DPM as ISO standard

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What is the role of DPM?

sender

data

Data exchange format
e.g. XBRL taxonomy

Data Model

Data requirements / concepts definitions

analysis and audit

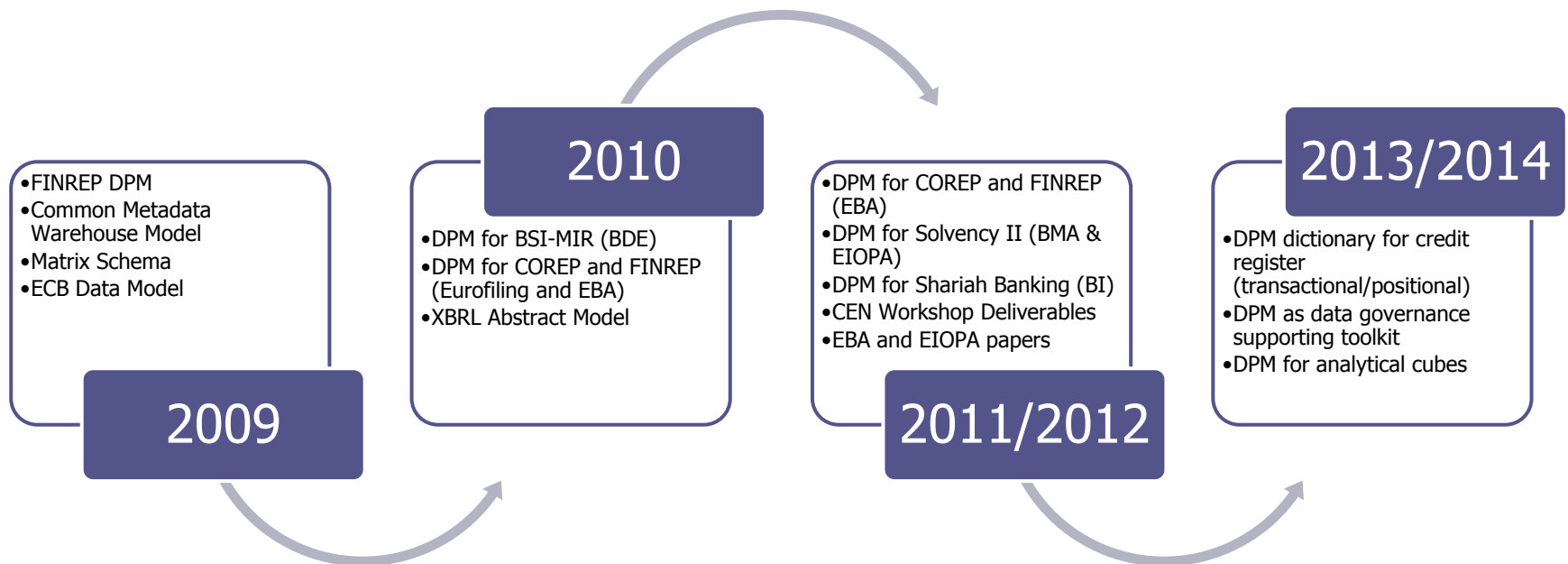receiver
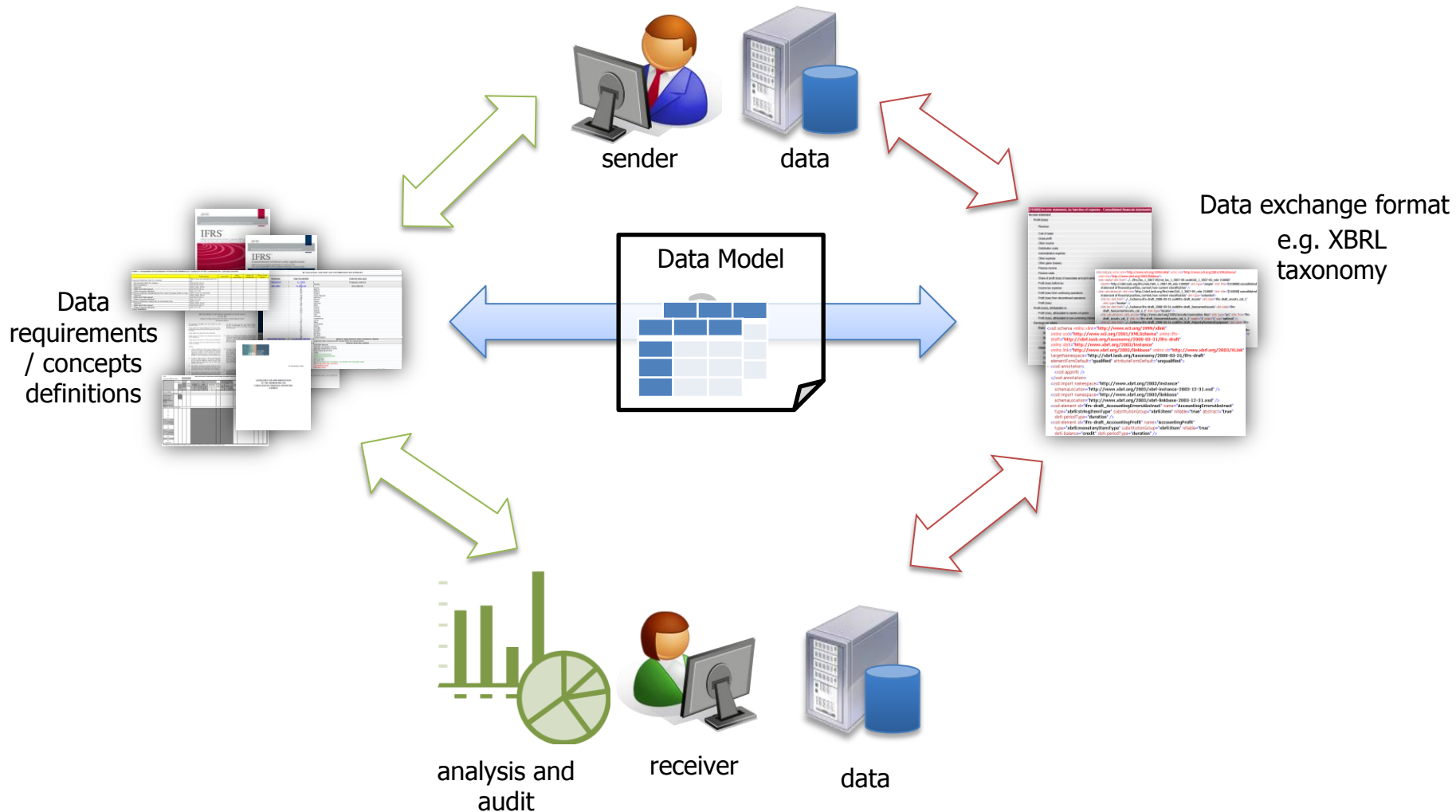
data

