The Agenda

• **My view of SDMX**
  – It is about more than dissemination
  – I will review what is in it

• **Managing the Statistical Process**
  – The main focus is processes and metadata evolution
    • managing data follows from this
  – SDMX has constructs that can help

• **SDMX Manager** - an SDMX tool that I am developing
  – Focused on creating and editing all the SDMX artefacts
    • for getting value out of SDMX in all areas
      – not just dissemination
My View of SDMX

- It is a surprisingly good conceptual model for statistical metadata and data and their dissemination
  - and for statistical processes
  - a tribute to the designers and the use-case specifiers
  - and I think it has very useful aspects for the whole statistical process
  - it is not really very focussed on “exchange”
  - to manage exchange of data and metadata you need a good model to provide a framework
Why is SDMX important?

- National Statistical Offices need to describe, disseminate, share, relate, and manage their statistical information and processes.
  - Key to these activities is managing, publishing, and sharing metadata – concepts, category schemes, classifications, code-lists, structure definitions, processes.
    - In a way that makes it directly referencable and usable.
  - Actual data can then be shared and managed in this metadata context.
Why is SDMX important?

• SDMX addresses these requirements directly with
  – a comprehensive conceptual model managing these activities
  – standards for describing and storing metadata and data
  – standard interfaces for registering, querying, and exchanging them
  – and a basic set of tools to support these activities.
  – a sensible model so that developments can be shared
  – an environment to make it attractive for developers to produce new tools
Major SDMX Elements

- **Concept Schemes and Concepts**
  - Concepts are similar to 11179 Data Elements
  - Concepts are organised into Concept Schemes

- **Codelists and Codes**
  - Includes Classifications, but also other lists of codes
  - Always linked to a concept
  - Can be multi-level (hierarchical)

- **Structure Definitions**
  - Definitions of “conceptual” multi-dimensional cubes
  - Dimensions defined in terms of codelists
    - Plus “attributes” and “measures”
  - For data and reference metadata
    - Originally called “Key Families”
Major SDMX Elements

• **Datasets**
  – actual data structured as a subcube of the cube defined by a Data Structure Definition (DSD)
  – linked to the Data Structure Definition

• **Dataflows**
  – the collection of datasets associated with a Structure Definition

• **Providers and Provision Agreements**
  – groups and their agreements to provide datasets as part of a flow
Major SDMX Elements

• **Category Schemes and Categories**
  – indexes linked to dataflows or other elements
  – to provide basis for searching the data and metadata

• **Organisation Schemes and Organisations**
  – organisations own and maintain metadata and data and participate in exchanges

• **Reference Metadata**
  – non-structural information that can be attached to data (cells, groups of cells, dimensions, tables)
  – quality information, footnotes, comments by users, etc
  – held in Metadatasets, described by Metadata Structure Definitions, organised into Metadataflows
Major SDMX Elements

- Hierarchical Codelists
  - a misnomer – “hierarchical codelists” can be described adequately in Codelists
  - a model for describing complex codelist-code relationships
    - multiple alternative hierarchies
    - concordances amongst versions of classifications
    - evolution of classifications over process steps
  - potentially a good mechanism for managing related but not identical classifications
Major SDMX Elements

• **Processes**
  – a generic process structure not linked to any process automation tool
    • but potentially linkable to almost any tool
  – supports nested Process Steps, with
    • **Inputs and Outputs**
      – any SMDX artefact
    • **Computations**
      – descriptions and/or links to external process code
        • (eg a SAS module)
    • **Transitions**
      – conditions to organise the flow of the process from step to step
Major SDMX Elements

• **Structure Sets**
  - describes relationships between two or more Structure Definitions
  - potentially useful mechanism for additional identification of common aspects of dataflows

• **Reporting Taxonomies**
  - groups data or metadata flows for report assembly
  - eg. might link all the datasets that form a particular publication
Metadata and Managing the Statistical Process

• Most metadata management in statistical offices still occurs in separate areas
  – We manage questionnaire metadata, collection metadata, processing metadata, dissemination metadata, …
  – Often there are strong overlaps but we rarely capture this
  – We do not manage metadata holistically

• As a result attempts to model and manage the entire statistical process generally fail
  – Our processes remain discrete steps with user knowledge required to link them together
  – We have little ability to captured skilled knowledge and increase automation
Metadata and Managing the Statistical Process

