

D8.5: Plan for hackAIR workshop tour

WP8: Communication, Dissemination and Exploitation



D8.5 Plan for hackAIR Workshop Tour

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1. Executive Summary

This document contains the plan for the hackAIR workshop tour in various cities in Europe. These workshops aim to encourage wide adoption of the hackAIR platform in order to build awareness and citizens' engagement on air quality. Local organisers can customise their workshops by selecting 1-3 workshop modules from the workshop toolkit, ranging from an introduction to air quality and citizen science to building your own sensing device and from an introduction to the hackAIR platform to an air quality safari. Workshops on making sense of data and air quality policy dialogue will be organised to further engage citizens and policy makers. Pilot partners and local hosts will organise logistics and invite participants, hackAIR will provide content, facilitation materials and support for local hosts. In this document a more detailed work flow is given for the organisation of workshops. The workshop schedule lists the already planned workshops taking place in Germany, Oslo, Brussels, Amsterdam and Athens, between October 2017 and June 2018.

In the coming months, hackAIR will be introduced to the wider public, with the launch of the hackAIR platform, the pilots and the workshop tour. In September, the planning of individual workshops will take off and hackAIR will play an active role in supporting local organisers. The first lessons learned will be integrated in the workshop design and in November 2017, the workshop toolkit will be ready to share with a broader audience.

2. Introduction

The hackAIR project develops an open technology platform that can be used to access, collect and improve air quality information in Europe. It is supported through the EU programme on "Collective Awareness Platforms for Sustainability and Social Innovation" until December 2018. hackAIR takes advantage of existing open and complementary community-driven data sources for collecting, analysing and sharing air quality measurements to community members through low-cost open hardware sensing devices easily assembled by citizens, web and/or mobile phones applications.

The project aims to encourage wide adoption of the hackAIR platform in order to build awareness and citizens' engagement on air quality. As discussed in Deliverable 6.1 (Engagement strategy), local events and workshops are a crucial step to reach citizens in the two pilot regions and beyond.

One of the tasks of Work Package 8 (Communication, Dissemination and Exploitation) is thus the organisation of the hackAIR workshop tour (Task 8.3). From the project description:

"As part of the project, hackAIR will organise a series of workshops to engage citizens around air quality and allow them to explore the hackAIR tools with a hands-on approach (e.g. building their own air quality monitoring station or participating in an air-quality photography excursion). Local host organizations will ensure the involvement both of local air quality advocates and the maker community. Workshops are envisaged to take place in Germany (multiple times), Oslo, Brussels, and selected other European locations such as Thessaloniki or Amsterdam. This tour will also provide opportunities for media coverage. [...] There will be at least 6 workshops. Based on the lessons learnt from the organisation of workshops, an online toolkit will be developed, which will empower organisations elsewhere to host their own workshops as well."

This deliverable contains the overall plan for the workshop tour. Deliverable 8.6 (hackAIR workshop toolkit) will contain materials and guidelines for the organisation of the individual workshops, and will be available in November 2017.

3. Objectives

Providing hands-on opportunities to experience the platform will help fulfil the general objective to build awareness and citizen engagement on air quality through the hackAIR open platform. The hackAIR workshop tour aims to:

- Reach a large community of interested citizens to build awareness about the project, its benefits and results;
- Engage citizens, local air quality advocates, end users and members of organisations working on air quality;
- Allow them to explore the hackAIR tools with a hands-on approach (e.g. building their own air quality monitoring sensing device, using hackAIR data for local campaigning or participating in an air-quality photo safari);
- Receive instant feedback from users;
- Provide opportunities for media coverage.

At least seven to ten workshops will be held during the pilot phase, organised as part of hackAIR's workshop tour across Europe, with the overall purpose to test the hackAIR platform. These workshops will be organised by hackAIR partners and specific local host organisations (through the network of interest) to ensure the involvement both of local air quality advocates and citizens interested in participatory sensing.

4. Content of the workshops

Local organisers can customize their workshops by selecting 1-3 workshop modules from the workshop toolkit, depending on the goals, target audience and duration of the workshop. hackAIR will provide a powerpoint presentation, background information and, if relevant, a handout for each module.