What is DPM?

1. methodology to uniquely, consistently, explicitly, unambiguously and precisely define metadata

2. process resulting in DPM Dictionary and Annotated Templates

    variety of formats (XBRL, SQL, XLS)

3. technology-neutral artefact attributable to the logical model layer of the enterprise architecture

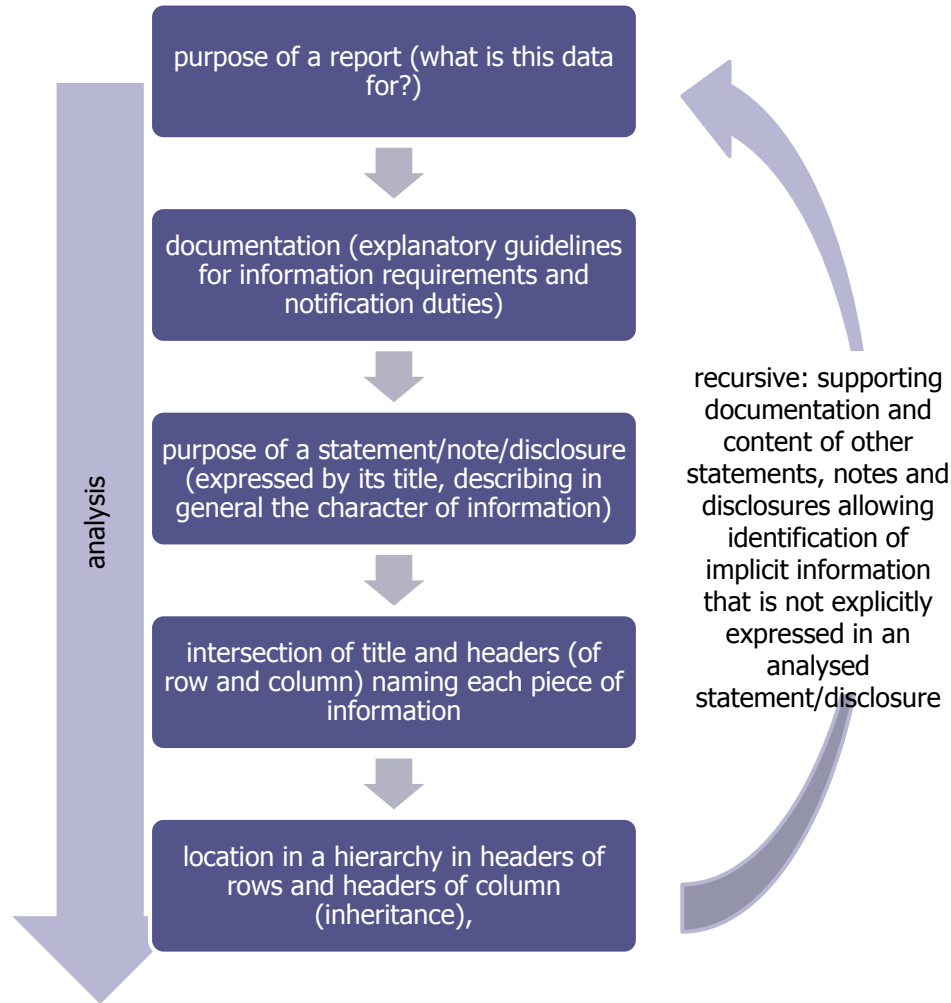   works (tested) with XBRL, SQL, SDMX, CSV, XLS

How did DPM emerge and evolve?

2009

- FINREP DPM
- Common Metadata Warehouse Model
- Matrix Schema
- ECB Data Model

2010

- DPM for BSI-MIR (BDE)
- DPM for COREP and FINREP (Eurofiling and EBA)
- XBRL Abstract Model

2011/2012

- DPM for COREP and FINREP (EBA)
- DPM for Solvency II (BMA & EIOPA)
- DPM for Shariah Banking (BI)
- CEN Workshop Deliverables
- EBA and EIOPA papers

2013/2014

- DPM dictionary for credit register (transactional/positional)
- DPM as data governance supporting toolkit
- DPM for analytical cubes

The people behind DPM origins and evolution

Creation

- Michal Skopowski
- Bartosz Ochocki
- Katrin Heinze
- Victor Morilla
- Michele Romanelli
- Ignacio Boixo

Development

- Anselmo Diaz
- Aitor Azcoaga
- Carlos Rodriguez
- John Dill
- Andreas Weller
- Carlos Martins
- Wolfgang Strohbach
- Ana Teresa Moutinho
- Yudi Sugalih
- Tobias Kreuter
- Torsten Tech
- Jacqueline-Isabel Talledo

Enhancement

- Derek de Brandt
- Karla McKenna
- Antonio Olleros

What is the process of development of the DPM?

purpose of a report (what is this data for?)

↓

documentation (explanatory guidelines for information requirements and notification duties)

↓

purpose of a statement/note/disclosure (expressed by its title, describing in general the character of information)

↓

intersection of title and headers (of row and column) naming each piece of information

↓

location in a hierarchy in headers of rows and headers of column (inheritance),

analysis

recursive: supporting documentation and content of other statements, notes and disclosures allowing identification of implicit information that is not explicitly expressed in an analysed statement/disclosure

coherent breakdowns (items sharing common semantic nature) minimizing redundancy and maximising reusability of definitions

