CitiObs - ENHANCING CITIZEN OBSERVATORIES FOR HEALTHY, SUSTAINABLE, RESILIENT, AND INCLUSIVE CITIES

DELIVERABLE 4.1

Communication, Dissemination and Exploitation Plan (2/2)

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Abstract:	This deliverable aims to present the updated communication, dissemination and exploitation plan of CitiObs. It serves as a key reference for all partners in order to assist them in conducting dissemination activities so as to maximise the visibility of the project, as well as its impact.		

VERSION LOG

Version	Date	Partner	Content and changes
0.1	06/06/2024	DreVen (Vasiliki Papageorgiou)	Design of table of contents
0.2	02/07/2024	DreVen (Vasiliki Papageorgiou)	1st Draft
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0.4	04/07/2024	DreVen (Vasiliki Papageorgiou)	Final version
1.0	04/07/2024	NILU (Marc Peñalver)	Final submission

CITIOBS

CitiObs is a four-year project funded under Horizon Europe by the European Commission. CitiObs will consolidate and apply tools and practice-based knowledge for co-creating data, knowledge and local action via Citizen Observatories (COs): these tools will enhance existing and new citizen observatories to engage citizens and marginalised communities, add value to environmental observations in the urban context, increase and validate citizen observations of the urban environment as part of the existing in-situ Earth Observation systems, co-create inclusive local actions for sustainability and ensure that CO data contributes to research and policy development towards the objectives of the European Green Deal. To ensure broad use, the CitiObs tools and approaches will be developed in co-creation with COs in 5 Frontrunner cases, finetuned with 30 Alliance cases and showcased to 50 Fellow cases.

CitiObs will support citizen observatories in widely spread geographically urban locations to create/enhance/or scale up inclusive and diverse citizen observatories, fostering, in particular, an active role of citizens in the observation of the urban environment using low-cost sensor technologies and wearables, with a particular focus on air quality and related environmental challenges. CitiObs will enhance, support and connect citizen observations.

The CitiObs methodology of using large-scale demonstration, co-design and coaching approaches with CO stakeholders (citizens, scientists, policy/decision makers) in 5+30+50 CO cases in Europe explicitly builds on the Responsible Research & Innovation (RRI) dimensions as founding principles. Ethics considerations will be addressed consistently across all Work Packages.

- WP1. Social dimensions of Citizen Observatories for transition governance

- WP2. Tools, Technologies, and Data Services for Citizen Observatories

- WP3. Co-creation of data and actions for healthy, sustainable and resilient cities with Citizen Observatories

- WP4. Impact creation, Communication, Dissemination and Exploitation

- WP5. Project management

- WP6. Ethics

EXECUTIVE SUMMARY

This document provides an updated guideline for the dissemination, communication, and exploitation activities that are undertaken by all partners throughout the lifespan of CitiObs. It also includes the updated exploitation plan for all Key Exploitable Results as identified by partners within the first 18 months of the project.

Specifically, this deliverable outlines the project's overall communication and dissemination plan, along with the overarching strategy designed to promote the project's results and engage relevant stakeholders. By providing partners with all necessary information, this document aims to facilitate the collaboration between the consortium members and the effective promotion of the project and maximise its impact.

DreVen, as the leader of Work Package 4 (Dissemination, Communication, and Exploitation), has developed the strategic framework presented herein. The document identifies the most effective methods and techniques for dissemination activities, tailored to the characteristics of various stakeholders involved in the project. Furthermore, it equips all partners with a range of dissemination and communication activities and tools, enabling them to effectively reach diverse target audiences and stakeholders.

The structure of the document is set below with a description of what each chapter covers:

- First chapter (Introduction): The introduction and the purpose of the document is described.

- Second chapter (Communication Plan): The communication plan is presented along with its objectives, graphic and digital material, as well as the events, publications, the communication kit that will be designed and the interaction among partners.

- Third chapter (Dissemination Plan): The dissemination plan is presented, along with the target group and the updated key messages and terminology of the project. Also, the individual dissemination plan of each partner, as well as the synergies that are carried with other relevant projects, are described.

- Fourth chapter (Dissemination and Communication Plan): An outline of the activities consisting of the ongoing communication plan of CitiObs is presented along with the time plan for the Campaign supporting the Call for Alliance Cases as an indicative plan for future outreach campaigns.

- Fifth chapter (Exploitation Plan): The exploitation plan for all Key Exploitable Results (KERs) of the project is presented.

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ACRONYMS

Acronym	Full name
C&D	Communication and Dissemination
CO	Citizen Observatory
CS	Citizen Science
D	Deliverable
D&C	Dissemination and Communication
DSS	Decision Support System
EU	European Union
GA	Grant Agreement
GEOSS	Global Earth Observation System of Systems
KERs	Key Exploitable Results
KPIs	Key Performance Indicators
M	Month
SMART	Specific, Measurable, Achievable, Relevant, and Time-bound
SMEs	Small and medium-sized enterprises
SoMe	Social Media
URL	Uniform Resource Locator
UVP	Unique Value Proposition
WP	Work Package

1. INTRODUCTION

The aim of D4.1 Communication, Dissemination and Exploitation Plan (2/2) is to provide a comprehensive overview of all the activities planned and executed in order to enhance the awareness of the CitiObs project among the stakeholders, selected audiences and the general public and amplify its impact throughout its lifespan and beyond.