The following modules will be available as part of the public workshop toolkit:

1. Introduction to air quality and citizen science
2. Introduction to the hackAIR platform
3. Build your own sensing device
4. Air quality safari

Once the hackAIR platform has an established user-base in certain locations, the project will also organise workshops to engage citizens and policy makers around the resulting data and public policy challenges. The following modules will be prepared after the publication of the public workshop toolkit:

5. Making sense of data
6. Air quality policy dialogue

We expect the average hackAIR workshop to last 90 minutes. Longer workshops are possible using a larger sequence of modules.

4.1. Short description per module

1. Introduction to air quality and citizen science

A general introduction on air quality and why it matters, including main sources of air pollution and impacts on health and the environment. The module also covers how to measure air quality and what we can do to improve it. There will be a short, basic version containing the most important information and a more elaborate version to allow participants to dive deeper into certain aspects, e.g. the impact of different particles on human health or tips on decreasing your own exposure to air pollution.

2. Introduction to the hackAIR platform

A hands-on session exploring the hackAIR platform. Participants download the app, create user accounts and explore data, maps and trends available. They will experience how they can contribute data and how these contributions make sense to their lives as well.

3. Build your own sensing device

This is a hands-on workshop module, in which participants build their own sensing devices.

- a. Build your own open hardware sensing device: Participants build and set up their own Arduino (“hackAIR home”) or PSoC (“hackAIR mobile”) sensing device to install outside their homes afterwards.
- b. Build your own cardboard sensing device (“hackAIR cardboard”): Participants build a low-tech sensing device from cardboard and petroleum jelly and install them at selected locations of their hometown. This workshop requires a follow-up later to take pictures of the results and analyse them.

4. Air quality safari

This module brings the hackAIR platform to the streets. To inspire local organisers, hackAIR will provide examples of what is possible.

- a. Air quality photo safari: With the hackAIR app on their phones, participants walk or cycle through town and take pictures of the sky in multiple locations. By means of data fusion, the pictures will be used to determine the current air quality.
- b. PSoC safari: Participants take PSoC sensing devices criss-cross through the city and test them.

5. Making sense of data

A workshop on data interpretation, making sense to the data collected, processed and provided by hackAIR and turning this data into action.

6. Policy dialogue

This workshop module focuses on how to bring together citizens, policy makers and experts around air quality and how to make use of the hackAIR platform in doing so. Local organisers facilitate dialogue on policy and measurements between users, makers, scientists, policy makers, health

practitioners, activists, air quality experts and people working on measurements at official agencies.

5. Workshop organisation

Workshops are envisaged to take place in Germany (multiple locations), Oslo, Brussels, Athens and Amsterdam. As part of hackAIR, work package 8 will provide the content, facilitation materials and support for local organisers. The organisation of individual workshops is covered by work package 7 (pilot operation and evaluation). Pilot partners and local hosts will be asked to organise the logistics around the place, translate the required information material into the local language and invite participants. Based on the lessons learned from the first try-out workshops, an online toolkit for workshops will be developed with the purpose of empowering organisations to host workshops and use the project to raise awareness.

5.1. Materials and support

hackAIR will provide the following materials and support to local organisers of workshops:

- Workshop package (“workshop toolkit”), including
 - A facilitation guide with methodology and flow of the workshop
 - Powerpoint presentations and additional information for all modules
 - Handouts for participants
- Checklists for the preparation of the event (timeline, materials)
- Promotional materials (press release, social media templates, customisable flyers)
- Telephone/email support for the preparation or facilitation of the event
- Suggestions of guest speakers / facilitators: hackAIR consortium partners, members of the advisory board or members of the network of interest
- Information on ordering materials for open hardware sensing devices

The local organising team needs to :

- Secure and set up the venue
- Promote the workshop locally
- Translate materials, if required
- Receive and/or print workshop materials
- Recruit additional speakers and localise the modules.

5.2. Preparation timeline

We suggest following the steps below in the preparation of each workshop.

