



Scivil Netwerkevent

Mechelen, 20 May 2019

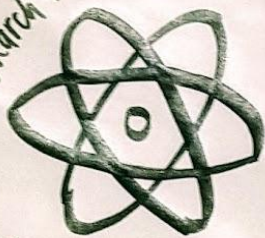
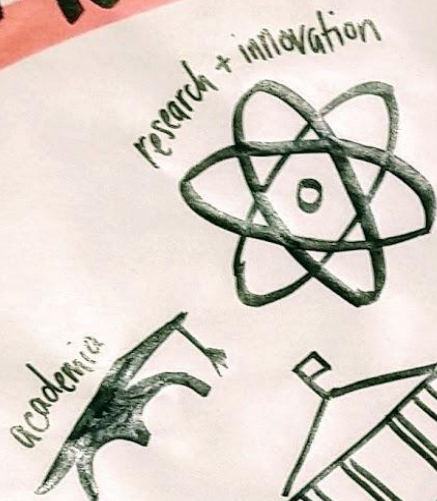
Participatory approaches for Citizen Science

Marzia Mazzonetto, Maria Zolotonosa, Michael Creek
Stickydot

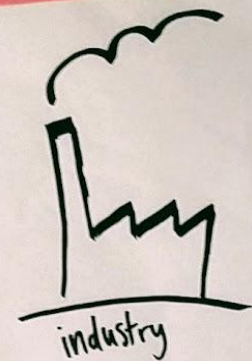


Stickydot is Brussels' community space for science engagement

MULTI-STAKEHOLDER



civil society



industry



public



policy

stickynote is all about

science & society.

PARTICIPATORY METHODS



DIALOGUE



OPEN INNOVATION



Community



Consultancy





Ice breaker

On your feet!



Ice breaker

Did you enjoy your lunch?



Ice breaker

Do you still have some energy for a workshop?



Ice breaker

Are you confident your citizen science project will get funded?



Ice breaker

Are you here representing a university?



Ice breaker

**Do you work most days on
public engagement in research?**



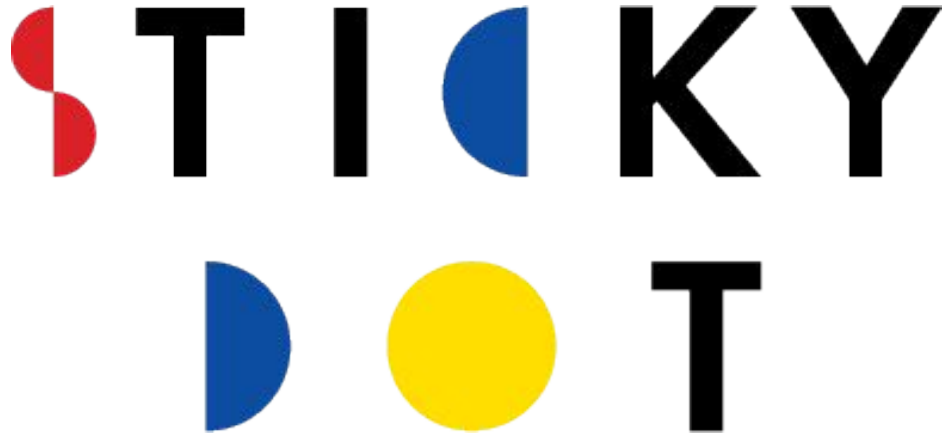
Ice breaker

Have you ever worked with the public on a research project?



Ice breaker

Have you ever worked in dialogue with the public on a research project?



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Introduction to participatory approaches in science engagement

Maria Zolotonosa
Stickydot



What is public engagement?

‘Public engagement describes lots of ways in which the activity and benefits of research can be shared with the public. Engagement is by definition a **two-way process**, involving interaction, with the goal of generating mutual benefit.’

National Co-ordinating Centre for Public Engagement

Why public engagement is important

- Reality check
- Alignment of problems and solutions
- Trust
- Lobbying
- **Benefits are mutual!**





Define your goal: why do you want to engage with the public?

1. Build trust and new relationships with the public
2. Get feedback from non-scientists
3. Make citizens' concerns heard in research & innovation processes
4. Engage in the formulation of policy strategies
5. Fresh ideas for prototypes of new products/ services



Example: reverse science cafes

Dialogue
Consultation/input
Collaboration

- Workshop with multiple experts
- 3 hours
- Expertise is with the audience
- Audience: interested citizens and representatives of various stakeholders
- Outcomes: New research inputs generated from the participants
- <https://www.youtube.com/embed/ReCx6KBGc6g>



Story: Reverse science cafe

Blue World Institute, Croatia

- Topic: 'Noise in the work environment and its effects on health'
- Together with local stakeholders and researchers a new strategy and action plan was developed



