Developing a Metadata Application Profile for the Daily Hire Labour

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Problem Background

Approach to find a solution to the problem

Me4MAP
  - Use Cases
  - Functional Requirements
  - Domain Model
  - Description Set Profile (Constraints Matrix)

Future Work
Informal Sector Economy

- Unorganised sector
- Economic activities that are not covered by formal arrangements such as taxation, labor protections, minimum wage regulations, unemployment benefits etc.
- Need exposure to society to gain a better livelihood.
Informal Sector Economy

The informal employment has been rising in African and Asian countries and falling in South American and European countries.

Approach

- Linked Open Data (LOD) provides way:
  - to portray the skills of the informal sector labor – make them more visible in the digital world
  - to establish the connection between labor / labor associations and common people.
  - for the informal sector to contribute to the development of a country like India.
Approach

- Linked Open Data (LOD) provides way:
  - to portray the skills of the informal sector labor – make them more visible in the digital world
  - to establish the connection between labor / labor associations and common people.
  - for the informal sector to contribute to the development of a country like India.

- A metadata application profile (MAP) is a
  - “generic construct for designing metadata records” (Coyle & Baker, 2009)
  - model used to identify the metadata elements for a particular domain or application as well the constraints over the data of LOD.
  - according to Nilsson, Baker, & Johnston (2008), a MAP is a construct that enhances interoperability.
EMPOWER SSE is developing a MAP (*DH-MAP: Daily Hire-Metadata Application Profile*) for the informal sector to be interoperable with:

- the world SSE community (see Curado Malta, Baptista, & Parente, 2015));
- the economic agents of the market economy.
EMPOWER SSE is developing a MAP (DH-MAP: Daily Hire-Metadata Application Profile) for the informal sector to be interoperable with:

- the world SSE community (see Curado Malta, Baptista, & Parente, 2015));
- the economic agents of the market economy.

DH-MAP will provide a way to publish LOD with information that describes the workers (or groups of workers) and their interactions with the clients.
Me4MAP: a method for the development of metadata application profiles.

- use cases definition
- functional requirements identification
- domain model definition
- DSP definition
Step 1: Use Cases
(some examples)
John, a 61 years old man leaving in West Bengal, India, needs to travel to Asansol from Durgapur and return within four hours. He requires this service on the 12th of April, 2018 between 3PM and 7PM. John owns a car (four wheels) and needs a driver to do this service. The criteria John sets for the driver are:

- The driver should have a minimum of 5 years of experience.
- The driver should speak the local language (i.e., Bengali).
- The hourly payment of the driver should be not more than 200 Rs.
Sam needs a local plumber urgently since he has a leaking pipe at home. The criteria he sets for the plumber are:

- The plumber must leave near Sam’s house.
- The payment per visit should be within 100 Rs.
- The plumber should have good employer rating.
- The plumber should be a male person.
A family, which is transferred recently to West Bengal, requires a lady babysitter urgently for their one-year-old baby for the whole day. The criteria, the family sets for the babysitter are:

- The babysitter age should be within 55 yrs.
- The babysitter should reside within the city where the family lives in.
- The babysitter must have 10 years of experience.
- The monthly payment should be no more than Rs 6000.
- The language preference for the babysitter is the local language (i.e., Bengali).
- The babysitter may or may not belong to a group.
An apartment is being constructed and a group of 10 electricians is needed. The criteria for this purpose are:

- They must have a minimum of 2 years of experience.
- All the electricians should leave in the same place, preferably in the same district.
Step 2: Functional Requirements
# Functional Requirements - sample