5.2.1. Four to six weeks before the workshop

Local organiser	hackAIR
Decide on date and location, and inform the hackAIR	Share date and announcement on website

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communications team	
Select 1 - 3 modules as building blocks for the workshop	Provide toolkit with all modules and facilitation guide
Establish needs for materials and order them (if applicable)	
Build links with other local organisations, and spread the invitation	Provide access to network of interest and social media for suggestions
Invite participants	On request: Provide support to writing invitations, use hackAIR social media to spread the invitation
Invite guest speakers	

5.2.2. Two weeks before the workshop

Local organiser	hackAIR
Second round of invitations: focus on social media, ask partners to invite their networks	use hackAIR social media to spread the invitation
Send reminder to participants; share current numbers of participants with hackAIR team	
Refine/adjust modules, read through facilitation guide, formulate clear goals and outcomes, print handouts	On request: Short telephone / mail support if needed, share best practices
Discuss workshop content and flow with guest speakers	
If needed, translate the powerpoint presentations and handouts to the local language	
Check order and delivery of materials	

5.2.3. In the week before the workshop

Local organiser	hackAIR
Send a reminder to participants	
Collect all materials at one location, print handouts	
Last check with guest speakers	
Responsible	Short telephone / mail support if needed

5.2.4. In the week after the workshop

Local organiser	hackAIR
Send good quality pictures / video footage to hackAIR	Use pictures / video for social media, communication, dissemination activities
Write a short report / blog post about the workshop (or ask participants to do so)	Spread the post on social media
Gather feedback from participants through the feedback form	Provide feedback form (pdf & web form)

We encourage local hosts to record parts of the workshops and/or make good quality pictures to create additional outreach after the workshop. Short and attractive video summaries are preferred over live streaming, considering the high costs in time and energy, technical challenges and limited outreach of streaming.

Together with Task 7.2 (Evaluation and impact assessment), an evaluation form will be developed and shared by hackAIR. In this form, available as pdf and in web format, participants can share whether they enjoyed the workshop, to what extent their behaviour concerning air quality has changed and what ideas they have to improve the platform.

6. Workshop schedule

From October onwards the preparations for the workshops will get into full swing, starting with some first workshops at schools. The workshops will take place in Germany, Oslo, Brussels, Athens and Amsterdam with the aim to reach 340-445 participants. The focus will be on reaching people who are genuinely interested in the topic and real potential users instead of the general public.

6.1. Germany - various locations

Local organisers: BUND federal state offices (Baden-Württemberg, Hamburg, Berlin, Bavaria), BUNDjugend, BUND working groups

6.1.1. General information

BUND will organise 5 - 15 workshops to build a community of members, citizens with respiratory issues, tech savvy citizens, schools, experts and academics. These workshops will take place in different cities in Germany and will be organised together with federal state offices, specific working groups and the BUNDjugend ("Young friends of the Earth in Germany"). Central to these workshops will be the question "What can I do with hackAIR?". Workshops will last from 90 minutes to a half a day, with up to 30 participants. In total, BUND envisages to welcome 80-150 workshop participants.

6.1.2. Timeline

- August / September 2017: Planning of the workshops
- October 2017 / January 2018: Workshops taking place in different locations within Germany. Core: workshop in collaboration with federal state offices who will also invite regional groups. Extra: couple of workshops for specific groups (working groups on transport / air quality, BUNDjugend).

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- Spring / summer 2018: big conference with the aim of bringing practitioners using hackAIR and official agencies together.

6.1.3. Content

For BUND the main focus will be on how to use the hackAIR platform for engaging new members, activating existing members and taking action on air quality. Useful workshop modules are:

- Introduction to air quality and citizen science
- Build your own sensing device
- Air quality safari
- Making sense of data
- Policy dialogue

6.2. Oslo

Local organisers: NILU in cooperation with schools, university, NAAF and Friends of the Earth Norway.

6.2.1. General information

NILU will organise a series of workshops in Oslo and surroundings as part of the pilot operation. These workshops are aimed at engaging pro-environmental citizens, citizens with respiratory issues, members from environmental organization and students, experts and academics. The envisaged number of participants is 85-120.

6.2.2. Timeline

- October 2017: 2 workshops for technical high school students
- November / December 2017: 1 workshop at University college
- January / February 2018: 1 workshop together with NAAF (Norwegian Asthma and Allergy Association) and Friends of the Earth Norway
- March / June 2018: An open workshop for environmental professionals and pro-environmental citizens.