It is a living document containing the Dissemination, Communication, and Exploitation plan currently being implemented in the CitiObs project and constitutes the updated version of D4.6 - Communication, Dissemination, and Exploitation Plan (1/2), therefore it has a similar structure. To provide a complete overview, it includes a lot of information from D4.6 but also incorporates all modifications and updates made during the first 18 months of the project's progression.

The strategy as part of the WP4 supports knowledge transfer by integrating the project's findings and services into broader initiatives and extending the project's partnerships to create long-lasting Communities of Practice. As mentioned in the European Charter for Researchers[1]: "Researchers should ensure that their research activities are made known to society at large in such a way that they can be understood by non-specialists, thereby improving the public's understanding of science. Direct engagement with the civil society and citizens will help researchers to better understand public interest in priorities for research and the public's concerns, and to harness the potential of co-design and co-creation with society where relevant".

The current document has been developed considering EU indications for dissemination and communication of the Horizon Europe Programme present in the Guidelines of dissemination, exploitation and communication activities of Horizon Europe Programme (EU 2022), in the EU

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[1]   EUROPEAN   CHARTER   FOR   RESEARCHERS, https://www.uc3m.es/hrs4r/media/hrs4r/doc/archivo/doc_-new_european-charter-for-researchers_20223/eucharter4researchers_23-01-23.pdf

REGULATION 2021/695 2021 establishing Horizon Europe-Article 39, and in the webinar session: Dissemination & Exploitation in Horizon Europe (9 June 2021)[2, 3, 4].

This document also integrates several activities outlined in the D4.8 Dissemination Report (1/2) encompassing terminology and key message updates. Additionally, it presents a more comprehensive and detailed plan that reflects the project's progress in communication and exploitation strategies. These enhancements ensure that the document remains relevant and effective in promoting the project's goals and maximising its impact.

As mentioned in the same section of D4.6 Communication, Dissemination and Exploitation Plan (1/2) the successful implementation of all activities planned and presented in this document requires the collaborative effort of all consortium partners. Work Package 4, responsible for the planning and implementation of Communication, Dissemination and Exploitation actions is integrally linked to and dependent on the progress and the efforts as well as the information provided by all other work packages within the project.

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[2] European Commission, Guidelines for dissemination, exploitation and communication activities, in EU Grants: HE Programme Guide, https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/programme-guide_horizon_en.pdf

[3] EU REGULATION 2021/695 2021 establishing Horizon Europe-Article 39, https://eur-lex.europa.eu/eli/reg/2021/695/oj

[4] Webinar session: Dissemination & Exploitation in Horizon Europe, https://ec.europa.eu/research/participants/docs/h2020-funding-guide/other/event210609.htm

2. Communication Plan

CitiObs' communication plan aims to present the project and its objectives to a broad audience including the media and the general public, while continuously fostering engagement and growing interest. This plan encompasses all activities related to the project's results, actions and progress.

2.1. Objectives

The communication plan aims to provide a framework in order to promote the objectives, progress and lessons learned on the project to selected and identified target groups. The plan provides a clear overview of how all the communication initiatives address the key stakeholder groups.

The communication objectives for the CitiObs project are developed using the SMART model to ensure they are specific, measurable, achievable, relevant, and time-bound.

SMART Model:

Specific: Focused on the specific needs of the project such as increasing public awareness, enhancing engagement with stakeholders and promoting visibility among similar initiatives.

Measurable: The effectiveness of the communication objectives will be measured according to the indicators outlined in the project and the specific KPIs specified in the Grant Agreement (GA).

Achievable: The development of tailored strategies for different stakeholders, the utilisation of various communication channels and participation in relevant events facilitate the achievement of intended results.

Relevant: All objectives are directly aligned with the core mission of CitiObs, supporting the project's key objectives, while also being appropriate to the thematic area of Citizen Science.

Time-bound: Specific deadlines have been assigned to each deliverable, as outlined in the GA, while KPIs are distributed across the project's entire duration. Any potential delays will be addressed and managed accordingly.

Key Objectives:

- Increase public awareness of the project by communicating the objectives, the activities as well as the results of the project.

- Inform the public about CitiObs via brochures, posters, factsheets, banners, and videos in order to ensure high visibility at relevant events.

- Enhance engagement in social media by targeting key stakeholders.

Objectives in numbers

- Increase the size of the online community by M36 to 5K. Some indicative milestones to ensure the achievement of this goal are:

- Reach the size of the online community by M12 to 1K.

- Reach the size of the online community by M24 to 3.5K.

- Reach the size of the online community by M36 to 5K.

- Have more than 500 impressions per month on our social media channels.

- Have over 1500 unique website visitors by M12 and over 4000 by M36.

2.2. Graphic Material

The project's visual identity aims to facilitate dissemination activities and ensure consistency in communicating CitiObs' concepts, objectives, and results. A logo, a colour palette, and templates for online communication, social media, as well as project deliverables have been developed to maintain this consistency and have been shared with partners through the project's SharePoint.

Furthermore, a comprehensive document has been created, Visual Identity Guidelines (Figure 1), providing guidelines on the correct use of the logo, colour palette, fonts, and layouts. These graphic materials and guidelines will support the further deployment and branding of the project's Cookbook and Knowledge Platform, as well as targeted elements of graphics used in communication actions, such as the Call for Alliance and Fellow Cases, always adhering to the established guidelines.

Visual Identity Guidelines.

