



# D-NOSES

Distributed Network for Odour Sensing,  
Empowerment and Sustainability

# Co-creating the International Odour Observatory

**Authors:** R. Arias & N. Salas (Ibercivis Foundation [Spain]), M. Balestrini & L. Errandonea (Ideas for Change [Spain]),  
L. Francis & M. Alonso-Roldán (Mapping for Change [UK]), and J. Uribe (International Solid Waste Association [ISWA, Austria]).

## OUR PURPOSE

Odour pollution is the second leading cause of environmental complaints after noise<sup>1</sup>, and yet, remains relatively ignored in environmental regulations. Many communities have had to tolerate odour nuisance for decades, with no hope of action being taken.

D-NOSES aims to implement *Principle 10* of the Rio Declaration<sup>2</sup> by engaging citizens and building capacity for action based on a bottom-up approach. The project relies on the best of possible sensors to measure odours: people's own nose. With Citizen Science tools, such as *OdourCollect*, pilot communities can map and measure the problem. Armed with scientific, validated data, people will be empowered to become their own driving force for change. Following a quadruple helix model, citizens and stakeholders will co-design local solutions, which will filter up to a multi-level governance framework that can ultimately be used to introduce odour pollution into the policy agenda.

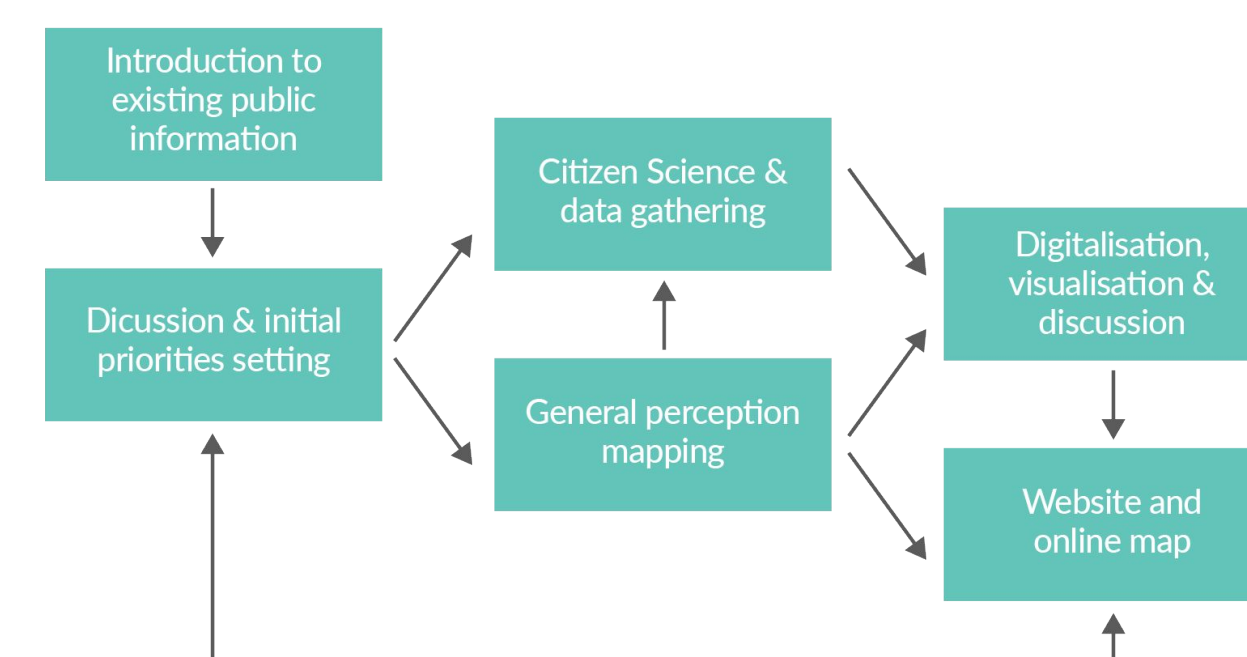
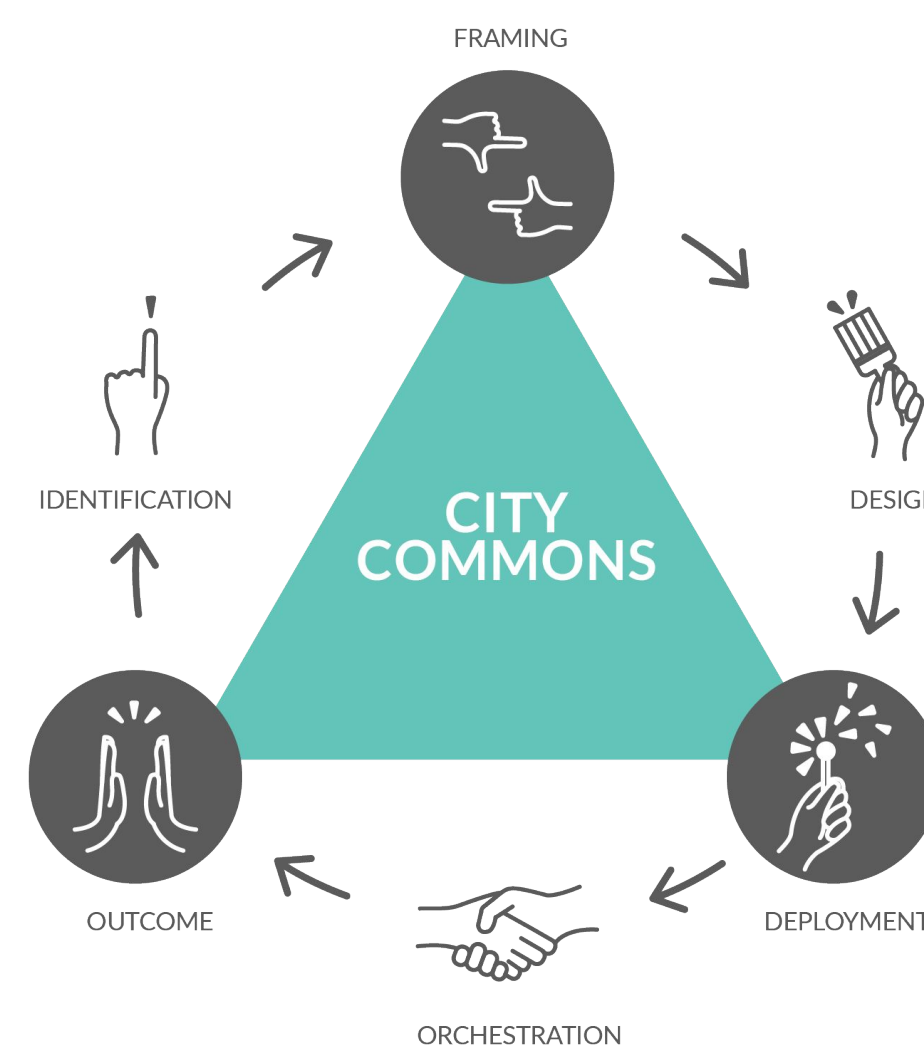
## OUR METHODOLOGY

