - template specific formulas and assertions
 - generic labels and references for coordinates, individual data points, template specific formulas and assertions
 - generic labels or references (including ELRs)

standard roles:

- <http://www.xbrl.org/2003/role/link>
 - standard (subdomain independent) labels and references for items (base, domain members, dimensions)
- <http://www.xbrl.org/2008/role/link>
 - cross template formulas and assertions

Labels and References

- standard ELR: general labels and references for items (base, dimensions, domain members)
- subdomain ELR: subdomain specific labels and references (domain members with respect to subdomains, e.g. „Debt securities issues” vs „Debt securities held”, „Loans” vs „Deposits”)
- generic label/reference:
 - standard ELR:
 - ELR (e.g. subdomain or template name)
 - cross template formula, assertion or any of its components (variable, filer, etc)
 - template ELR:
 - axis coordinate (header and code of a column or row in a template)
 - data point (if needed)
 - template specific formula, assertion or any of its components (variable, filer, etc)
- xml:lang – indication of language
- label role: standard, predefined or custom if needed
- references roles and parts: standard, predefined or custom if needed
- need for labelling style guide and agreement on reference parts

Other rules

- domain of a typed dimension – simple construct (formula validation)
- no tuples
- versioning – processing instruction with taxonomy version and official location in each file
- for consistency: id = prefix_name, how about id's and labels on resources (also for formula)?
- keep deprecated items in schemas
- contextElement = scenario
- all hypercubes closed; notAll open

Requirements for national extensions

- Translation + References to local regulations:
 - Data dictionary (relationship sets and items)
 - Tables (titles, coordinates)
- Modification of the scope:
 - Data dictionary
 - new domains
 - extension of domains: new items and relationship sets
 - Application of changes in the data dictionary to valid combinations
 - Tables
 - Localization (e.g. association of a proper country and currency code for „domestic” in rendering and formula, indication of dirty or clean prices approach for accrued interest, etc)
 - Application of changes in the data dictionary and other local requirements
- Moving common extension items to the EU level (extension items registry?)

Issues/Questions

Architecture issues

- Should dimensions be defined in a separate schema or shall they be defined together with a domain which they refer to?
 - dimensions are domain specific, but
 - having them defined under a single namespace helps in making sure their names are unique
- *Complete universe hypercubes vs Complete scope hypercubes vs Cross template hypercubes vs Template specific hypercubes*
- Role of definition, rendering and formulas for superfluous data validation
- Should we separate COREP/FINREP/Statistics items if dictionary level is institution specific (EBA/EBC)? Is this distinction really needed?
- What concepts should be defined on common level: independent or also inherited (e.g. FINREP adopts ECB classification of counterparties)?
- Domain and subdomains:
 - Should subdomains (hierarchies) be defined on the dictionary level or functional relationships level ?
 - Should there be a split into general subdomains for dictionary purposes and hypercube subdomains for dimensional data model presentation and dimensional validation?
- Iso- or polymorphic hypercubes? Shall they be assigned with meaningful labels?

Issues/Questions

Data modelling stuff

- Should every “Total” and “Other” be explicit?
- If lower level domain members have a certain property, should this be a property of higher level domain members (e.g. „Equity instruments” don’t have „Maturity” but „Debt and equity instrument's” as the total may)
- Do we have to list all possibilities for domestic (France, Spain, Belgium), other than domestic in emu (other than France, other than Spain), other than domestic in EU (other than Poland, ...), ... ? How to address changes in definition of items (e.g. „Croatia” from „Other than EU” becoming „EU”, „Poland” joining EMU, ...)?
- What are the possible alternatives for hierarchies in subdomains (complete, incomplete, full) and where to indicate that (roleType, attribute on arc for “of which”?); also what should we use them for – aggregations (if so weight is needed)?
- How to treat balance attribute on base items if dimensional properties influence its value?

Issues/Questions

Other stuff

- Which standards (e.g. ISO-3166-1 alpha-2, alpha-3, other standards) shall we base the element names on (if applicable)?
- If there is any change in any domain, do we change the entire set of definitions (dictionary + complete scope hypercubes)?
- Shall we embed linkbases in schemas if they are linkbaseRef'ed anyway?
- Default members:
 - Should default members be included in hypercubes (if it is the only member) of not (suggestion that a dimension apply)?
 - Should default members appear on rendering coordinates? (maybe only these for which dimensions are explicitly named in the table with other members)
 - Default domain member name: x0 (could a domain have members that are different defaults depending on dimension)? Same with default dimension member label: „Total/Not-applicable”
- Shall the templates be normalized (if so – to which extent)? Especially templates listing group companies, instruments, etc.
- Which syntax should be used for rendering (custom temporary table linkbase or XBRL spec when available)?



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