A guide on how to use correctly
the logo, the color palette, the fonts
and the graphic material,
in order to have a clear and
constant visual identity of the project.

Figure 1: CitiObs Visual Identity Guidelines

2.2.1. Colour Palette

As mentioned in D4.6, based on CCICOLOR, the average person makes a subconscious judgment about a product within the first 90 seconds based on colour alone.[5] For this reason, the consortium of CitiObs took under profound consideration the colour identity of the project. Furthermore, inclusivity is reflected in it, since the research was conducted to identify colours that are accessible to all and thus decided upon the following 6-colour-palette:

- Faded Orange #F68F48 (246,143,72)

- Bright Orange #F26300 (242,99,0)

- Dark Cyan #008480 (0,132,128)

- Eastern Blue #1AA39E (26,163,158)

- ArtyClick Sky Blue #00C0F0 (0,192,240)

- Bile #AFBF00 (175,191,0)

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[5] COLORCOM, Why Color Matters (2019), https://www.colorcom.com/research/why-color-matters
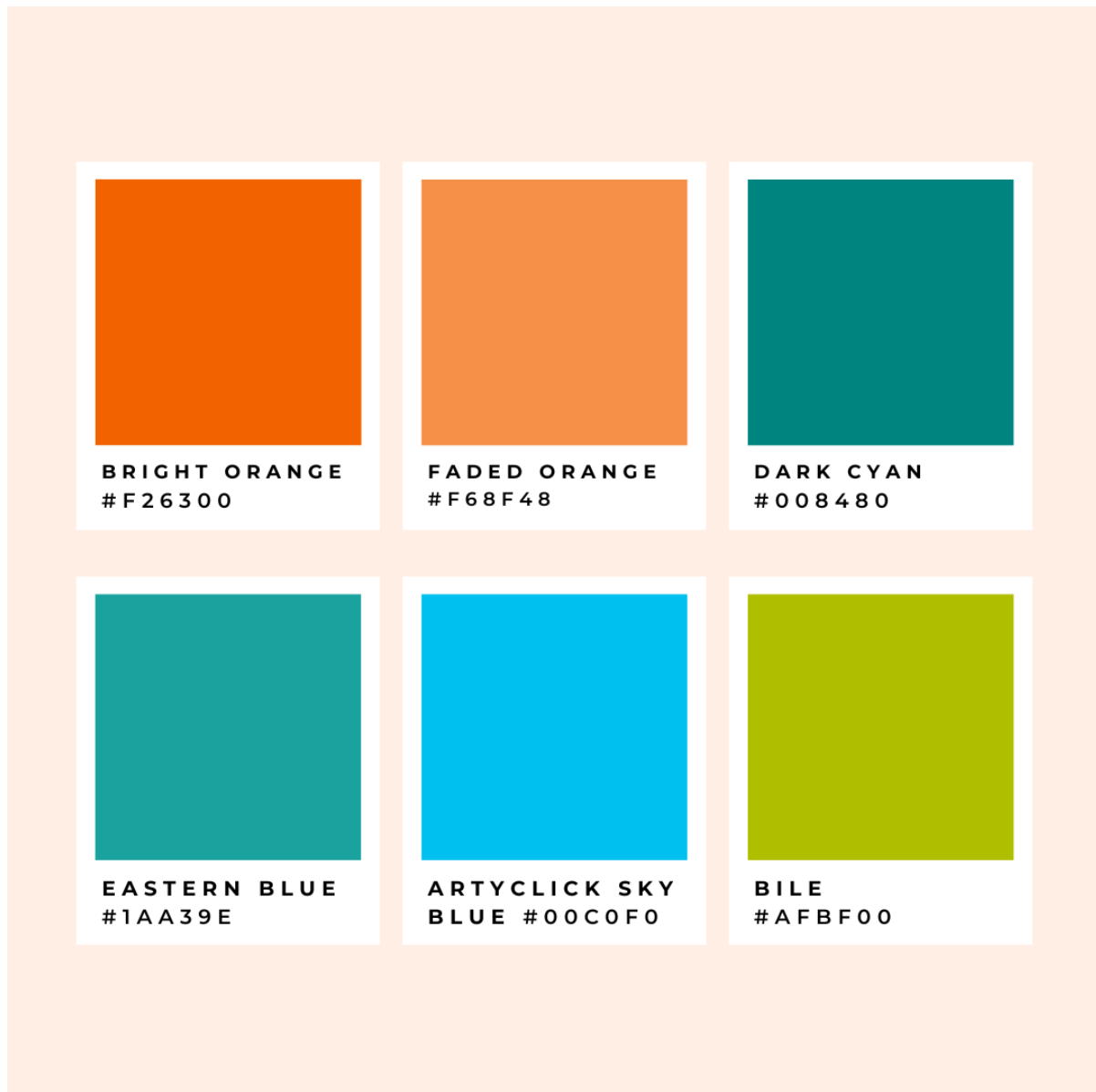
Figure 2: Colour Palette of CitiObs

The colour palette (Figure 2) was selected in order to catch people's attention and radiate vividness, optimism and trustworthiness. It is meant to give brightness and sprightliness to the project. This colour palette will be used for all purposes relevant to the project, from dissemination materials to project deliverables.

