



FLANDERS  
ENVIRONMENT AGENCY

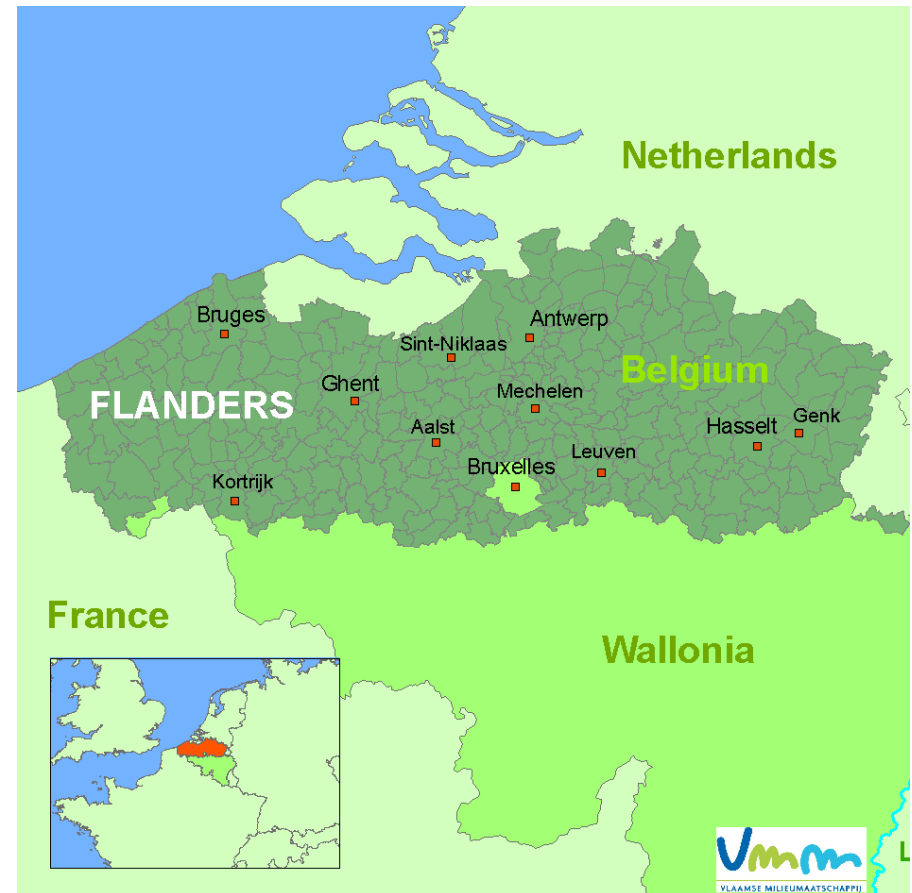
# **Flemish Data Model for the Utilities-Sewage**

K. Beringhs (Flemish Environment Agency – VMM)

- VMM in a nutshell
- Roadmap to the data model
  - Why change data model?
  - Supporting policy?
- Data Model for the utilities-sewage
- Advantages
- Agreement with stakeholders
- Model in practice

# VMM in a nutshell

- an agency of the Flemish government **for a better environment** in Flanders
- **contribute to the realisation** of the environmental policy objectives



