



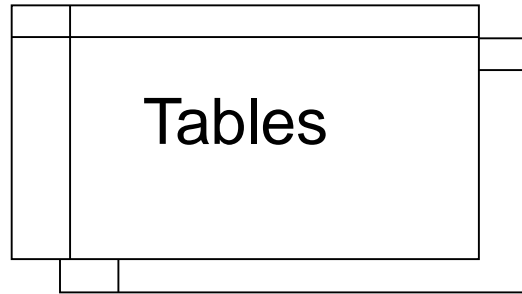
Automated geoservice generation

Using Table Joining Service, SDMX tables and INSPIRE grids

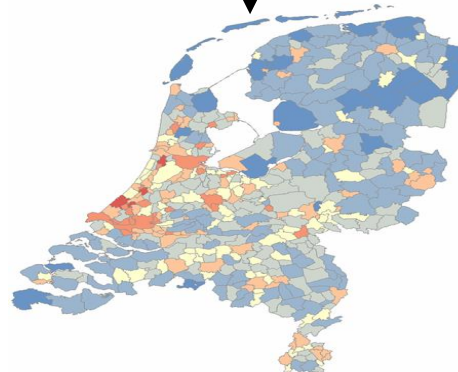
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17 October 2018

What's the problem?



Geoservices



Content

- Background
- Approach
- Result
- Future
- Conclusions



Background



Background

- INSPIRE
- ELF
- 2 Eurostat Grants

- Geostat 3



Geostat 3

- Show best practice for the Global Statistical Geospatial Framework (GSGF)
- By using:
 - INSPIRE SDMX tables (INSPIRE PD)
 - 1 km² grid OGC INSPIRE web service (SU-grid)
 - using Table Joining Services (TJS)
- Create online statistical maps for the future 2021 census.



Approach



Approach

- Harmonize grid into INSPIRE Statistical Units
- Publish grid as geoservice

- Eurostat designed SDMX DSD for INSPIRE theme Population Distribution
- Convert CSV's with grid data into SDMX

- Create a TJS
- Join both and publish geoservices



Geoservice LAEA 1km2 INSPIRE SU-grid



<http://geodata.nationaalgeoregister.nl/inspire/su-grid/wms?&request=GetCapabilities>

In a browser

[http://geodata.nationaalgeoregister.nl/inspire/su-grid/wms?request=GetMap&CRS=epsg:3035& width=1500&Height=2000&layers=SU.StatisticalGridCell&Format=image/png&bbox=250000,1600000,5500000,5600000](http://geodata.nationaalgeoregister.nl/inspire/su-grid/wms?request=GetMap&CRS=epsg:3035&width=1500&Height=2000&layers=SU.StatisticalGridCell&Format=image/png&bbox=250000,1600000,5500000,5600000)



