



# ICEG Hydrants: First Thematic Working Group

Welcome!

18 April 2023

Virtual working group – Google Meet



# Agenda

#1 Welcome

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#2 Process, input and timeline

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#3 Presentation of identified use cases and requirements

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#4 Identification and presentation of parts of the model

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#5 Next steps

# Practicalities

Audience sound is muted by default.



Use the hand in Google Meet if you want to say something.

Questions, comments and suggestions can be communicated via the chat function. Interaction is encouraged!



**A yes/no question** can be answered simply and quickly via the chat:

Agree = +1

Do not agree = - 1

Indifferent = 0



# Goal for today

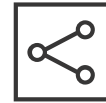
**Discussion on the selected use cases and the storylines for the model as a first step towards the first version of the ICEG Hydrants model.**




**Summary of the business  
workshop**




**Presentation of the  
identified use cases and  
derived requirements**



**Presenting parts of the  
model using storylines**



# **Welcome and introduction to ICEG**



# Introduction to ICEG

- The ICEG review group 'open standards' has a permanent character and is responsible for the central coordination and follow-up of the work related to the standardisation of information.
- A cooperation agreement between the federal, regional and community governments to harmonise and align the initiatives aimed at realising an integrated e-government.
- Defining data standards
  - Exchanging data (syntax (grammar) and technical standards)
  - Define concepts in an unambiguous way (semantic)
  - Bottom-up development
- Mission aligned to the existing ICEG collaboration agreement between the federal, regional and community authorities (dd. 2013-08-26). Already modelled [ICEG Public Organisation](#), [ICEG Public Service](#) & [ICEG Building](#).
- Based on previous work and specifications when existing, such as OSLO (Flanders), INSPIRE

