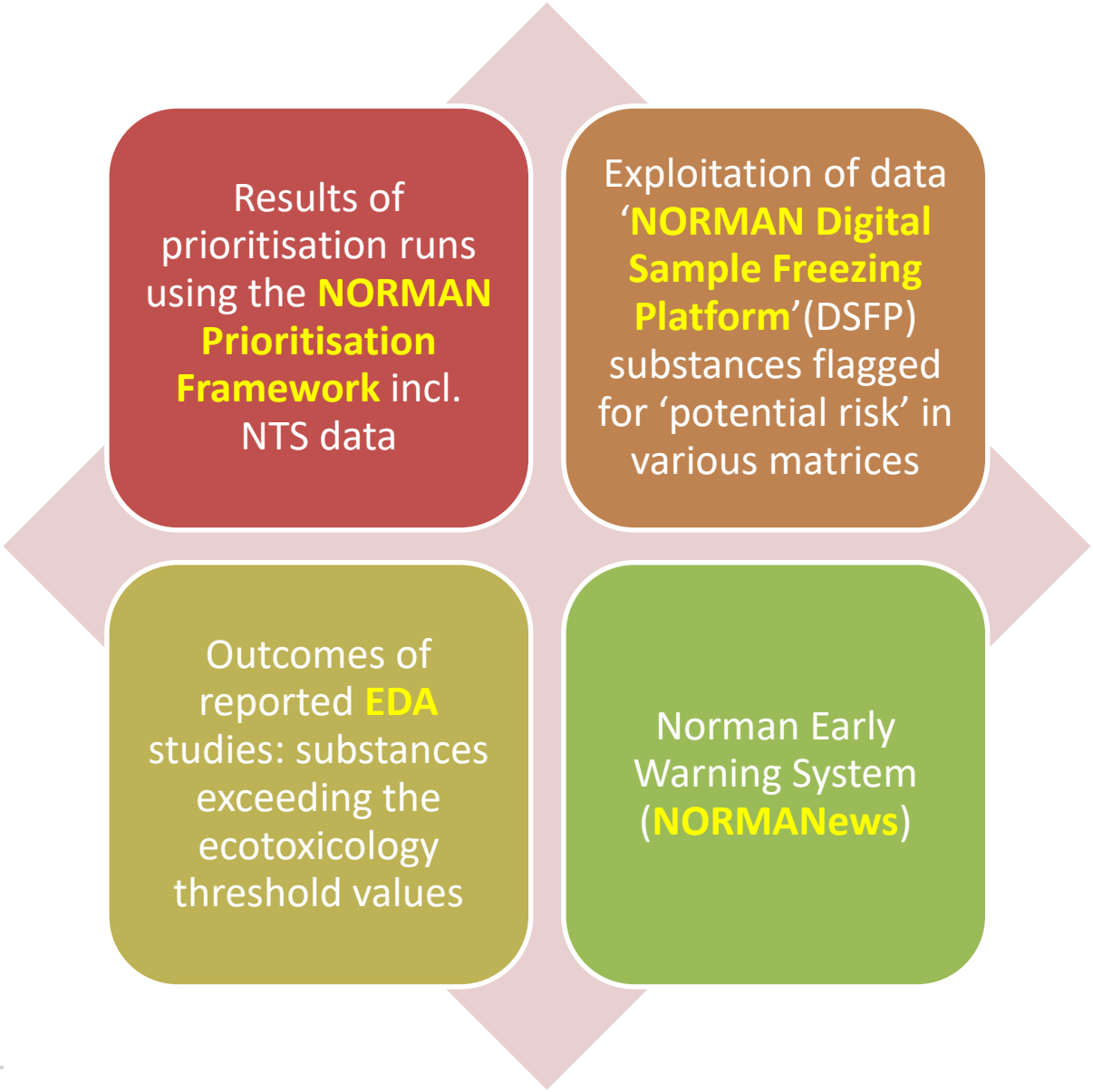
EARLY WARNING SYSTEM FOR CHEMICAL RISKS

NORMAN VIEW

Valeria Dulio, Jaroslav Slobodnik

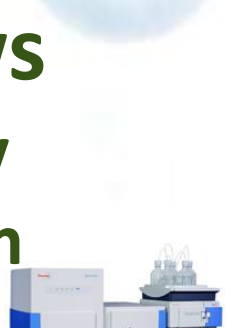
Tools developed by NORMAN to support Early Warning System



NORMANews

NORMAN Early Warning System

2) Identification criteria are sent to other labs in the network (retrospective analysis)



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Exploring the Potential of a Global Emerging Contaminant Early Warning Network through the Use of Retrospective Suspect Screening with High-Resolution Mass Spectrometry

Nikiforos A. Alygizakis, Saer Samanipour, Juliane Hollender, María Ibáñez, Sarit Kaserzon, Varvara Kokkali, Jan A. van Leerdam, Jochen F. Mueller, Martijn Pijnappels, Malcolm J. Reid, Emma L. Schymanski, Jaroslav Slobodnik, Nikolaos S. Thomaidis, and Kevin V. Thomas

3) Frequently found ?

