kadaster

# extending the data model INSPIRE Utility Networks

## from a business point of view

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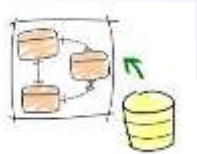
EuroGeographics KEN
Workshop Extends 20/21 june 2017

# Topics



*To* EXTEND *or*

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# Utility networks in the Netherlands

Statistics 2016

- ~1.7 million km for water, gas, electricity, telecom, sewerage, fossil fuels and chemicals
- mostly underground
- ~15.000e excavators: building, agricultural and UN
- ~1.100e network administrators
- 32.858 excavation damages on UN
- Average costs €796 per damage

# Preventing excavating damage

KLIC

- Information Centre for Cables and Pipelines
- Started in 1968, nation wide since 1986
- Reports of excavations are tranfered to network administrators
- Since 2008
  - A legal obligation (WION-act) for network administrators and excavators
  - A service of Kadaster
- Since 2010:
  - Webservice
  - Fully automated transfer to network administrators
  - Fully automated delivery of combined maps (PNG) to the excavator
  - Rate based (2017: €19 per request)

# Future business requirements (< 2020)

Good results, but …. the industry demands:

1. A further decline of damages due to excavations
2. Improvement on efficiency
3. Use of network information in other domains, e.g.
   - Planning and zoning
   - Public order and security

# User needs (< 2020)

- Ubiquitous service: 24x7, near realtime, any place, any device
- Sharp images while zooming in
- Multiple layered maps: cables / pipelines, (planned) topography, type of soil, cadastral boundaries, adresses etc.
- An administration of reported excavations and provided information
- Authenticated applicants, made known to the network administrators
- Authorization, based on the applicants profile
- Rate per request
- Webservices (WMS, WFS)
- And … meet the requirements of INSPIRE UN

# KLIC vs INSPIRE

| | KLIC | INSPIRE |
|---|---|---|
| Legislation | NL-WION | 2007/2/EC |
| Strict roadmap | +/- | √ |
| High quality demands (availability, usability etc.) | √ | +/- |
| All networks enclosed | √ | X |
| Realtime delivery | X | √ |
| Webservices WMS, WFS | √ | √ |
| Authentication, Authorization, Accounting | √ | +/- |
| Current data | √ | - - |
| Unlimited requested area | X | √ |

# Consequences

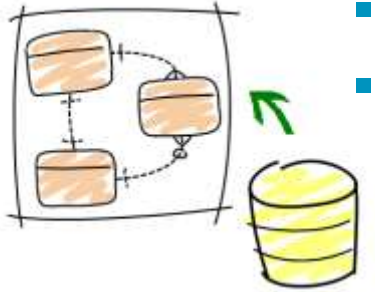
1. INSPIRE UN must be a part of KLIC
   - Many similarities
   - Less costs for the utility administrators
   - Prevent cannibalization on KLIC

   → INSPIRE UN shall be an additional product of KLIC

2. Common information model for multiple applications
   - Many similarities
   - Less costs in building the information system
   - INSPIRE is leading