SDMX tables INSPIRE PD

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- Created with SDMX Converter v4.5.0 -->
- <message:StructureSpecificData xsi:schemaLocation="http://www.SDMX.org/resources/SDMXML/schemas/v2_0/message
SDMXMessage.xsd urn:sdmx:org.sdmx.infomodel.datastructure.DataStructure=ESTAT:CENSUS-
GRID:1.0:ObsLevelDim:TIME_PERIOD ESTAT_CENSUS-GRID_StructureSpecific.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:cen="urn:sdmx:org.sdmx.infomodel.datastructure.DataStructure=ESTAT:CENSUS-GRID:1.0:ObsLevelDim:TIME_PERIOD"
xmlns:common="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/common"
xmlns:message="http://www.sdmx.org/resources/sdmxml/schemas/v2_1/message">
- <message:Header>
  <message:ID>geostat3testSDMX2</message:ID>
  <message:Test>true</message:Test>
  <message:Truncated>true</message:Truncated>
  <message:Prepared>2018-03-13T15:29:49.546+01:00</message:Prepared>
- <message:Sender id="NL1">
  <message:Name xml:lang="en">Statistics Netherlands</message:Name>
  - <message:Contact>
    <message:Name xml:lang="en">Pieter Bresters</message:Name>
    <message:Department xml:lang="en">Regio en Ruimte</message:Department>
    <message:Role xml:lang="en">GIS Specialist</message:Role>
    <message:Telephone>0031703374521</message:Telephone>
  </message:Contact>
</message:Sender>
+ <message:Receiver id="test">
+ <message:Structure dimensionAtObservation="TIME_PERIOD" structureID="ESTAT_CENSUS-GRID_1_0">
</message:Header>
- <message:DataSet structureRef="ESTAT_CENSUS-GRID_1_0" dataScope="DataStructure">
- <cen:Series MEASURE="populationAtResidencePlace" STAT="CL_STAT" GM_SURFACE="GRD_ID" FREQ="A">
  <cen:Obs OBS_STATUS="A" OBS_VALUE="OBS_VALUE" PERIOD_OF_REFERENCE="YEAR"/>
</cen:Series>
- <cen:Series MEASURE="populationAtResidencePlace" STAT="T" GM_SURFACE="NL_CRS3035RES1000mN3079000E4028000"
FREQ="A">
  <cen:Obs OBS_STATUS="A" OBS_VALUE="2" PERIOD_OF_REFERENCE="2012"/>
</cen:Series>
- <cen:Series MEASURE="populationAtResidencePlace" STAT="T" GM_SURFACE="NL_CRS3035RES1000mN3079000E4032000"
FREQ="A">
  <cen:Obs OBS_STATUS="A" OBS_VALUE="14" PERIOD_OF_REFERENCE="2012"/>
</cen:Series>
- <cen:Series MEASURE="populationAtResidencePlace" STAT="T" GM_SURFACE="NL_CRS3035RES1000mN3079000E4033000"
FREQ="A">
```

Table Joining Service

Swagger

https://geodata.nationaalgeoregister.nl/

Explore

Table Joining Service API

TJS API

activate

Show/Hide | List Operations | Expand Operations

deactivate

Show/Hide | List Operations | Expand Operations

info

Show/Hide | List Operations | Expand Operations

join

Show/Hide | List Operations | Expand Operations

POST /join

Joins data with spatial data

Implementation Notes

A datasource without a spatial component is joined with a dataset containing a geometry, from which OGC services are generated.

Parameters

Parameter	Value	Description	Parameter Type	Data Type
serviceconfig	<input type="text"/>		body	Model Example Value

Parameter content type:

```
{
  "datasetname": "string",
  "fileurl": "string",
  "spatialdataset": "su-grid"
}
```

Response Messages

HTTP Status Code	Reason	Response Model	Headers
200	Join response		
default	unexpected error	Model Example Value	

