SEVENTH FRAMEWORK PROGRAMME
OMNISCIENTIS
(308427)

Environmental Information System and Odour Monitoring based on Citizen and Technology Innovative Sensors
First results

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	KTT-IMA-SARL	France society	W. Kunz
	Henry Tudor	Luxembourg C Recherches Public	Ph. Valoggia

+ industrials, NGO, administration

Scope

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SCOPE of the OMNISCIENTIS project (FP7, start in October 2012)

- Mitigate the odour annoyance

  considering the stakeholders:

  - the source of nuisance,
  - the citizens living in the neighbourhood,
  - the authorities at various levels

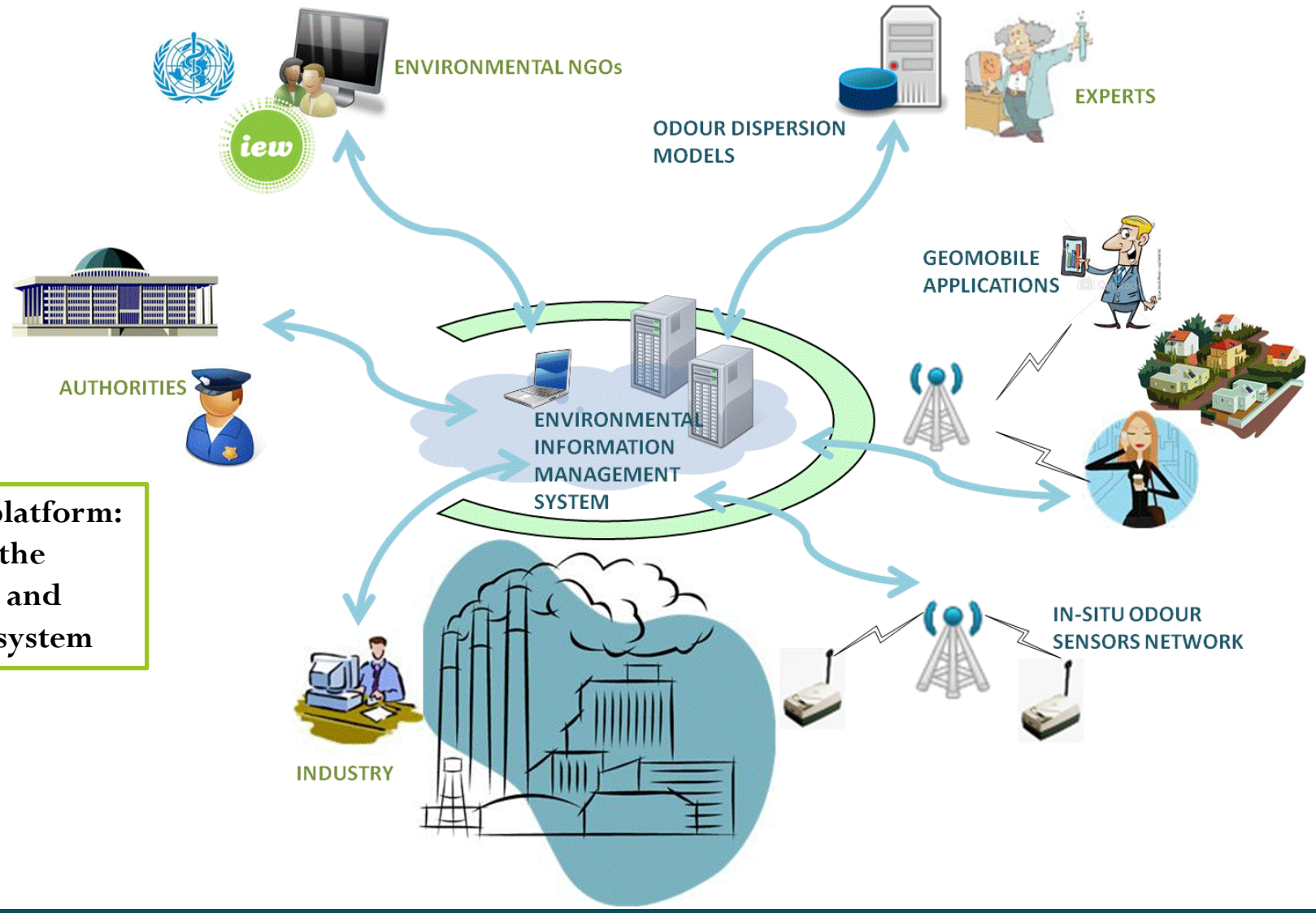
- Develop an <u>Odour Environmental Monitoring Information System</u>

