The Data Point Model and the IFRS taxonomy

1. Introduction

The current IFRS taxonomy data model was primarily created as a reflection of the structure and fields described within the IFRSs. The focus is on producing a presentation structure which both accurately reflects the reporting items described in the standards and allows navigation based on the layout in an ‘average’ financial statement.

The Data Point Model (DPM) is a data modelling methodology (for a full description please see the next section) developed by BR-AG – a company specializing in XBRL and the related technologies. This paper investigates whether or not the DPM is an appropriate methodology for future developments in the structure and model of the IFRS taxonomy.

2. The role and importance of a data model

A data model is a description of the data and information required within a system. A data model allows the description of the information and data in such a way that what is reported can be clearly defined and thus used for practically developing and designing reports, systems, and assisting with process and business modelling. In this case the system is financial reporting and the model is allowing us to identify and define the items for an XBRL taxonomy of items, which can then be used to produce and consume the final tagged electronic report. The data model is at a higher level than the taxonomy itself and can be used with, for example, other reporting standards, for looking at information flow within a system or for assisting with for analysis and definition work.

3. A brief description of using the Data Point Model

3.1. Characteristics of the DPM

The following is only intended to be a brief summary. More detailed descriptions for the DPM methodology can be found on the Eurofiling website.
(http://www.eurofiling.info/cen/datapointmodelling/) in particular for more detail on normalization and a fuller description of the way the data point modelling interacts with the XBRL syntax see the DPM methodology description (http://www.eurofiling.info/cen/wp-content/uploads/data/DPM_methodology.docx) written by Victor Morilla.

The Data Point Model (DPM) is the result of a particular data modelling methodology, which produces a model with the following general characteristics:

- It produces a multidimensional model
- It also uses hierarchies and domains to describe the relationships between attributes and allow defined sub categories and values
- It generally aims to produce a small number of main reporting items, which can then be narrowed to represent a specific ‘data point’ using a range of metadata attributes (modeled using the dimensions and domains).
- Implicit information about a reported concept is usually made explicit for example measurement information implied elsewhere in a note.
- The resulting tables produce a description or map of all possible data points resulting from the main reporting items and dimensions, this can then be limited to those useful or valid in actual reporting.

Obviously a number of these characteristics are generally true for a number of data models and may exist to some extent or another in parts of the IFRS taxonomy.

### 3.2. Simple example of an application of the DPM style modelling

The following table is found in a report:

<table>
<thead>
<tr>
<th>Consolidated Statements of Cash Flow</th>
<th>2011</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>£ thousands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net cash flows from operating activities</td>
<td>3,775</td>
<td>2,922</td>
</tr>
<tr>
<td>Net cash flows from investing activities</td>
<td>-1,226</td>
<td>-3,994</td>
</tr>
<tr>
<td>Net cash flows from financing activities</td>
<td>-1,176</td>
<td>2,520</td>
</tr>
</tbody>
</table>

From the above table we can see that we are looking at data related to the following:

- Cash flows
- Consolidated
- Net
- Broken down by type of activity (operating, investing, financing)
- Reported by year over the period of that year
- Precision - the numbers we can see are in thousands
- Accuracy – have the numbers been rounded
- Confidential, not for distribution -

- Unit – in this case currency (GBP)

There may be other information available from the context provided by the rest of the financial statement, which we would also consider in order to make sure all information is explicit in the final model – for example:

- The status of the figures final, final audited, draft etc.
- The reporting entity the figures apply to
- The exact period of time represented by the labels 2011 & 2010
- The region or area the figures relate to
- Etc.

We then define all the above terms more clearly and investigate where we should be trying to produce more general categories and descriptions to relate to terms used elsewhere in other parts of a financial statement that are related. For example figures may also be reported on an Individual rather than a Consolidated basis.

Analysis of the rest of the statements would also then help to identify which of these many facets of information applying to a fact could be described as the main reporting item. Many of the decisions made above are subjective but the aim to is be as consistent as possible and agree the decisions with both IT/XBRL and business knowledge experts.

So for the table above we might end up with something like:

Primary Item: *Cash Flow*

Possible dimensions and members:

- **Status**
  - Final – audited
  - Final – unaudited
  - Preliminary
  - Pro-forma

- **Gross/net**
  - Gross
  - Net

- **Consolidated/individual**
  - Gross
  - Individual

- **Type of activity**
  - Operating
  - Investing
  - Financing

Etc.
This analysis is then performed across different tables and statements within a system and the results compared and normalized.

The DPM methodology includes some specifications which are at least XBRL focused if not XBRL specific and which contribute to the distinctive style of the tables - for example:

- There is always a specific measure/dimension determined to be the primary item.
- There’s no fixed number of dimensions
- Data points are identified only by those dimensions, which have a defining effect on that value. Dimensions that do not take a direct part in the description or definition are assumed to have the default value.
- There is no hierarchy within members of a dimension
- Dimensions which only have a single member value applying to a table are treated as a kind of Z axis to make them explicit – they are not treated as default values

3.3. Advantages of the DPM

Advantages to a DPM style of modelling include:

- The attributes and properties defining data points are made explicit.
- Once one financial reporting model has been produced many of the primary items and attributes identified will be applicable to other financial reporting systems and can be reused.
- The data focused modelling is less constrained by the existing presentation and labeling of items in reports and produces a more accurate model of what may be reported.
- The explicit use of dimensions to describe data items improves the level of business rule validation covered by the XBRL taxonomy.
- May facilitate financial analysis by allowing users to ‘slice and dice’ the data based on their user specific view

A possible example in the IFRS taxonomy where a more DPM like approach could be useful is Fair Value Measurement (IFRS 13).

