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ENVIRONMENTAL DATA SPACES

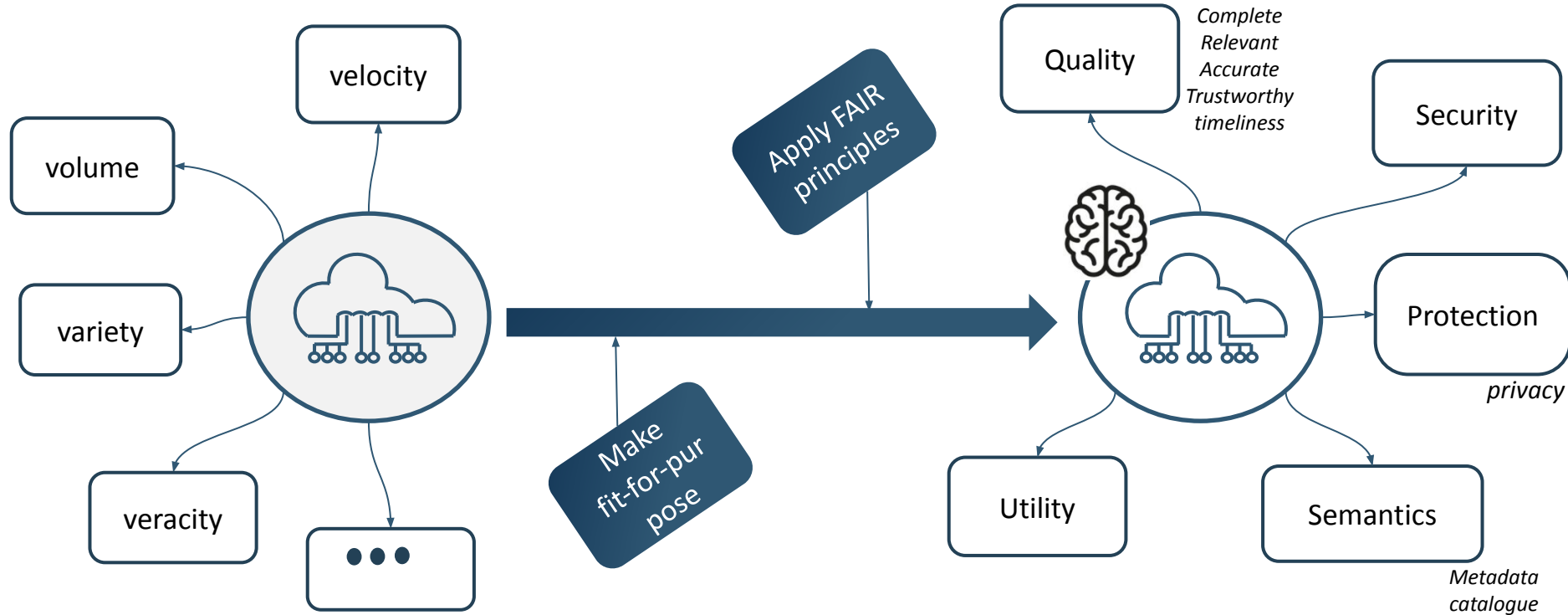
Research on air (and water) quality measurements