• In National Statistical Offices the Statistical Process is a Manufacturing Process
  – what we publish is not just an aggregation of what we collect
    • for the International Organisations it often is just an aggregation
  
  – NSOs derive new variables, perform a variety of manipulations
    • and change and evolve the metadata
    • and produce new datasets described by the new metadata
  
  – key to managing the processes is managing the metadata evolution
    • capturing the processes and metadata changes
    • linking the datasets to the right metadata
SDMX and Statistical Process Management

• The SDMX elements give us the basic tools we need to do this
  – Codelists can describe our various classifications
  – Hierarchical Codelists can describe the evolution and change of classifications
  – Structure Sets can describe equivalences and associations across classifications
  – Processes can map where all the changes occur
    • where and why (and how) metadata evolution happens
    • where datasets and dataset metadata changes
SDMX and Statistical Process Management

• It is all in XML so we can manipulate it and use it
  – to link to the various systems
  – to automate processes
  – to develop common and shared tools
  – to capture knowledge that currently lives in people’s heads
SDMX and Statistical Process Management

• I see SDMX as providing a “metamodel” for the statistical process
  – we do not have to all agree on our statistical process model
  – we agree on our model for describing our statistical processes
    • out of that we get to extract and benefit from the many commonalities
      – while keeping the ability to cope with local differences
SDMX and Statistical Process Management

• Where are we at with this metamodel
  – I have had some discussions with ABS (Australian Bureau of Statistics)
    • by no means agreed on anything yet
  – ABS is hoping to organise a workshop later this year (March/April?)
    • to discuss the topic and see what progress can be made
    • hopefully with involvement from some other NSOs
      – interested participants could contact ABS
    • we want to expose the work to the SDMX community
  – I am developing my SDMX tool so that it can support the work
SDMX Manager

• A tool for interacting with your SDMX environment
  – Create, view, and edit SDMX structural artefacts
    • Concepts and Concept Schemes
    • Codelists
    • Categories and Category Schemes
    • Data Structure Definitions and Metadata Structure Definitions
    • Hierarchical Codelists
    • Processes
    • Structure Maps and Reporting Taxonomies
SDMX Manager

• A tool for interacting with your SDMX environment
  – Create, view, and edit Data and Metadata sets
    • based on the Structure Definition
    • produce templates for data capture or entry
      – eg Excel spreadsheet produced from DSD
      – enter data and save as SDMX-ML data set
    • look at all datasets registered for a DSD
      – display them singly or together in Excel or other viewers
      – manipulate and rotate the dimensions
SDMX Manager

• A tool for interacting with your SDMX environment
  – Full multi-lingual support
    • as many languages as you like
  – Full support for Annotations
    • with multi-lingual support
    • add them to existing artefacts
      – and to cells in datasets
  – Full SDMX version management
**SDMX Manager**

- **A tool for interacting with your SDMX environment**
  - Create Codelists (Classifications)
    - including multi-level classifications
  - Define Hierarchical Codelists
    - for complex classifications and classification evolution
    - select your “source” codelists
    - define new hierarchies based on source codelists
    - export hierarchies as conventional codelists
  - Define Processes
    - with multi-level sub-processes
    - with links to inputs and outputs
    - eg to old and new classifications, to datasets
    - capture transition rules and computational information
    - eg link to SAS code (or actual SAS code)
Concept: Labour productivity per person employed

SDMX Concept manager

Concept Scheme Id: EU_ECON
Concept Scheme Agency: RAPANEIA
Id: EU_ECON_GDP_PROD_PPE
Concept Version: 1
Languages: German, English, French

Name: Arbeitsproduktivität je Beschäftigten, Labour productivity per person employed, Productivité de la main-d’œuvre par personne occupée

Description: Das Bruttoinlandsprodukt (BIP) ist ein Maß für die wirtschaftliche Tätigkeit in einer Volkswirtschaft. Es ist definiert als Wert aller neu geschaffenen Waren und Dienstleistungen, abzüglich des Wertes aller dabei als Vorleistungen verbrauchten Güter und Dienstleistungen. Das BIP in Kaufkraftstandards (KKS) je Beschäftigten wird relativ zum Durchschnitt der Europäischen Union (EU-27) ausgedrückt. Ist der Indexwert eines Landes größer als 100, so hat dieses Land ein BIP pro Arbeitsproduktivität je Beschäftigten das der EU-27 entspricht. Der BIP pro Person ist eine Maßzahl für die wirtschaftliche Leistungsfähigkeit eines Landes und ist ein Maß für die wirtschaftliche Entwicklung eines Landes.