2.2.2. Logo

The main logo of CitiObs was designed based on the colour palette and included the name of the project. CitiObs logo design prioritised inclusivity which is reflected in the design elements within the letter "O," symbolising inclusion and connectivity among the various Citizen Observatories. The figure below illustrates all project logos, including the main logo, the secondary logo, and the monogram (Figure 3). The logo plays an essential role in the project's visual identity, featuring in all external communication materials and occasions as the main visual representation of the project, aiding in recollection and recall. Adaptations of the logo were created for use on smaller scales, for the project's social media accounts.

Incorporating the brand guidelines of the project's main logo, logo adaptations are to be designed for the project's Cookbook and Knowledge Platform, adhering to the project's principles while further enhancing the visibility of these major project outputs which will serve as the legacy of the project beyond its completion. Creative adaptations of the logo will be prior reviewed and agreed upon with the project partners.

Contrary to approved logo adaptations, logo alterations are not permitted in any way.

Partners are responsible for ensuring that they use the right logo, resolution and size in accordance with the Visual Identity Guidelines and in coordination with DreVen.

MAIN LOGO

SECONDARY LOGOS

MONOGRAM

Figure 3: Logos of CitiObs

Additionally, it is of great importance that each material used in the dissemination activities of the project incorporates a copy of the EU emblem and a text with the following statement:

"Co-Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Executive Agency (REA). Neither the European Union nor the granting authority can be held responsible for them."

The emblem of the EU (Figure 4) can be found on the EU website[6].

Figure 4: EU emblem

2.2.3. Project Banner & Project Templates

As outlined in D4.6 from the beginning of the project, a distinctive banner was created to establish consistent branding across social media accounts, deliverables, and presentations, serving as the project's dissemination tools. Designed in accordance with the project's colour palette, the project banner (Figure 5) reflects various urban areas involved in the project and serves as a visual representation of connectivity, one of the project's main objectives.

Aiming to reinforce the project's visibility the banner serves as a key background for:

- Social Media Accounts (LinkedIn, X and Mastodon)

- Deliverable Template

- Presentation Template

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[6] EU download centre for visual elements, https://ec.europa.eu/regional_policy/information-sources/logo-download-center_en

Figure 5: Project Banner for social media

In addition to the previously mentioned templates, and to maintain uniformity in all outreach activities, the following set of templates have been created in accordance with the typography and the colour palette of CitiObs visual identity guidelines:

- Press release, Publication and Consent form templates

- Blog post templates

- Dissemination activities reporting

2.2.3.1. Deliverable Template

This current document is on the template for all deliverables. The deliverable template (Figure 6) consists of a front page with the date, full project title, deliverable title, deliverable number, and the author's name. The second page features the disclaimer, copyright message, EU emblem, and the project's specified statement. Additionally, the template offers a table of contents, lists of figures and tables, and a table explaining all document acronyms. It also includes a description of the CitiObs project, a table for document information to be completed, and an abstract. Moreover, there is a table detailing the document history and version log. The template also provides comprehensive guidelines for citing references, covering books, book chapters, and journal articles from databases or print newspapers, websites, eBooks, and PDFs.
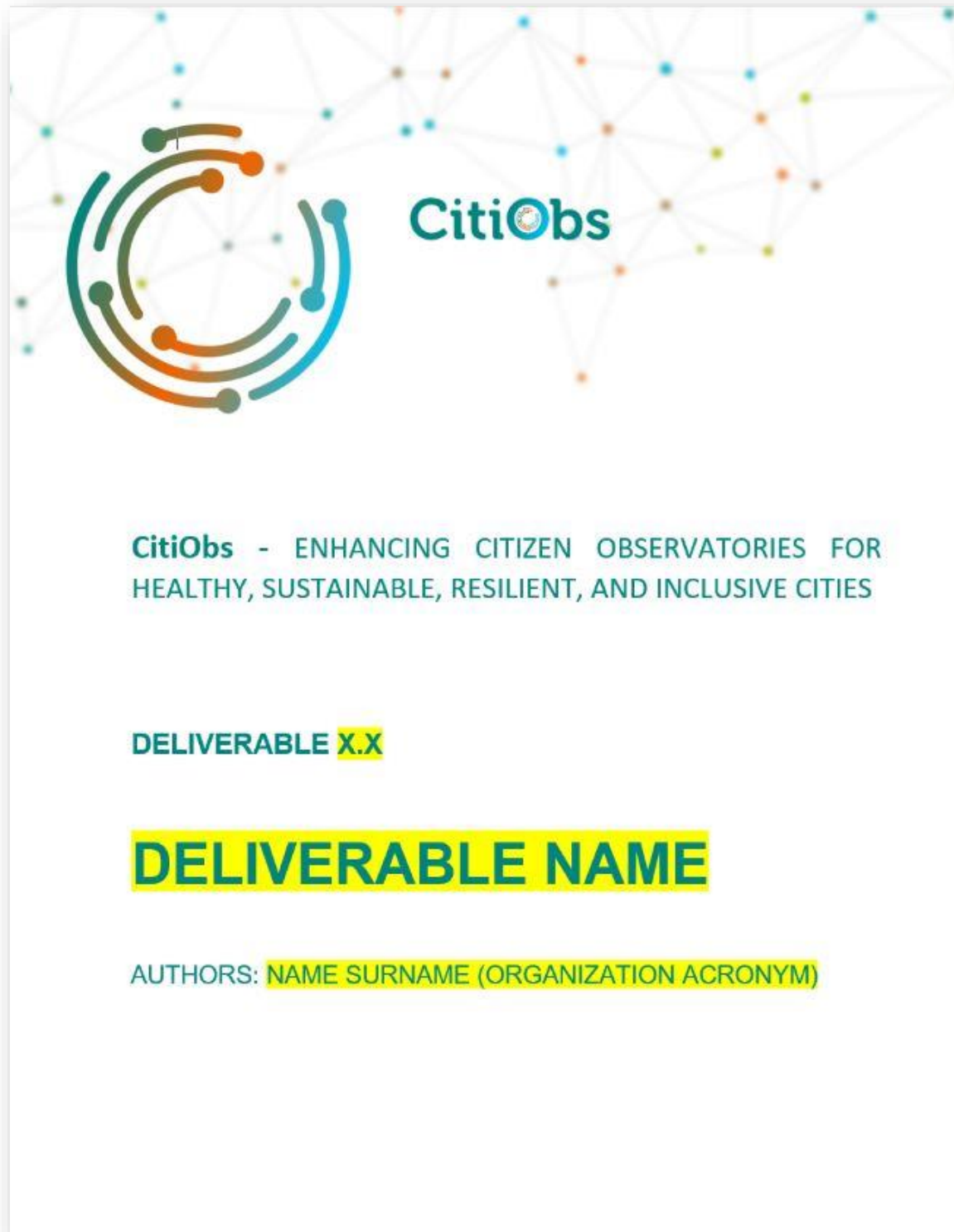
Figure 6: Deliverable template