CHALLENGE

integration of citizens as "**community-based**" observation providers

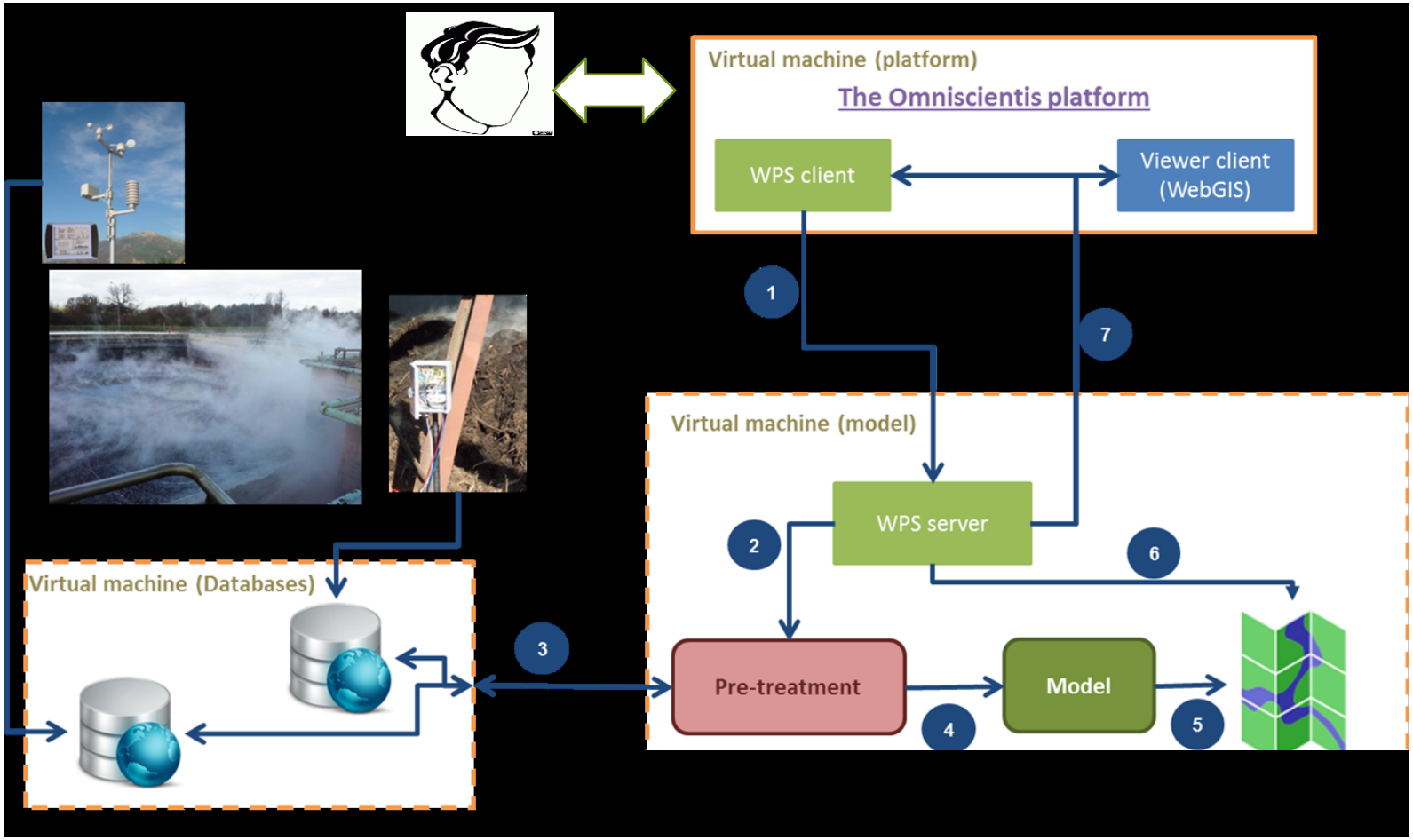
- giving the odour perception and discomfort in real time
- getting the feed-back in real time from a learning monitoring system