THE EUROPEAN DATA CONFERENCE ON REFERENCE DATA AND SEMANTICS

From BIG data to SMART data

#smart data management
#smart data governance



Research : real-time AIR (&water) quality measurements



Mobile AQ measurements

AQ data calibration

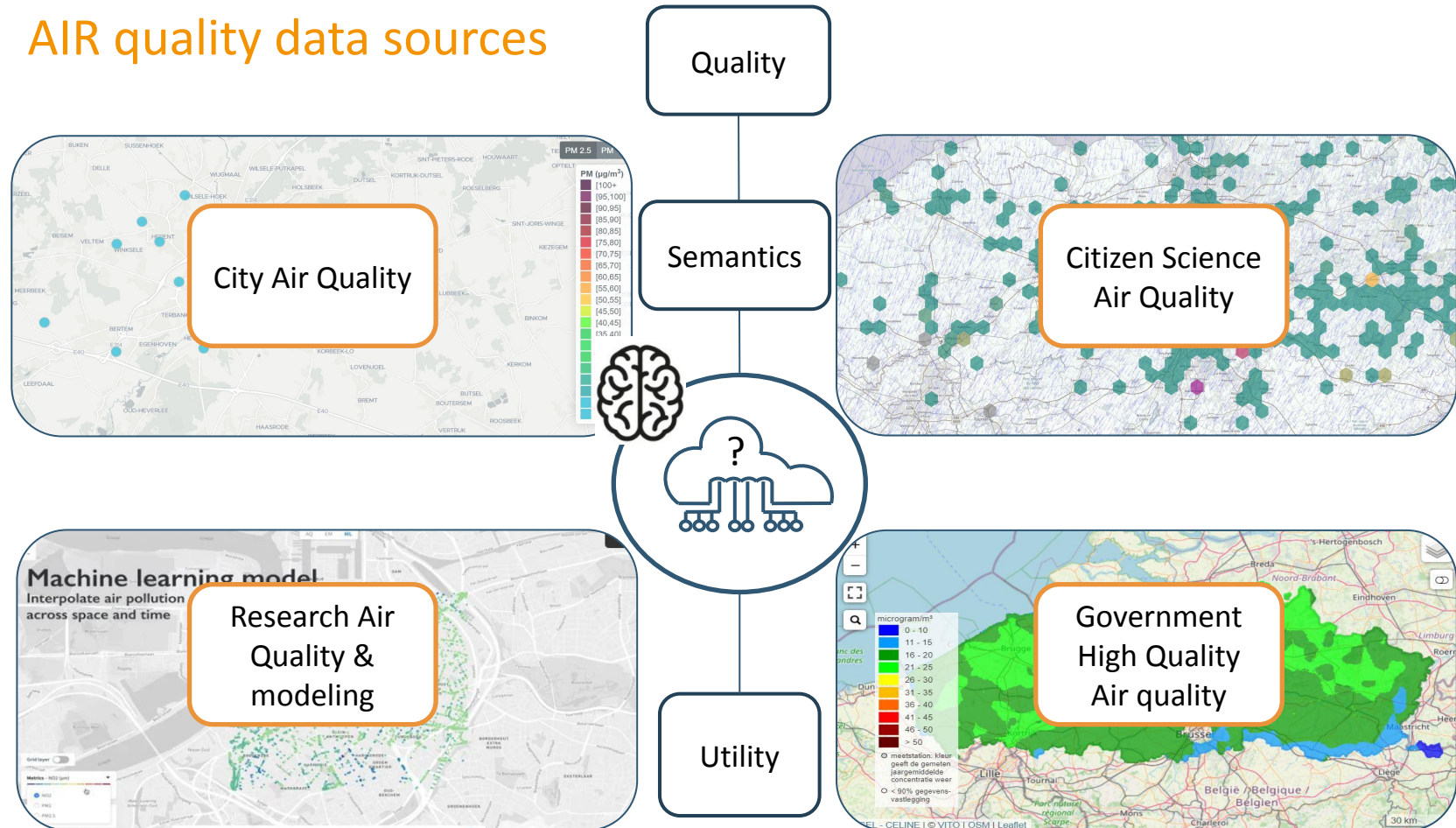
AQ real-time data extrapolation

Region-wide data measurement

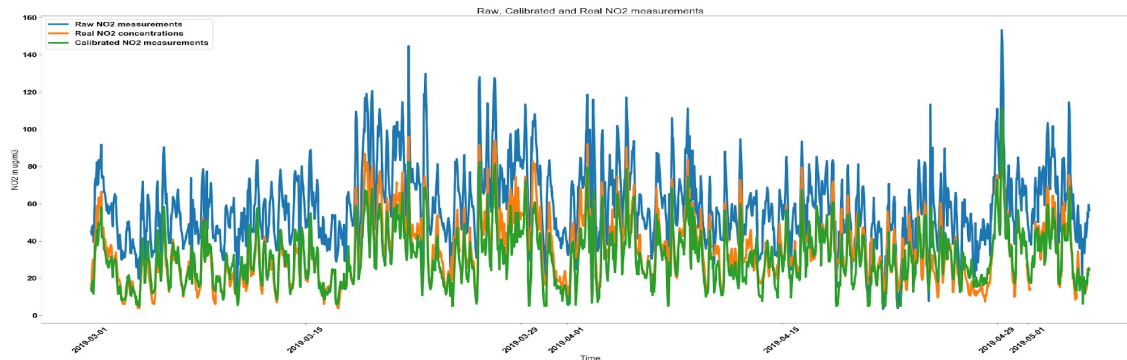
New WQ sensor technology



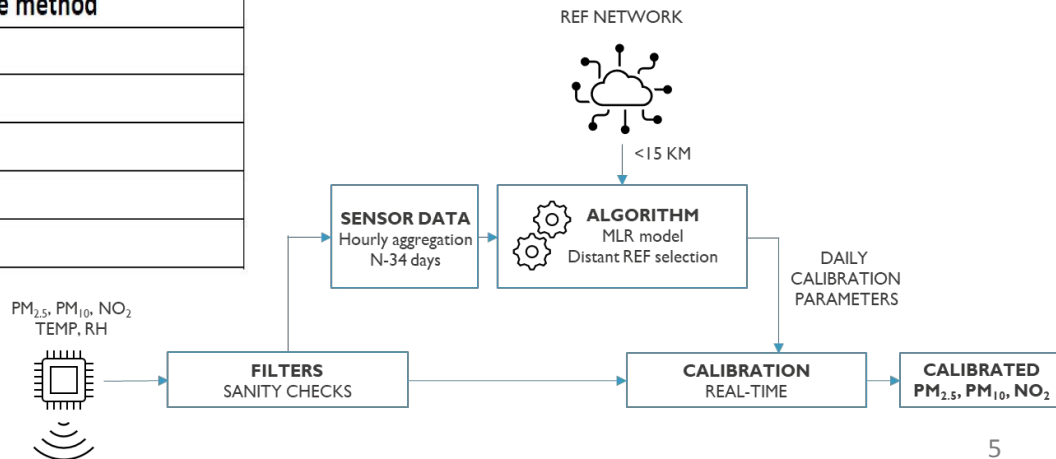