2.2.3.2. PowerPoint Presentation Templates

For all project presentations, a PowerPoint template (Figure 7) was designed to reflect the visual identity guidelines. This template was shared with partners via the project's SharePoint for internal use and presentations to various stakeholders. The template includes a basic version with a cover, body, and end page, as well as an extended version featuring slides with tables, maps, and graphic elements aligned with the CitiObs brand guidelines. The extended version (Figure 8) will undergo several improvements and updates throughout the project.

Figure 7: PowerPoint Template
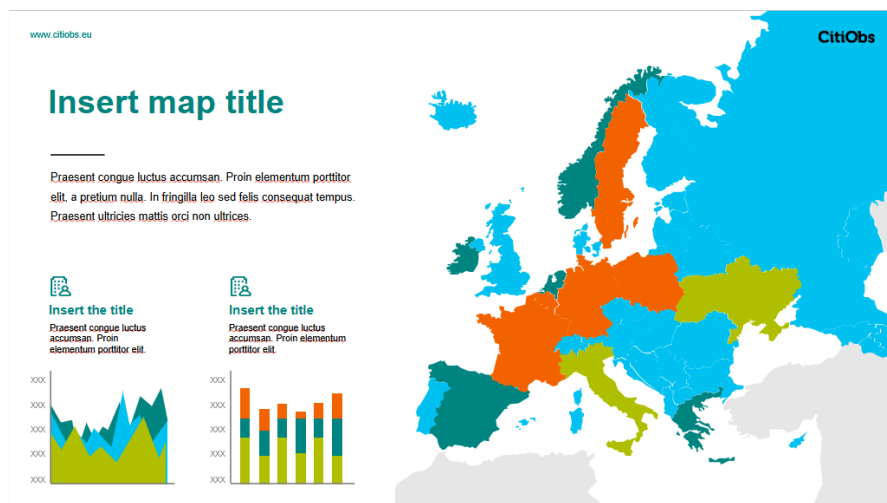
Figure 8: Extended version PowerPoint Template