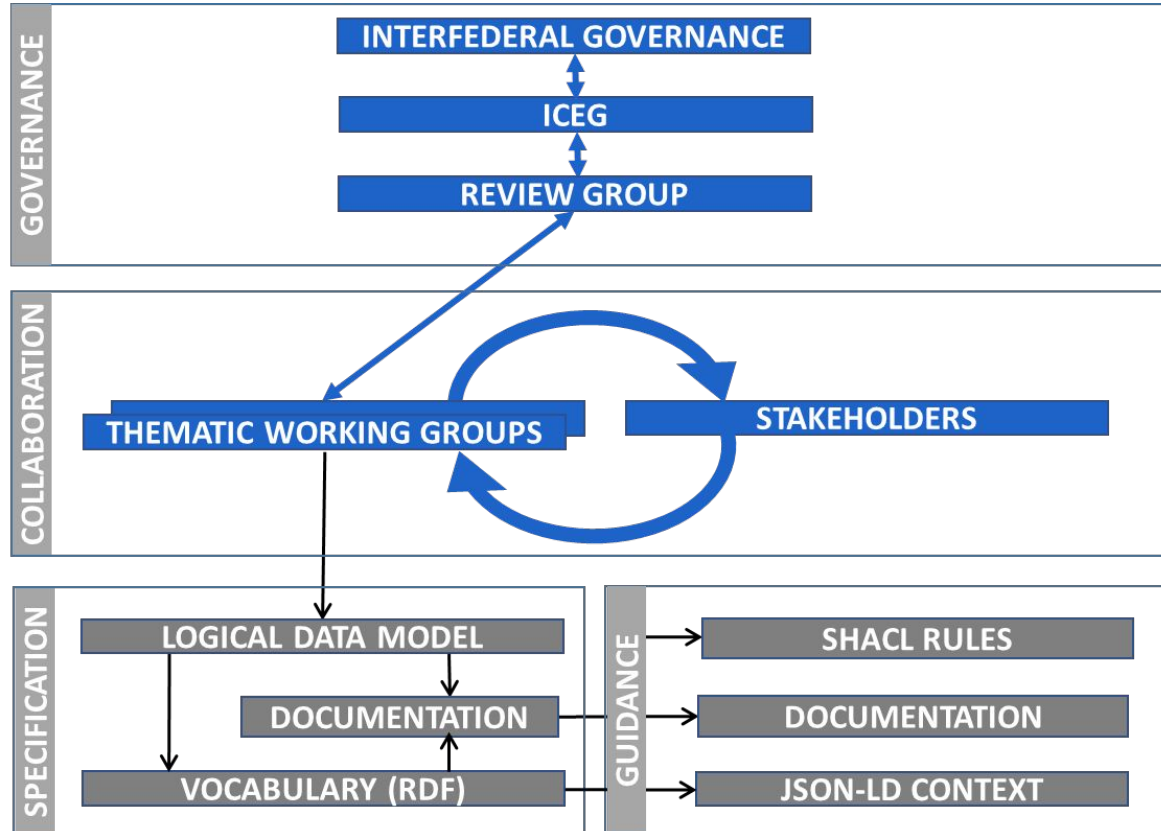
DIGITAAL  
VLAANDEREN



Wallonie

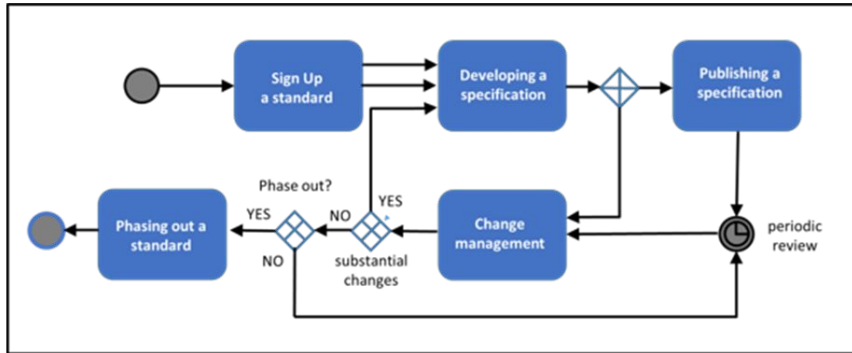


# Governance



## Governance: ICEG process and method

- Scalable process for registering, developing, changing and phasing out data standards.