AIR quality data sources



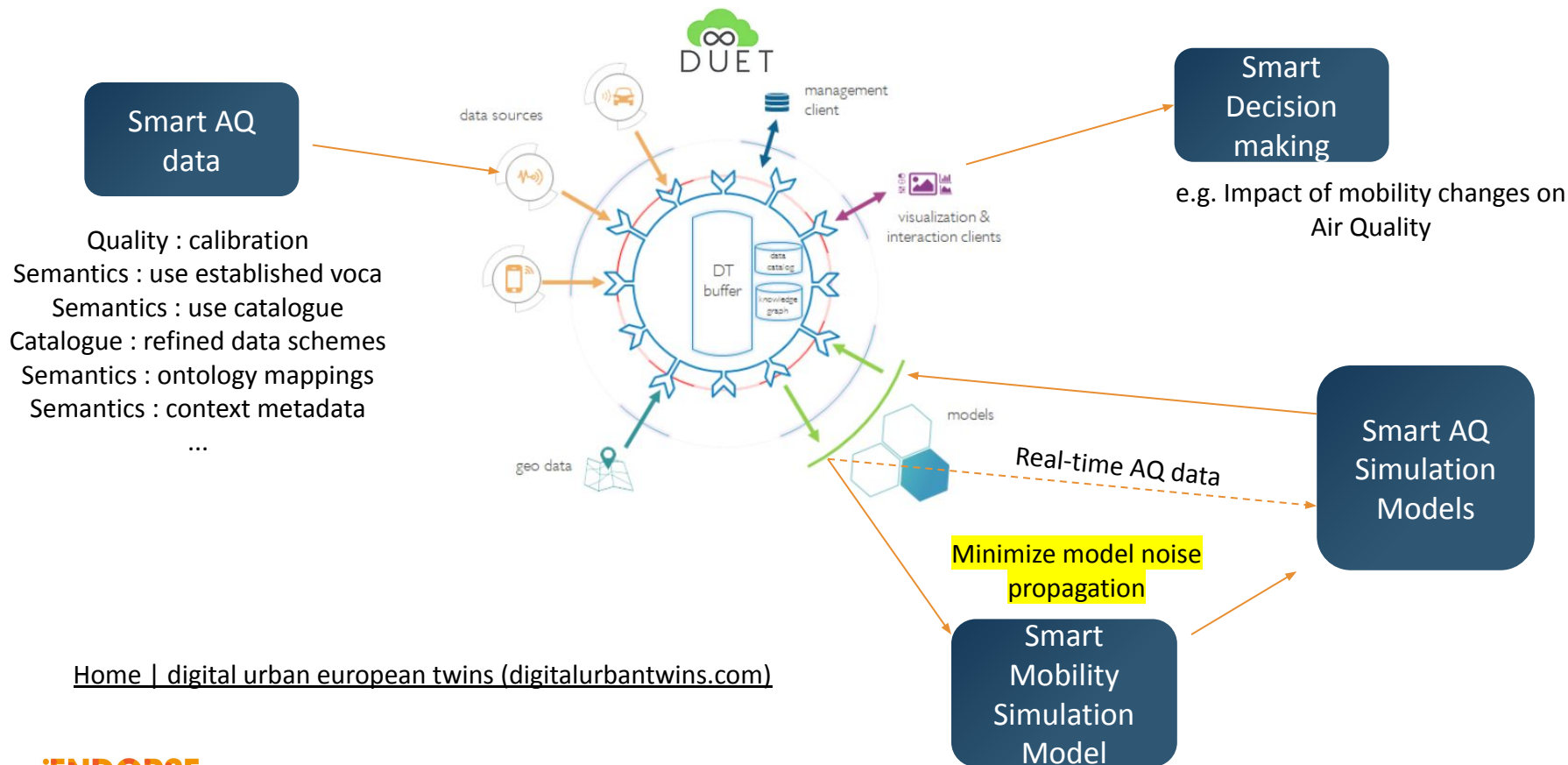
ACCURACY FOR SENSOR-BASED AQ MEASUREMENTS



Class title		PM: % difference from equivalent method	Gasses: % difference from reference method
Qualitative		<15	<15
Supplementary	■	15-50	15-25
Sensitizing	■	50-100	25-75
Inadequate	■	100-150	75-200
Out of category	■	>150	>200



Utility ? Urban Digital Twins for cross-domain simulations



Important challenges and attention points

Alignment of metadata standards, vocabularies, semantics

All (Air/Water)
domain data
communities

→ **OSLO*** – Open standards for Linked Organizations

On AQ: OSLO trajectories to define AQ vocabulary with national URIs (CEF ODALA)

Shared principles for data collaboration and agreements

All City IT/Data
communities +
domains

→ **VLOCA**** – Open City I(O)(C)T Architecture

On AQ: IT building blocks to realize FAIR principles (e.g. data catalog, mapping catalogue,...)