GDP in Purchasing Power Standards (PPS) per person employed relative to EU-27 (EU-27 = 100)

Gross domestic product (GDP) is a measure for the economic activity. It is defined as the value of all goods and services produced less the value of any goods or services used in their creation. GDP per person employed is intended to give an overall impression of the productivity of national economies expressed in relation to the European Union (EU-27) average. If the index of a country is higher than 100, this country’s level of GDP per person employed is higher than the EU average and vice versa.

Le produit intérieur brut (PIB) est une mesure de l’activité économique. Il est défini comme la valeur de tous les biens et services produits moins la valeur des biens et services utilisés dans leur création. Le PIB par emploi, exprimé par rapport à la moyenne de l’Union européenne (EU-27), est destiné à donner une impression d’ensemble de la productivité des économies nationales. Si l’indice d’un pays est supérieur à 100, le niveau du PIB par personne occupée pour ce pays est supérieur à la moyenne de
<table>
<thead>
<tr>
<th>Description</th>
<th>Code</th>
<th>Language</th>
<th>Code</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allgemeiner wirtschaftlicher Hintergrund</td>
<td>RAPANEACODELIST: General Economic Background</td>
<td>German</td>
<td>Wachstumsrate des 'ealen BIP</td>
<td>real GDP growth rate</td>
</tr>
<tr>
<td>GDP per capita in PPS</td>
<td>CL_EU_ECON_IND</td>
<td>English</td>
<td>Real GDP growth rate</td>
<td>Taux de croissance du PIB réel</td>
</tr>
<tr>
<td>PIB per habitant en SPA</td>
<td></td>
<td>English</td>
<td>GDP per capita in PPS</td>
<td>Taux de croissance du PIB réel</td>
</tr>
<tr>
<td>Labour productivity per person employed</td>
<td></td>
<td>English</td>
<td>Labour productivity per person employed</td>
<td>Productivité de la main-d'œuvre par occupée</td>
</tr>
<tr>
<td>Labour productivity per hour worked</td>
<td></td>
<td>English</td>
<td>Labour productivity per hour worked</td>
<td>Productivité de la main-d'œuvre par travail</td>
</tr>
<tr>
<td>Employment growth - total</td>
<td></td>
<td>English</td>
<td>Employment growth - total</td>
<td>Croissance de l'emploi - total</td>
</tr>
</tbody>
</table>
## Data Structure Definition: General Economic Background

<table>
<thead>
<tr>
<th>DSD Version</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Languages</td>
<td>German</td>
</tr>
<tr>
<td>Name</td>
<td>Allgemeiner wirtschaftlicher Hintergrund</td>
</tr>
<tr>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td></td>
</tr>
<tr>
<td>FREQ</td>
<td>Frequency</td>
</tr>
<tr>
<td>EU_CTRY</td>
<td>Country</td>
</tr>
<tr>
<td>EU_ECON_IND</td>
<td>General Economic Background</td>
</tr>
<tr>
<td>Time Dimension</td>
<td></td>
</tr>
<tr>
<td>TIME</td>
<td>Time</td>
</tr>
<tr>
<td>Primary Measure</td>
<td></td>
</tr>
<tr>
<td>OBS_VALUE</td>
<td>Observation Value</td>
</tr>
<tr>
<td>Cross-Sectional Measures</td>
<td></td>
</tr>
<tr>
<td>EU_ECON_GDP_PCPPS</td>
<td>GDP per capita in PPS</td>
</tr>
<tr>
<td>EU_ECON_GDP_RGR</td>
<td>Real GDP growth rate</td>
</tr>
<tr>
<td>EU_ECON_GDP_PROD_PPE</td>
<td>Labour productivity per person employed</td>
</tr>
<tr>
<td>EU_ECON_GDP_PROD_PHW</td>
<td>Labour productivity per hour worked</td>
</tr>
<tr>
<td>EU_ECON_EMP_GRWTH_TOT</td>
<td>Employment growth - total</td>
</tr>
<tr>
<td>EU_ECON_EMP_GRWTH_F</td>
<td>Employment growth - females</td>
</tr>
<tr>
<td>EU_ECON_EMP_GRWTH_M</td>
<td>Employment growth - males</td>
</tr>
<tr>
<td>EU_ECON_INF_RATE</td>
<td>Inflation rate</td>
</tr>
<tr>
<td>EU_ECON_LCG</td>
<td>Real unit labour cost growth</td>
</tr>
<tr>
<td>EU_ECON_PUB_BAL</td>
<td>Public balance</td>
</tr>
<tr>
<td>EU_ECON_GOV_DEBT</td>
<td>General government debt</td>
</tr>
</tbody>
</table>