Odour Monitoring Information System (ODOMIS)



web-based platform: the heart of the Information and monitoring system

Platform: Interaction scenario client-enoses-dispersion model



WPS: Web Processing Service

Partner: Spacebel

Pilot Cases

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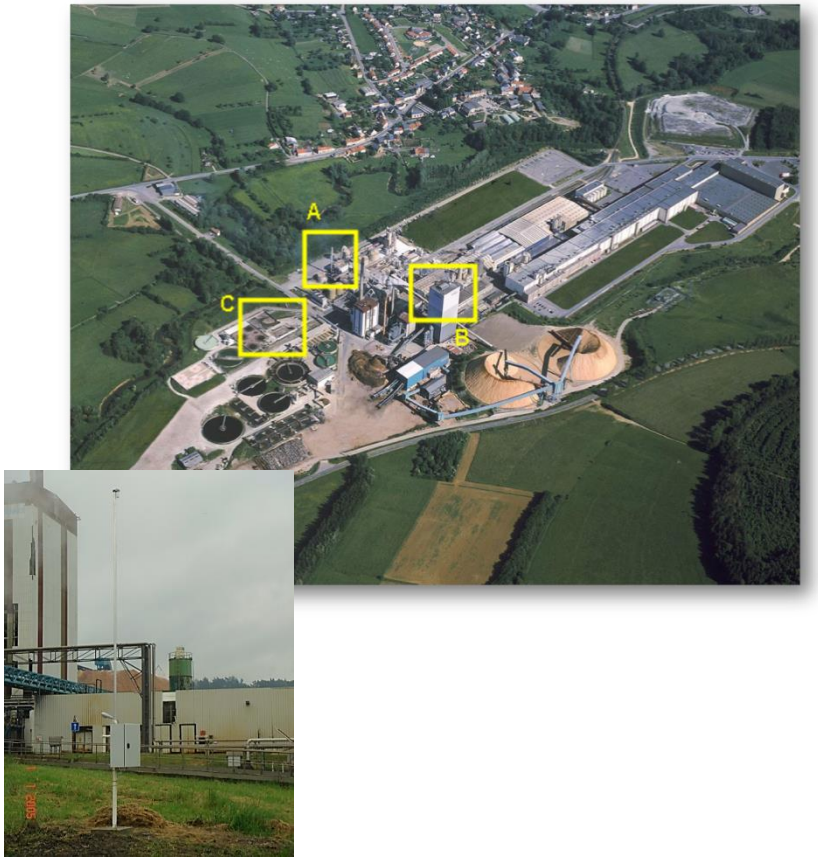
Pulp Paper mill in Belgium



Pig farm in Austria

Odour Inputs for the dispersion model

Odour **emission** data

Partners: ULg-Odometric

to estimate the Global Odour Rate versus time (fluctuations), continuously with

- Real time process data (valve openings, flow rate, …)
- Odour flow rate measurements in the stacks (ou_E/s)
- E-noses in the proximity of area sources, in the ambient air or in the stacks
- Chemical sensors (ie. electrochemical) and TRS analyser (for the paper mill only-UV fluorescence)