4) If it is frequently found → Warning

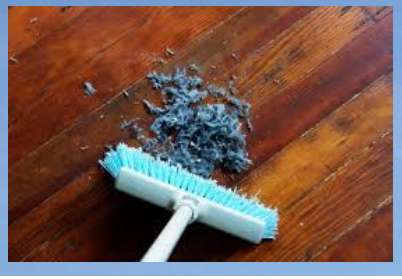
MassBank Record: KO001419

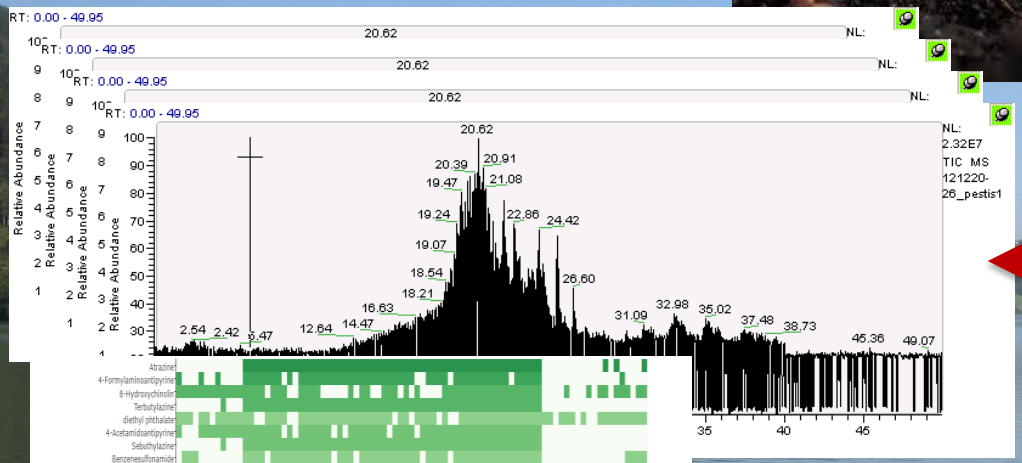
1) One lab identifies a new contaminant

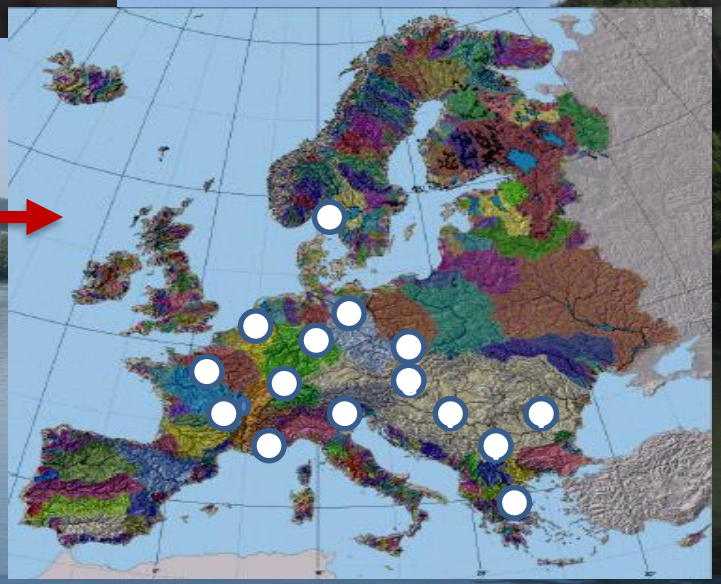
NORMAN

Network of reference laboratories, research centres and related organisations for monitoring of emerging environmental substances