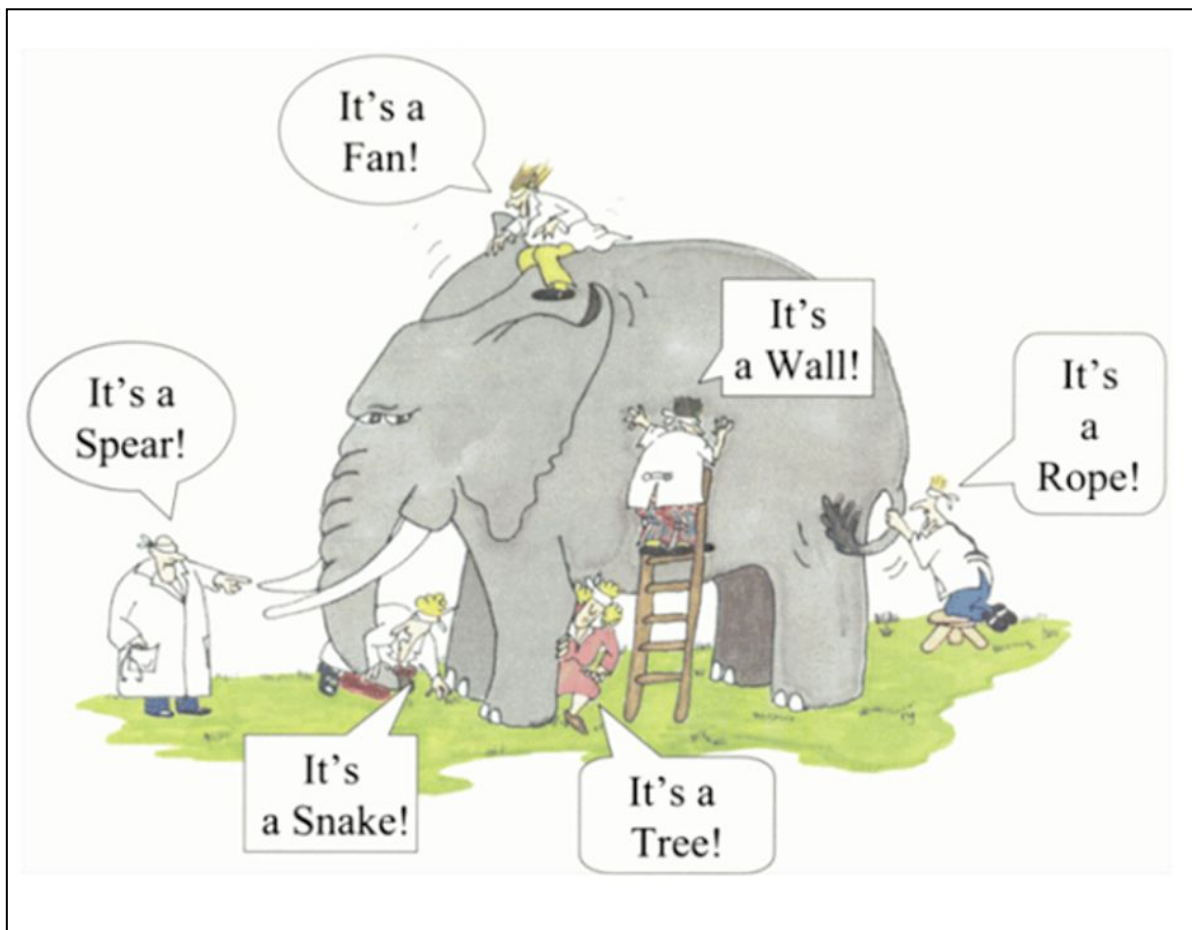
Abstract: French, Dutch

Full paper: English

**W3C, IEEE, IETF, IAB en ISA, Open Stand, OSLO**

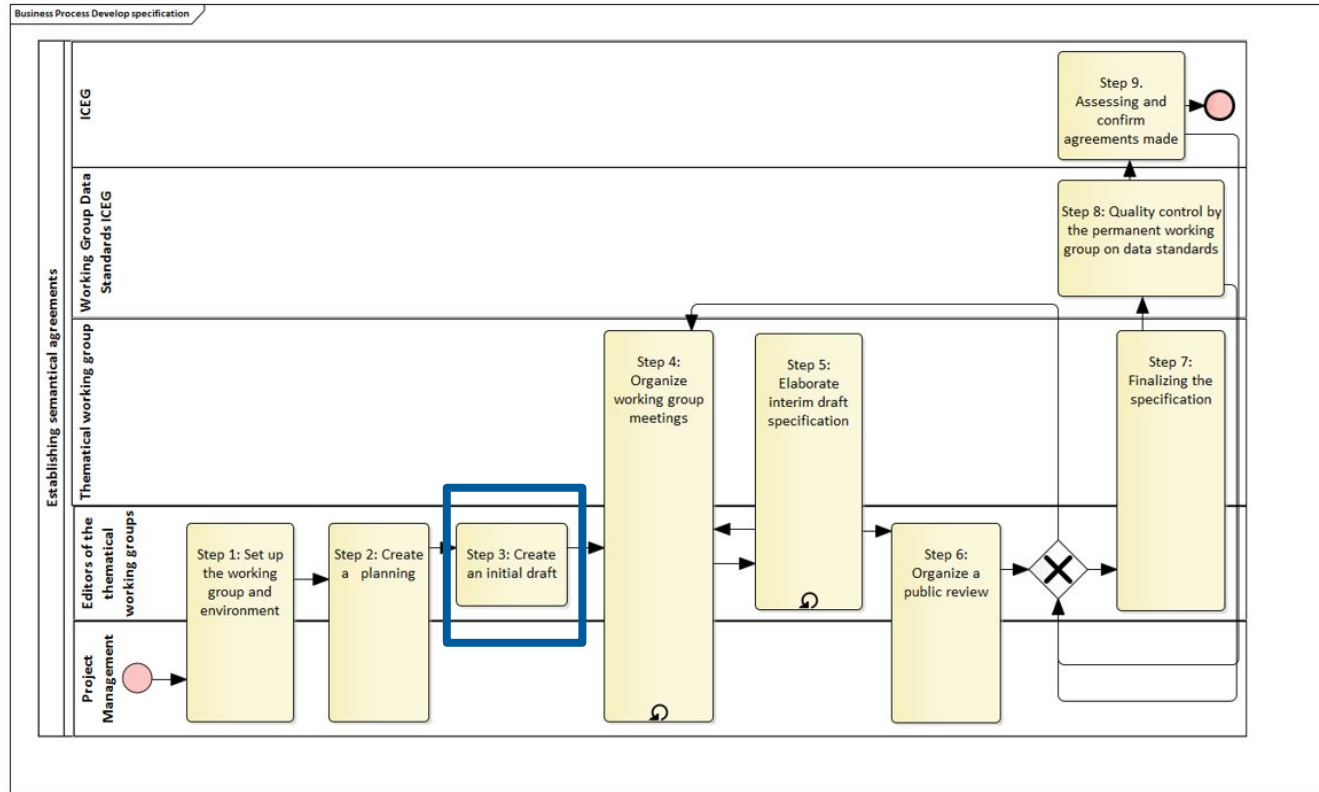






# How do we achieve this

## Process and methodology defined by ICEG



INFORMATIE  
VLAANDEREN

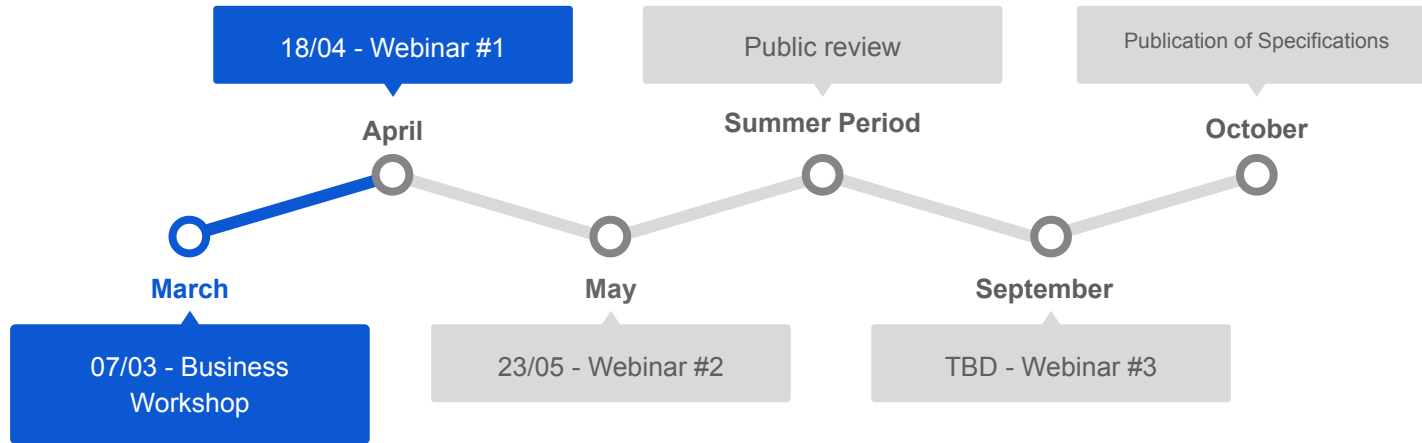


BO  
SO  
IG: Digitale Transformatie  
IG: Based on Onderzoek  
IG: Transformatie Agents  
IG: Strategie en Appoi