Population: 6.350.765 in the Flanders Region

3 Surface: 13.522 km<sup>2</sup>

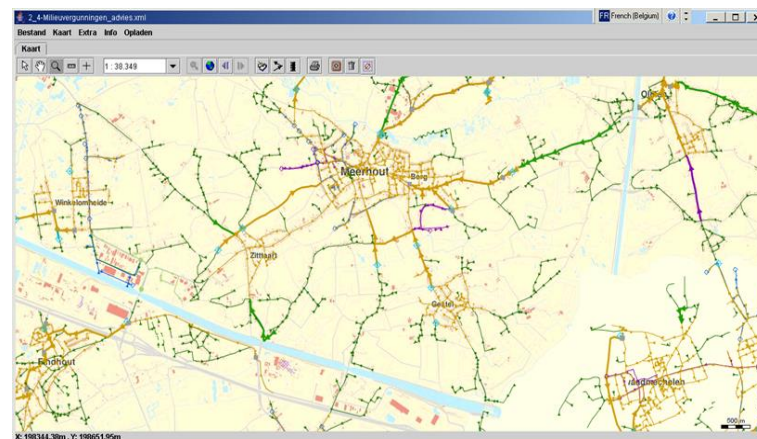
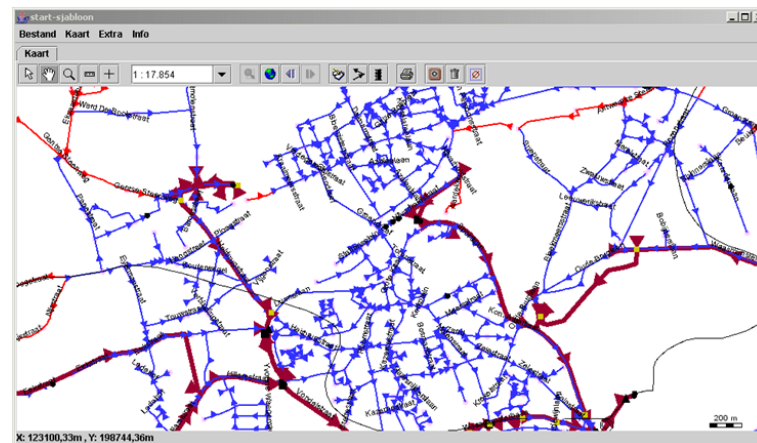
# VMM in a nutshell

- Active in **water**, air and the environment  
i.a.
  - ➔ responsible for the **policy** regarding the development of **sewage systems**
  - ➔ administrator of the **mid-scale Flemish sewage database**

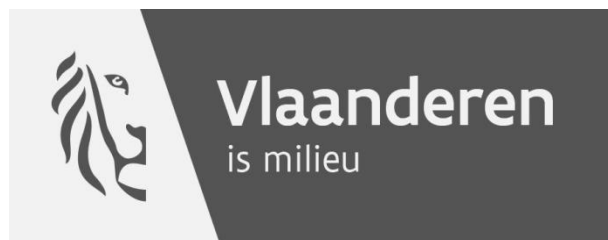
# Roadmap – Why change?

## mid-scale Flemish sewage database

- contains all information on
  - sewer networks and
  - wastewater treatment infrastructure in Flanders.
- ➔ Built up by VMM
- ➔ Based on different sources:
  - ➔ Paper plans
  - ➔ Digital data
  - ➔ from different stakeholders
  - ➔ ...
- ➔ No standard is used



# Roadmap – Why change?



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## → Data for sewage policy

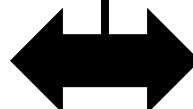
- Schematic data
- sometimes Out-dated data
- + area-wide for Flanders

