IBM Industry Data Models

Usage, Process & Demonstration

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The EDW Data Model

- **One of the essential components in the deployment and consolidation of data warehouses and data marts is the data model**—the logical design specification of the databases. Such *Information Models* are the accepted way of designing all databases.

- Data models are critical path inputs to load process (ETL) design. And a data model failure almost certainly results in lots of re-work:
  - RE-WRITE ETL scripts and RE-RUN extractions
  - RE-CREATE databases and RE-LOAD data
  - RE-OPTIMIZE physical data base(s)
  - RE-DESIGN and RE-BUILD OLAP applications
  - RE-TEST all ETL and OLAP applications
  - RE-TRAIN end users
IFW Components and Relationships

IBM’s solution is unique – there are a handful of Data Warehouse models available, but IBM’s solution is accompanied by Model Management Tooling (m1) to utilize the power of the structure and deploy a full data classification across core business functions, further accelerated by fast-start Solution Templates.
IFW Components in Physical Architecture

Business Definition Synchronization

Scoped XSDM

Customized BSTs

Legacy OSS/BSS

Scoped XDWM

Billing
Campaign Mgmt
CRMS
POS
HR
Collections
Commissions
A/P, A/R, G/L
...

EDW ERD Engineering

Data Warehouse

Scopes & Propensities

Mining Vectors

Aggregations

Scores & Propensities

Mining Vectors

Data Mining

MOLAP

ROLAP

IBM Software Group
The Services Data Model (TSDM)

- The XSDM is an object class hierarchy based on classification theory. There are 5 levels in the TSDM: A, B, C, C’ and D

```
A
 B
  C
   C'
    D
```

- Business Subjects
- Data Classifications
- Reusable Entities
- Application Entities
- Table Structures

- There are 9 subject areas in the TSDM: **Involved Party**, **Arrangement**, **Event**, **Product**, **Location**, **Resource Item**, **Condition**, **Classification** and **Business Direction**.

- The XSDM organizes these 9 data concepts first by Instance or Type and then as Fundamental, Associative and Attributive.
The Nine Data Concepts in XSDM

- The 9 Data Concepts in the Services Data Model provide a generic overview of the data in an enterprise
Industry Data Warehouse Model (XDWM)
The set of Concept Fundamental (subtype) hierarchies will form the "skeleton" of an implemented ER model.

- All other data attaches to this skeleton

Known as Fundamental Entities
The set of Concept Descriptor (property) hierarchies will form the attributes of an implemented ER model.

Also supplementary entities known as Attributive Entities e.g. repeated data
The set of Concept Relationship hierarchies will form the relationships of an implemented ER model.

Also many-to-many entities known as Associative Entities.
XDW Implementation Approach

**BST's**
- Use JAD Sessions to customize multiple BST’s

**Workshops**
- Implement the PDM to support users analysis requirements

**Physical Data Model**
- Refine design decisions and expand the Physical Data Model

**Logical Data Model**
- Customize the XDWM to capture specific requirements

**Information Framework**
- Develop the framework for a cross-functional Enterprise Information Architecture and specifies common (and divergent) definitions of business definitions

**Conceptual Data Model**
- Cross-Reference to Requirements and map to XDWM

**Expand Framework into a Subject Area Specific Model**
Why use the IFW Solution

- Provides a *Jump Start* for analysis of warehousing requirements
- Includes *Pre-Defined* OLAP structures for analysis
- *Pick and Choose* Measures and Dimensions from Best Practise
- Has *Consistent* Structures and *Common Definitions*
- Is fully *Customizable* - scope required elements and add if required
- Completely *Re-usable* logical data model structures
- 100% *Synchronized* across XSDM, XDWM, BST & AST
- Supports *Rapid Development*
IFW Demonstration

Conducted using the Banking Data Warehouse Model
## IFW Comparison with other models

<table>
<thead>
<tr>
<th>BENCHMARK</th>
<th>IBM IFW</th>
<th>Other Industry Models</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Framework</td>
<td>The <strong>IBM xSDM</strong> classifies and documents every entity, attribute, relationship and domain in the xDWM.</td>
<td>Other Models are <strong>not based on a classification model (taxonomy) or Information Framework.</strong></td>
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<tr>
<td>Data Consolidation and Scalability</td>
<td>The <strong>highly normalized</strong> xDWM consolidates and integrates data from multiple data sources. De-normalized summary tables and MOLAP cubes optimize query performance.</td>
<td>Other models are either 3NF OR star schema-based but rarely both.</td>
</tr>
<tr>
<td>Industry Coverage</td>
<td>9 subject areas. 800+ entities and 50+ business solutions. <strong>Broader and deeper than other models.</strong></td>
<td>Data Models are not a core line of business for other vendors and R&amp;D is often limited. Often subject areas and documentation are incomplete and there may be no business solutions.</td>
</tr>
<tr>
<td>Extensibility</td>
<td>The highly normalized xDWM is <strong>easily extended with new subtypes and attributes</strong>. Regular new versions covering industry developments and client feedback.</td>
<td>Other models are basically one-off solutions with no clear enhancement methodology. Not normalized enough to be extensible.</td>
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<tr>
<td>Software Support</td>
<td>M1 tool provides an import/export bridge to RDA, ERWin and Essbase server as well as model merge/compare and trace back functionalities. IBM provides dedicated software and helpdesk support.</td>
<td>Limited or no software for model management, generation or synchronization (i.e., model compare, merge or version control). <strong>No dedicated support for models and tools.</strong></td>
</tr>
<tr>
<td>Open Solution</td>
<td><strong>Deliverable on a wide-variety of platforms:</strong> hardware, OS, DBMS and ETL.</td>
<td>Often completely proprietary based on the supported DBMS, OS or both.</td>
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