Implementing INSPIRE services without commercial software

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Contents

- Background
- ELF project
- Data harmonisation
  - SQL views
  - ELF Loader
- Publishing services with deegree
- Conclusion

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Background

- National Land Survey of Finland participated the **European Location Framework** (ELF) project 2013-2016
  - INSPIRE compliant pilot download services for 11 themes
  - The final INSPIRE services will be built based on ELF services

- **Finnish National Spatial Data Strategy** (2016) strongly encourages public sector to use open source solutions

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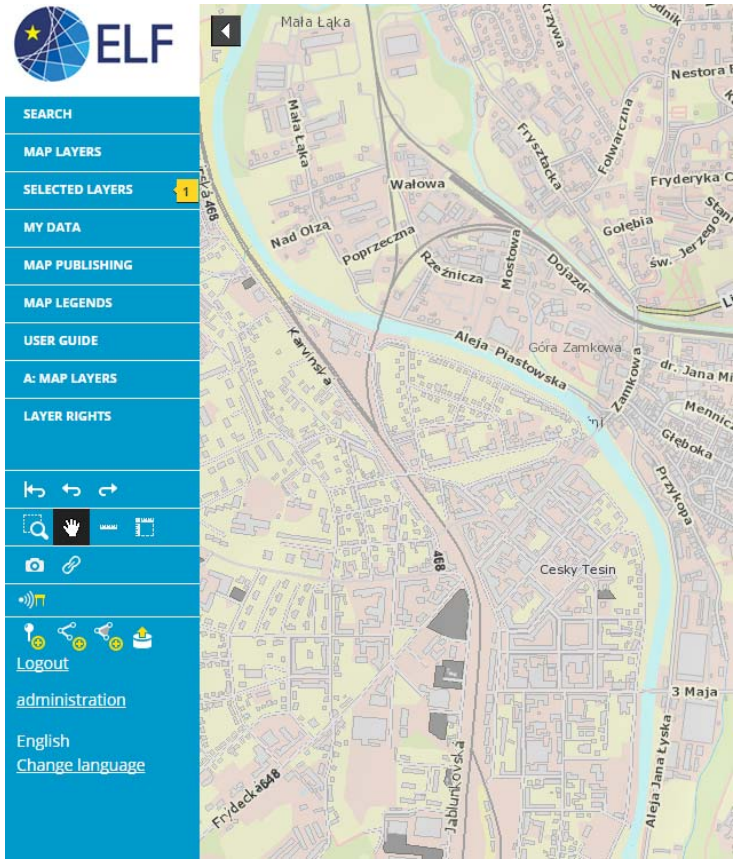
ELF project

- Project time: March 2013 – October 2016

- Goal:
  - Deliver a pan-European cloud platform and web services to build on the INSPIRE Directive
  - Enable access to harmonised data in cross border applications.



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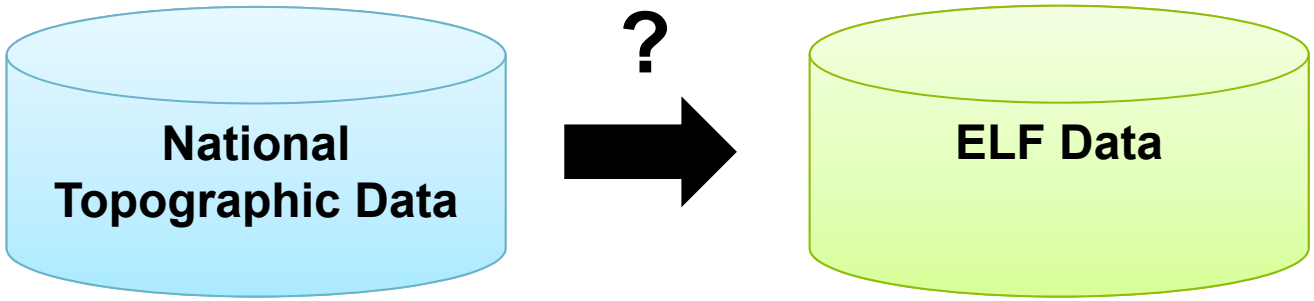
Data harmonisation

- There are great software available:

Open source

Commercial

- But we didn't want to be dependent on any software



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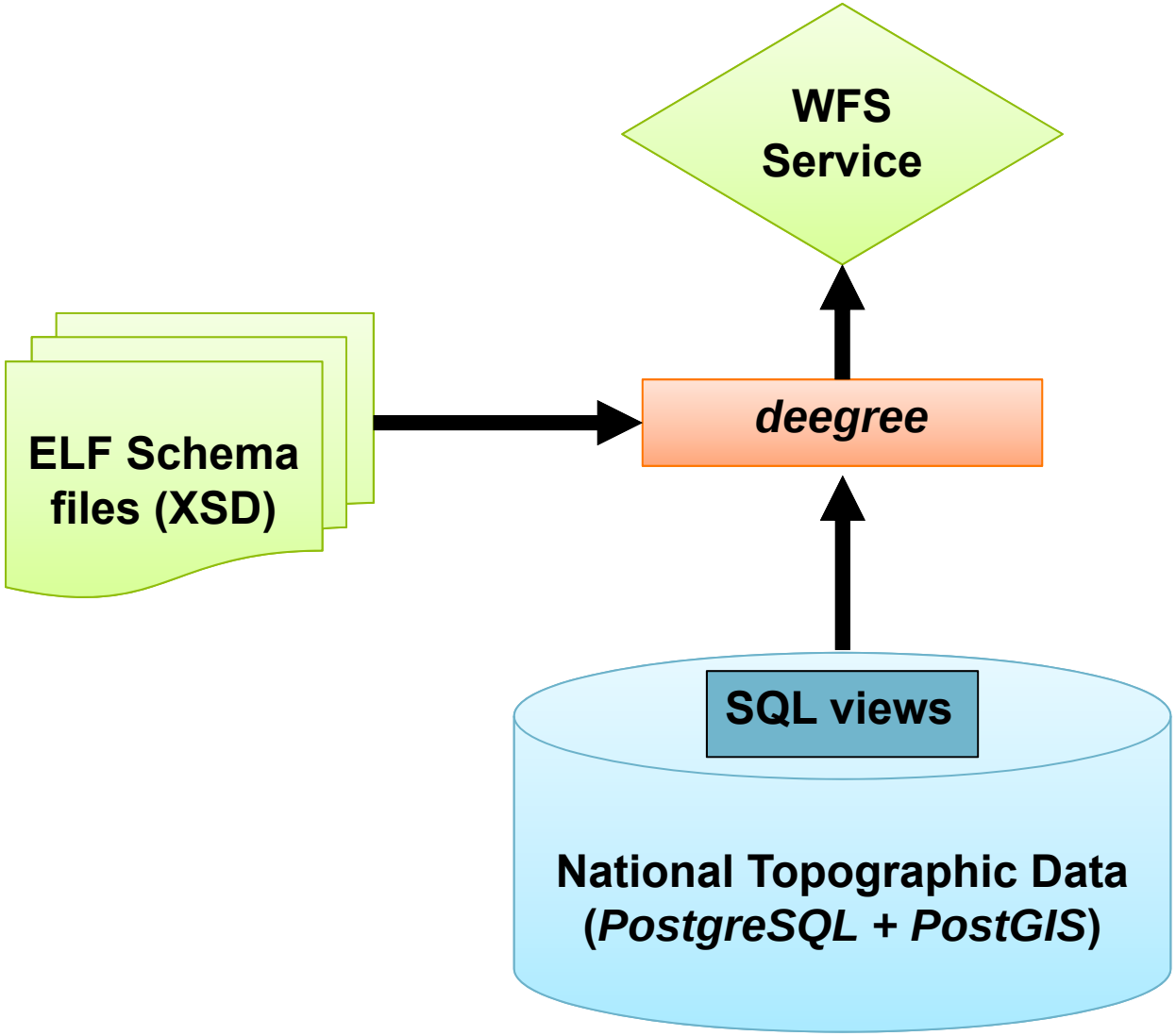
Way 1: SQL Views