2.2.3.3. Press Release Template, Publication and Consent Form Templates

Branded templates in accordance with the project's logo and typography have been created for Press Releases, Publications (Figure 9) and Consent Forms ensuring that any dissemination or outreach action carries the correct representation of the project.
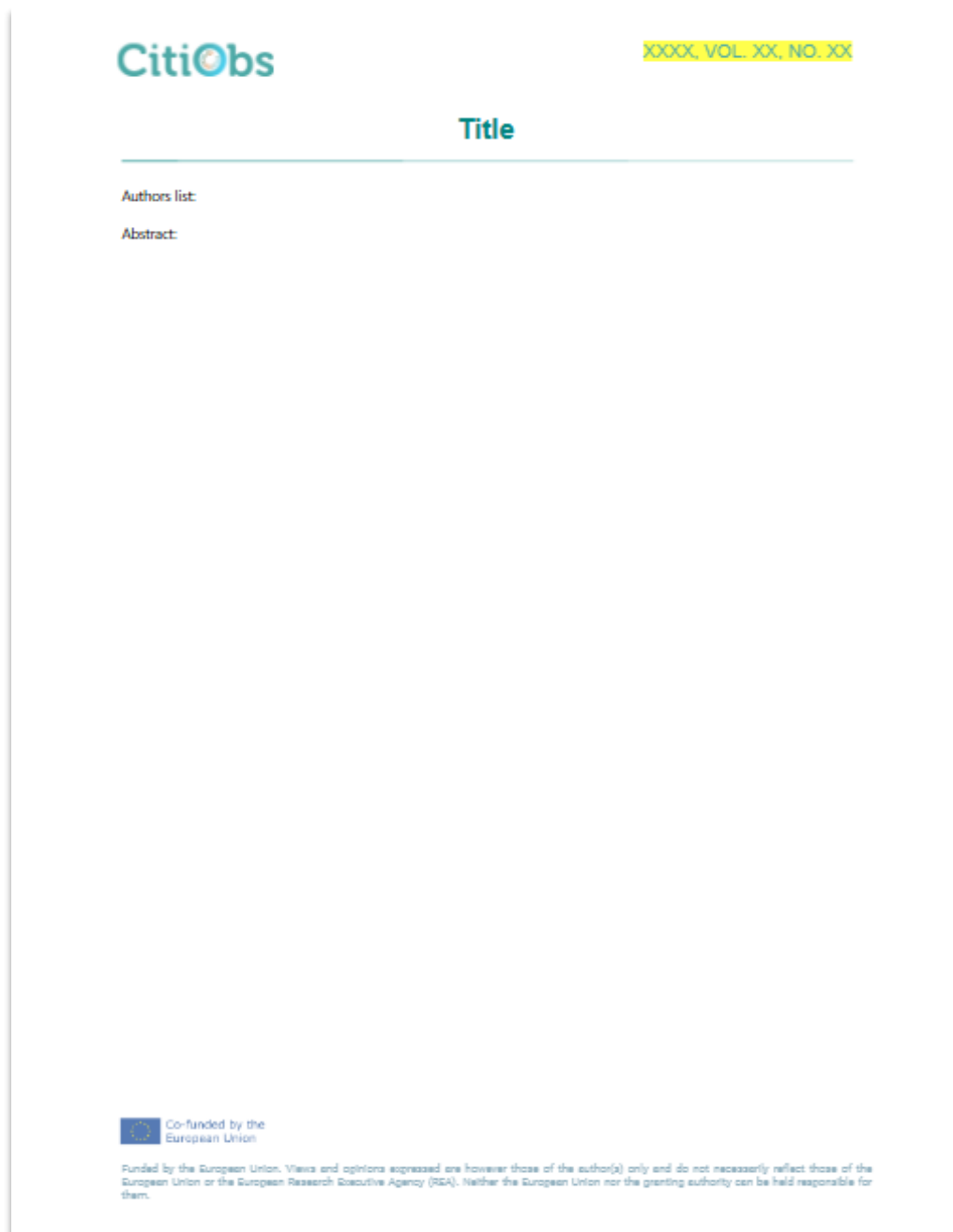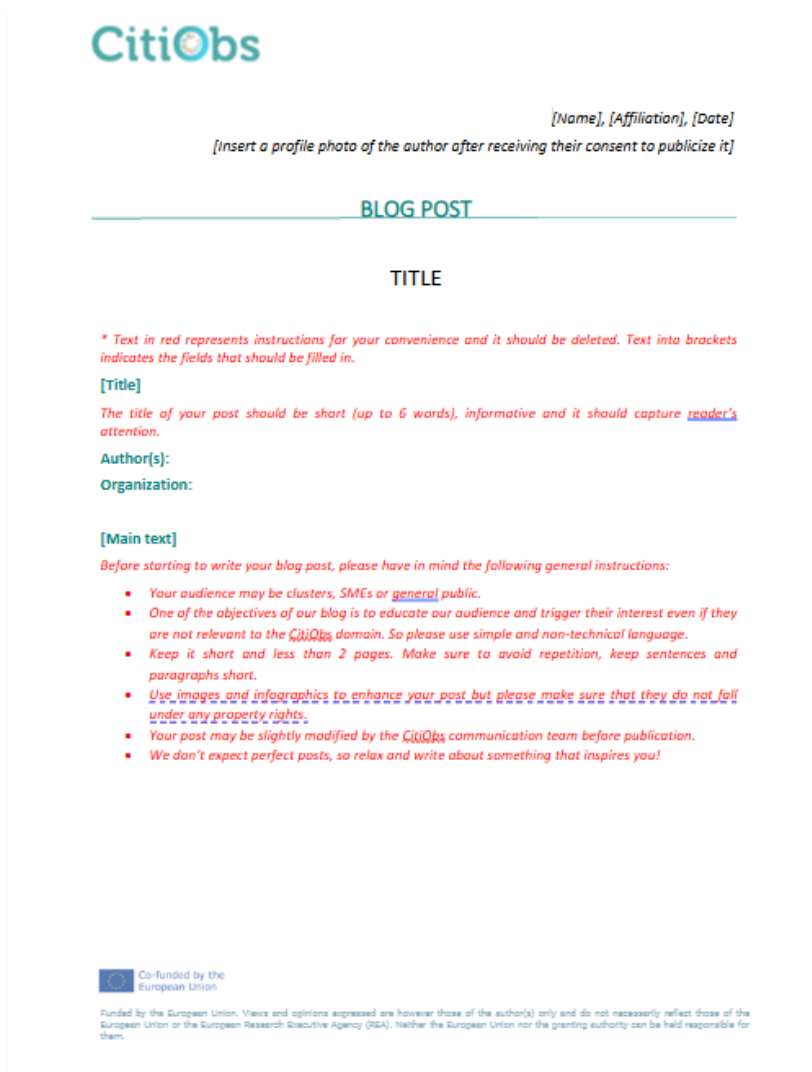
Figure 9: Publications Template

2.2.3.4. Blog Post Template

Starting from month six (M6), the CitiObs blog, a dedicated section on the project website, features monthly articles offering insights into the project's goals and progress, particularly related to the project's tools and methodologies. This approach aims to engage the audience with regularly updated, relevant content. These blog posts, which serve as CitiObs technical publications, are contributed by partners using a blog post template (Figure 10) created by DreVen. This template ensures that all essential information is included in each article. Additionally, a branded blog post graphic template (Figure 11) has been developed to present the articles on-line uniformly and maintain visibility in line with CitiObs guidelines.