### Attributes

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNIT</td>
<td>Measure Unit</td>
</tr>
<tr>
<td>EU_OBS_STATUS</td>
<td>Observation Status</td>
</tr>
</tbody>
</table>
### Data Structure Definition: General Economic Background

<table>
<thead>
<tr>
<th>Component</th>
<th>Language</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSD Version</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Languages</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time Dimension</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary Measure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cross-Sectional Measures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attributes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Languages**: German, English, French

**Name**: Allgemeiner wirtschaftlicher Hintergrund, General Economic Background, Contexte économique général

**Dimensions**: FREQ (Frequency), EU_CTRY (Country), EU_ECON_IND (General Economic Background)

**Time Dimension**: TIME (Time)

**Primary Measure**: OBS_VALUE (Observation Value)

**Cross-Sectional Measures**
- EU_ECON_GDP_PCPPS: GDP per capita in PPS
- EU_ECON_GDP_RGR: Real GDP growth rate
- EU_ECON_GDP_PROD_PPE: Labour productivity per person employed
- EU_ECON_GDP_PROD_PHW: Labour productivity per hour worked
- EU_ECON_EMP_GRWTH_TOT: Employment growth - total
- EU_ECON_EMP_GRWTH_F: Employment growth - females
- EU_ECON_EMP_GRWTH_M: Employment growth - males
- EU_ECON_INF_RATE: Inflation rate
- EU_ECON_LCG: Real unit labour cost growth
- EU_ECON_PUB_BAL: Public balance
- EU_ECON_GOV_DEBT: General government debt

**Attributes**
- UNIT: Measure Unit
- EU_OBS_STATUS: Observation Status

**Data Structure Definition properties**

- **Component**: EN
- **Properties**: Concept links, Annotations
- **Properties for Attribute concept UNIT**
  - Dimension/Attribute type
    - Frequency, Count, Non-observation time
  - Time format, Entity, Identity
- **Cross-sectional attachment**: Data set, Section, Group, Observation
- **Attribute attachment**: Mandatory, Attachment level
  - Dataset, Series, Group, Observation

**Actions**:
- Move up
- Move down
- Delete current
For each dimension select the dimension values for which data will be entered.

**DSD dimensions**
- Frequency
- Country
- General Economic Background

**Select all values required**
- Spain
- France
- Italy
- Cyprus
- Latvia
- Lithuania
- Luxembourg
- Hungary
- Malta
- Netherlands

**Select default values for attributes**
- Measure Unit

**Coded attribute - select default value**
- Euro

**Attachment level**
- DataSet
- Group
- Series
- Observation

**Information is incomplete - click here for details**

**Dimension done**
<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td></td>
<td>General Economic Background - Country: Latvia -</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Frequency: Annual</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>GDP per capita in PPS</td>
<td>2007</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>Real GDP growth rate</td>
<td>2008</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>Labour productivity per person employed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>Labour productivity per hour worked</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>Employment growth - total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>Employment growth - females</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>Employment growth - males</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>Inflation rate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>Real unit labour cost growth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td>Public balance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>General government debt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>Estimated value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td>Forecast value</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Header details for Structure: EU Economic Indicators.xml

**Name:** 69  
**Id:** Rapanea_EU_01

### Attributes for DSD

<table>
<thead>
<tr>
<th>Id</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU_GEN_ECON</td>
<td>1</td>
</tr>
</tbody>
</table>