+ **Meteorological** data

Odour Inputs for the dispersion model

Odour **immission** data

Partners: ULg-Odometric-Tudor

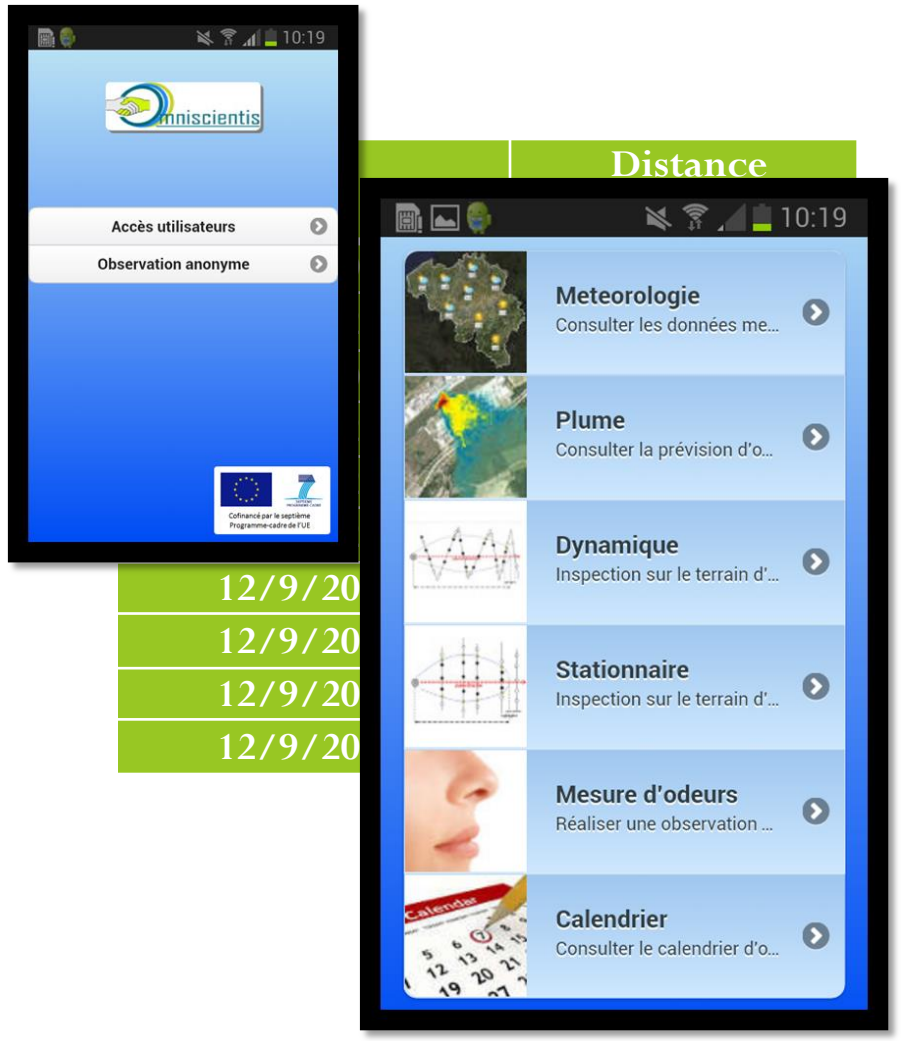
to validate (improve) the dispersion model by

- Experts: field inspection (CEN/TC 264/WG 27)
- 32 watchmen (trained citizens, measurements twice a day, 4 days a week)
- Untrained Citizens

With **Geomobile application**

Partner: Spacebel

ODOMAP



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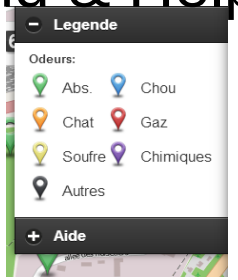
Options

Legend & Help



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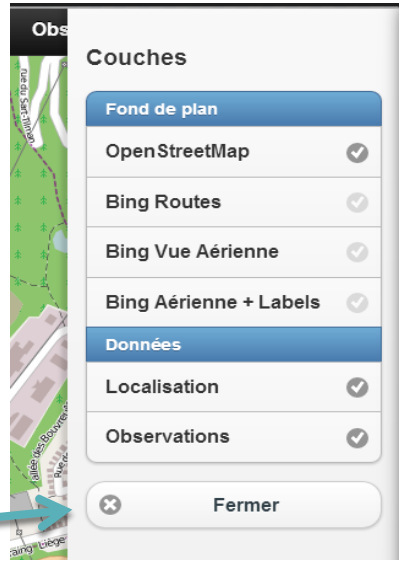
Details



Layers

Automatic geolocation:

GPS, WiFi or network, best option available.User can also locate himself manually