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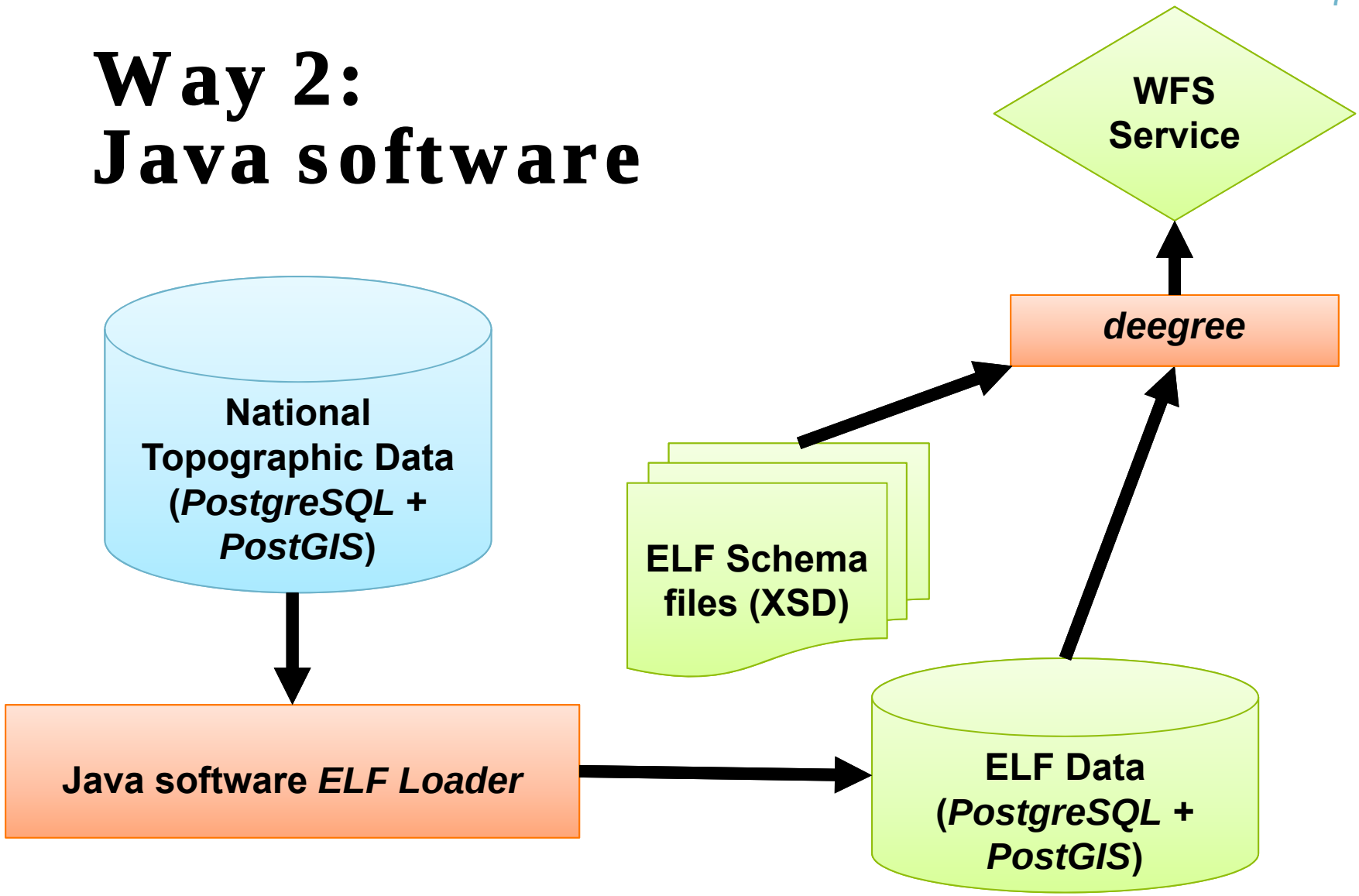
Way 2: Java software