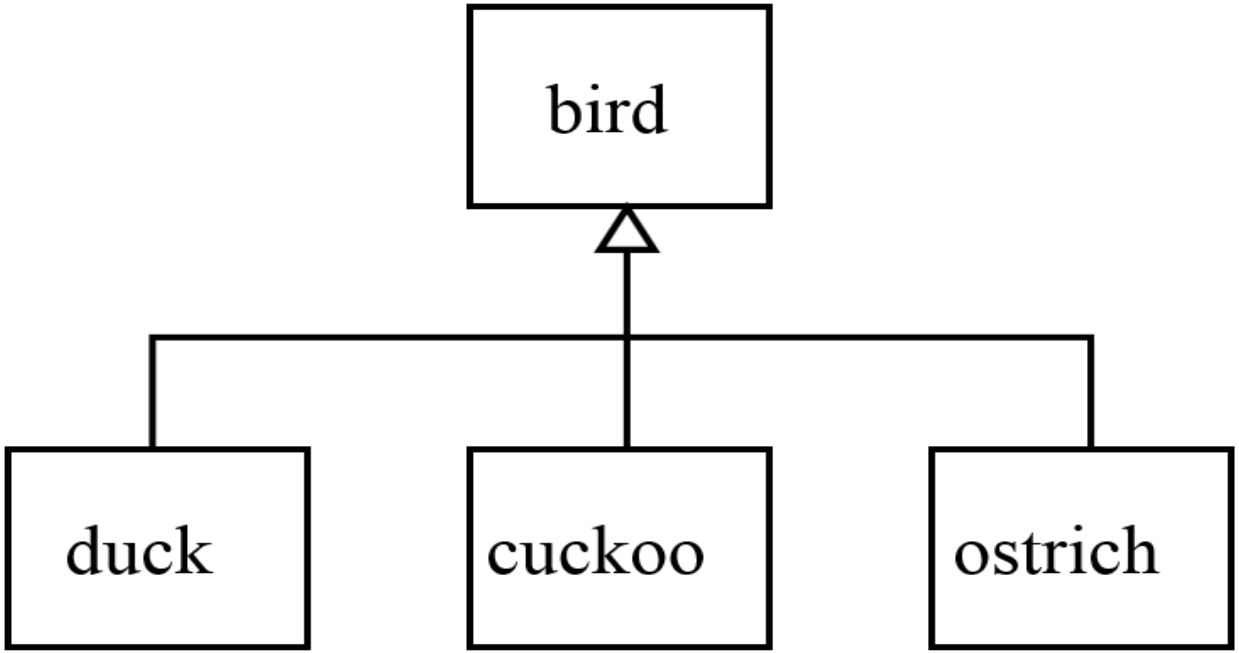
   → information model KLIC shall be an extend on INSPIRE UN

# Designing the model



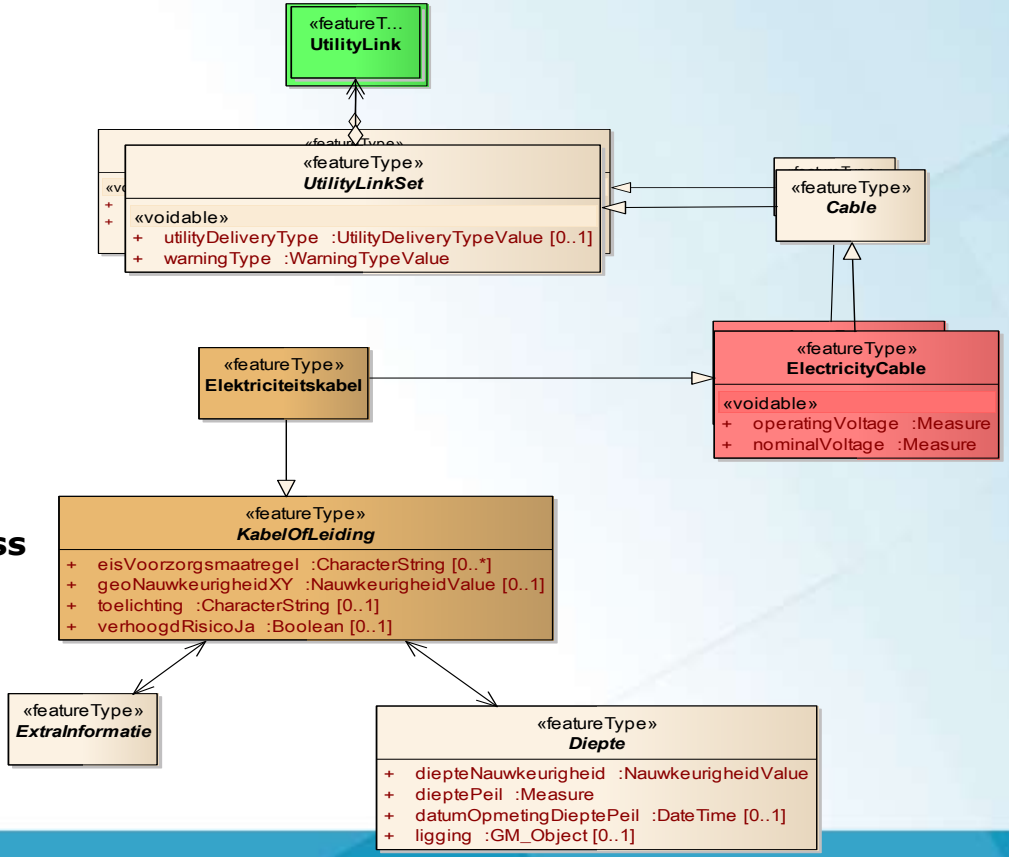
- Designed by Geonovum (with a little help from AGIV)
- 4 basic methods:
  - Subtyping
  - By association
  - Application domain extension
  - Mixin multiple inheritance
- Most suitable is the Mixin-method
  - The only method to combine 2 models
  - The Dutch model is still recognizable
  - We are not forced into the INSPIRE-model
  - We maintain flexability

