

Implementation of unified continuous odour monitoring system in 3 terminals of the Ventspils Freeport

1. CONTEXT

OBJECT:

Ventspils city, company Ventspils Freeport, several terminals, unloading, short-term storage and loading of oil products.



- HISTORICAL ISSUES:**
- Dynamic air pollution sources
 - Emissions of smelling substances
 - Citizen complaints

2. RULES

The Freeport monitors incoming data ...

If the odour concentration exceeds 5 OUE/m³ on terminals border, authorities require the operator of the terminal to do all measures that decrease concentration of the odour (for example, to decrease intensity of loading tanker,

And from the side of the operator..

If the odour concentration on terminal's border exceeds 5 OUE/m³, then the operator immediately starts to do measures to reduce the odour concentration.

3. EMISSION SOURCES

- Reception process - unloading wagon tanks from piers
- Storage infrastructure - reservoirs
- Delivery process - loading of tankers

An interesting fact: terminals are using the same docs for loading tankers but relationships between terminals are not good at all



4. ACCEPTED SOLUTION

Introduction of the RUBIX S&I continuous e-nose odour monitoring system in all three terminals of Ventspils Free Port.

Each terminal ordered:

- **3 electronic noses** RUBIX S&I WT1;
- **3 meteorological stations** LUFFT WS 200 TITAN, specially adapted for ELLEs needs;

The whole system consists of **9 e-noses** and **9 meteorological stations**



Electronic noses, WT1



LUFFT WS 200 TITAN

5. TECHNICAL SETUP



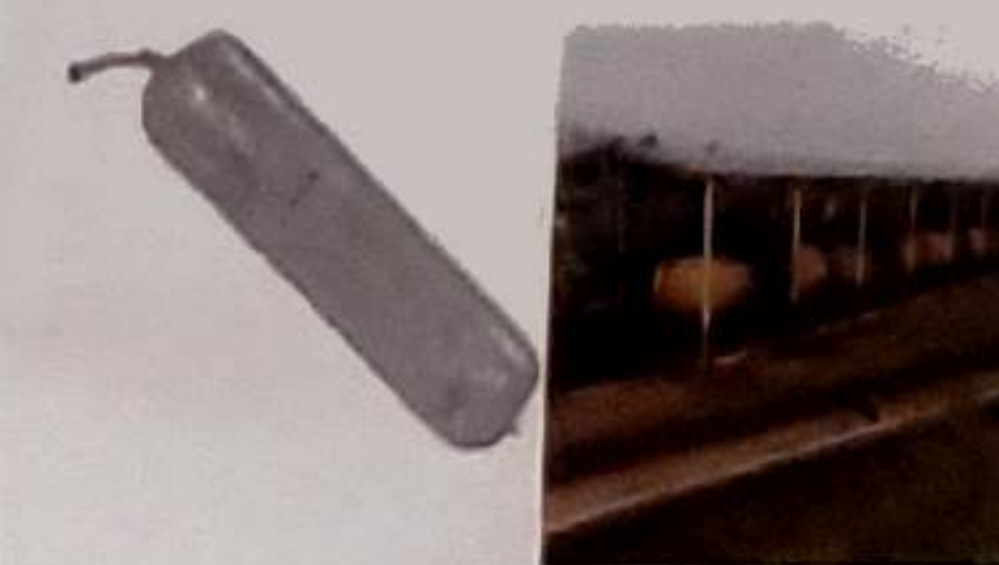
E-nose RUBIX S&I WT1 (forced air flow system, 2 electrochemical cells H₂S and mercaptan, 4 MOS sensors)