6.2.3. Content

NILU intends to include the following modules:

- Introduction to air quality and citizen science (with a focus on its environmental and health impact)
- Introduction to the hackAIR platform
- Build your own sensing device
- Air quality safari

6.3. Brussels

Local organisers: CREVIS, CleanAirBXL, VUB

6.3.1. General information

In Brussel, hackAIR will organise several workshops for a diverse public. With kids at schools, (hardware) sensing devices will be built, activists and other people interested in air quality (measurement) will be invited for a walking tour and with one workshop a particular neighbourhood will be targeted. The local organisers will invite guest speakers to make the topic more tangible and urgent. With these activities around 100 participants will be reached.

6.3.2. Timeline

- November 2017: 1 workshop at a primary or secondary school
- December 2017 / March 2018: 2 walking tours throughout Brussels, open call
- June 2018: 1 neighbourhood workshop

6.3.3. Content

By participating in the workshops in Brussels, users will hear and experience how the data that they will contribute to the platform make sense for their daily lives. Modules that contribute to this goal are:

- Introduction to air quality and citizen science (short version)
- Introduction to the hackAIR platform
- Build your own sensing device
- Air quality safari
- Policy dialogue

6.4. Amsterdam

Local organisers: ON:SUBJECT together with Waag Society

6.4.1. General information

In Amsterdam, ON:SUBJECT together with the citizen science organisation Waag Society will organise a workshop for about 20 citizens interested in air quality monitoring.

6.4.2. Timeline

- January-March 2018: workshop in Amsterdam

6.4.3. Content

This will be a hands-on workshop, with a focus on the module

- Build your own sensing device

6.5. Athens

Local organisers: TEI, DRAXIS, local schools

6.5.1. General information

In Athens, participants will be challenged to explore how the hackAIR platform will change their lives. Or at least how the data that they will contribute make sense for themselves as well. Since local organisations observe and assess that awareness of air pollution is relatively low in Athens, it will be important to educate users on the issue of air quality, for example by guest speakers. The target number of participants is 55.

6.5.2. Timeline

- November 2017: 1 workshop at a primary or secondary school
- March/June 2018: 1 walking tour throughout Athens, open call
- June 2018: 1 neighbourhood workshop

6.5.3. Content

The focus of the workshop will be on the following modules:

- Introduction to air quality and citizen science
- Introduction to the hackAIR platform

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- Build your own sensing device
- Air quality safari



7. Timeline

	Sept 17	Oct 17	Nov 17	Dec 17	Jan 18	Feb 18	Mar 18	Apr 18	May 18	Jun 18
h a c k A I R	Support to local organisers									
	Preparing workshop toolkit									
G e r m a n y	Planning workshops		Workshops throughout Germany						(Planning) policy dialogue conference	
O s l o		2 workshops: high school		1 workshop: university		1 workshop together with NAAF/FotE		Open workshops environmental professionals / pro-environmental citizens		
B r u s s e l s				workshop: school	2 walking tours through Brussels (open call)				1 neighbourhood workshop	
A , d a m							1 workshop: sensing devices			
A t h e n s				1 workshop school				1 walking tour throughout Athens (open call)		
									1 neighbourhood workshop	

8. Conclusion and next steps

This document contains the plan for the hackAIR workshop tour in various cities in Europe. These workshops aim to encourage wide adoption of the hackAIR platform in order to build awareness and citizens' engagement on air quality. Local organisers can customise their workshops by selecting 1-3 workshop modules from the workshop toolkit, ranging from an introduction to air quality and citizen science to building your own sensing device and from an introduction to the hackAIR platform to an air quality safari. Workshops on making sense of data and air quality policy dialogue will be organised to further engage citizens and policy makers. Pilot partners and local hosts will organise logistics and invite participants, hackAIR will provide content, facilitation materials and support for local hosts. In this document a more detailed work flow is given for the organisation of workshops. The workshop schedule lists the already planned workshops taking place in Germany, Oslo, Brussels, Amsterdam and Athens, between October 2017 and June 2018.

In the coming months, hackAIR will be introduced to the wider public, with the launch of the hackAIR platform, the pilots and the workshop tour. In September, the planning of individual workshops will take off and hackAIR will play an active role in supporting local organisers. The first lessons learned will be integrated in the workshop design and in November 2017, the workshop toolkit will be ready to share with a broader audience.