### PROCESS AND METHOD FOR THE DEVELOPMENT OF DATA STANDARDS

Version /// 1.0  
Publication date /// 24 may 2019

# Timeline



# The importance of harmonisation in the Belgian context

By standardising data pertaining to hydrants, several benefits can be achieved, including:

- **Improved accuracy and reliability of information** → Increased transparency and consistency in the data
- **Enhanced collaboration** among Belgian emergency services during field operations and major incidents → Easier sharing and exchange of data among different organisations
- **Improved cartographic interfaces** that establish connections between attributes and standardised symbols → Facilitated integration with other datasets
- **Better management** of hydrants and extinguishing water sources.



# Identified use cases



# What did we do in the previous workshop?



1. We have introduced ICEG and have gained an understanding of semantic and technical interoperability. We have also explored the exchange and reuse of data.
2. We have explored the various use cases and identified the key concepts that applied to them



<https://app.mural.co/t/beadvic7549/m/beadvic7549/1676539796872/ac1f1f89b2084e062883f9568bcb7d351d5f84dd7?sender=udbc3dba8a4f974893c2a3279>

# Original use cases

1	<b>Extinguishing water sources</b> are essential for emergency response services during a fire or other emergency situations.	They are <b>objects with a location</b> that can be identified through a set of <b>geographic coordinates</b> . These sources are typically owned by water distribution companies or enterprises with a high-risk profile. Clear <b>ownership information</b> is essential to enable linking with relevant authorities, such as the Enhanced Crossroad Bank for Enterprises
2		<b>To make these sources useful, standardized attributes</b> are required, such as unique-id, type, capacity, source, hose connection type, availability, accessibility, and contact point to inform the owner about the use of the source so that appropriate action can be taken
3		Some owners, emergency services, municipalities and provinces have a system and process to register the <b>status of the extinguishing water sources</b> (broken, checked-and-working, last-check-date). It must be possible to establish a link with the water source and its management status/follow-up.
4	It is important to use <b>standardized symbols</b> in the context of hydrants, therefore a link should be created between the attributes and a standardized symbol to be <b>shown in cartographic interfaces</b> .	

# Use cases enrichments

#	Use case	Description		
1	Location	<ul style="list-style-type: none"> <li>• Accessibility</li> <li>• Location of signalisation</li> <li>• Above or below ground</li> <li>• Use of vector data</li> </ul>	<ul style="list-style-type: none"> <li>• Municipality name</li> <li>• Municipality code</li> <li>• Street name</li> <li>• House number</li> </ul>	<ul style="list-style-type: none"> <li>• Postal code</li> <li>• Type of location</li> </ul>
2	Ownership	<ul style="list-style-type: none"> <li>• Owner name</li> <li>• Responsibility area</li> <li>• Phone number</li> <li>• Email address</li> </ul>		
3	Attributes	<ul style="list-style-type: none"> <li>• Identifier</li> <li>• Hydrant type</li> <li>• Hydrant shape</li> <li>• Usage</li> <li>• Flow rate</li> </ul>	<ul style="list-style-type: none"> <li>• Signage</li> <li>• Pressure</li> <li>• Valve diameter</li> <li>• Valve type</li> <li>• Pipe shape</li> </ul>	<ul style="list-style-type: none"> <li>• Pipe diameter</li> <li>• Pipe status</li> <li>• Pipe type</li> <li>• Pipe material</li> <li>• Pipe ID</li> </ul>
4	Maintenance and repair	<ul style="list-style-type: none"> <li>• Status</li> <li>• Installation date</li> <li>• Last inspection date</li> <li>• Serial Number</li> </ul>	<ul style="list-style-type: none"> <li>• Last Inspector</li> </ul>	
5	Standardized symbols	<ul style="list-style-type: none"> <li>• “H” = Below ground hydrant</li> <li>• “B” = Above ground hydrant</li> </ul>	<ul style="list-style-type: none"> <li>• Three colours for diameter size</li> <li>• Status</li> </ul>	Signalisation (A11, A12, (...), B, H, (...))