Example: discussion games

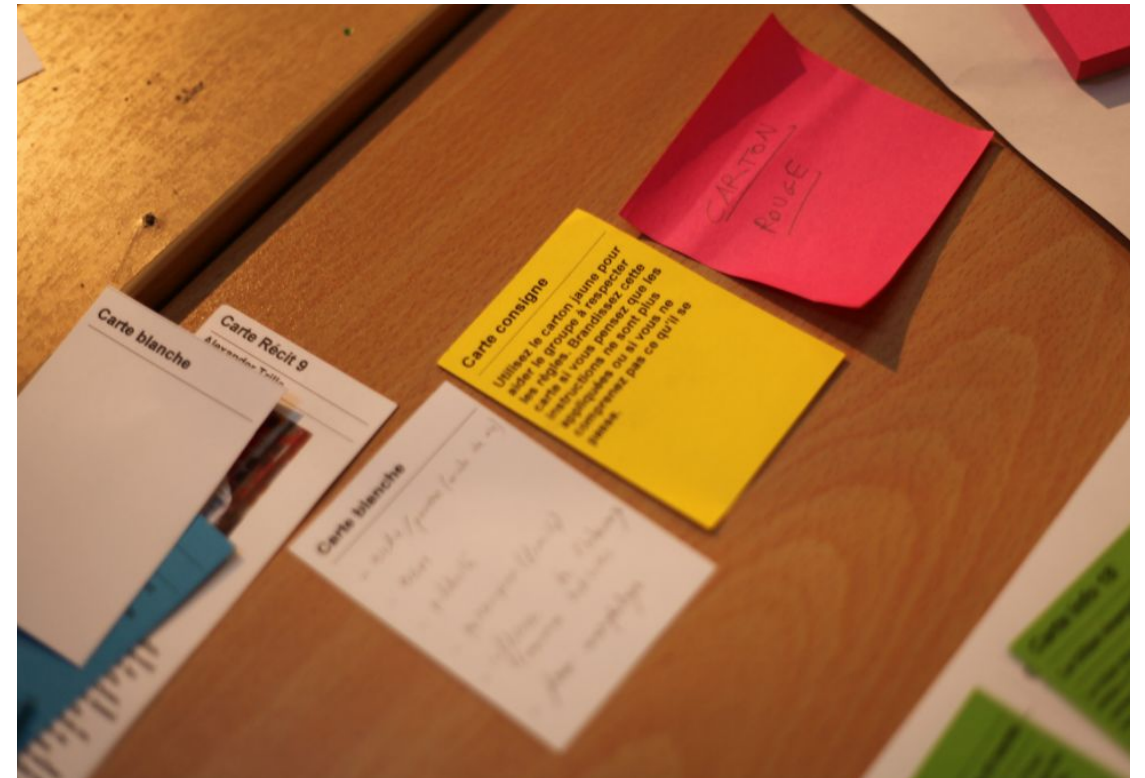
- PlayDecide is a card game for simple, respectful & fact-based group discussion
- Board game for groups of 8
- Free, print-at-home
- Lasts 1.5 hours
- Comparable results available online



Story: discussion games

Healthy Diet and Lifestyle game

- As part of the EU-funded INPROFOOD project, almost 3000 young people participated in discussion games on the topic of food and health
- 11 countries
- Comparison in results and trends





Preparation: discussion games

- Very simple
- Browse through existing games here: <https://playdecide.eu/playdecide-kits>
- Download one, print and cut the cards out
- You can run the event at dinner parties, festivals, open days etc

Example: scenario workshop

- Workshop facilitating multi-stakeholder dialogue
- 1 day/ half day
- Discussion of possible future scenarios for a topic
- Audience: Political and administration staff, technical experts, business leaders, citizens and local associations
- Outcomes: New knowledge from the exchanges, final action plan



Story: Scenario workshop

Ellinogermaniki Agogi, Greece

12 teachers and an expert on cardiovascular prevention and research set out a new strategy and action plan for schools during a teachers' workshop on 'Schools fighting child obesity'.





Preparation: scenario workshop

- Topic that presents an opportunity for action
- select participants that have the motivation and practical means of intervention
- Prepare scenarios in advance with experts
- Scenarios inspire criticism which can lead to new visions and proposals for action
- 1 main moderator, 1 rapporteur per group
- [Instructions](#)



Tips and tricks

Don't think you are doing this just for the public, there is huge value for you too



Tips and tricks

Don't try to do it alone!



