An application of GSIM at Statistics Canada

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Delivering insight through data, for a better Canada
Outline

- GSIM as a framework for our reference models
- An synopsis of our implementation process
- Snapshots of our Picasso application
- Benefits of using the GSIM model
Layers of our Information Architecture

Reference model: GSIM

Entity roadmap:
Semantic model

Logical model

Physical model
Entity roadmap

- Models Statistics Canada’s core statistical entities
- Maps main concepts needed to conduct statistical activities
- Is designed to align with GSIM objects, sometimes with our own internal names
  - Data Asset for GSIM Dataset, Survey for GSIM Statistical Program
- Broken down into domains at the logical level
  - Variable domain, Data Asset domain, Survey/Statistical Activity domain, etc.
Entity Roadmap

Value domain logical model

Elements that are part of GSIM Concept group
Entity Roadmap

Elements that are part of GSIM Business group

Statistical activity domain logical model
Elements that are part of GSIM Concept group
↓↓
Variable domain logical model
GSIM Concept Group

Variable Domain Logical Model

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Variable domain logical model

Links with other domains, Value Domain in this case
Overview of the process

Logical Model -> User Stories
Logical Model -> Physical Model
Physical Model -> Operation Definitions
Physical Model -> UX Designs
Physical Model -> Data Access Layer
Data Access Layer -> Web Services
Data Access Layer -> UX Implementation
UX Implementation -> UX Designs
## Operations Definition: Variable

<table>
<thead>
<tr>
<th>Operation name</th>
<th>Return type</th>
<th>Parameters</th>
</tr>
</thead>
</table>
| getVariable                     | Variable[0..1]                           | String id  
Boolean[0..1] includeAssociatedTombstones  
ParamList[0..1] adminFilters  
ParamList[0..1] otherFilters  
String [0..1] contextId  
Boolean[0..1] includeAllContexts |
| getRepresentedVariable          | RepresentedVariable[0..1]                |                                                                            |
| getVariableSummaries            | VariableSummary[0..n]                    | Date[0..1] updatedAfter  
String[0..1] nameSubstring  
ParamList[0..1] adminFilters  
ParamList[0..1] otherFilters  
String [0..1] contextId  
Boolean[0..1] includeAllContexts |
| getRepresentedVariableSummaries | RepresentedVariableSummary[0..n]         |                                                                            |
| getVariableSeries               | VariableSeriesTombstone[0..n]            | String seriesId  
ParamList[0..1] adminFilters  
ParamList[0..1] otherFilters  
String [0..1] contextId  
Boolean[0..1] includeAllContexts |
| getRepresentedVariableSeries    | RepresentedVariableSeriesTombstone[0..n] |                                                                            |
Picasso Application

- Picasso is Statistics Canada’s one stop portal
- Enables management of data and statistical metadata
- A tool for search and discovery of data assets and statistical metadata
- Standards/frameworks
  - Is built on GSIM for data and statistical metadata
  - Uses ISO-11179 standard for the registration process
  - Uses Prov-O terms for tracking provenance information
Picasso: Search results for Wage

Results

Refine

Search results by entity type
- Concept
- Unit type
- Variable
- Survey
- Universe
- Statistical program
- Classification
- Questionnaire
- Data holding
- Data asset

Results

wage

Search the Administrative Data Inventory only

Results - wage

Variable - Hourly wage of location - 1.0
2019-Sep-1 to current

Variable - Weekly wage of employed person - 1.0
0001-Jan-01 to 0001-Jan-01

Variable - Hourly wage of employed person - 1.0
2019-Oct-1 to current
Picasso: Weekly wage of employed person

**Weekly wage of employed person**

**Description**
Weekly wage refers to the usual wages or salaries of an employee at his or her main job for a week. Respondents are asked to report their wage/salary before taxes and other deductions, and include tips, commissions and bonuses.

**Employed person** refers to those who, during the reference period, had a labour force status of "employed". That is, those who, during the reference period: (a) did any work at all at a job or business, that is, paid work in the context of an employer-employee relationship, or self-employment. This also includes persons who did unpaid family work, which is defined as unpaid work contributing directly to the operation of a farm, business or professional practice owned and operated by a related member of the same household; or (b) had a job but were not at work due to factors such as their own illness or disability, personal or family responsibilities, vacation or a labour dispute. This category excludes persons not at work because they were on layoff or between casual jobs, and those who did not then have a job (even if they had a job to start at a future date).

**Effective period**
0001-Jan-01 to current
**Picasso: Classification of Weekly wage rate**

<table>
<thead>
<tr>
<th>Concept</th>
<th>Unit type</th>
<th>Classifications/Measures</th>
<th>Represented variables</th>
<th>Data holdings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Weekly wage rate</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Weekly wage of employed person**

<table>
<thead>
<tr>
<th>Name</th>
<th>Version</th>
<th>Effective period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekly wage rate</td>
<td>1.0</td>
<td>2019-Oct-01 to current</td>
</tr>
</tbody>
</table>
Picasso: Classification Structure of Weekly wage rate
Using the GSIM model

- Harmonization of our statistical metadata
- Interpretability and coherence
  - Common language leads to common solution
- Interoperability with the development of web services
- Increase of the visibility of our administrative data
  - Solid framework for representing our administrative data
- Links to standards like DDI and SDMX, used for our micro and aggregate data
- Mapping objects can be a challenge
  - Definitions, descriptive texts, examples, the community are helpful
Thank you!

Questions?