Figure 10: Blog Post Template

Figure 11: Blog Post Graphic Template

2.2.3.5. Dissemination Activities Reporting Template

The dissemination activities reporting template was prepared in order to be used for internal reporting at times when partners have organised an event or have participated. The template includes the title of the event, the date that it occurred, the location, as well as the URL (if any). All partners are asked to provide a short description of the event, a summary of the key points that were discussed, as well as any follow-up activities that were planned.

As from M18, the dissemination template will be changing incorporating all the information requested on the periodic reporting through the EU Funding and Tenders Portal. https://ec.europa.eu/info/funding-tenders

Regarding the Conferences and Events, the partners will be asked to provide additional information about the target audience of the action while a new Publications template (Figure 12) is created asking partners to provide information on the title of the publication, the journal and the publisher as well as the type of the publication and the repositories it can be accessed.

Publications													
Partner	Tittle of the Publication	Type of Publication (e.g. article, paper in a conference proceeding, book, thesis, other etc)	Title of the Journal or Equivalent	Authors	Publisher	Date of the Publication	Open Access YES/NO	Peer Reviewed YES/NO	PID Repository	PID Publisher Version on Record	ISSN or eISSN	Processing costs charged to the project?	Did you charge OA publishing fees?

Figure 12: Publications Template

DreVen is reminding, every three months, all partners to prepare the dissemination reports and upload them on the project's SharePoint in order for all the Consortium members to stay up to date with the activities performed by other partners as well as the overall dissemination process and activities of CitiObs.

2.2.4. Project Graphic Elements Enhancements

The graphic elements of the project are occasionally enhanced to effectively support distinct communication campaigns. While these modifications introduce variations in colour balance and composition tailored to align with the specific objectives and messages of each campaign, they remain steadfast in upholding the core principles of inclusivity and accessibility. Moreover, all adjustments are meticulously crafted to adhere to established brand guidelines, ensuring a cohesive and recognisable brand identity across all visual representations. This strategic approach allows for a consistent and recognisable visual identity that can be adapted to various contexts in order to be able to support the message more effectively without compromising on the essential values of the brand.

The first example of this approach is the graphic elements created to support the "Call for Alliance COs" (Figure 13). Meticulously designed, these elements evoke feelings of inclusion, mutual and peer learning, optimism, and progress. Leveraging the project's established colour palette, blue has been selected as the dominant hue for the call's graphic materials. This choice ensures that the call stands out while remaining harmonious with the project's overall brand identity. By doing so, the graphics not only attract attention but also reinforce the project's commitment to its core values, creating a cohesive and impactful visual communication strategy.
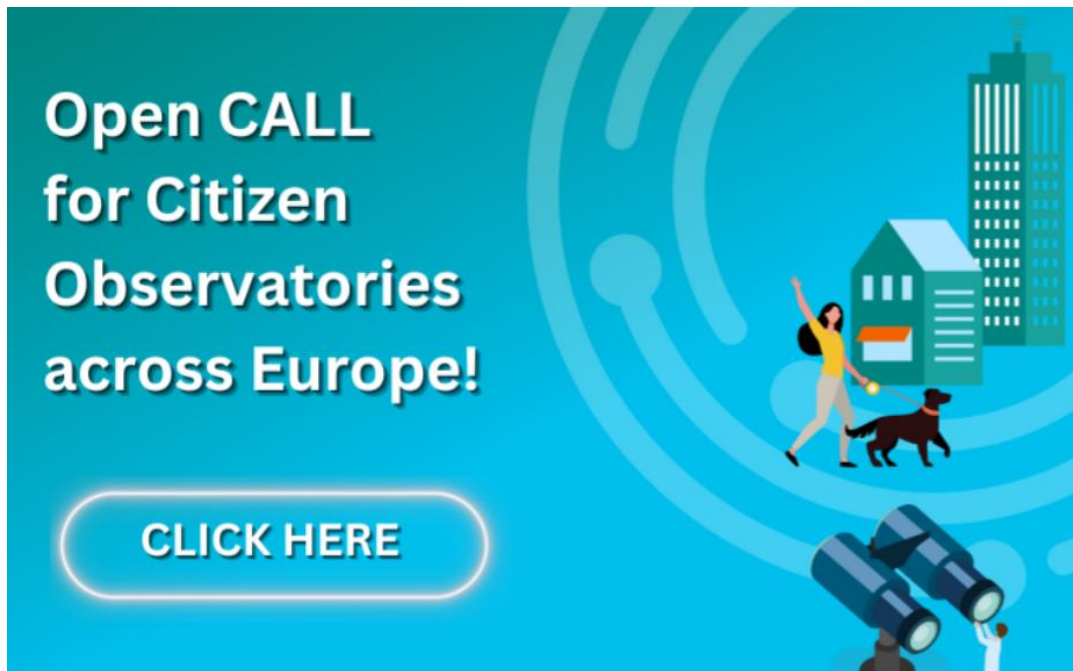
Figure 13: Call for Alliance COs Graphic Elements

The same principles will be applied to other major branding and communication campaigns of the project, such as the branding and dissemination of the "CitiObs Cookbook and Knowledge Platform", as well as the outreach campaign for the "Fellow Cases." Each initiative will feature tailored graphic elements that adhere to the project's branding guidelines, ensuring a consistent visual identity. For the "CitiObs Cookbook and Knowledge Platform", design elements will be carefully chosen to emphasise the themes of information, innovation, and needs-driven and user-friendly practical applications, thereby enhancing user engagement. Similarly, the "Fellow Cases" outreach campaign will utilise distinctive yet cohesive graphics to highlight the achievements and insights of the "Frontrunner and Alliance Cases", fostering a sense of community and shared success. Through these customised yet consistent visual strategies, the project will maintain a unified brand presence while effectively communicating the unique messages and objectives of each campaign.