**Datasets linked to selected DSD:**
- General Economic Background - France - Annu
- General Economic Background - United Kingdom
- General Economic Background - Latvia - Annu
- General Economic Background - Czech Republic
- General Economic Background - Bulgaria - Annu
- General Economic Background - Germany - Annu

- Display selected dataset(s)
- Enter data for DSD
- Display in Excel
- Display in form
<table>
<thead>
<tr>
<th>Year</th>
<th>France</th>
<th>United Kingdom</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1995</td>
<td>115.2</td>
<td>81.6</td>
</tr>
<tr>
<td>1996</td>
<td>115.6</td>
<td>83.1</td>
</tr>
<tr>
<td>1997</td>
<td>115.3</td>
<td>116.7</td>
</tr>
<tr>
<td>1998</td>
<td>115.5</td>
<td>116.4</td>
</tr>
<tr>
<td>1999</td>
<td>115.2</td>
<td>116.2</td>
</tr>
<tr>
<td>2000</td>
<td>115.8</td>
<td>117.4</td>
</tr>
<tr>
<td>2001</td>
<td>116.2</td>
<td>118.1</td>
</tr>
<tr>
<td>2002</td>
<td>116.5</td>
<td>118.9</td>
</tr>
<tr>
<td>2003</td>
<td>116.3</td>
<td>120.2</td>
</tr>
<tr>
<td>2004</td>
<td>116.2</td>
<td>121.8</td>
</tr>
<tr>
<td>2005</td>
<td>116.5</td>
<td>119.8</td>
</tr>
<tr>
<td>2006</td>
<td>116.1</td>
<td>119.2</td>
</tr>
<tr>
<td>2007</td>
<td>115.8</td>
<td>120.0</td>
</tr>
<tr>
<td>2008</td>
<td>115.6</td>
<td>120.3</td>
</tr>
</tbody>
</table>

General Economic Background

GDP per cap, Real GDP, Labour per cap, Labour productivity, Employment, Employment, Employment, Inflation rate, Real unit labour, Public balance, General government deficit.
## General Economic Background

<table>
<thead>
<tr>
<th>Time</th>
<th>GDP per capita in PPS</th>
<th>Real GDP growth rate</th>
<th>Labour productivity per person employed</th>
<th>Labour productivity per hour worked</th>
<th>Employment growth - total</th>
<th>Employment growth - females</th>
<th>Employment growth - males</th>
<th>Inflation rate</th>
<th>Real unit labour cost growth</th>
<th>Public balance</th>
<th>General government debt</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>France</td>
<td>United Kingdom</td>
<td>Germany</td>
<td>112.7</td>
<td>0.9</td>
<td>1.1</td>
<td>0.7</td>
<td>-0.4</td>
<td>-5.5</td>
<td>-5.8</td>
<td>54.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>81.6</td>
<td>1.2</td>
<td>1.1</td>
<td>1.3</td>
<td>-1.2</td>
<td>-5.8</td>
<td>-3.2</td>
<td>51.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>111.9</td>
<td>0.2</td>
<td>1</td>
<td>-0.3</td>
<td>0</td>
<td>0</td>
<td>-3.2</td>
<td>57</td>
</tr>
</tbody>
</table>
Hierarchical Codelist: Test Hierarchical Codelist

SDMX Hierarchical Codelist manager

Agency Id: OECD_CORPORATE
Id: TEST_HC_1
Hierarchical Codelist Version: 1
Languages: English
Name: Test Hierarchical Codelist
Description:

Input codelists

<table>
<thead>
<tr>
<th>Alias</th>
<th>Codelist name</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Members</td>
<td>OECD member countries</td>
<td>2</td>
</tr>
<tr>
<td>Candidates</td>
<td>Countries in accession process</td>
<td>1</td>
</tr>
<tr>
<td>Potentials</td>
<td>Countries offered enhanced engagement</td>
<td>1</td>
</tr>
<tr>
<td>Categories</td>
<td>Country categories</td>
<td></td>
</tr>
<tr>
<td>Indicators</td>
<td>General Economic Background</td>
<td></td>
</tr>
</tbody>
</table>