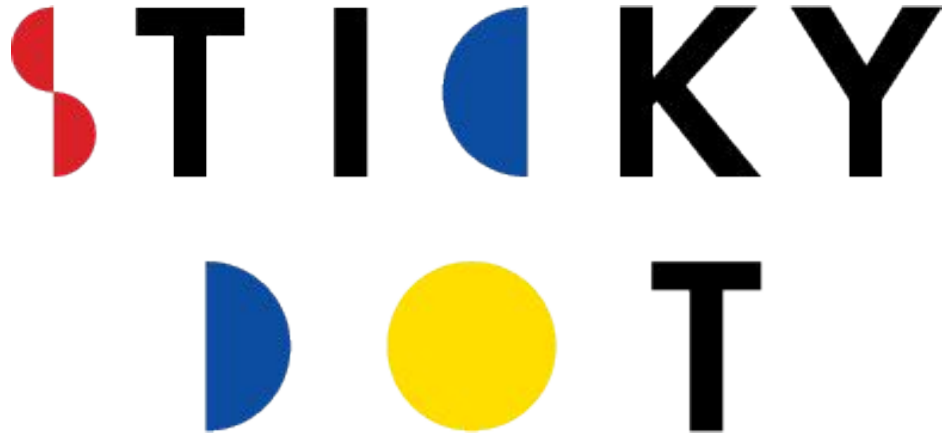
Tips and tricks

Find allies within your institutions



Resources

- <http://actioncatalogue.eu/>
- [Sparks toolkit for activities](#)
- <https://gamestorming.com>
- <http://participationcompass.org/article/index/method>
- <https://ccn.waag.org/navigator/>



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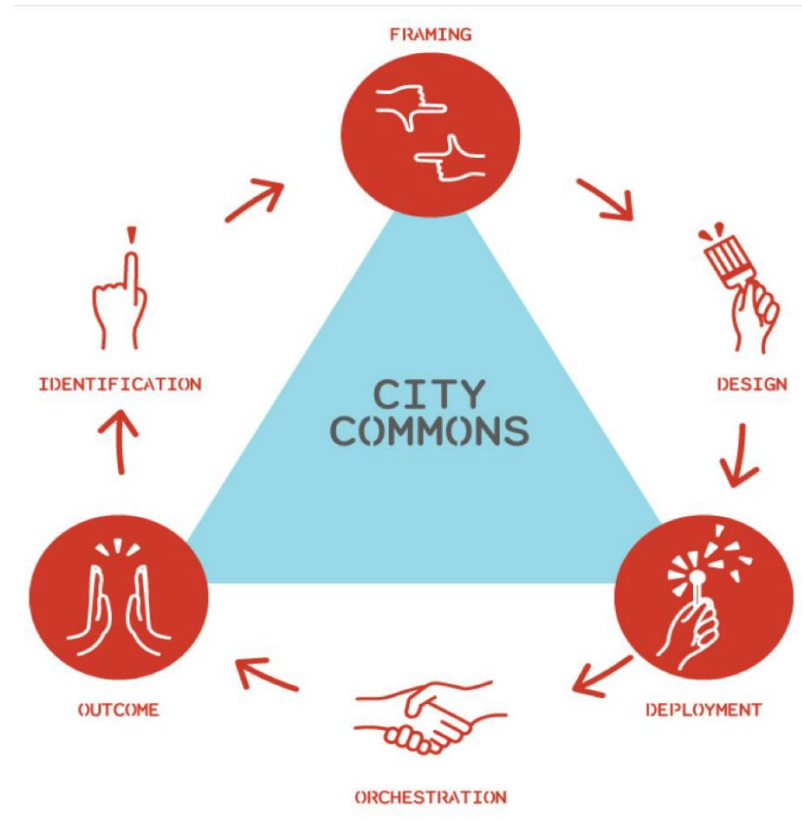
From issues to impact; participation in CS projects

Marzia Mazzonetto
Stickydot

How to make your Citizen Science project not only address **issues** but also foster meaningful **impacts and changes?**



Engagement framework: the Bristol Approach



IDEAS
FOR
CHANGE

#TheBristolApproach | @marabalestrini @ideas



Outcomes

Manage Your

A service for home and private landlords

Damp can seriously damage your property. As the owner, understand whether structural or behavioural causes are the problem before it affects you.

Business opportunities



Open source design & tech



Open data



New networks & social capital



New skills and literacy



PLAÇA DEL SOL

Citizens used sensors to tackle noise pollution

The Plaça del Sol in Barcelona is a town square that has historically suffered from the noise of drinking into the early hours of the morning by crowds. Working with a group of neighbours we deployed 25 sensors to investigate how high in relation to the norm are noise levels around the plaça, and what can be done to improve the situation.