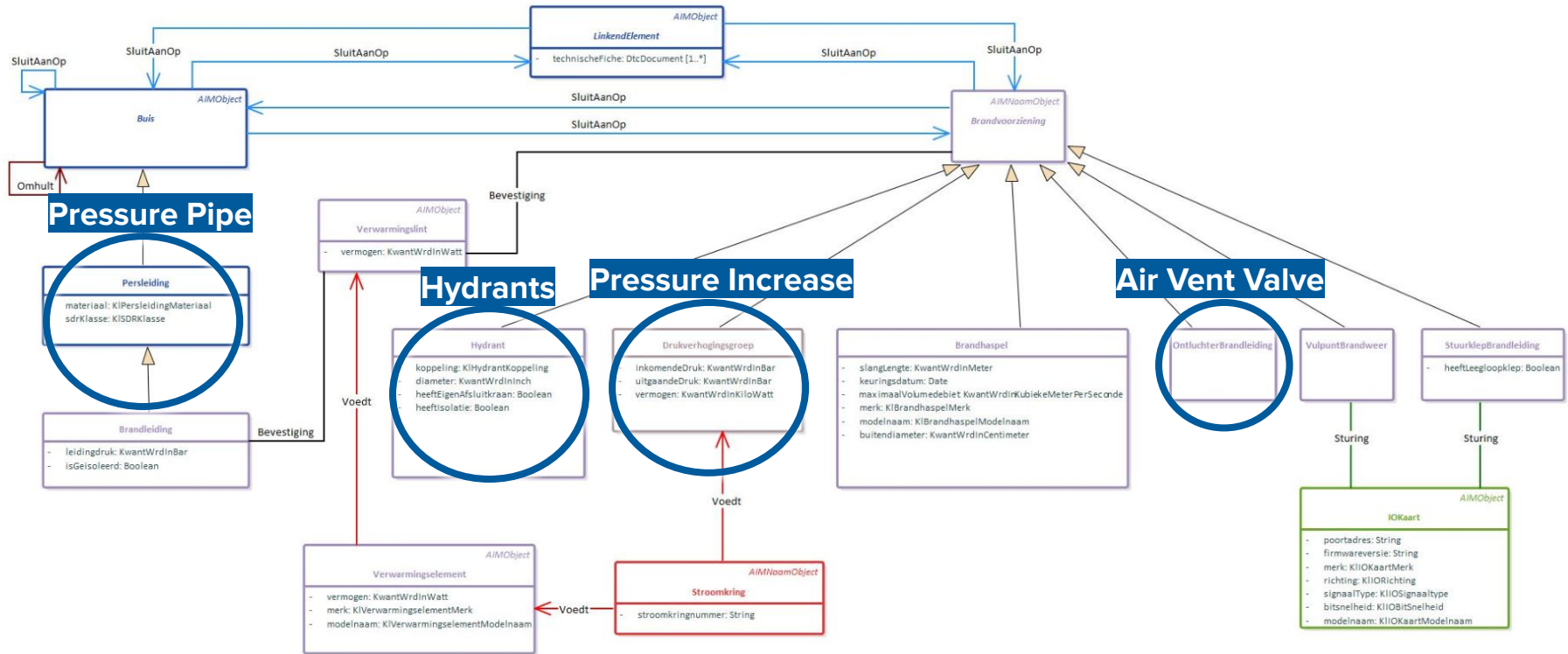
# Identified requirements



# Starting point

Water companies data models	Flanders	<ul style="list-style-type: none"><li>• De Watergroep</li><li>• Water-Link</li><li>• Farys</li><li>• IWVA</li><li>• AGSO-Knokke</li></ul>
	Brussels	n.a
	Wallonia	<ul style="list-style-type: none"><li>• SWDE</li><li>• Zone 2-3 Liège</li><li>• IEG</li><li>• AIEC</li></ul>
	The Netherlands	<ul style="list-style-type: none"><li>• National data model</li></ul>
Existing specifications	OSLO	<ul style="list-style-type: none"><li>• OSLO Brandleiding (Wegen en Verkeer)</li><li>• OSLO Openbaar Domein</li></ul>
	INSPIRE	<ul style="list-style-type: none"><li>• Data Specification on Utility and Government Services</li></ul>
	AWV	<ul style="list-style-type: none"><li>• AWV OTL</li></ul>

# OSLO Brandleiding



# Mapping of existing models

	Water-Link	Zone 2-3 Liège	IEG	AIEC	De Watergroep	SWDE	Farys	IWVA	AGSO - Knokke	The Netherlands
Connection Type	✗	✗	✗	✗	✓	✗	✗	✓	✓	✗
Coordinates (Location)	✗	✗	✗	✗	✓	✓	✗	✓	✓	✓
Created Date (Data)	✗	✓	✗	✗	✓	✗	✗	✓	✓	✗
Created User (Data)	✗	✓	✗	✗	✗	✗	✗	✓	✓	✗
Date Last Inspection	✓	✓	✗	✗	✗	✓	✗	✗	✓	✓
Diameter Hydrant	✓	✓	✗	✗	✓	✓	✓	✓	✓	✓
Diameter Pipe	✓	✗	✗	✗	✓	✓	✓	✓	✓	✗
Flow Rate / Debit	✗	✓	✗	✗	✗	✓	✗	✓	✓	✗
House Number	✓	✗	✗	✗	✗	✓	✓	✓	✓	✓
Hydrant Type*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hydrant Brand	✗	✗	✗	✗	✗	✗	✗	✓	✓	✗
Hydrant Brand ID	✗	✗	✗	✗	✗	✗	✗	✓	✓	✗
Installation Date	✓	✓	✗	✗	✗	✗	✗	✓	✗	✓
Last Edited Date (Data)	✗	✓	✗	✗	✗	✗	✗	✓	✓	✗
Last Edited User (Data)	✗	✓	✗	✗	✗	✗	✗	✓	✓	✗
Municipality ID	✗	✗	✗	✗	✗	✗	✗	✓	✓	✗