D-NOSES aims to improve on existing engagement methodologies from project partners Ideas for Change (IFC) and Mapping for Change (MfC) through a comprehensive field evaluation of different methods. A combined approach will enable D-NOSES to create a reliable, replicable method that should be universally applicable in diverse regions and situations around the globe, to generate scientifically valid and actionable data through citizen science interventions that can improve people's lives.

### Our engagement methodology

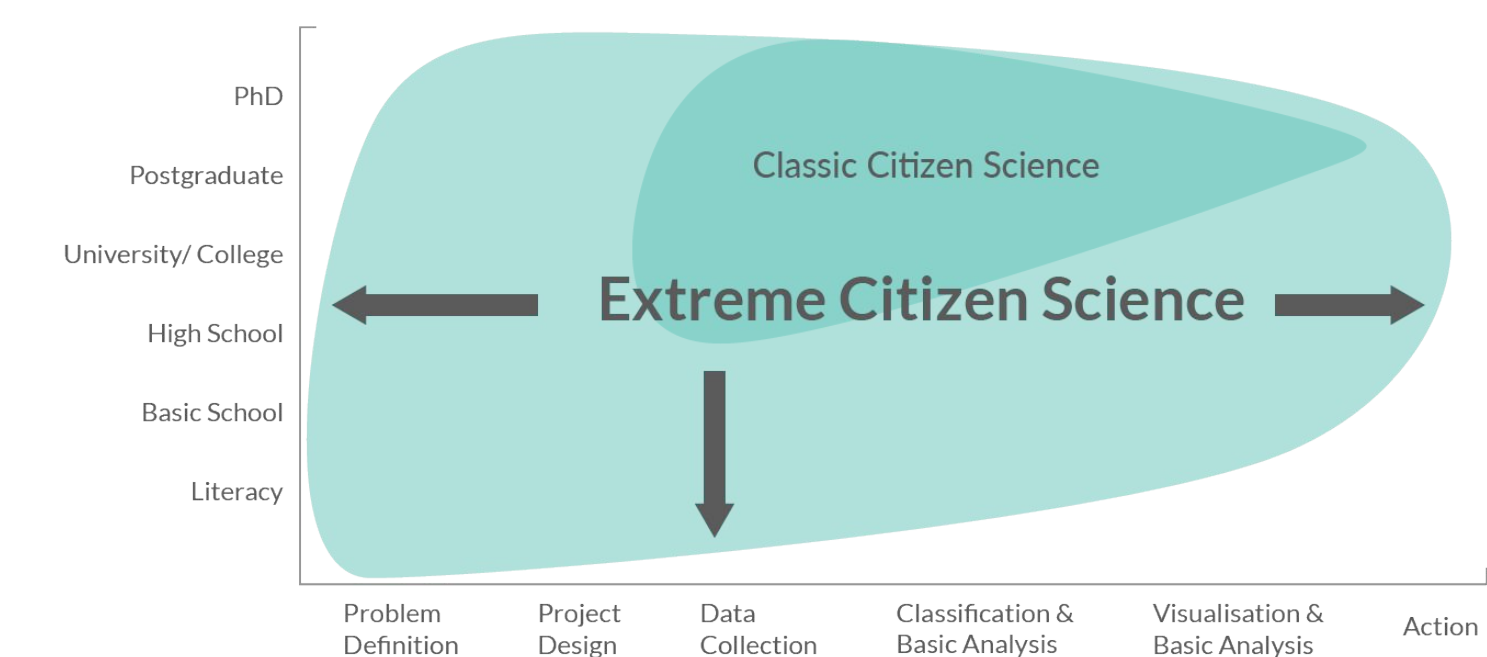
*The Bristol Approach*<sup>3</sup>, as developed by IFC, puts the concerns of citizens at the very heart of the process, helping local communities to co-design and implement citizen science based interventions around matters of concern in their living areas, such as odour pollution, which lead to creative solutions and positive results. This ensures a high level of sustained engagement throughout the duration of the project, as citizens are prepared to give their time and energy to address matters that are relevant to the community.

The *engagement model* by MfC<sup>4</sup> is deliberately flexible to follow different pathways directed by discussions and needs of the local community. Guided by *Principle 10*, the model starts by introducing already existing and accessible information. Then it follows up with a facilitation process that supports communities to collect and share their own environmental data from citizen science observations. The generated data is then evaluated and improved in an iterative loop so that it can finally support the drive for change.