USER
50
PARTICIPANTS

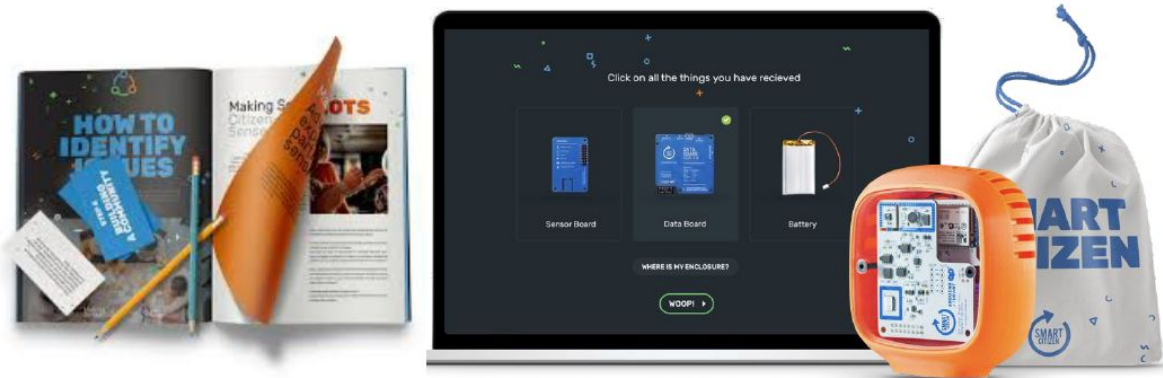
NOISE
POLLUTION
ISSUE

CITY
BARCELONA
LOCATION

CONTRIBUTION TO THE CITY COMMONS



SOLUTIONS TO LOCAL ISSUES



NEW OPEN SOURCE TECHNOLOGY AND KNOWLEDGE



OPEN DATA



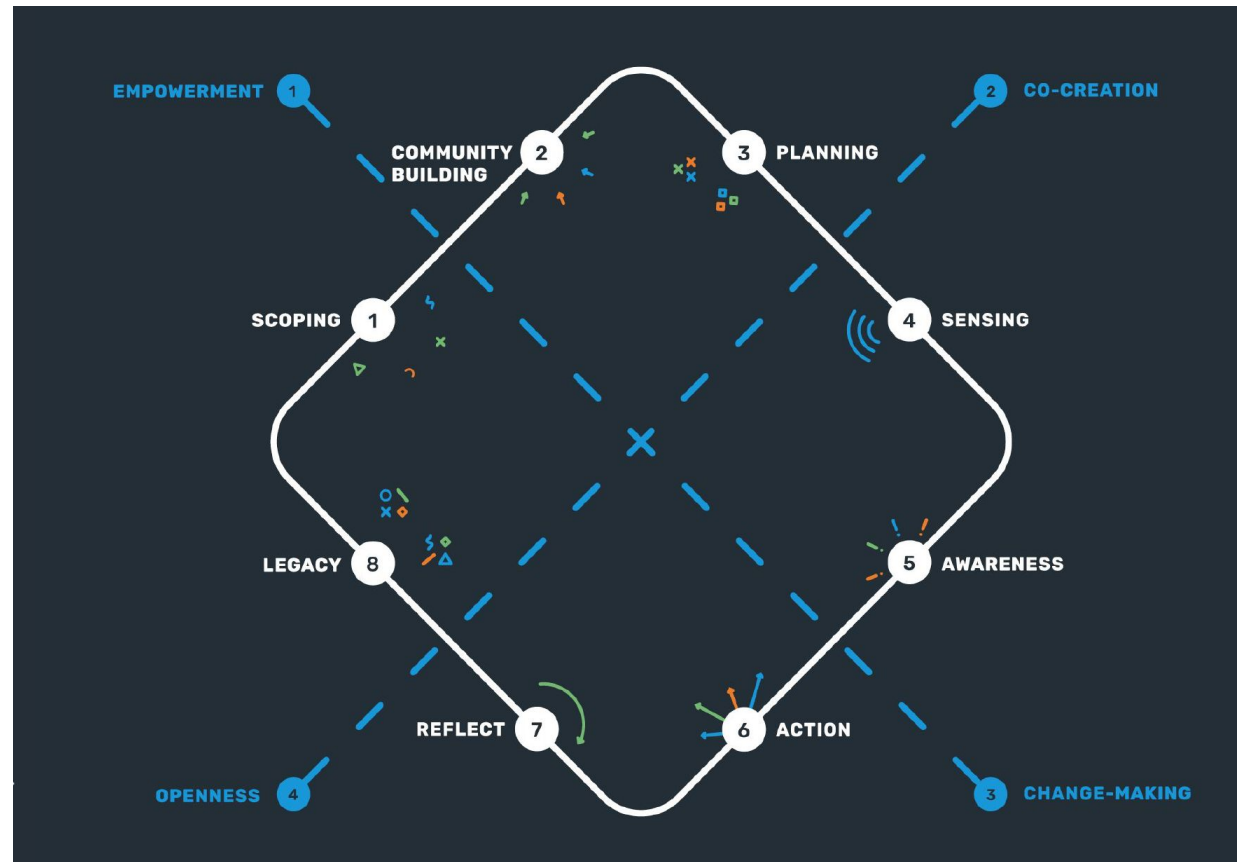
NEW NETWORKS AND SOCIAL CAPITAL



SKILLS AND CAPACITY



Citizen Sensing: the Making Sense Toolkit





MAKE SURE TO BRING THE COMMUNITY FULLY ON BOARD EVERY TIME KEY DECISIONS ARE MADE

CO-CREATE AT ALL TIMES

Co-create with people and communities at the start, middle and end of your project so the project can better reflect their views, needs and expectations.