# Inheritance



# Mixin Multiple Inheritance

**Mixin class**



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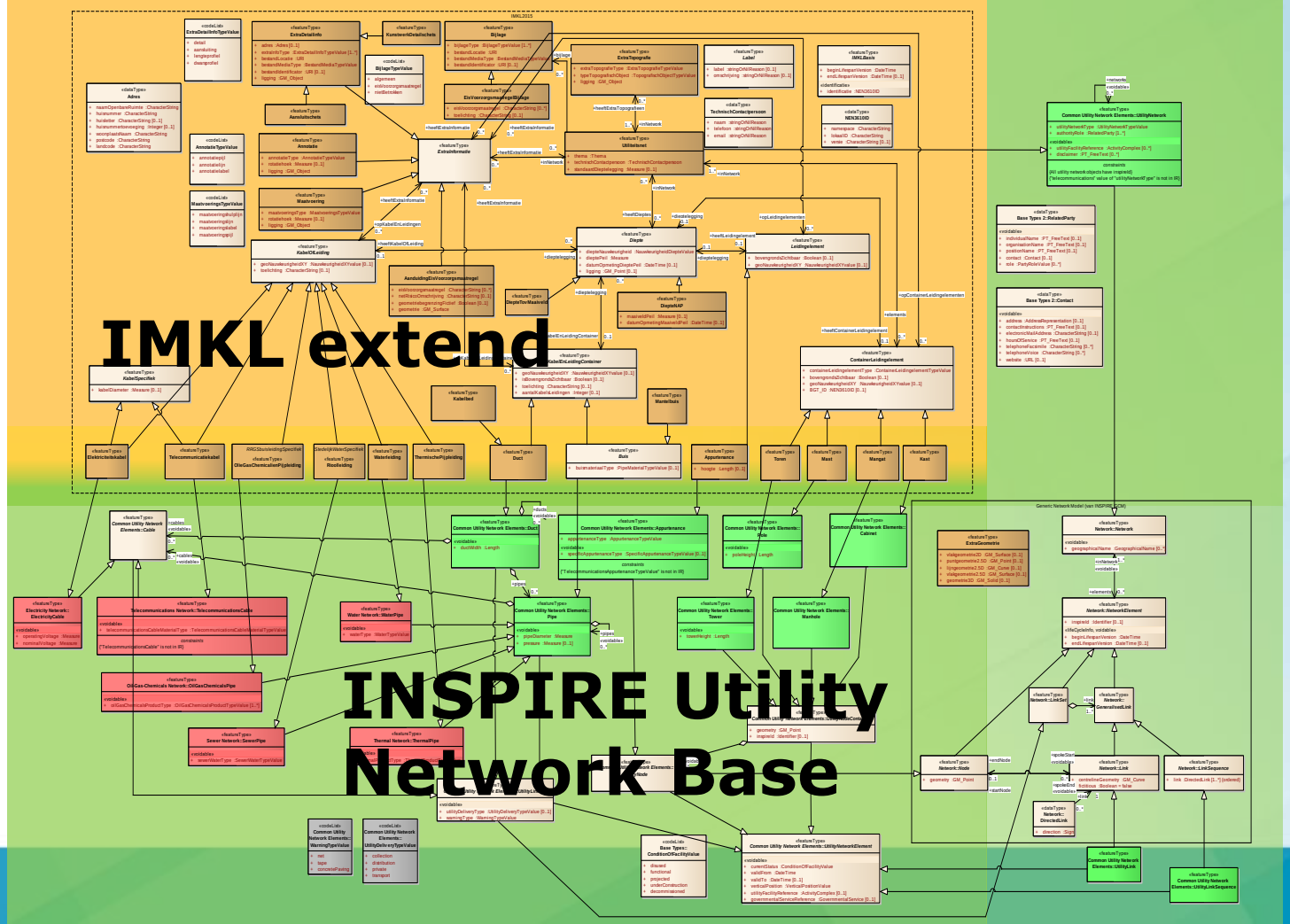