\*Underground or surface hydrant

# Mapping of existing models

	Water-Link	Zone 2-3 Liège	IEG	AIEC	De Watergroep	SWDE	Farys	IWVA	AGSO - Knokke	The Netherlands
Municipality Name	✓	✗	✗	✗	✗	✗	✓	✓	✓	✓
Nature	✓	✗	✗	✗	✗	✓	✗	✗	✗	✗
OGR FID	✗	✗	✗	✗	✗	✗	✗	✓	✓	✗
Orientation	✗	✓	✗	✓	✓	✗	✗	✓	✓	✗
Owner	✓	✗	✗	✗	✗	✗	✗	✗	✗	✓
Pipe ID	✓	✗	✗	✗	✗	✗	✗	✓	✓	✗
Pipe Material	✗	✗	✗	✗	✗	✗	✗	✓	✓	✓
Pipe Status	✓	✗	✗	✗	✗	✗	✓	✓	✓	✗
Pipe Type	✓	✗	✗	✗	✗	✗	✗	✓	✓	✓
Pipe Zone	✗	✗	✗	✗	✗	✗	✗	✓	✓	✗
Postal Code	✓	✗	✗	✗	✗	✗	✗	✗	✗	✓
Pressure	✗	✓	✗	✗	✗	✓	✗	✗	✗	✗
Remarks	✗	✓	✗	✗	✗	✗	✗	✓	✓	✗
Serial Number	✗	✓	✗	✓	✗	✗	✗	✓	✓	✗
Shape Hydrant	✗	✗	✗	✗	✓	✗	✓	✗	✓	✗
Shape Pipe	✗	✗	✗	✗	✓	✗	✓	✓	✓	✗

# Mapping of existing models

	Water-Link	Zone 2-3 Liège	IEG	AIEC	De Watergroep	SWDE	Farys	IWVA	AGSO - Knokke	The Netherlands
Status	✓	✗	✗	✗	✗	✓	✓	✓	✓	✓
Street Name	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓
Signage	✓	✗	✗	✗	✓	✗	✗	✗	✗	✗
Unique ID	✓	✗	✗	✓	✓	✓	✓	✓	✓	✗
Water Type	✗	✗	✗	✓	✗	✗	✓	✓	✗	✗

## Attributes which could be found only in 1 model

- + Spindle Type
- + Protected
- + Reference Number Fire Department
- + Noria Point
- + Depth underground hydrant
- + Geometry (SQL spatial geometry format)
- + G3E FID
- + CALC ADDRE
- + Net type
- + Nominal Diameter
- + Annotation
- + Feature CO



Break



# **First draft model**





# Defining the key concepts

An organisation that has the legal or rightful title to a water system or network and its properties (e.g., hydrants)

*Source: Merriam-Webster*

## Legal entity

- + Attribute #1
- + Attribute #2

A discharge pipe with a valve and spout at which water may be drawn from a water main (as for fighting fires)