Everything your project does should address your community and the needs of its members first and foremost. Your focus should be on processes, tools and results that can be built by all, are easy to understand and readily actionable to fit your community's current and foreseeable needs. Make sure to bring the community fully on board every time key decisions are made about what the project's next steps are, or even just whenever a new process or tool needs to be designed and tested. This may not always be easy to do: co-creation can open up conflicts, and everyone will need to work hard to find a compromise. Strong management skills are required to reach consensus and support the co-existence of different views, but collaboration is the best way to ensure the project does not slip into top-down territory where those at the helm operate independently and alienate their community members.

While other technological, scientific, cultural or political agendas may be central to the project, try not to let these stand in the way of what the community wants to achieve. Collectively set realistic goals to manage expectations, and be prepared for those moments of frustration when community members stop feeling part of the process and decrease their engagement. This cannot be an excuse to curb your project's ambitions or limit your plans, however, as adaption and readjustments must be at the core of what you do. Indeed, even when participants are highly motivated and trust their own capacity to create change, you should always discuss the possibility with them that not all project goals turn out as initially planned, and if this happens, the important thing is to work collectively to find the best ways of addressing the problems your project faces.

Extreme Citizen Science approach

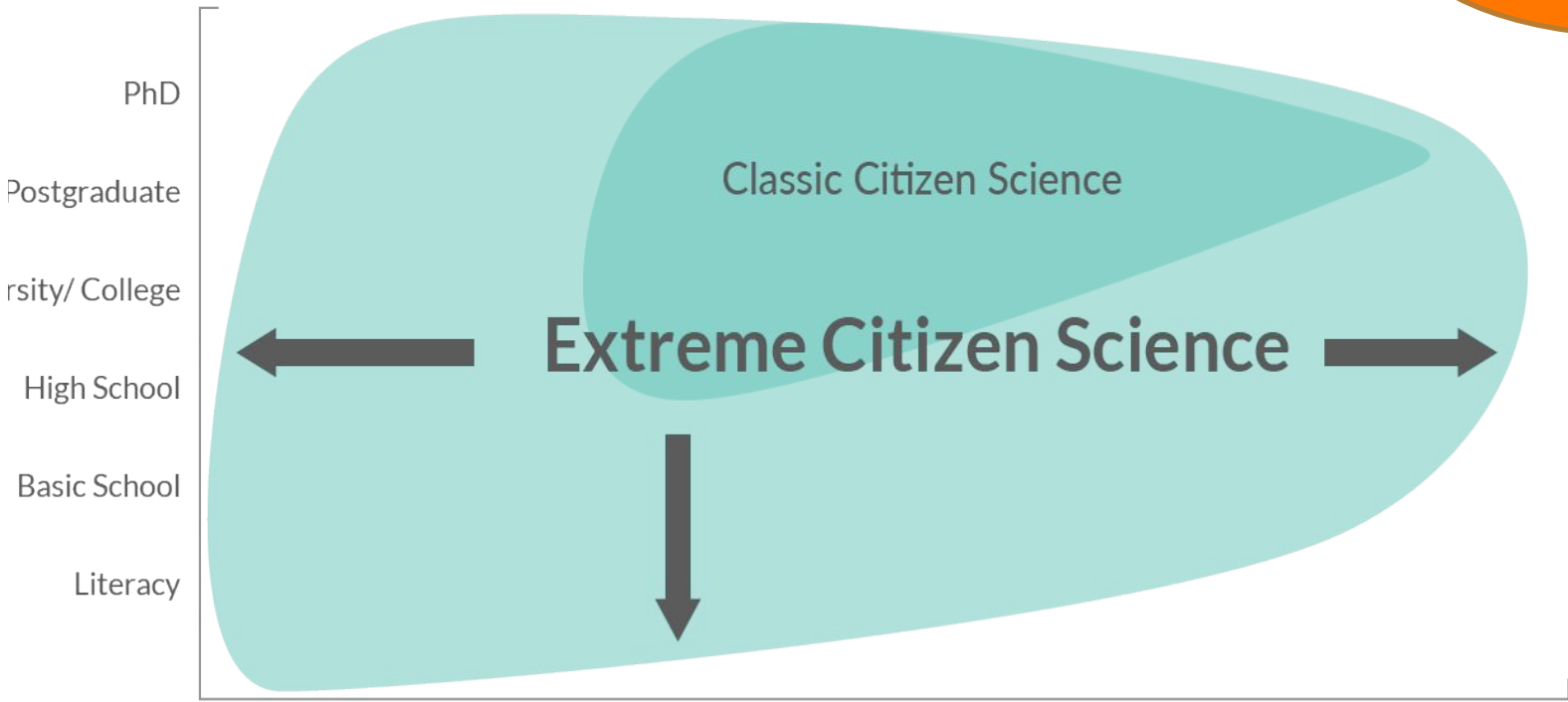
(UCL, UK)