NORMAN DSFP



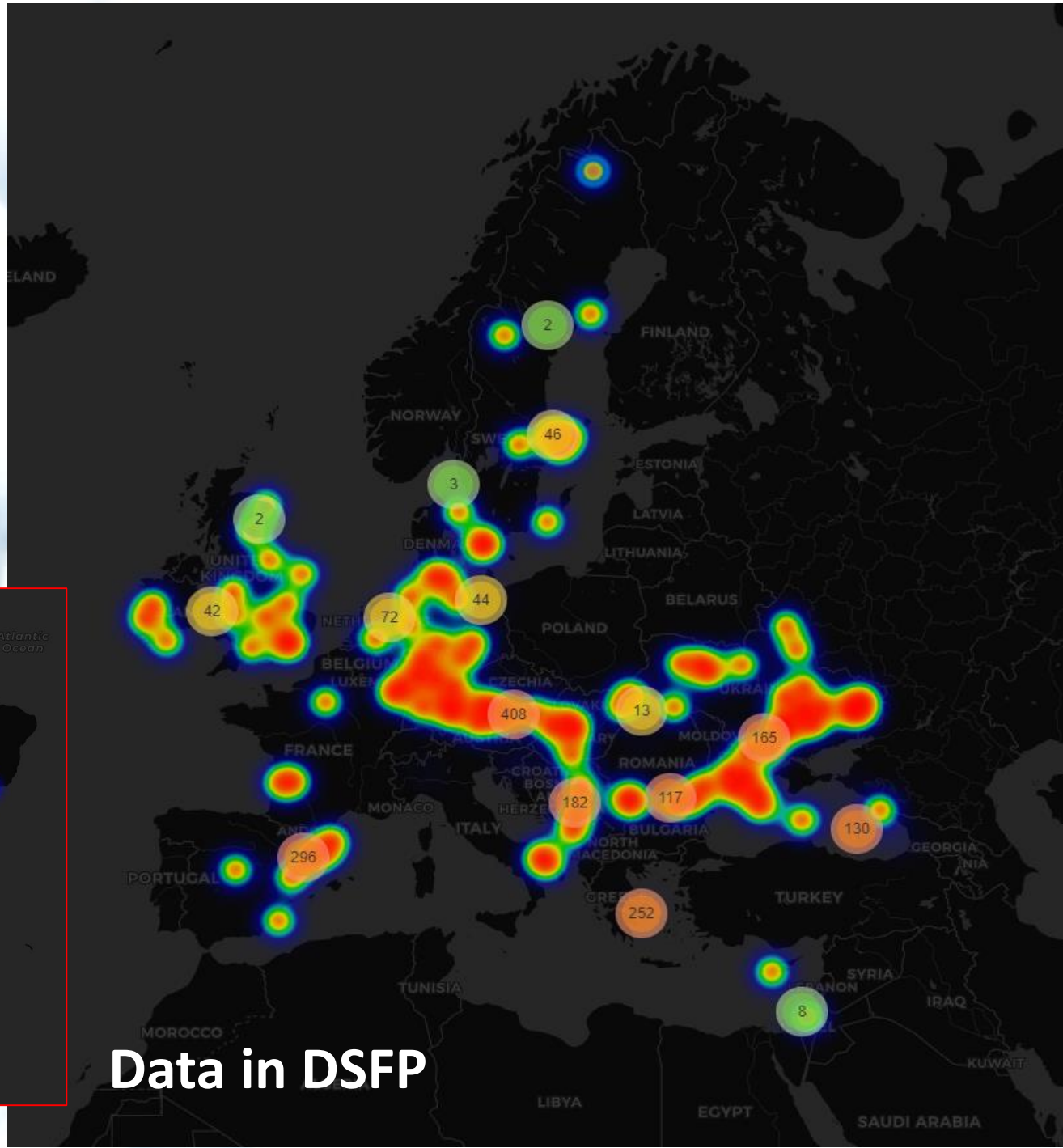




DSFP: raw HRMS data of samples stored in a „digital specimen bank“ for retrospective analysis

- **Spatial distribution of contaminants**
- **Exceedance of threshold values**
- **Increasing trends**

NORMAN Early Warning System



Data in DSFP

Early Warning System

'Signal' - *a manifestation of an emerging chemical issue or risk by measurement or observation, providing information on its nature, sources and causes.* (WHO Chemical risk assessment network workshop, 20-21 February 2019, Bilthoven, The Netherlands)