6. OBSERVATION & CALIBRATION STAGE

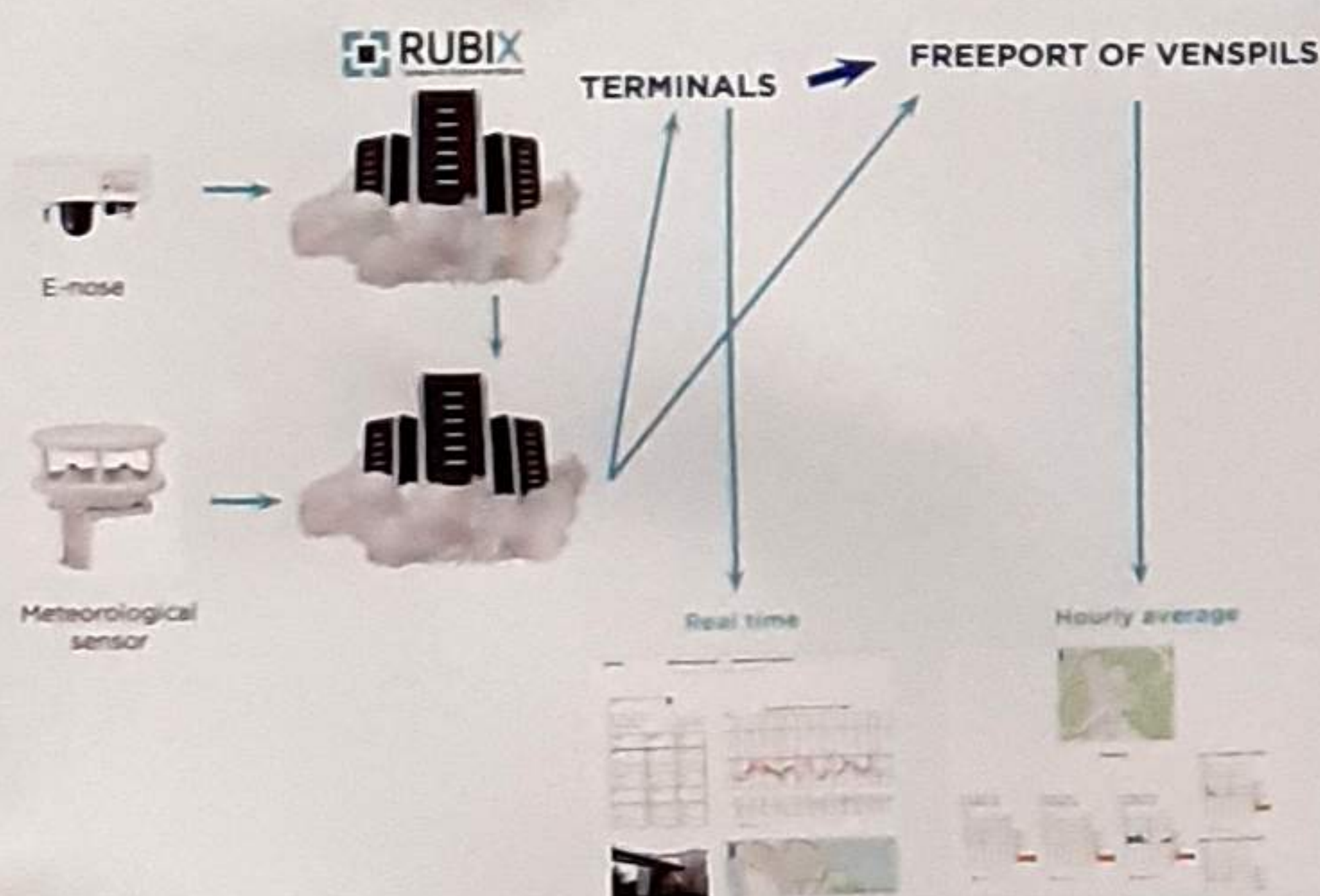
1. Odour study according to EN 13725 (dynamic olfactometry)

2. Main odour samples - black fuel oil, petrol, solvent naphtha, diesel and kerosene

3. Each instrument becomes a panel member



7. DATA FLOW



8. TRAINING PROCESS



9. ASSESSMENT

- Odour study according to EN 13725
- Each e-nose becomes a competitor of panel
- Testing results should be within the range of uncertainty of reference method



10. SEAPORT MONITORING

1. Collection



3. Sniffing



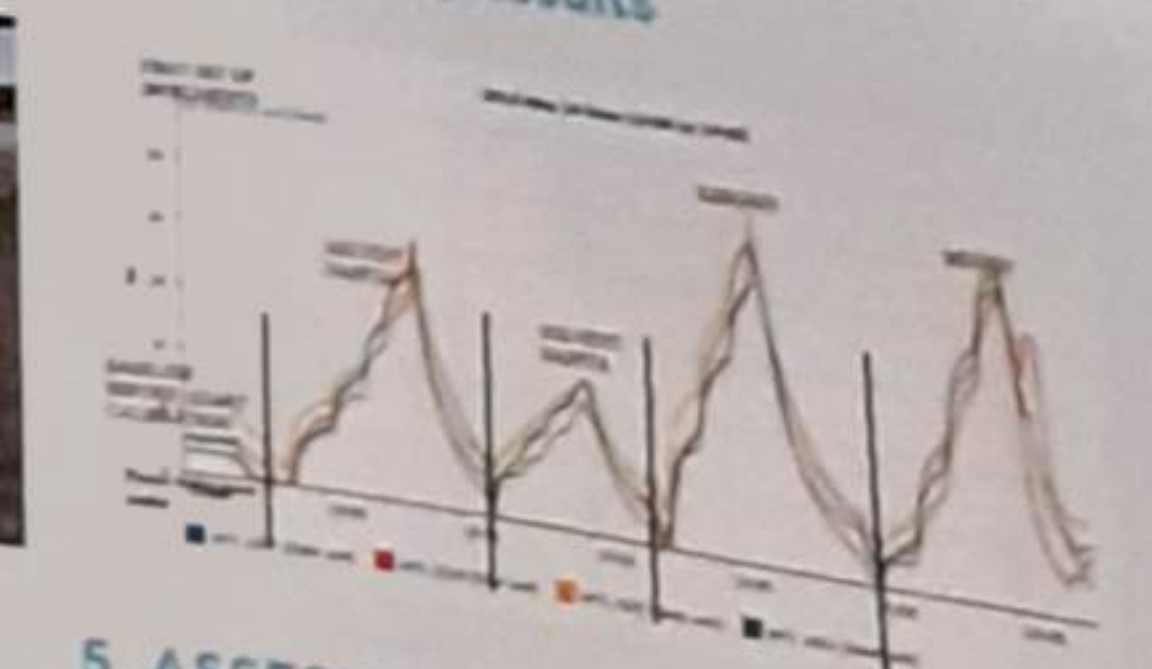
2. Feeding



4. Model building



5. Assessment/Results



5. ASSESMENT