## Stakeholders



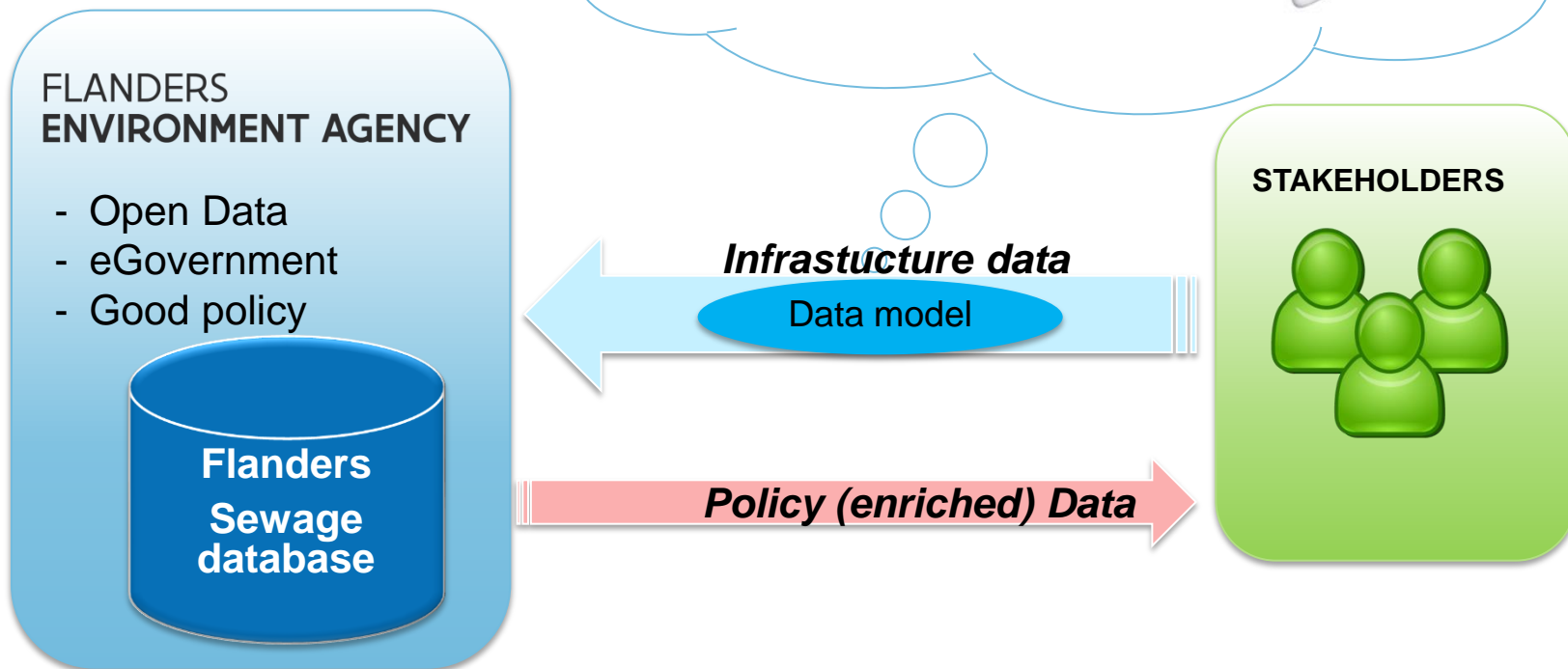
## → Operational sewage data

- + More detailed location
- + Recent data
- only for area of responsibility



# Roadmap – Why change?

## Future view



# Supporting policy?

- VMM supports the idea of
  - **open data**
  - **eGovernment**
  - **freedom of information**
- INSPIRE and other regulation are anchored in different **Flemish decree's**



# Supporting policy?

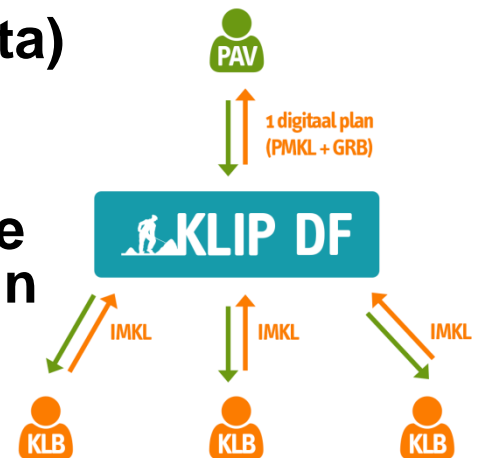
- **Flemish Information Site regarding Cables and Conduits (KLIP)**

<https://www.agiv.be/international/en/products/klip-en>

- Founded after severe gas explosion in 2004
- **Exchange platform for plans about location of utility infrastructure**
- Managed by the Flemish Information Agency (former Flemish Geographic Information Agency – AGIV)
- Since 2009 mandatory to apply for plans before excavation works

- **2016 start of digital exchange (vector data)**

- Anchored in **Flemish decree** and therefore **obligatory** for al managers of cables and conduits from **different utilities + everyone doing excavation works on public domain**



# Sewage Data Model

- INSPIRE Data specs on Utility and Government Services – Technical guidelines (Annex III)