1. study the information requirements
2. analyse them by statements/disclosures (table by table, header by header according to the divide and conquer approach):
   A. identify measures (metrics) and list them down (if a measure is already listed – reuse it)
   B. identify and name all breakdowns required to explicitly define each piece of information
      - preserve hierarchies (if applicable) with other already defined values (properties) or reuse existing values
      - if a value is not applicable to any existing hierarchy create a new one
3. review the measures and breakdowns and look for optimization (e.g. breakdowns of similar nature, functional relationships, etc)
4. add necessary technology characteristics

Resulting DPM shall contain:
- a list of measures (name, label, data and period type, …) and hierarchy o measures (if applicable)
- a list of members and dimensions of each domain (name, label, item type, default member)
- a subdomains of each domain (subdomain name, hierarchy and order, alternative classifications)

What could be the process of creating DPM?

1. Information needed about asset quality.
2. Assets should be divided into:

   impaired and not-impaired

   past due and not past due

   by counterparties

   by portfolio

   by maturity
3. Portfolio should be divided into held for trading and held to maturity.
4. Maturity of financial assets shall be divided into <1year and >=1year.
5. …. (recursive)
6. Result: cube
7. Next: views (tables)

But...

$$d = \frac{P}{s} \frac{mv_\varphi + sv_z + iv_r + isv_r'}{m + P(\Omega - 1)}, \quad (26)$$

$$b_r = \frac{m + P}{m - P(\Omega - 1)} v_r, \quad (27)$$

$$v_z = \frac{-sb_\varphi + mb_z}{2(m - P(\Omega - 1))}, \quad (28)$$

$$v_\varphi = -\frac{P(sb_\varphi - mb_z)}{2s\{m - P(\Omega - 1)\}} + \frac{i(m + P - 2P\Omega)v_r}{\{m - P(\Omega - 1)\}^2}, \quad (29)$$
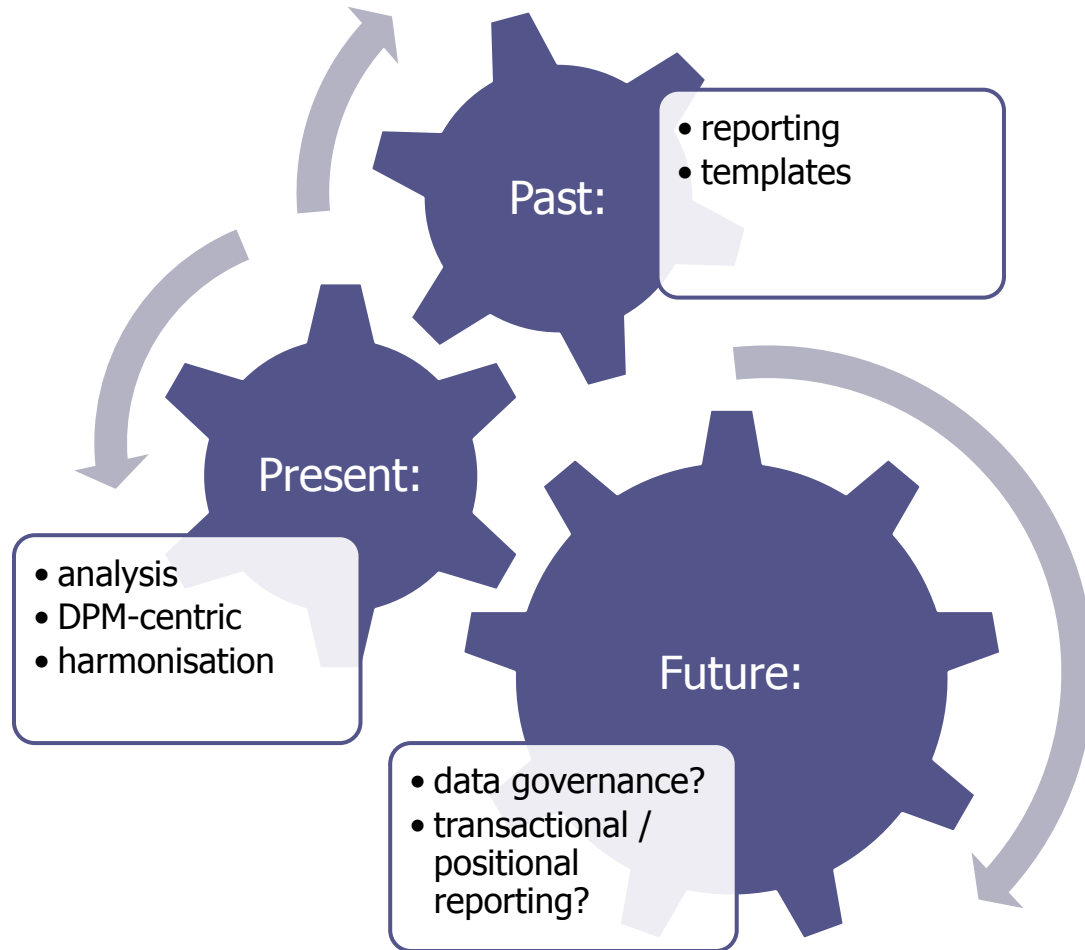
$$b_\varphi = b_z \left[m^2(s^2 - P^2) + 2s^2P^2(\Omega - 1)^2 \right.$$
$$- -mP(P^2 - 3s^2 + 4s^2\Omega) \left] / \left[s\left(2m^2P + 3mP^2 \right. \right.$$
$$+ P^3 - ms^2 - Ps^2 - 4mP^2\Omega \right) \right] + v_r \left[2i(m + P)(m \right.$$
$$+ P - 2P\Omega)] / \left[(m + P - P\Omega)\left(2m^2P + 3mP^2 \right. \right.$$
$$+ P^3 - ms^2 - Ps^2 - 4mP^2\Omega \right) \right]. \quad (30)$$