*Source: Merriam-Webster*

## Hydrant

- + Attribute #1
- + Attribute #2

A long tube or hollow body for conducting water to fight fire

*Source: Merriam-Webster*

## Pipe

- + Attribute #1
- + Attribute #2

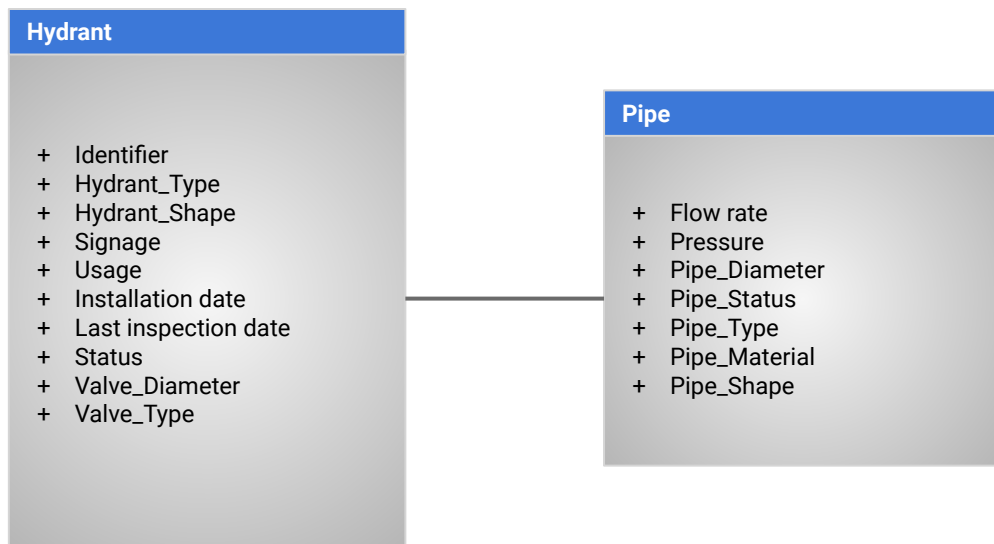
## Location

- + Attribute #1
- + Attribute #2

Location on the Belgian territory

*Source: BeST Adres*

# Hydrant & Pipe

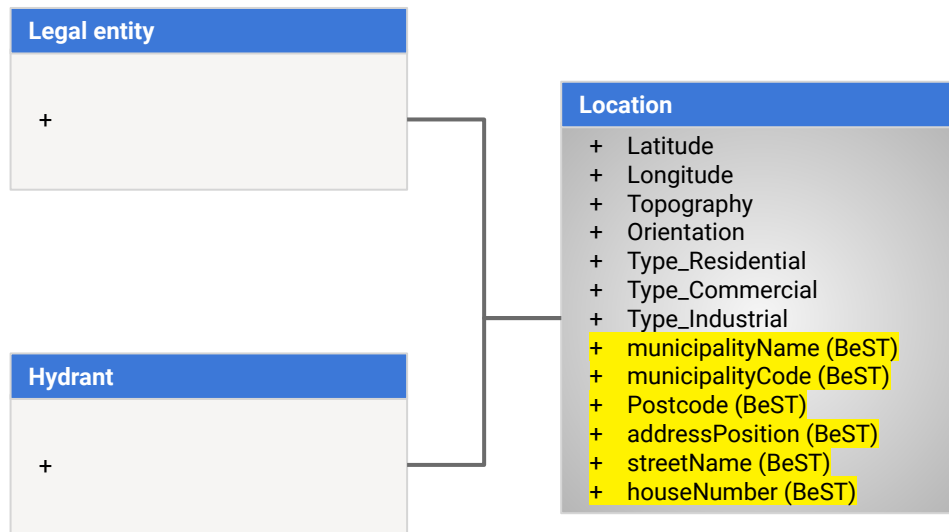


## Use Cases #3 & 4

- Extinguishing water sources require standardized attributes for effective utilization.
- Key attributes include unique identifier, type, source, hose connection type, availability, accessibility during emergencies, usage, and contact point.
- This information helps owners/users to take appropriate actions, such as identifying if a hydrant has been opened by a firefighter, whether it is available for emergency usage, and if it is being used for industrial or agricultural use.
- Other valuable attributes for hydrants include capacity, debit, pressure, and flow rate during different times of day.
- It's important to determine expected flow rates for different hydrant types and maximum flow rates for "super hydrants."
- Essential attributes include whether hydrants are vent or rinse pipes.
- Knowing the status of a hydrant, e.g., if it's working, out of order, defective or in need of repairing, or the last inspection date is vital information. Any delay for emergency services can lead to potential harm of civilians or properties.



# Location

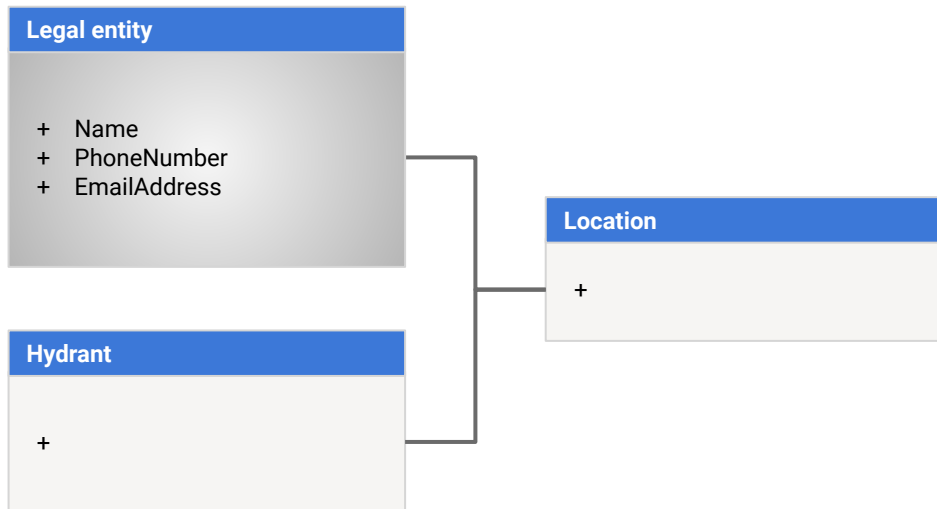


## Use Case #1

- Extinguishing water sources are objects with a location that can be identified through a set of geographic coordinates.
- In order to effectively manage these sources, emergency services require the ability to see the exact location of hydrants, determine if they are easily accessible (by truck), know the location of the signalisation of hydrants, and understand if they are located above ground or underground, on the street or sidewalk.
- Vector data can be used to quickly locate hydrants on the field, and the accuracy of spatial joins for hydrant locations can be determined.