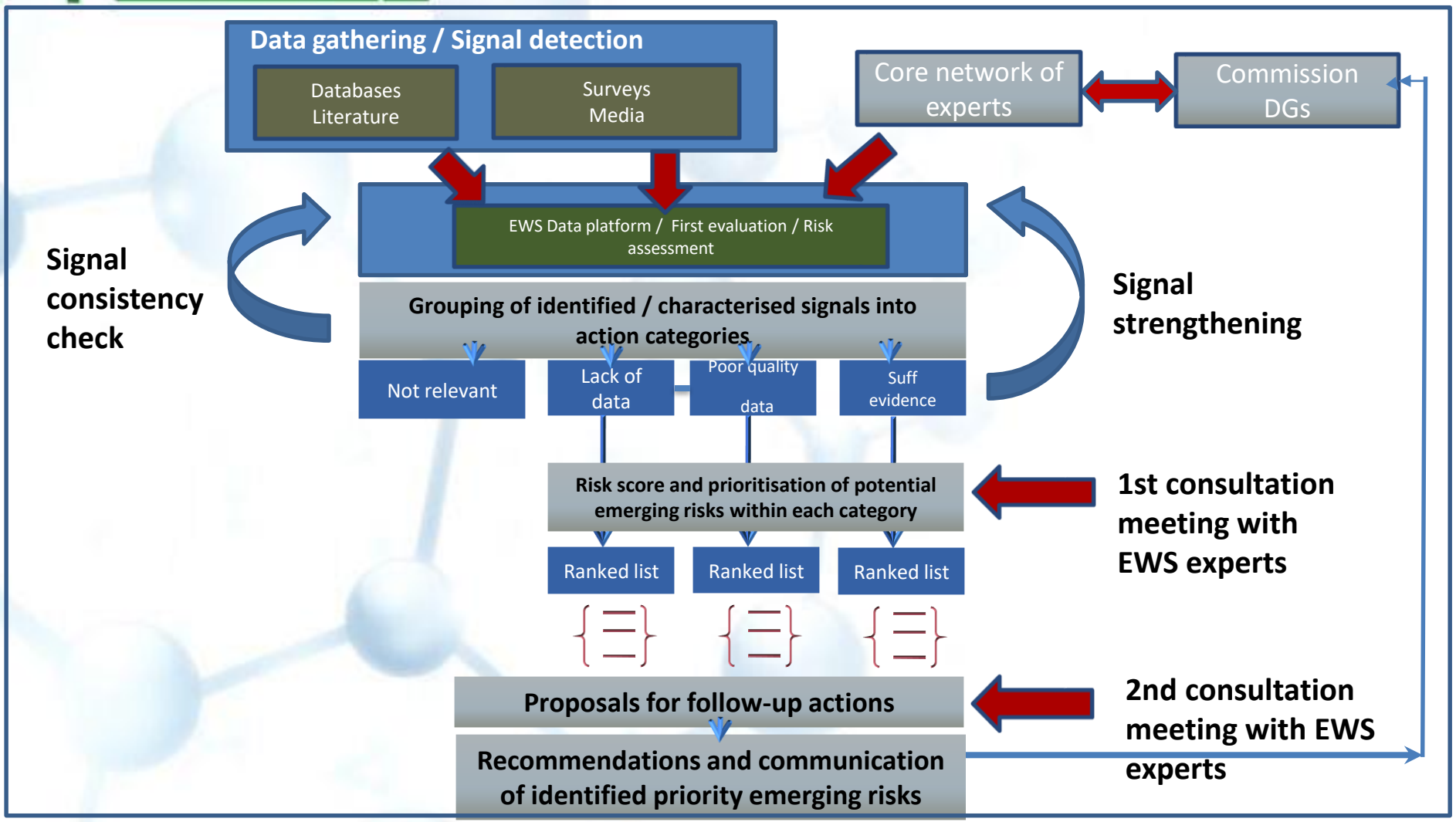
- IMPORTANT: **data** to correctly identify an emerging risk at an early stage are **typically limited or of poor quality**.
  - Use a transparent and rational approach for signal identification and characterisation that is able to deal with knowledge gaps

Categorise early warning signals

Early warning signal is **currently not of concern** based on the available information

Concern related to a particular early warning signal is insufficiently evidenced and **should be further assessed** when information becomes available

Early warning signal has been recognised to be of concern and should be submitted to a proper assessment and **to regulatory action(s)**


Data gathering / Signal detection
Databases
Literature
Surveys
Media
Core network of experts
Commission DGs
EWS Data platform / First evaluation / Risk assessment
Signal consistency check
Signal strengthening
Grouping of identified / characterised signals into action categories
Not relevant
Lack of data
Poor quality data
Suff evidence
Risk score and prioritisation of potential emerging risks within each category
1st consultation meeting with EWS experts
Ranked list
Ranked list
Ranked list
Proposals for follow-up actions
2nd consultation meeting with EWS experts
Recommendations and communication of identified priority emerging risks

NORMAN EWS objectives

- Identify substances with:
  - **Evidence of exposure and potential risk**
  - **Knowledge gaps** that prevent appropriate risk assessment and management measures
- **Optimised use of novel tools**:
  - NTS = wide-scope target & suspect & non-target screening
  - Existing databases
  - Literature data
  - Modelling tools
  - Biological tools and/or virtual EDA
- To obtain **more exhaustive analysis of**:
  - **The current status of knowledge**
  - **Future trends** for a large list of chemicals as **individual compounds and as mixtures**

Actions ?

- Actions organised by NORMAN *vs* actions to be performed under pilot EWS of DG ENV?
- Best way to collaborate?