→ *limited information*

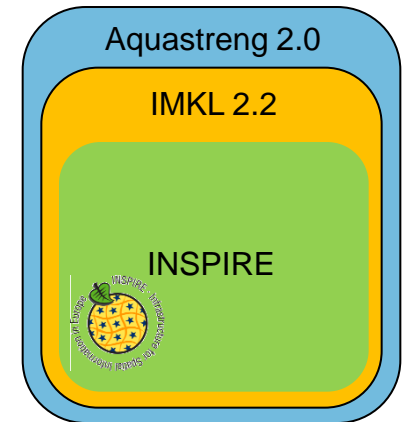


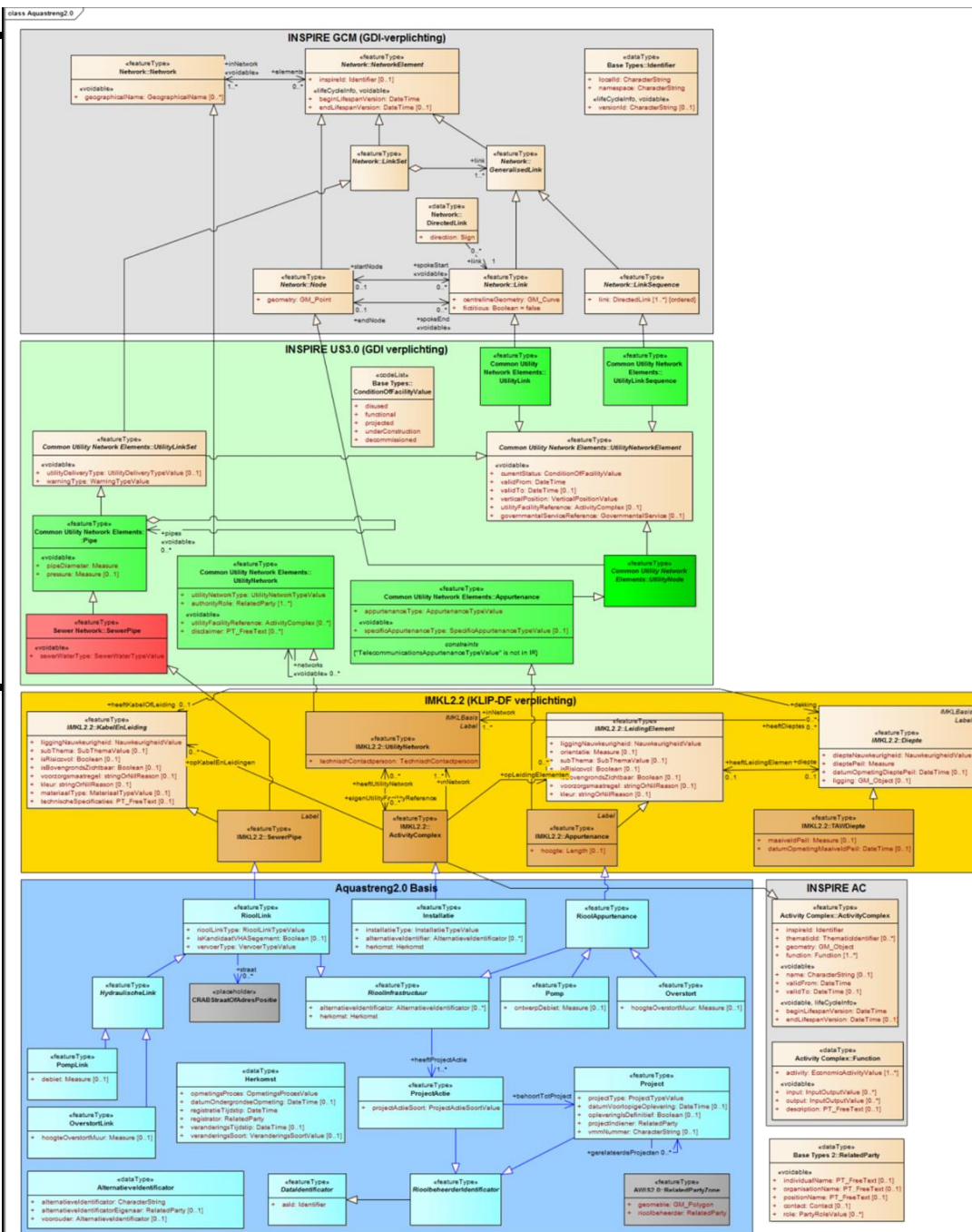
- Flemish information model on Cables and Conduits from AGIV

→ *Added information with regard to excavation and safety*



- Aquastreng2.0 exchange model from VMM  
→ *Added information with regard to sewage policy*