# Owner



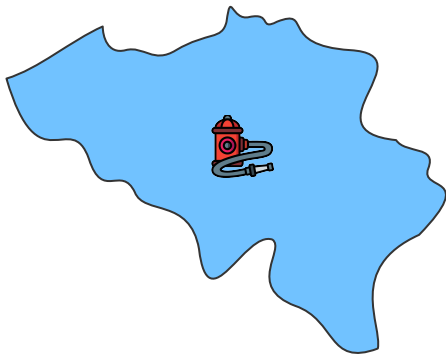
## Use Case #2

- Extinguishing water sources are typically owned by water distribution companies or enterprises with a high-risk profile.
- Clear ownership information is essential to enable linking with relevant authorities, such as the Enhanced Crossroad Bank for Enterprises.
- Being able to know the owner of a hydrant is important in order to contact someone in case a pressure raise has to be requested.
- Data should be periodically requested from the different water companies.



# Attributes on a map

*What elements should be represented on a map and for the latter what should be the classifications / values?*



## Type

- Underground ("H")
- Above-ground ("B")
- Aerial
- Open Water

## Status

- Operational
- Out of service
- Under repair
- Needs maintenance

## Diameter

- 80 - 350 mm

## Flow rate / debit

- **To be confirmed**

## Signalisation

- Underground ("H")
- Above-ground ("B")
- Diameter size
- Direction ("T" + Distance)

## Use Case #05

- Create a link between attributes and standardized symbols.
- Use standardized symbols for hydrants.
- Establish standardized symbols to be displayed in cartographic interfaces.
- Align symbols with other thematic layers like gas, sewage, and high voltage cables.
- Symbols should indicate attributes such as whether a hydrant works or not, the diameter, the debit, and access points of a water source.

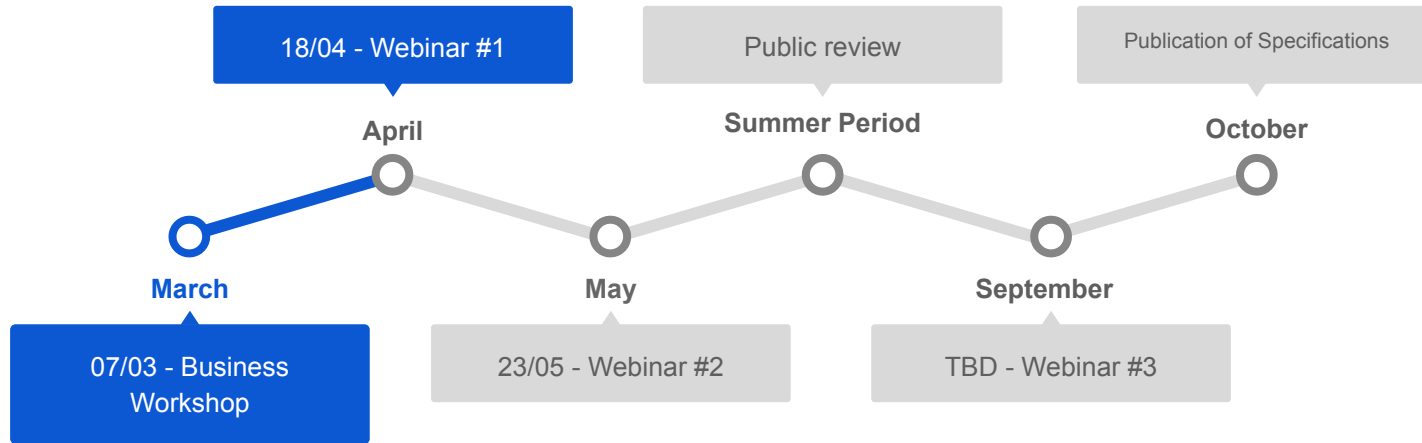




**Next steps**



# Timeline



# Next steps – In the meanwhile...

01

Identify existing committee(s) who would need to be involved in the validation process, to ensure parties are present to meetings and requirements are subsequently expressed

02

Continue to onboard domain experts from the relevant public administrations in the Working Group

03

Process the input from the first thematic workshop (today's webinar)

04

[Circulate the main findings/report of this workshop](#). Feedback is appreciated!

05

Compare the model – its entities, definitions, attributes, codelists – with your requirements and discuss the later on GitHub

06

Capture further input through GitHub!



# Feedback can be provided either

**on GitHub at:**

<https://github.com/belgif/thematic/issues>

**or via email to:**

[vincent.feremans@pwc.com](mailto:vincent.feremans@pwc.com)

[christophe.bahim@pwc.com](mailto:christophe.bahim@pwc.com)





**Thanks!**