Shared infrastructures and metadata catalogues

Available for all
communities

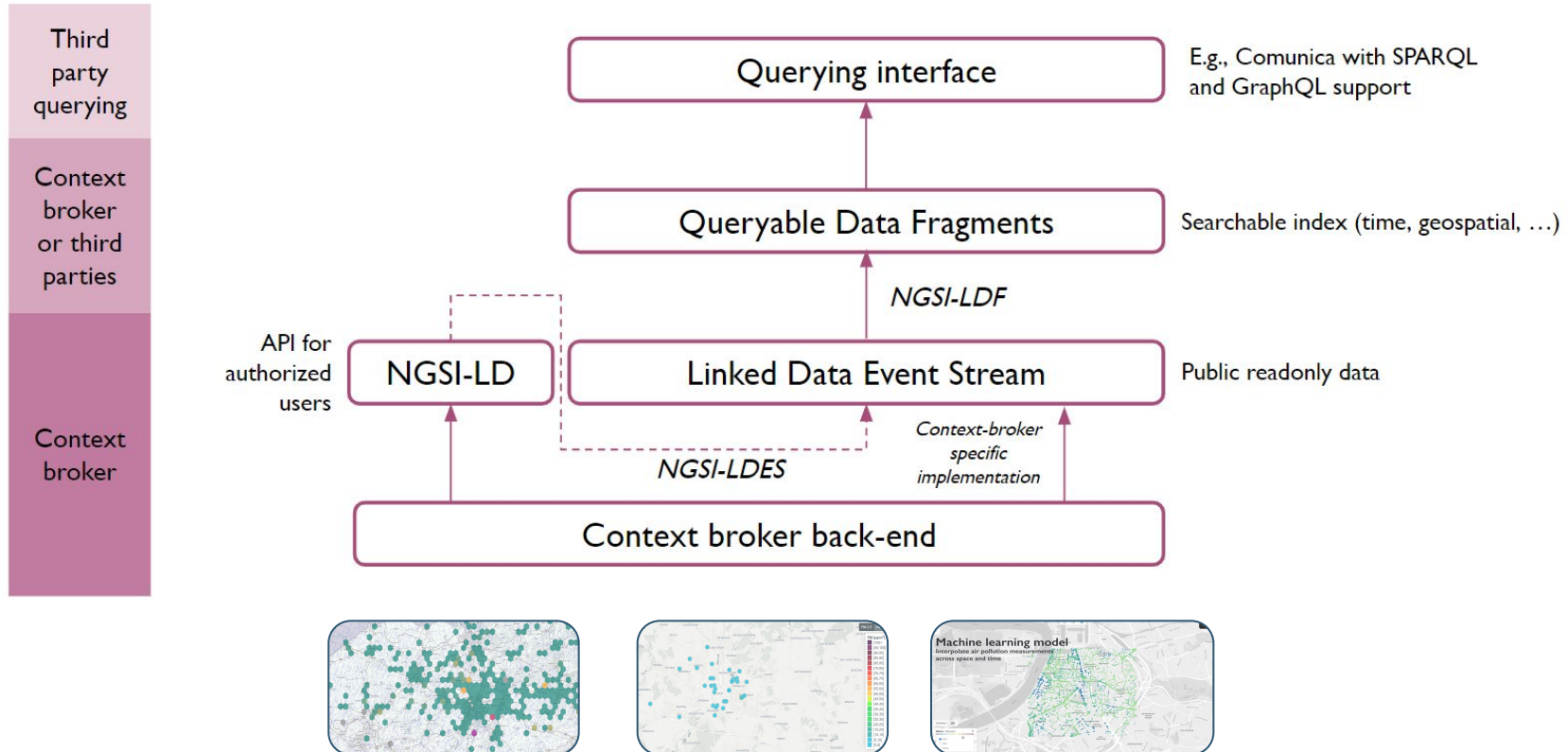
→ National level :
metadata.vlaanderen.be

Find back metadata in Flanders for open data sets. #loveable data

* <https://data.vlaanderen.be/standaarden/>

** [https://vloca-kennishub.vlaanderen.be/vloca-kennishub/Welkom_bij_de_Vlaamse_Open_City_Architectuur_\(VLOCA\)_Kennishub](https://vloca-kennishub.vlaanderen.be/vloca-kennishub/Welkom_bij_de_Vlaamse_Open_City_Architectuur_(VLOCA)_Kennishub)

Putting some solutions in practice



Still open challenges ! (non-exhaustive)

Bridging Semantic Web (open data)
technologies and enterprise
technologies together
#smart data management

Apply new insights like Linked Event
Streams on large-scale (& industrial)
level

Ever increasing gap between very fast
changing world and slow moving
standardization => need flexibility

Concluding remarks

Raw AQ data needs **quality treatment** to be usable

Disclosing real-time AQ needs a referenceable **vocabulary**

Not only open data, but any kind of data disclosure

Government support needed.
European to/from Local

Flexible and explicit **data scheme management** in a federated data broker

< data point measurement, location, device, ... > AQ metadata should stay “connected”

ENDORSE.

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