ANY LITERACY LEVEL

ANY GENDER

ANY SOCIO-CULTURAL & SOCIO-ECONOMIC STATUS

HIGHLY INCLUSIVE



Designing specific engagement strategies to meet your inclusive approach

1

IDENTIFY THE ISSUES

2

STAKEHOLDER MAPPING

3

FRAME (THE PROBLEM)

4

PILOT DESIGN

5

DATA COLLECTION

6

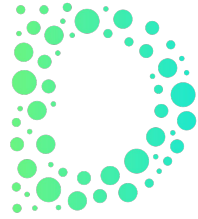
DATA ANALYSIS

7

ACTION

8

OUTCOMES



D-NOSES

Distributed Network for Odour Sensing,
Empowerment and Sustainability

**An innovative bottom up
approach to empower
citizens and improve local
odour pollution policies**

Topic SwafS-23-2017 (H2020
programme)

14 partners, 9 countries
(Spain, UK, Austria, Greece,
Portugal, Germany, Italy,
Bulgaria and Chile)

**Key principle: public
participation in decision
making, access to
information and access to
justice in environmental
matters**

How odours are traditionally managed?

Traditional odour management

- ✓ Sampling, dynamic olfactometry (EN 13725:2003) & dispersion modeling => Impact
- ✓ Field observations (VDI 3940:2006 o EN 16841:2016) => Frequency of nuisance



Private studies, done by the industry or environmental authorities. Usually:

- x No transparency
- x No communication with the citizens
- x No access to environmental information



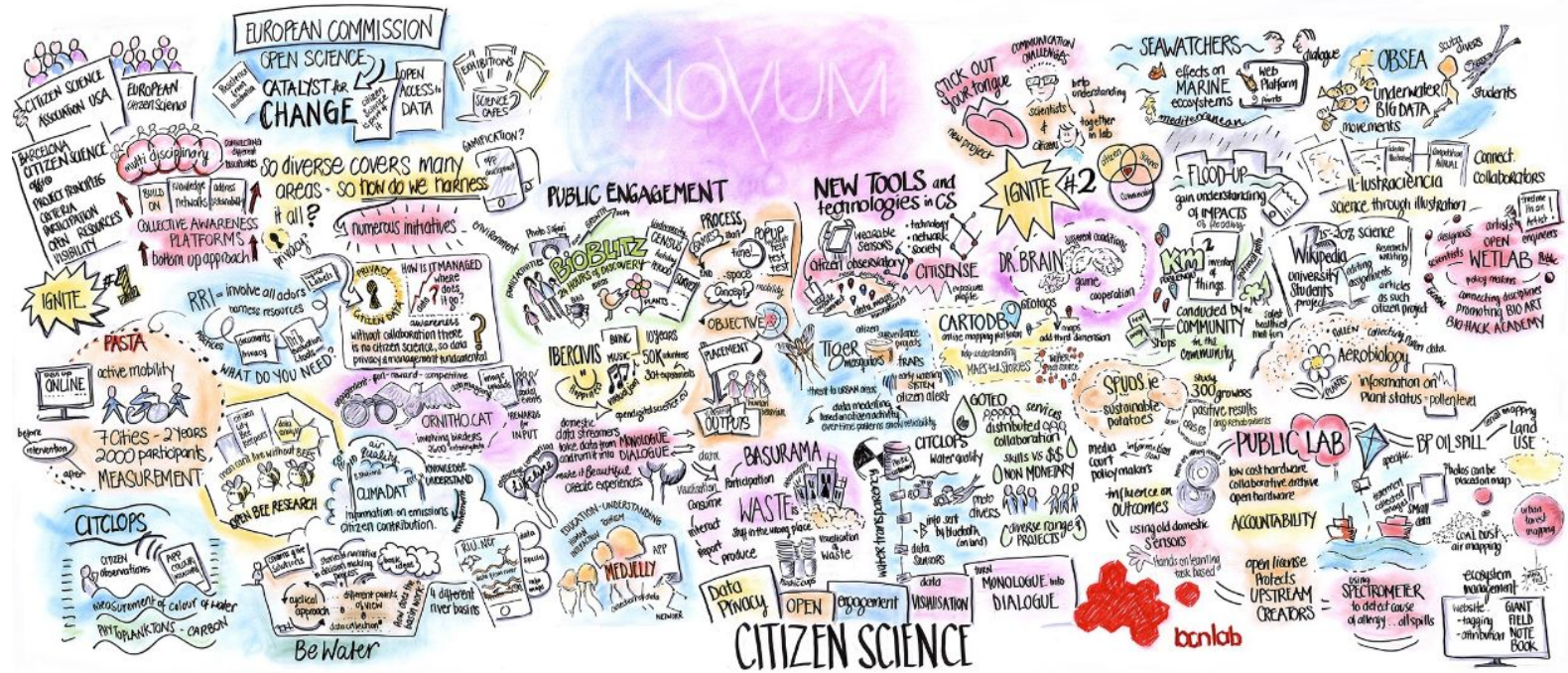
- x **Citizens defenceless due to the lack of legislation**
- x Heterogeneous regulatory framework, no coherence
- x Generation of socio-environmental conflicts in the affected communities
- x **Poor quality of life**
- x **Sustainability reduced**