```
{
  "status": "string"
}
```

Try it out!



Result



Result

Response Body

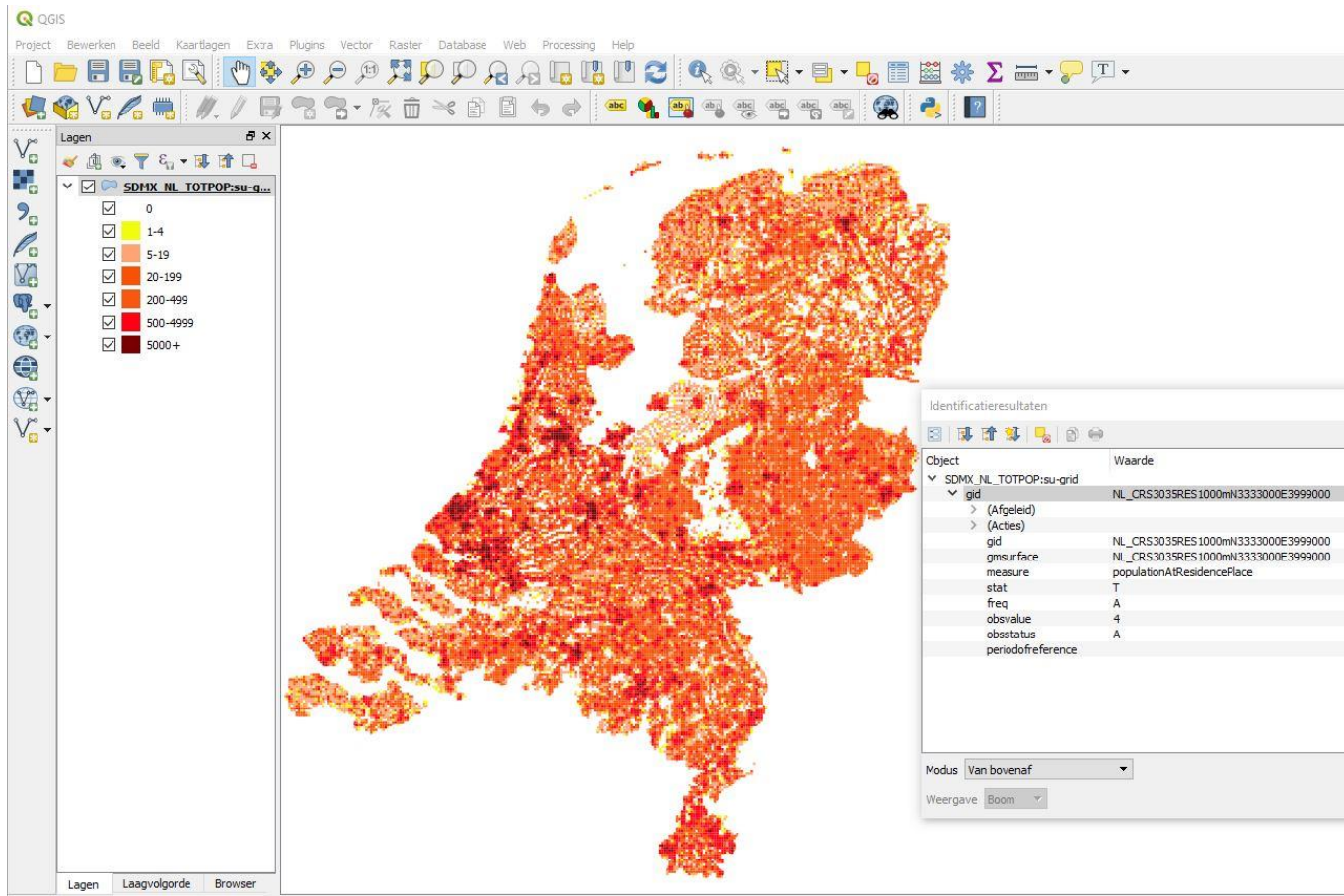
```
{  
  "status": "activated",  
  "wms": "https://geodata.nationaalgeoregister.nl/tjs/v1/dataset/SDMX_NL_TOTPOP/wms?",  
  "wfs": "https://geodata.nationaalgeoregister.nl/tjs/v1/dataset/SDMX_NL_TOTPOP/wfs?"  
}
```

Response Code

200



Result



Result



Future



Future

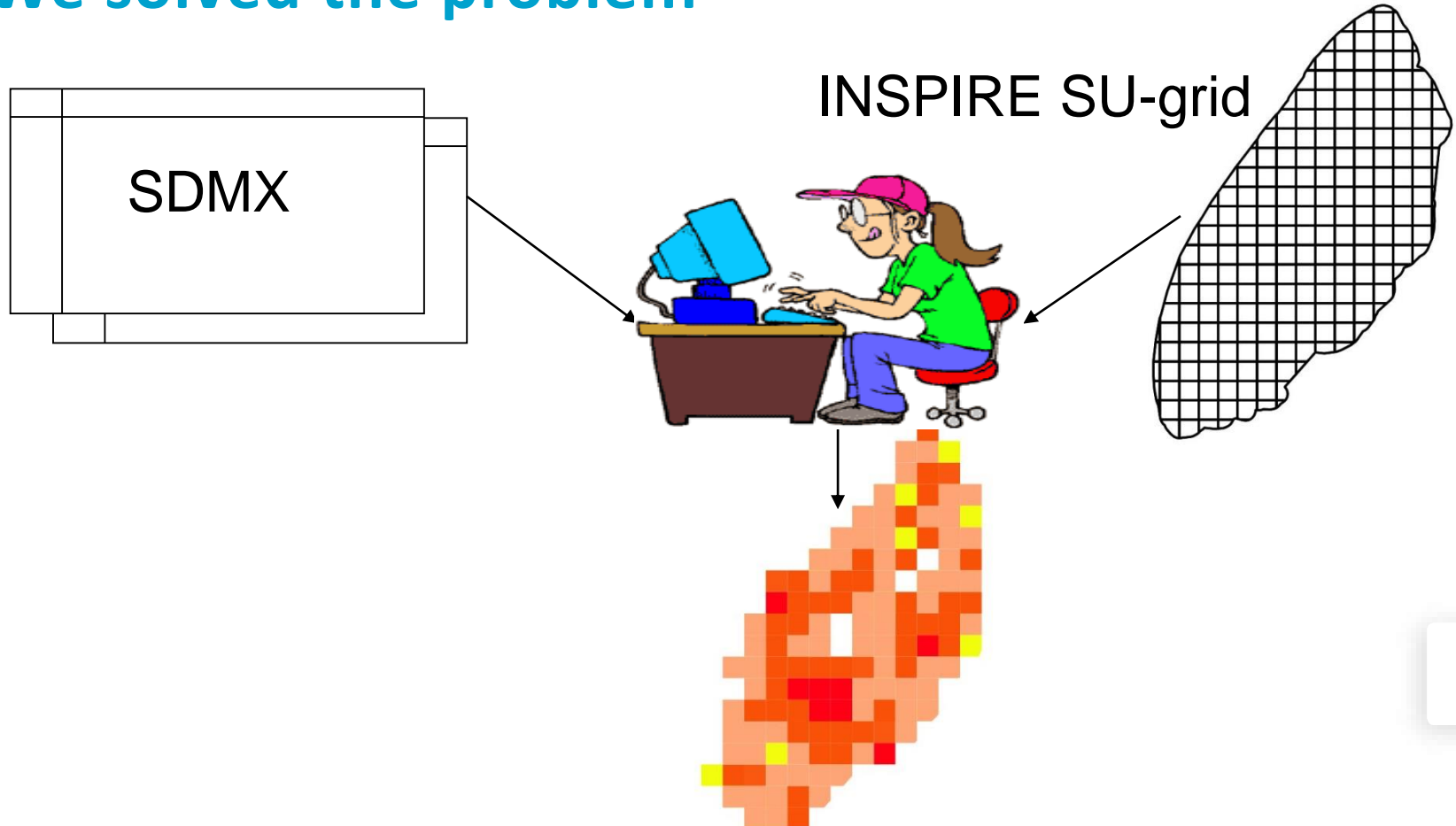
- Expand functionality:
 - More input formats (CSV, Odata, other SDMX DSD's)
 - More reference geometry
 - More reporting on results (nr of mismatches)
 - Login with user accounts
- Adjust to new OGC standard for TJS
- Solution border pixels and multiple values?
- We need a central European approach

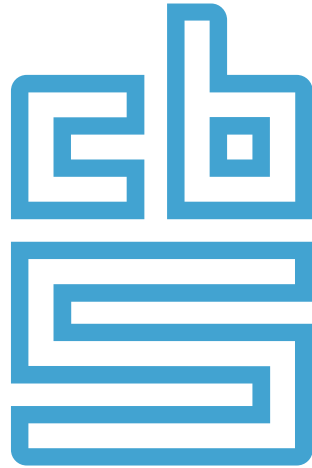


Conclusions

- It works and the performance is better than expected
- It follows GSGF principles
 - using standards like INSPIRE data models, OGC and SDMX,
 - storing data only once and leaving data at its source,
 - using common geographies: SU-grid,
 - publishing machine to machine readable data.
- We need a central European approach

We solved the problem





Facts that matter