The current taxonomy structure:
Fair Value Measurement is already one of the more dimensional tables in the IFRS taxonomy and a recent example from a real life disclosure suggests that some additional analysis and use of an even more dimensional model could provide a more useful and comprehensive mapping allowing the mapping of tables such as the example below which is very similar but using the current taxonomy requires extension items to for the Total values highlighted.
3.4. Disadvantages of the DPM

Disadvantages that may result from this kind of modelling approach include:

- The highly dimensional nature of the final model.
  - It can be more difficult to render the useful combinations of dimensions in a way which makes them accessible to users.
  - There have also been some comments from software vendors that the large number of dimensions makes the taxonomies and instances potentially difficult to process.
- The explicit and table based nature of the DPM means that there can be difficulties with modelling where flexible reporting approaches can be used by preparers using the same basic data points but with very variable relations to other data items. An example of this would be prepayments in IFRS (see below).

3.5. The prepayments example in more detail

The text below is from IAS 1.77-78.
Information to be presented either in the statement of financial position or in the notes

77 An entity shall disclose, either in the statement of financial position or in the notes, further subclassifications of the line items presented, classified in a manner appropriate to the entity’s operations.

78 The detail provided in subclassifications depends on the requirements of IFRSs and on the size, nature and function of the amounts involved. An entity also uses the factors set out in paragraph 58 to decide the basis of subclassification. The disclosures vary for each item, for example:

a) Items of property, plant and equipment are disaggregated into classes in accordance with IAS 16;
b) Receivables are disaggregated into amounts receivable from trade customers, receivables from related parties, prepayments and other amounts;

The text highlighted in red gives the preparer flexibility in the reporting or prepayments both in terms of presentation but also in how it affects the reporting of other related items.

For examples

From BP:

<table>
<thead>
<tr>
<th>Current assets</th>
<th>248</th>
<th>160</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loans</td>
<td>26</td>
<td>18</td>
</tr>
<tr>
<td>Inventories</td>
<td>27</td>
<td>20</td>
</tr>
<tr>
<td>Trade and other receivables</td>
<td>21</td>
<td>31</td>
</tr>
<tr>
<td>Derivative financial instruments</td>
<td>4,967</td>
<td>3,510</td>
</tr>
<tr>
<td>Prepayments</td>
<td>1,453</td>
<td>3,162</td>
</tr>
<tr>
<td>Current tax receivable</td>
<td>209</td>
<td>377</td>
</tr>
<tr>
<td>Cash and cash equivalents</td>
<td>8,339</td>
<td>8,197</td>
</tr>
<tr>
<td></td>
<td>67,553</td>
<td>66,384</td>
</tr>
</tbody>
</table>

and KPMG:

<table>
<thead>
<tr>
<th>IAS 15(c)</th>
<th>23</th>
<th>9,967</th>
<th>12,119</th>
<th>12,716</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological assets</td>
<td>14</td>
<td>245</td>
<td>140</td>
<td>402</td>
</tr>
<tr>
<td>Other investments, including derivatives</td>
<td>14</td>
<td>662</td>
<td>1,032</td>
<td>821</td>
</tr>
<tr>
<td>Current tax assets</td>
<td>20</td>
<td>228</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IAS 15(h)</td>
<td>24</td>
<td>19,561</td>
<td>17,999</td>
<td>16,311</td>
</tr>
<tr>
<td>Prepayments</td>
<td>330</td>
<td>1,200</td>
<td>895</td>
<td></td>
</tr>
<tr>
<td>IAS 15(f)</td>
<td>26</td>
<td>1,605</td>
<td>1,850</td>
<td>2,529</td>
</tr>
<tr>
<td>IFRS 5, 8, 40, 15</td>
<td>14</td>
<td>2,000</td>
<td>1,000</td>
<td></td>
</tr>
<tr>
<td>IAS 160</td>
<td>46,680</td>
<td>34,568</td>
<td>33,674</td>
<td></td>
</tr>
</tbody>
</table>

Both examples provide prepayments as a separate line item on the face with parent current assets. Based on the examples provided within IFRSs, this can be modelled this as part of receivables but it may also be reported separately – therefore affecting the makeup of the ‘Trade and other receivables’ item.
4. Application to the IFRS taxonomy

The IFRS taxonomy with a principles based reporting system rather than a stricter form based system is not an ideal case for the application of the DPM methodology. There are however a number of standards which are have less flexible requirements and are more similar in nature to the stricter reporting systems (for example Fair Value Measurement as described above).

The application of a DPM like methodology could assist in providing a more accurate and complete model for these disclosures and identify some potentially common dimensions, which could be made available for use in other sections of the taxonomy as required.