**data modelling
is not a science**

**it's a (subjective)
result of discussion
and agreement**

Can DPM evolve further?

Past:
- reporting
- templates

Present:
- analysis
- DPM-centric
- harmonisation

Future:
- data governance?
- transactional / positional reporting?

Why do we need to standardise DPM?

- At least 10 DPMs exist for financial services industry as of December 2014 at regional or national levels.

- Differences in modelling of similar breakdowns

  CRDIV/CRR and Sol2 example:

    main categories

    counterparties

DPM for CRD4/CRR

DPM for Sol2

Counterparties

Not applicable/ All counterparties =
+ Central banks
+ General governments
+ Financial corporations =
 + Credit institutions
 + Financial corporations other than credit institutions
+ Non-financial corporations
+ Households

Total/NA
Financial and credit institutions
Other than financial and credit institutions
Insurance/Reinsurance
Third-country re-insurance
Insurance holding company
Ancillary services
Non-regulated financial
Other than financial and credit institutions, insurance/reinsurance, third-country re-insurance, insurance holding company, ancillary services and non-regulated financial

Main categories

All assets =
 + Assets other than Cash on hand, Derivatives, Equity instruments, Debt securities, Loans and advances, Tangible assets, Intangible assets
 + Cash on hand
 + Derivatives
 + Equity instruments
 + Debt securities
 + Loans and advances
 + Tangible assets
 + Intangible assets

Total/NA
Property, plant and equipment and financial [other than receivables/payables and recoverables]
Property, plant and equipment
Financial [other than receivables/payables and recoverables]
Cash
Derivatives
Deposits
Loans and bonds
Loans
Bonds
Structured notes and collateralised securities
Structured notes and collateralised securities [synthetic]
Structured notes and collateralised securities [traditional]
Bonds securities other than structured notes and collateralised securities
Equity instruments
Equity instruments [listed]
Equity instruments [unlisted]
Financial other than receivables/payables, recoverables, cash, derivatives, deposits, loans, bonds
Reinsurance deposits and receivables/payables [insurance/reinsurance related]
Reinsurance deposits
Receivables/payables [insurance/reinsurance related]
Receivables/payables [insurance/reinsurance accepted]
Receivables/payables [reinsurance ceded]
Recoverables

What is the value of DPM as ISO standard?

Standardised methodology for development and update of DPMs

Registry of breakdowns (dimensions, domains, hierarchies)

Adoption profiles

What is the timeline and plan for DPM2ISO?

- International standard category

- December 2014: New work item proposal with outline

- December 2015: Draft specification (realistic)

- December 2016: Final specification (optimistic)

- Liaison organisations: ECB, CEN

Contact

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