Annex 1: Sample facilitation guide

In this Annex we give a preview of the first workshop module from our workshop toolkit. The other modules are currently being developed and will be submitted and published in November 2017, as part of D8.6 – hackAIR workshop toolkit.

Module 1: Introduction to air quality and citizen science

Introduction

This module gives a general introduction on air quality and why it matters. The purpose of this module is to sensitise potential users and foster activism through hackAIR.

- Why does hackAIR exist at all?
- Why should you as citizen use the platform, what is the impact of air pollution on our daily lives?

This core module gives general information on air quality, including main sources of air pollution and impacts on health and the environment. It also covers how to measure air quality and what we can do to improve it.

To extend this module, workshop organisers can invite guest speakers for additional information on the local situation or specific aspects. If desired, a member of the hackAIR consortium can be recruited as a speaker. In addition, the hackAIR advisory board, network of interest and the wider network of contacts are good sources if you need inspiration for speakers.

Tips for facilitation

Keep it short and simple. Air quality is a wide topic and can be approached from a variety of different angles. For this module we made a small selection to make the information tangible and manageable for participants. We picked sources that are relevant for the hackAIR platform. As workshop organiser you are free to add relevant information for your target audience. In that case make sure to mention the source or research behind the facts.

Engage participants. Instead of just presenting the facts about air quality in a PowerPoint presentation, make the workshop more interactive, engaging and relevant for participants. A couple of methods to activate and engage participants include:

- A(n online) quiz / group poll
- Conversation tools like pair sharing and 1-2-4-all
- A reflection method

These are only some options. Feel free to use other facilitation tools you already know or ask the hackAIR support team for extra suggestions.

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In case there is a guest speaker, we advise to start with the quiz/poll and allow time for discussion and reflection among participants during and after the presentation. Invite the guest speaker to discuss this and come up with ideas her/himself.

Overview of the workshop

- 1) Introduction
- 2) Theory part 1: Facts on air quality in Europe
 - Air pollution in Europe - short overview
 - Main sources of air pollution
 - Impact on health & environment
- 3) Reflection round
- 4) Air quality & I: What can I do to reduce (my exposure to) air pollution?
- 5) Theory part 2: Air quality measurement & citizen science
 - Measurement of air quality
 - Options to improve air quality measurement
 - Air quality & citizen science
 - hackAIR
- 6) Air quality & I: What could I do with better air quality data?
- 7) Reflection & next steps: What? So what? Now what?

Full description of the workshop

1) Introduction

- Slide 1: Cover slide
- Slide 2: Introductions
- Slide 3: Quiz

Introduce yourself and briefly introduce the purpose of the workshop. If applicable, lead a round of introductions (name and one reason you're interested in air quality).

Start the workshop with a quiz on air quality to activate participants and get them involved. Questions that could be asked are:

- What kills more people: air pollution, car accidents, smoking?
- What is the % of Europeans living in cities breathing air which is harmful for their health?
- What's the most polluted city in Europe?
- When was the air quality best / worst in your city last year?

Feel free to include more questions linked to the location and target audience! For this activity we strongly encourage to use an online tool to visualise the answers by participants immediately, e.g. [kahoot.com](https://www.kahoot.com) or www.mentimeter.com, or alternatively use post-its.

2) Facts on air quality in Europe

Present a selection of facts about air quality and air pollution in Europe.

- Slide 4 : EU urban population exposed to harmful levels of air pollution
- Slide 5: Air pollution / air pollutants
- Slide 6: Sources of air pollution
- Slide 7: Impact on health & environment - including PM

With hackAIR we focus on the most complex and impactful pollutants particulate matter (PM10, PM2.5). For more details and information we refer to our website and relevant sources:

- hackAIR: www.hackair.eu
- European Environmental Agency: <https://www.eea.europa.eu/themes/air>
- European Commission: http://ec.europa.eu/environment/air/cleaner_air/index.html
- European Environmental Bureau: <http://eeb.org/work-areas/industry-health/air-quality/>
- World Health Organization: http://www.who.int/topics/air_pollution/en/

A guest speaker might broaden this part and add relevant facts.

3) Reflection round

- Slide 8: Reflection round

After the presentation, check in with the audience: Have you heard any new things? What are you surprised about? What would you like to know more about? Any other questions?

Steer the conversation towards air quality in the current location: Where are the air pollution hotspots? What are the main sources? Relevant problems?