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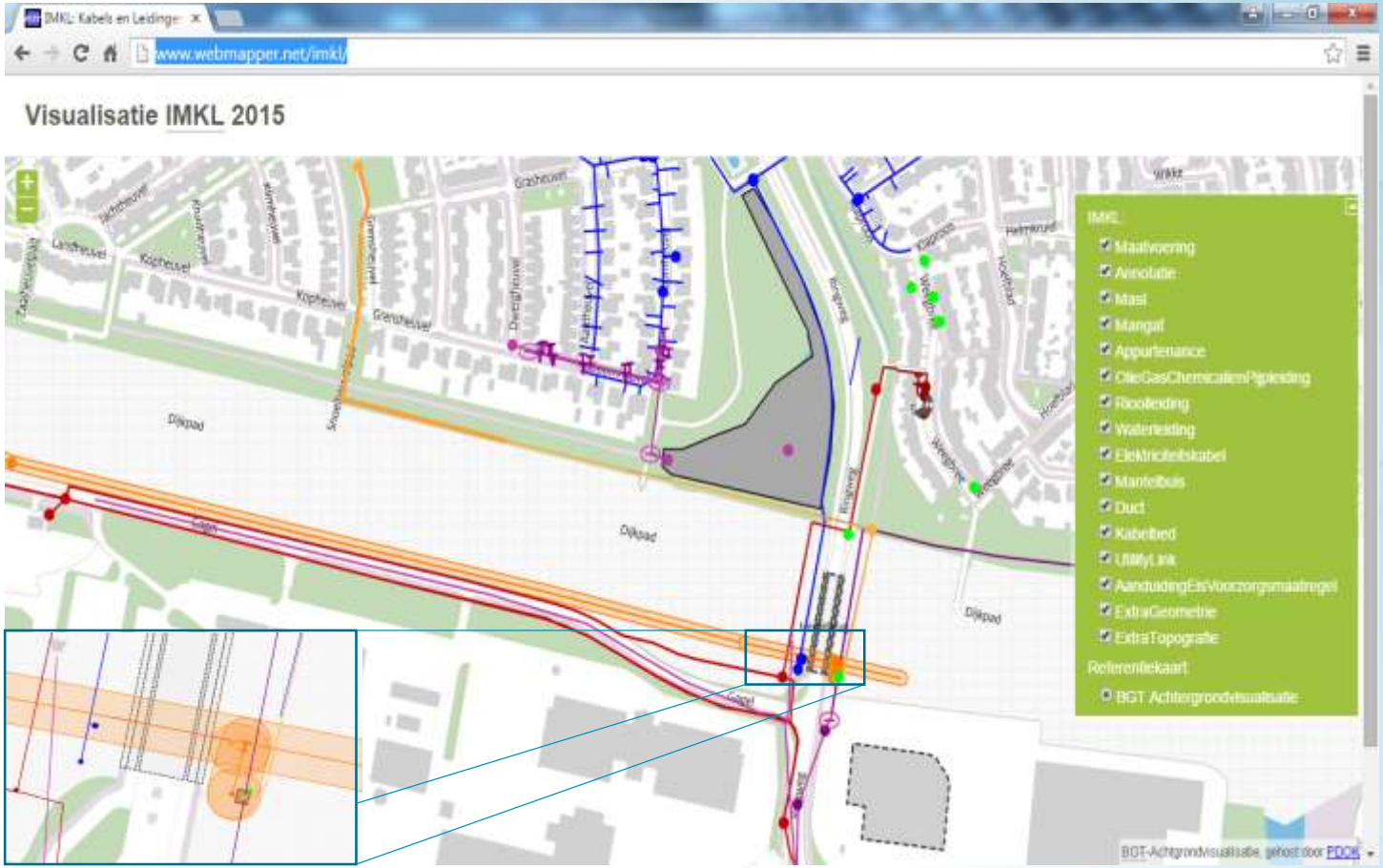
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Mantelbuis
Duct
Kabelbed
UtilityLink
AanduidingEisVoorzorgsmaatregel
ExtraGeometrie
ExtraTopografie
Referentiekaart
BGT Achtergrondvisualisatie
Dijkpad
Kopheuvel
Landheuvel
Grensheuvel
Grasheuvel
Wikke
BGT-Achtgrondvisualisatie, gehost door PDOK

# Final remarks

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# Thanks for your attention