TOP-DOWN
APPROACH

IN MANY COUNTRIES, SUCH AS IN PORTUGAL, THERE IS NO SPECIFIC LEGISLATION IN ODOUR POLLUTION – NOBODY IS USUALLY OBLIGED TO ITS MANAGEMENT

Citizen Science as generator of valid data

- ✓ The collection and analysis of data relating to the natural world by members of the general public, typically as part of a collaborative project with professional scientists ([Oxford English Dictionary](#), 2014).
- ✓ The number of projects is multiplying in all knowledge areas. Widely used for air pollution monitoring ([Open Science Monitor](#), EC 2016: European map of CS).
- ✓ In some scientific areas, such as biodiversity studies, the data collected by citizens is the main source of valid knowledge for science ([Chandler et al](#), 2017).



How can citizen science help?

The “citizen-sensor” concept



- ✓ Smartphones
- ✓ Internet
- ✓ Internet of Things
- ✓ Big data
- ✓ Digital Social innovation (DSI) as a result of Open Innovation: digital solutions for societal challenges
- ✓ Movements open source and open data
- ✓ Data analysis
- ✓ Crowdsourcing
- ✓ Awareness rising in environmental issues

Avantages when measuring ODOURS:

- **Human nose**: Citizens have **the best sensor** to measure odours
- Clear motivation for engagement: **Increasing sustainability and air quality, recovering their quality of life**
- **Citizens** not only have access to data, but **become data generators**



Empowering citizens through Citizen Science

What if citizens could map odour observations through an App?

Our nose is the best sensor to measure odours
Smell and share!

- ✓ OdourCollect geo-localises odour observations in space and time for building up **collaborative odour maps**
- ✓ Frequent observations in the same area at the same time, gathered by different citizens, demonstrate the problem and **provide real-time data** to co-design local solutions in their community
- ✓ Citizens can participate in **local decision making** with **quadruple helix stakeholders**

<https://odourcollect.eu/>

Methodology based in VDI 3940 (CEN 16841)



Winner in
2016

An idea of:



D-NOSES

#dNosesEU #OdourObservatory

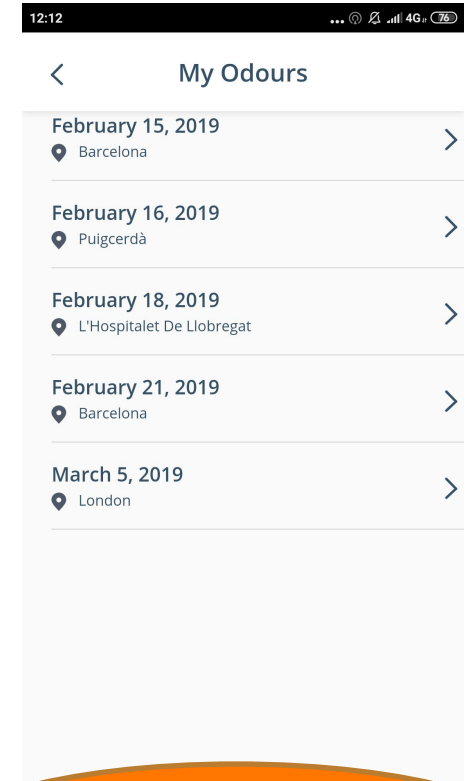
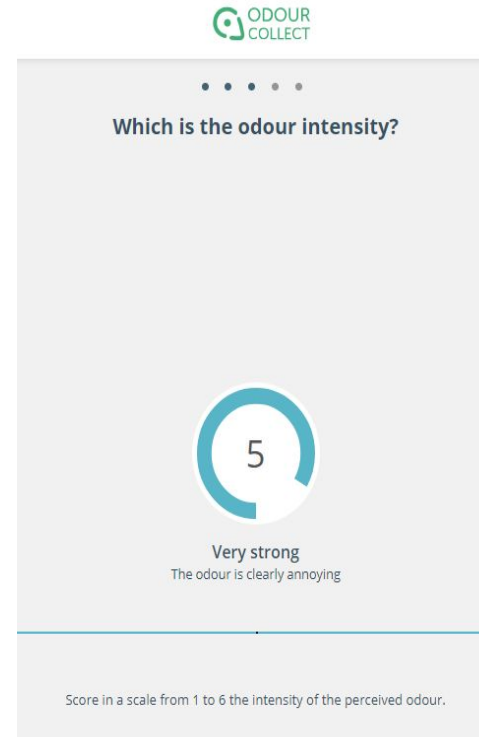
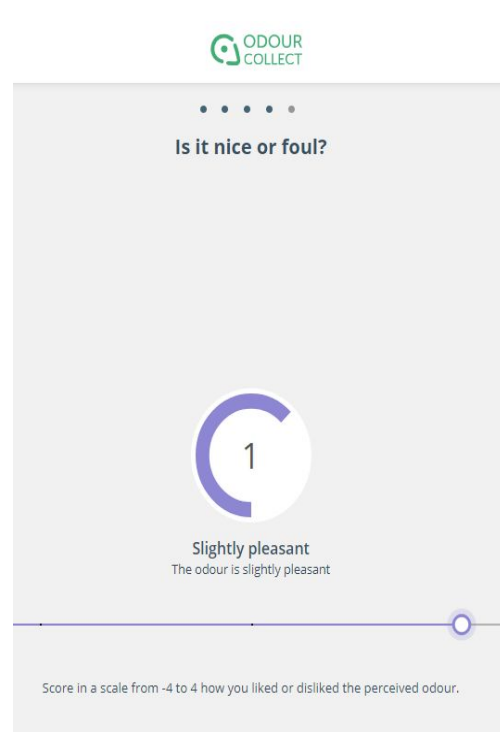
The free App OdourCollect (odourcollect.eu)