4) Air quality & I: What can I do to reduce (my exposure to) air pollution?

- Slide 9: Air quality & I exercise

The next step is an exercise to share ways to take action on air quality. Participants are asked to come up with a list of useful steps to reduce (their exposure to) air pollution. We're using a method called 1-2-4-all:

- Step 1: Individually brainstorm what you as individual can do to reduce (your exposure to) air pollution and write down key words (1 minute)
- Step 2: Pair up with a partner, and share your list of ideas and discuss (2 minutes)
- Step 3: Get together with another pair, and share your best ideas with the other group members. Make a list of the five most important (or actionable) ones (4 minutes)
- Step 4: Back in plenary, ask all groups to share their actions and collect them on a Flipchart. Compare and discuss with the list of actions included in the hackAIR platform.

5) Theory part 2: Air quality measurement & citizen science

- Slide 10: Measurement of air quality
- Slide 11: Options to improve air quality measurement
- Slide 12: Air quality monitoring & citizen science
- Slide 13: hackAIR

This section focuses on air quality measurement and citizens science in Europe and introduces hackAIR's approach to monitoring (in a nutshell). A guest speaker might elaborate and add relevant examples and opportunities.

6) Air quality & I: What could I do with better air quality data?

- Slide 14: Air quality & I exercise

In this section, participants can ask themselves: what is the added value of better air quality data for me? How can I use better data in my daily life, my work, my action group, my campaign,..? We suggest to make this an active brainstorming activity in pairs. The facilitator asks the main questions, gives some example or inspiration and invites the participants to discuss in pairs. After 30-60 sec for personal consideration participants give a suggestion one by one. For example partner 1 writes down or shares one action, partner 2 action another action, partner 1 action 3, etc. At the end the facilitator collects a couple of actions suggested by participants and suggest some more actions or inspiration if needed.

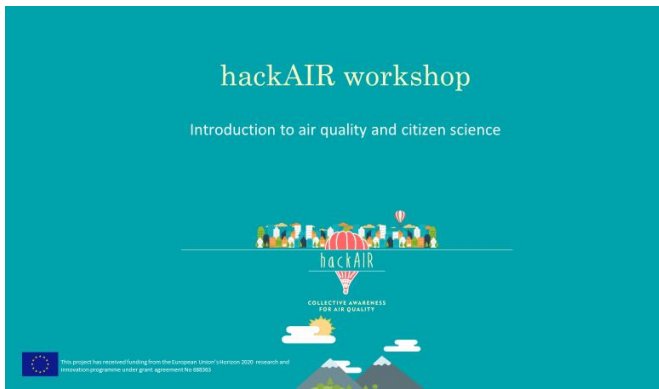



7) Reflection & next steps: What? So what? Now what?









- Slide 15: Reflection
- Slide 16: Closing







Before the facilitator closes the workshop or continues with the next module, we suggest to allow time for questions and a short reflection in small groups (+/- 4 participants). The facilitator asks the first question (What?) and within the group each participant shares his/her observations or learnings. After a while the facilitators ask the second question (So what?), participants share in groups, etc. At the end the facilitator could ask for some short reactions (1 sentence).

- What? What have you learned about air quality and citizen science? What facts or observations stood out?
- So what? Why is that important (to you, to your family, community, colleagues, city, action group,...)?
- Now what? What actions make really sense now? What will you do?