Odour prediction: the dispersion model

Instant Odour Plume Maps

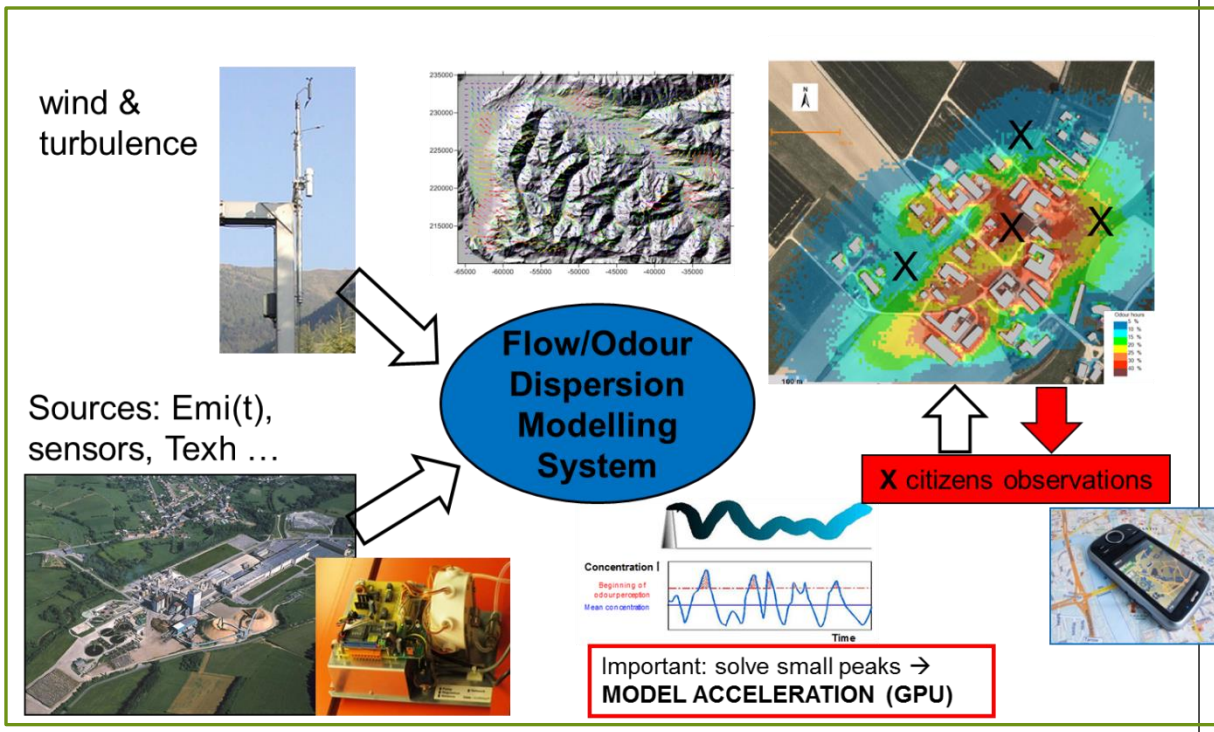
Partners: TUG-KTT-iMA

need to represent fast the peaks with new specific odour dispersion model

Dispersion model "GRAL-System"

Lagrangian dispersion model

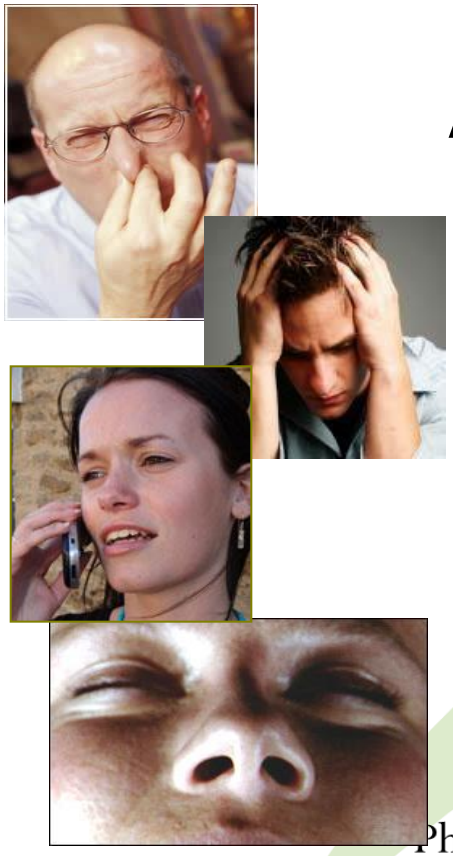
modified to be applied for odour



A living lab Approach

Not only technically driven solutions but also socio-scientific approaches

Partners: Ulg-Odometric-Tudor



A progressive approach

Phase 1
Interesment

Phase 2
Enrolement of citizens as watchmen

Phase 3
Conception of gouvernance system

Phase 4
Running the system
sustainability

Expected benefits

For the stakeholders

- Get the citizens in the loop : “give a voice to neighbours”
- Help industries in tuning nuisance generating processes- objectivation
- Generate uncontroversial data and support local Authorities in decision-making
- Improve odour data input for legislative framework
- Improve citizens well-being

Conclusion and perspectives

Current state after one year

- ☑ Platform is running
- ☑ Geomobile Apps is operational on smartphone (also web), used by the watchmen, citizens and experts
- ☑ Input odour data are collecting (e-noses; real time process data;…)
- ☑ E-noses data, ODOMap data, process data are in the WPS, sending info in real time to the platform
- ☑ Living lab is ongoing

Next steps

- ➢ Integrate the input odour data to obtain the instantaneous global odour rate
- ➢ Finalize the odour adapted GRAL dispersion model and implement it in the WPS
- ➢ Connect the meteorological data, the input odour data, the stakeholders data to the dispersion model
- ➢ Validate the tool "ODOMIS"

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Thanks for your attention

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