New version!

Geolocalization...

... Adding an odour observation (type, intensity, hedonic tone) ...

My odours...



Citizen science experiment

Open data => Transparency

Em português!

Key points for success

- **Quadruple helix**: Compulsory to engage all stakeholders – academia (odour experts), odour emitting industries, environmental authorities & citizens **at the local level**
- **Open data, transparency, building of trust**
- **Engagement strategies**: Stakeholder mapping, identification of motivations, barriers and mitigation strategies
- **Engagement tools** (OdourCollect and more) tailor made
- **Training of citizens**, education, validation of users
- **Validation of data** (Prolor, meteo data)
- **Correlation** of odour observations with **industrial operations & meteo**
- **Co-design** of local solutions with all involved stakeholders



Opportunities & Challenges

- **Raises awareness**
- **Citizen empowerment: data generators**, participation in local **decision-making**
- Availability of **real-time odour observations**, **considering real nuisance** (impossible with traditional odour management, i.e. olfactometry)
- Increases the **knowledge base**, and the **interface between science-society-policy**
- **Co-creation** of local solutions involving a **quadruple helix stakeholder model** (industries, regional & local authorities, odour experts, etc.)
- **Cost-effectiveness**: Industries can identify **good practices at a lower cost**
- Increases **transparency & relationships** between **quadruple helix stakeholders**
- Increases **sustainability & quality of life** of the affected communities
- Increases **social cohesion & governance**
- **Building of trust**: CS is not yet used widely for official environmental monitoring => training of citizens, data validation, data integration. Engagement, motivation, barriers.



Our Company

Mapping for Change works to provide benefit to individuals and communities from disadvantaged or marginalised groups, along with the organisations and networks that support those communities, where the goal is to create positive sustainable transformations in their environment. We also support individuals from the aforementioned groups to gain access to higher education at UCL, to study fields connected with our work.

Our Vision

A future in which communities are empowered, sustainable and resilient.

Our Mission

To empower individuals and communities to make a difference to their local area through the use of mapping and geographical information.

Our Aim

To deliver maps and techniques which enable any organisation, group or enterprise to make a change and improve their environments.



How can we make citizen science projects more participatory?

Over to you!

5 groups... 5 scenarios



Who are the stakeholders involved?

Public, civil society, research, policy, industry...

Take it in turns to suggest one

Write one stakeholder per Post-it

No wrong answers

Five minutes total



Who are the key stakeholders and what are their desired impacts?

One by one, pick who you think are the most important stakeholders

Draw your stakeholder

Write what you think are their desired impacts

Share with the group one by one

5 minutes total



What tools and strategies could we use to engage these groups, separately or together?

Work together to suggest **tools and strategies** to engage these stakeholders

One tool or strategy per Post-it

No wrong answers

Use the Making Sense Toolkit and ask around!

20 minutes total



What could be a participation plan for your scenario?

Use your tools and strategies to draw together a plan to present to the room

Write nice and clear

Be as concrete as you like!

10 minutes total



Present your plan

1 minute each!



Open discussion

What challenges came up during your scenario?
What further questions or ideas do you have?



Thank you!

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