Draft Powerpoint for the module

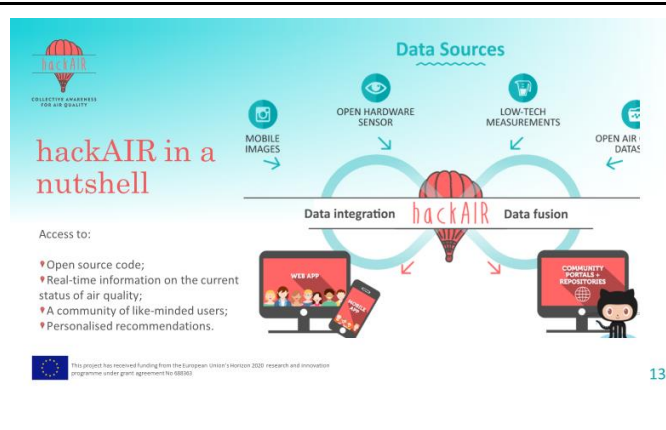
<p>Slide 1</p>	 <p>hackAIR workshop</p> <p>Introduction to air quality and citizen science</p> <p>hackAIR</p> <p>COLLECTIVE AWARENESS FOR AIR QUALITY</p> <p><small>This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 68593</small></p>						
<p>Slide 2</p>	 <p>Hello!</p> <p>Meet the team</p> <p>Sonja Grossberndt, NILU Arne Fellermann, BUND</p> <p>Our programme today</p> <ul style="list-style-type: none"> - Facts on air quality in Europe - Air quality measurements and citizen science - Discussion <p>Over to you: What's your name? What's your interest in air quality?</p> <p><small>This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 68593</small></p>						
<p>Slide 3</p>	 <p>Quiz: What do you know about air quality?</p> <ul style="list-style-type: none"> • What kills more people: air pollution, car accidents, smoking? • What is the % of Europeans living in cities breathing air which is harmful for their health? • What's the most polluted city in Europe? • When was the air quality best / worst in your city last year? <p><small>This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 68593</small></p> <p>3</p>						
<p>Slide 4</p>	 <p>Facts on air quality in Europe</p> <p>Up to a third of Europeans living in cities are exposed to air pollutant levels exceeding EU air quality standards.</p> <p>Around 88% of the urban population is exposed to excessive Particulate Matter (PM10) levels and other pollutants deemed damaging to health by the World Health Organization (WHO) guidelines.</p> <p>EU urban population exposed to harmful levels of air pollution, according to:</p> <table border="0"> <tr> <td>EU limit values</td> <td>33%</td> <td>88%</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table> <p><small>This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 68593</small></p> <p><small>EU reference value: PM₁₀: 50 µg/m³ [daily average] WHO air quality guidelines: 20 µg/m³ [annual average] Source: European Environment Agency, Air Quality in Europe (2015)</small></p> <p>4</p>	EU limit values	33%	88%			
EU limit values	33%	88%					

Slide 5	 <h3 style="color: #e74c3c;">Facts on air quality in Europe</h3> <ul style="list-style-type: none"> • Air pollution: invisible but dangerous • It is the presence in the atmosphere of gases, dust and particles at a percentage that may be harmful to humans, animals and plants • Common air pollutants in the atmosphere: <ul style="list-style-type: none"> • particulate matter (PM) • carbon monoxide (CO) • ground-level ozone (O₃) • nitrogen dioxide (NO₂) • sulphur dioxide (SO₂) <p style="font-size: small; margin-top: 10px;">  This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 988083. </p> <p style="text-align: right; color: #007bff;">5</p>
Slide 6	 <h3 style="color: #e74c3c;">Facts on air quality in Europe</h3> <ul style="list-style-type: none"> • Sources of air pollution: mostly attributed to human activities (industries, transport, agriculture, land fills) • Particulate matter: Road dust, brakes and tyres on vehicles, construction, forest fires, etc. • Carbon monoxide: Incomplete combustion of any fuel like natural gas, charcoal, gasoline, coal • Ozone: Industrial facilities, motor vehicle exhaust, chemical solvents • Nitrogen dioxide: Motor vehicles and any combustion of fossil fuels. • Sulphur dioxide: Combustion of fossil fuels, volcanic eruptions. <p style="font-size: small; margin-top: 10px;">  This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 988083. </p> <p style="text-align: right; color: #007bff;">6</p>
Slide 7	 <h3 style="color: #e74c3c;">Facts on air quality in Europe</h3> <ul style="list-style-type: none"> • Huge impact on health: >400.000 premature deaths, 6.500.000 people fall sick (strokes, asthma and bronchitis, heart diseases) • Particulate matter (PM₁₀, PM_{2.5}) most problematic, e.g. PM_{2.5} reduces life expectancy in the EU by > eight months • Air pollution also harms our natural environment, both vegetation and wildlife: almost two-thirds of Europe's ecosystems under threat <p style="font-size: small; margin-top: 10px;">  This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 988083. </p> <p style="font-size: x-small; margin-top: 5px;">Sources: European Environment Agency, Air Pollution (2017), European Commission, Cleaner air for all (2017).</p> <p style="text-align: right; color: #007bff;">7</p>
Slide 8	 <h3 style="color: #e74c3c;">Reflection round</h3> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="background-color: #2980b9; color: white; padding: 10px; width: 45%; text-align: center;"> <p>Any new things? Surprises? Want to know more? Questions?</p> </div> <div style="background-color: #2980b9; color: white; padding: 10px; width: 45%; text-align: center;"> <p>What's the air quality here: Air pollution hotspots? Main sources? Relevant problems?</p> </div> </div> <p style="font-size: small; margin-top: 10px;">  This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 988083. </p> <p style="text-align: right; color: #007bff;">8</p>