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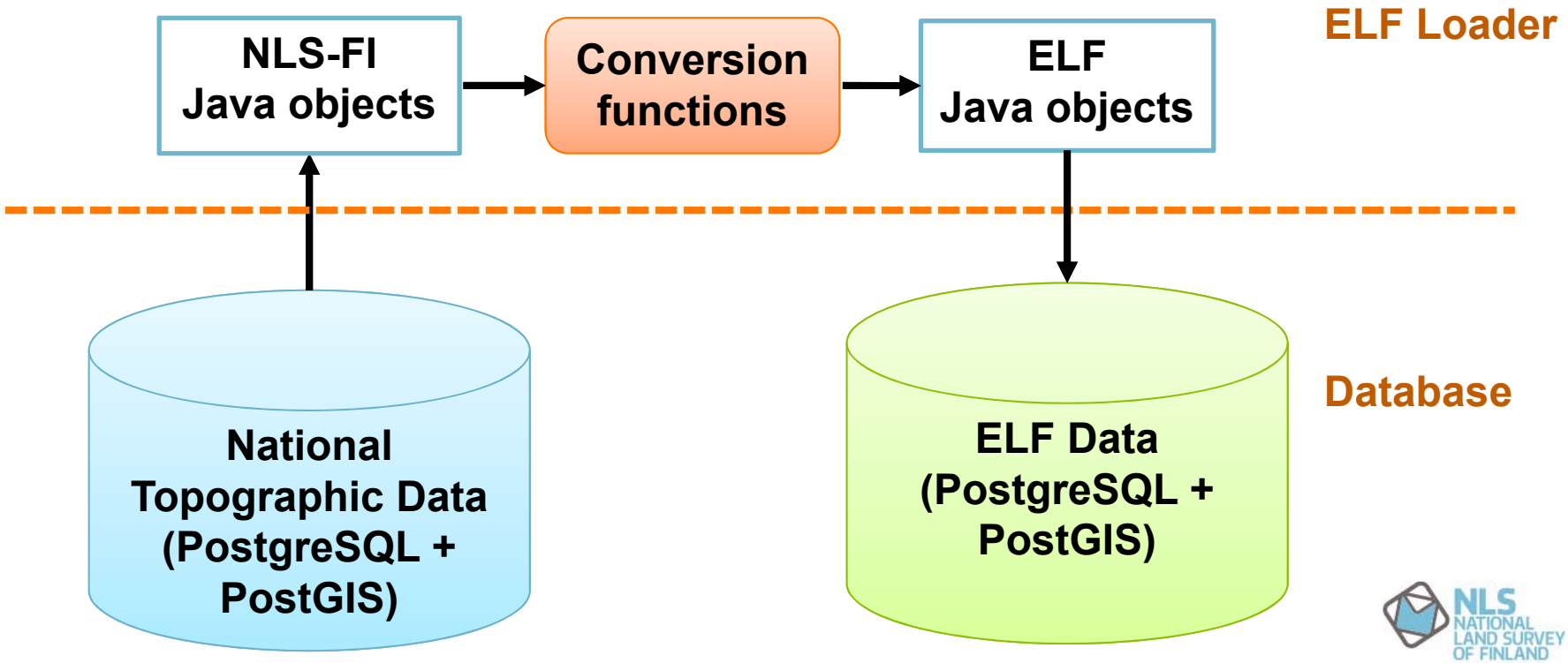
Transformation in ELF Loader