<table>
<thead>
<tr>
<th>Req. No.</th>
<th>Requirement Statement (The MAP should .. )</th>
<th>Derived From</th>
</tr>
</thead>
<tbody>
<tr>
<td>FR01</td>
<td>have Worker and Employer entity. Employer entity performs the task of job provider and Worker solves the task of job seeker.</td>
<td>U.C. 1, 2, 3</td>
</tr>
<tr>
<td>FR02</td>
<td>have all the information about Worker such as name, address, experience etc. So that it fulfills the employer’s requirement.</td>
<td>U.C. 1, 2, 3</td>
</tr>
<tr>
<td>FR03</td>
<td>have a Worker group entity and all the information about Worker group.</td>
<td>U.C. 4</td>
</tr>
<tr>
<td>FR04</td>
<td>relate a Worker with a Worker group and vice-versa.</td>
<td>U.C. 3</td>
</tr>
<tr>
<td>FR05</td>
<td>enables Search of the profiles according to Skill, Locality, Experience, Worker, Worker group.</td>
<td>U.C. 1, 2, 3, 4</td>
</tr>
<tr>
<td>FR06</td>
<td>supports addition of Skill Types (Electrician, plumbing etc.) to establish a well set of a network of skilled workers.</td>
<td>U.C. 1, 2, 3</td>
</tr>
<tr>
<td>FR07</td>
<td>have appointment entity to fix the connection between Employer and Worker or Employer and Worker group.</td>
<td>U.C. 1, 2, 3, 4</td>
</tr>
<tr>
<td>FR08</td>
<td>have an Address entity to store detail address of Employer, Worker, Worker group, and should relate all these entities.</td>
<td>U.C. 2, 3, 4</td>
</tr>
</tbody>
</table>
Step 3: Domain Model
Step 4: Description Set Profile (Constraints Matrix)
<table>
<thead>
<tr>
<th>Attribute</th>
<th>Original Name</th>
<th>Label</th>
<th>Namespace</th>
<th>Property Name</th>
<th>Description</th>
<th>Original Domain</th>
<th>Original Range</th>
<th>Domain in the MAP</th>
<th>Range in the MAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>name</td>
<td>juso</td>
<td>name</td>
<td>The Name of the worker</td>
<td>juso:SpatialThing</td>
<td>xsd:string</td>
<td>dh:Person</td>
<td>xsd:string</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>gender</td>
<td>bbccore</td>
<td>gender</td>
<td>Male/Female specification</td>
<td>bbccore:Person</td>
<td>Unspecified</td>
<td>dh:Person</td>
<td>xsd:string</td>
<td></td>
</tr>
<tr>
<td>Birthday</td>
<td>Birth date</td>
<td>v</td>
<td>bday</td>
<td>The birthday date of a given worker</td>
<td>Unspecified</td>
<td>xsd:dateTime; xsd:dateTime; xsd:gYear</td>
<td>dh:Person</td>
<td>xsd:date</td>
<td></td>
</tr>
<tr>
<td>Image</td>
<td>image</td>
<td>foaf</td>
<td>img</td>
<td>The Photo image of the worker</td>
<td>foaf:person</td>
<td>foaf:Image</td>
<td>dh:Person</td>
<td>non-literal</td>
<td></td>
</tr>
<tr>
<td>Experience in years</td>
<td>years duration</td>
<td>time</td>
<td>years</td>
<td>The Experience in years of the skill of the worker</td>
<td>GeneralDurationDescription</td>
<td>xsd:decimal</td>
<td>dh:Worker</td>
<td>literal</td>
<td></td>
</tr>
<tr>
<td>Has certification</td>
<td>Has certification</td>
<td>acrt</td>
<td>acrt:hasCertification</td>
<td>The certification details in skill if present possessed by the worker</td>
<td>foaf:Agent</td>
<td>acrt:Certification</td>
<td>dh:Worker</td>
<td>acrt:Certification</td>
<td></td>
</tr>
<tr>
<td>Has Place Preference</td>
<td>has Place Preference</td>
<td>v</td>
<td>locality</td>
<td>The Place Preference of the worker where he prefers working.</td>
<td>unspecified</td>
<td>non-literal</td>
<td>dh:Worker</td>
<td>xsd:string, <a href="http://purl.org/dc/terms/TGN">http://purl.org/dc/terms/TGN</a></td>
<td></td>
</tr>
</tbody>
</table>
Future Work

- Finish the constraints matrix and test it with some real data
- To identify the Vocabulary Controlled Schemes (VES) that need to be developed (e.g. Skill type)
- To code the MAP using SHEX.
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