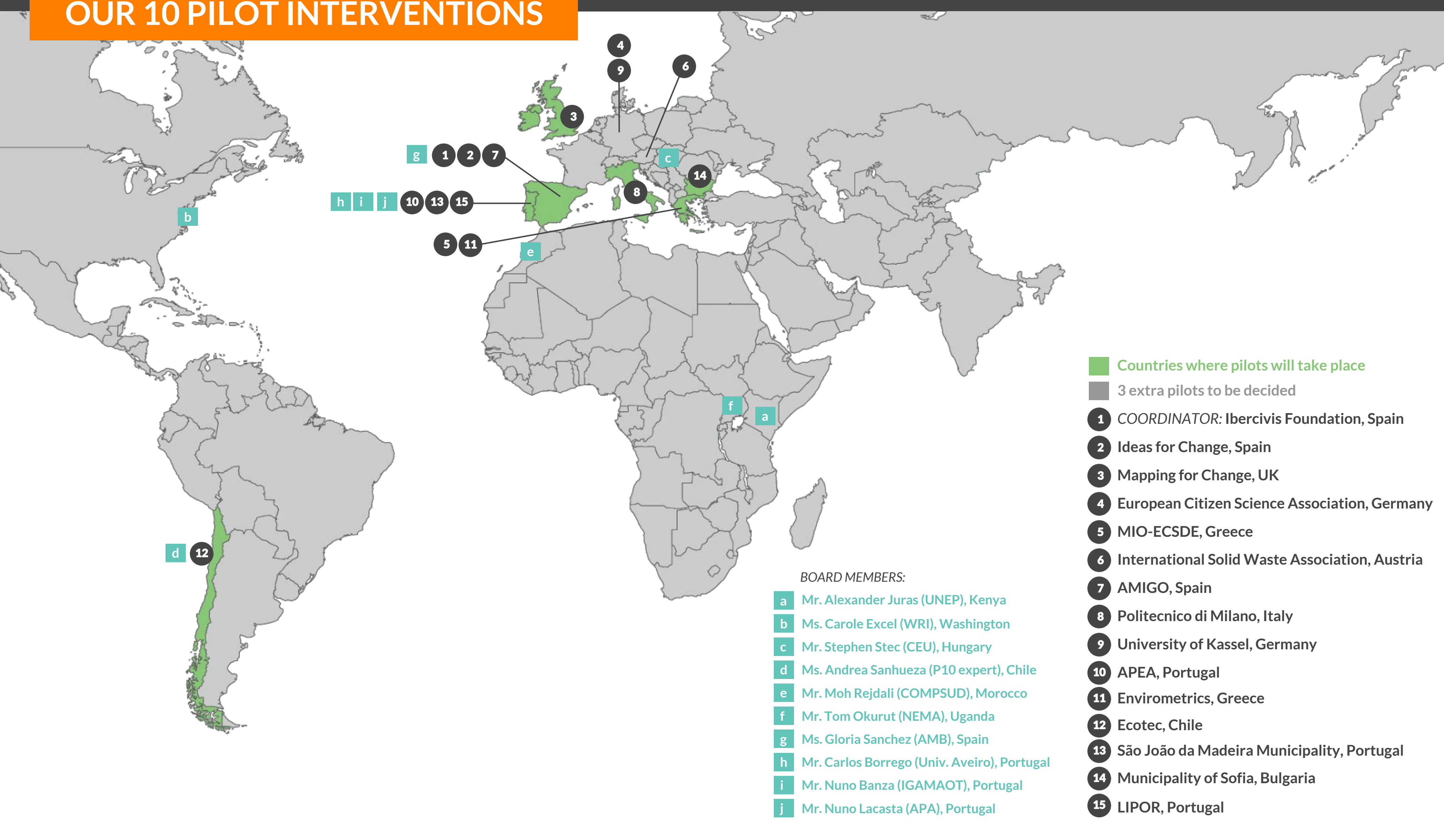


### Our inclusive citizen science approach

With local needs and culture at the forefront, the *Extreme Citizen Science approach*<sup>5</sup> provides communities with a means to not only monitor their surrounding environment and analyse their findings but to also define the problem, co-design methodologies and tools that enable them to own, share, and act on their results. Our citizen science interventions are intrinsically inclusive and apply all the *Responsible Research and Innovation (RRI)* dimensions, with a special focus on the gender and science education aspects.



## OUR 10 PILOT INTERVENTIONS



## OUR RESULTS

From April 2018 to March 2021,  
and with a 3,1 M€ budget,  
D-NOSES will produce:

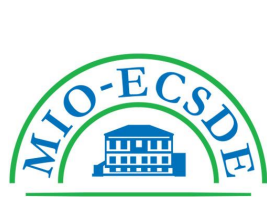
- The International Odour Observatory
- The Green Paper on Odour Pollution
- Scientific guidelines for policy-making
- The Strategic Roadmap on Odour Pollution
- DIY guidelines for project replicability

## REFERENCES

- <sup>1</sup> Pollutions olfactives: origine, législation, analyse, traitement. L'Agence de l'environnement et de la maîtrise de l'énergie (ADEME). Dunod, 2005.
- <sup>2</sup> Please, access Principle 10 and The Bali Guidelines at United Nations Environment Programm at: <http://web.unep.org/about/majorgroups/partnership/participation-information>
- <sup>3</sup> Balestrini, M., et al. (2017) "A city in common: a framework to orchestrate large-scale citizen engagement around urban issues." Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems. ACM.
- <sup>4</sup> Haklay, M., and Francis, L., (2018). Participatory GIS and community-based citizen science for environmental justice action, in Chakraborty, J., Walker, G. and Holfield, R.(eds.), The Routledge Handbook of Environmental Justice. Abingdon: Routledge, pp. 297-308
- <sup>5</sup> Haklay M. (2013) Citizen Science and Volunteered Geographic Information: Overview and Typology of Participation. In: Sui D., Elwood S., Goodchild M. (eds.) Crowdsourcing Geographic Knowledge. Springer, Dordrecht. [https://link.springer.com/chapter/10.1007/978-94-007-4587-2\\_7](https://link.springer.com/chapter/10.1007/978-94-007-4587-2_7)



Coordinated by:



#OdourObservatory

#dNosesEU

d-noses.eu

@dNOSES\_EU

dNOSES.EU



Funded by the Horizon 2020 programme of  
the European Union  
Grant Agreement No 789315