<p>Slide 9</p>	 <h3>Air quality & I</h3> <p>What can I do to reduce (my exposure to) air pollution?</p> <ul style="list-style-type: none"> → Brainstorm individually → Discuss in pairs → Collect in groups of four → Back to plenary <p><small>This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 688363</small></p> <p style="text-align: right;">9</p>
<p>Slide 10</p>	 <h3>Air quality measurement & citizen science</h3> <ul style="list-style-type: none"> • AirBase: the European air quality database maintained by the European Environmental Agency (EEA) <ul style="list-style-type: none"> • Air quality monitoring data and information submitted by participating countries throughout Europe • Minimum requirements allow for variations between states • Lack of up-to-date information on air quality levels, highly technical formats • Local level: Many European cities have taken an active role in air quality monitoring <p><small>This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 688363</small></p> <p style="text-align: right;">10</p>
<p>Slide 11</p>	 <h3>Air quality measurement & citizen science</h3> <ul style="list-style-type: none"> • How to improve air quality measurements? → Better information! <ul style="list-style-type: none"> • Fill gaps in areas where distances between sites may be large • Improve access to data across many sources • Provide up to date air quality information <p><small>This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 688363</small></p> <p style="text-align: right;">11</p>
<p>Slide 12</p>	 <h3>Air quality measurement & citizen science</h3>   <ul style="list-style-type: none"> • Increasing citizens' engagement on air quality <ul style="list-style-type: none"> • Air pollution is the single environmental issue Europeans worry about the most (56%)¹ • Nearly six out of ten Europeans do not feel informed about air quality issues in their country (59%)² • Citizen science actions: supplementation official data (biomonitoring, home sensors), personalised environmental information, making open source technology available, creating measurement tools,... <p><small>This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 688363</small></p> <p style="text-align: right;">12</p>

D8.5 Plan for hackAIR Workshop Tour

Slide 13



hackAIR in a nutshell



Data Sources

- MOBILE IMAGES
- OPEN HARDWARE SENSOR
- LOW-TECH MEASUREMENTS
- OPEN AIR DATA

Data integration → **hackAIR** → **Data fusion**

Access to:

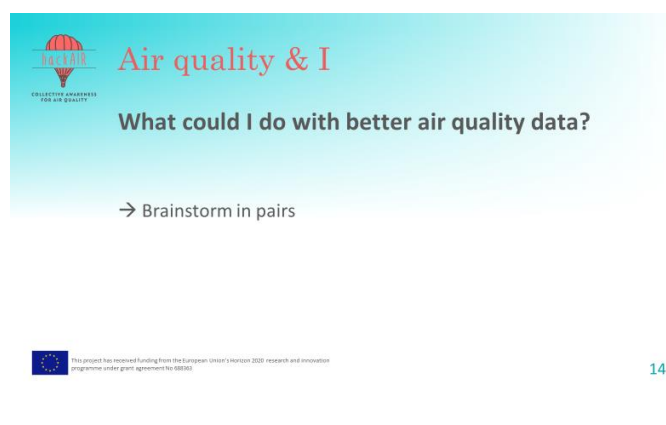
- Open source code;
- Real-time information on the current status of air quality;
- A community of like-minded users;
- Personalised recommendations.

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Slide 14



Air quality & I

What could I do with better air quality data?

→ Brainstorm in pairs

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Slide 15



Reflection and next steps

Questions?

Small group discussion

→ What?

→ So what?

→ Now what?

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Slide 16



Thank you!

[Contact details facilitator / host organisation / guest speaker]

www.hackair.eu

hackAIR

COLLECTIVE AWARENESS FOR AIR QUALITY

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