Hierarchies

<table>
<thead>
<tr>
<th>Id</th>
<th>Hierarchy name</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>H_ALL_CNTRY</td>
<td>All OECD Countries</td>
<td>1</td>
</tr>
<tr>
<td>H_ALL_CNTRY_FLAT</td>
<td>All countries - flat list</td>
<td>1</td>
</tr>
</tbody>
</table>
### Hierarchical Codelist: Test Hierarchical Codelist

#### Hierarchy: All OECD Countries

<table>
<thead>
<tr>
<th>Code Ref</th>
<th>Codelist alias</th>
<th>Code</th>
<th>Code alias</th>
<th>Code description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Categories</td>
<td>M</td>
<td>Members</td>
<td>Australia</td>
</tr>
<tr>
<td>0.0</td>
<td>Members</td>
<td>AU</td>
<td>Members</td>
<td>Australia</td>
</tr>
<tr>
<td>0.1</td>
<td>Members</td>
<td>AT</td>
<td>Members</td>
<td>Austria</td>
</tr>
<tr>
<td>0.2</td>
<td>Members</td>
<td>BE</td>
<td>Members</td>
<td>Belgium</td>
</tr>
<tr>
<td>0.3</td>
<td>Members</td>
<td>CA</td>
<td>Members</td>
<td>Canada</td>
</tr>
<tr>
<td>0.4</td>
<td>Members</td>
<td>CZ</td>
<td>Members</td>
<td>Czech Republic</td>
</tr>
<tr>
<td>0.5</td>
<td>Members</td>
<td>DK</td>
<td>Members</td>
<td>Denmark</td>
</tr>
<tr>
<td>0.6</td>
<td>Members</td>
<td>FI</td>
<td>Members</td>
<td>Finland</td>
</tr>
<tr>
<td>0.7</td>
<td>Members</td>
<td>FR</td>
<td>Members</td>
<td>France</td>
</tr>
<tr>
<td>0.8</td>
<td>Members</td>
<td>DE</td>
<td>Members</td>
<td>Germany</td>
</tr>
<tr>
<td>0.9</td>
<td>Members</td>
<td>GR</td>
<td>Members</td>
<td>Greece</td>
</tr>
<tr>
<td>0.10</td>
<td>Members</td>
<td>HU</td>
<td>Members</td>
<td>Hungary</td>
</tr>
<tr>
<td>0.11</td>
<td>Members</td>
<td>IS</td>
<td>Members</td>
<td>Iceland</td>
</tr>
<tr>
<td>0.12</td>
<td>Members</td>
<td>IE</td>
<td>Members</td>
<td>Ireland</td>
</tr>
<tr>
<td>0.13</td>
<td>Members</td>
<td>IT</td>
<td>Members</td>
<td>Italy</td>
</tr>
<tr>
<td>0.14</td>
<td>Members</td>
<td>JP</td>
<td>Members</td>
<td>Japan</td>
</tr>
<tr>
<td>0.15</td>
<td>Members</td>
<td>KR</td>
<td>Members</td>
<td>Korea</td>
</tr>
</tbody>
</table>

#### Levels

<table>
<thead>
<tr>
<th>Order</th>
<th>Level name</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CAT</td>
<td>Country category</td>
</tr>
</tbody>
</table>

#### Code References

<table>
<thead>
<tr>
<th>Code Ref</th>
<th>Category</th>
<th>Code</th>
<th>Code alias</th>
<th>Code description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>Candidates</td>
<td>CL</td>
<td></td>
<td>Chile</td>
</tr>
<tr>
<td>1.1</td>
<td>Candidates</td>
<td>FE</td>
<td></td>
<td>Estonia</td>
</tr>
</tbody>
</table>

#### Hierarchy Properties

- **Hierarchy**: Selectable options: Members, Candidates, Potentials, Categories
- **Language**: EN
- **Add new codes**: Options include Restructure codes, Languages, Add to current
- **Available codelists**: Brazil, China, India, Indonesia, South Africa
- **Available codes**: Brazil, China, India, Indonesia, South Africa

- **Append**
- **Insert before current**
- **Insert after current**
- **Insert subordinate to current**
SDMX Manager

- Still under development
  - I am keen to get trial users
    • and to develop to meet user requirements

- Not a free product
  - I am not employed and paid by any organisation
    • I need income to develop and maintain
  - but not very expensive
Thank you

• Questions?

• Contact me for any follow-up questions
  BryanMFitzpatrick@Yahoo.CO.UK