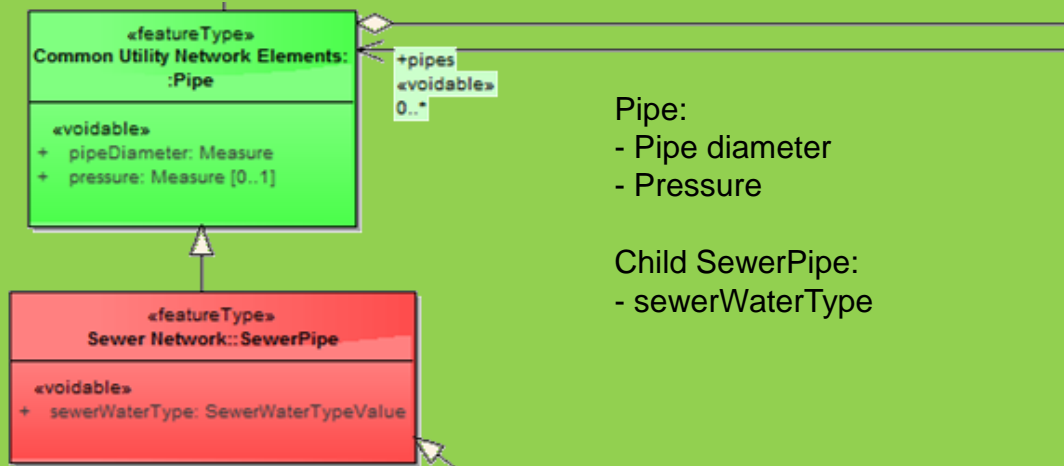




Zoomed in on one example

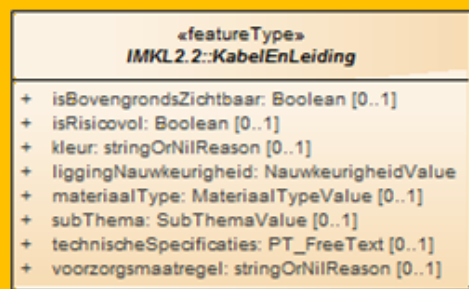
## Extending INSPIRE using inheritance

**B → A**  
**B is a child of A**  
**Or**  
**B inherits from A**



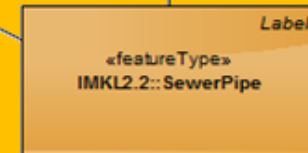
Pipe:  
- Pipe diameter  
- Pressure

Child SewerPipe:  
- sewerWaterType



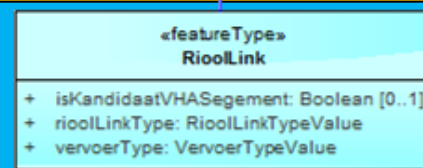
Not enough, so IMKL adds

- Risk involved
- materialType
- Precaution measures
- Depth
- ...



Not enough, so AQS2.0 adds

- Type of transport
- Type of pipe: closed/open, ...



# Agreement with stakeholders

- IMKL (and INSPIRE) is known to all sewage managers in Flanders so by adding extra layers we keep the familiar core in tact.
- Several workshops to make a compromise between internal and external stakeholders
- Supported by Flemish policy

# Model in practice

- Very important that data is available
  - Equally important that data is accessible
- Two European projects to create data access as a start for the bigger plan

 **GeoSmartCity**

<http://www.geosmartcity.eu/>

<https://www.vmm.be/water/projecten/geosmartcity> ,



<http://www.eenvplus.eu/>

<https://www.vmm.be/water/projecten/eenvplus-naar-e-milieudiensten>

→ A sewage water information system where data about sewage infrastructure and policy are brought together (available and accessible)



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VLAAMSE MILIEUMAATSCHAPPIJ

Thank you for your attention!





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## Contact:

### **Flemish Environment Agency – AQS2.0:**

- Katia Beringhs: [k.beringhs@vmm.be](mailto:k.beringhs@vmm.be)
- Katleen Miserez: [k.miserez@vmm.be](mailto:k.miserez@vmm.be)
- Juliette Dujardin: [j.dujardin@vmm.be](mailto:j.dujardin@vmm.be)
- Koen De Witte: [k.dewitte@vmm.be](mailto:k.dewitte@vmm.be)

### **AGIV – IMKL:**

- Jan Laporte: [jan.laporte@agiv.be](mailto:jan.laporte@agiv.be)