1 java class = 1 feature type = 1 target database table



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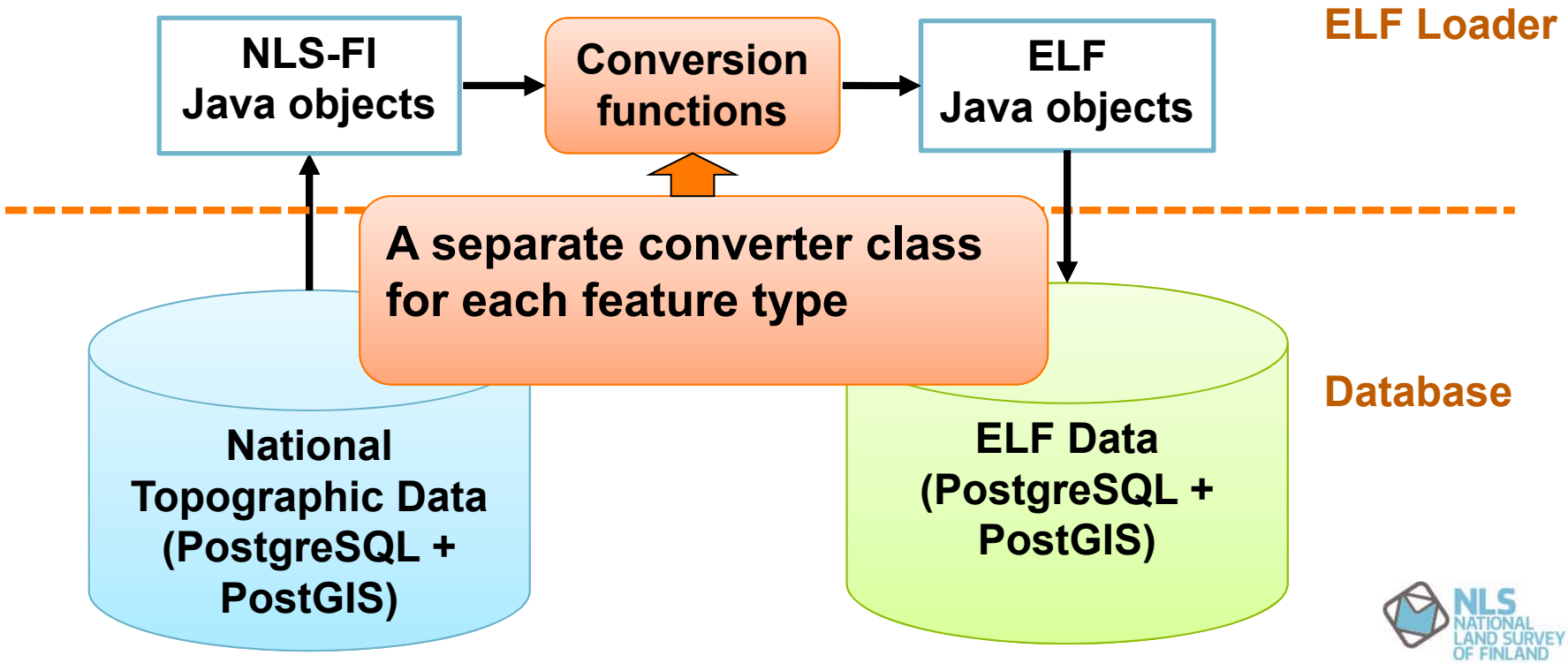

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Pros and cons

SQL views

+ No external software needed

+ Data is updating automatically

+ Simple transformations easy to implement

- Very complex transformations not possible

- Problems with the source data will stay in the target

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Own Java software

+ Flexible, easy to implement new functions

+ Error handling: Possibility to fix some problems with the source data

- Requires maintenace of the software and programming skills

- Data is not updated in real time

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Lessons learned with ELF Loader

- First implementation was based on map sheet division
  - Transformation process was very slow and prone to errors
  - Feature-based transformation works better
- Architecture could be improved
  - FeatureType configurations should be separate text files – not part of the source code!

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Publishing the services with deegree

- An open source software, http://www.deegree.org/
- Provides an INSPIRE workspace
- If the database structure is close to INSPIRE schema, configuring WFS services is simple
- Used in ELF project by several countries: works well, only a few minor issues

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Example: deegree configurations

Attribute defined in schema

Corresponding database column

```
<Complex path="hy-p:beginLifespanVersion">
  <Primitive path="text()" mapping="beginlifespanversion"/>
</Complex>

<Complex path="hy-p:condition">
  <!--<Primitive path="@owns" mapping="hy_p_condition_attr_owns"/>-->
  <Primitive path="@nilReason" mapping="'unpopulated'"/>
  <Primitive path="@xsi:nil" mapping="'true'"/>
 <!-- <Feature path=".">
    <Join table="?" fromColumns="hy_p_condition_fk" toColumns="attr_gml_id"/>
    <Href mapping="hy_p_condition_href"/>
  </Feature>-->
</Complex>
```

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Conclusions

- It's possible to publish INSPIRE services without using commercial software

- … **BUT there are no free lunches:**
  - Own transformation software needs programming resources
  - Open source software may have limited support
    - Timetable for bug fixes?
    - Helpdesk?

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More information

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