2.3. Digital Material

2.3.1. Website   [Enhancing citizen observatories for sustainable cities - CitiObs](#)

The CitiObs website is one of the main communication channels and the information hub of the project. It enables different stakeholders to access comprehensive information about the project, including updates, news, insights, public deliverables, and publications along with blog posts contributed by partners. The site is designed to be user-friendly and accessible to diverse audiences.

The website is monitored on a regular basis through the use of website analytics such as user demographics, session engagement, engagement rates, and average engagement and undergoes constant improvements on its structure and content in order to enhance its performance. The creation and the regular update of the two popular sections of the website "News" and "Blog" are particularly influential in driving traffic from social media platforms to the website. Countries such as Greece, Spain, and the Netherlands demonstrate notably high average engagement times, largely attributed to the blog content. There is a clear correlation between spikes in website traffic and the release of new blog posts, especially when actively promoted on social media. For further optimisation, consortium partners are encouraged to share CitiObs blog posts through their personal social media accounts as well as their institutions' official channels. This collaborative approach broadens CitiObs' reach to a wider and more diverse audience but also enables each partner to leverage their personal network for greater impact.

The dynamic and continuously updated sections of the website consist of:

- The CitiObs Blog: As from M6 blog posts are scheduled on a monthly basis and involve active participation from all project partners. These posts provide partners with a platform to share comprehensive insights on their progress within their designated work packages. Leveraging their expertise, partners craft articles with valuable information and technical details of their work and progress, therefore these blog articles are part of the project's technical publications.

  To ensure the quality and consistency of the content, we provide specific guidelines regarding post length, titles, and content. For exemplary language and content style, we encourage referring to the first and second blog posts authored by Núria Castell and Margaret Gold. Furthermore, meticulous attention is given to the scheduling of these blog posts. The Blog Post Plan initiated the series by focusing on the Toolkits, as they were the components that saw the most progress during the initial months. Subsequently, the last blog post of 2023 is strategically aligned with a social media campaign highlighting the Frontrunner Cities, timed to coincide with the commencement of Frontrunners workshops. Following the same principle and plan, blog articles from June to October 2024 will support the "Call for the Alliance Cases" while the blog post of December 2024 will be focused on the introduction of V1 of the Cookbook and Knowledge Platform.

- Public Deliverables: Commencing from M19, the website will feature an enhanced section dedicated to hosting all public deliverables of the project. This section will serve as a comprehensive repository for scientific insights and project updates, ensuring that stakeholders have access to the latest research findings and developments. By centralising these public deliverables, the website aims to facilitate transparency, foster knowledge sharing, and provide valuable resources to the scientific community and other interested parties. This strategic enhancement will further solidify the website's role as an essential platform for disseminating critical project information and fostering ongoing engagement with our audience.

- Scientific Publications: Starting also from M19, the website will include a dedicated section for hosting all scientific publications related to the project. This addition will serve as a comprehensive archive for peer-reviewed articles, research papers, and other scholarly outputs, providing the latest scientific insights and advancements from the project. By consolidating these publications in one accessible location, the website will facilitate knowledge dissemination, and support the academic community and other stakeholders. This

enhancement underscores our commitment to sharing valuable research findings and maintaining the website as a pivotal resource for ongoing scientific dialogue and engagement.

- CitiObs Media: as originally designed from its introduction on M3 the website features a media section which includes the CitiObs communication kit. An updated media section will be launched in M19 including the updated communication kit with the latest project materials. This section will provide easy access to the project factsheet, poster, banner, project videos, and press releases. By centralising these materials, the media section will facilitate the effective dissemination of project information, supporting outreach and engagement efforts. This enhancement will ensure that stakeholders, partners, and media representatives have the most current and relevant information at their fingertips, reinforcing the project's commitment to transparency and proactive communication.

- CitiObs Knowledge Platform & Cookbook: The first version of the web-based solution containing the methodologies, tools, open codes, technologies and training material will be launched in December 2024 and will be finalised on M47 of the project. The integration of the Knowledge Platform and Cookbook into the website will have a dual impact. it will enhance the utility and value of the website and will act as a catalyst for increased website traffic. It is expected to result in a corresponding uptick in our website metrics and analytics.

- The CitiObs website consists of the following pages (Figure 14):

    - The project (Figure 15)

        - Consortium

    - Demonstrations

        - Frontrunner Cases

        - Alliance Cases (Call for Alliances / Demonstrations)

    - Blog

        - Blog posts

    - Media

        - Communication Kit

        - Videos

        - Press Releases

- News

    - Events

        - Workshops

        - Conferences

    - Publications

    - Deliverables

- CitiObs Knowledge Platform

- CitiObs Cookbook

- Contact Us
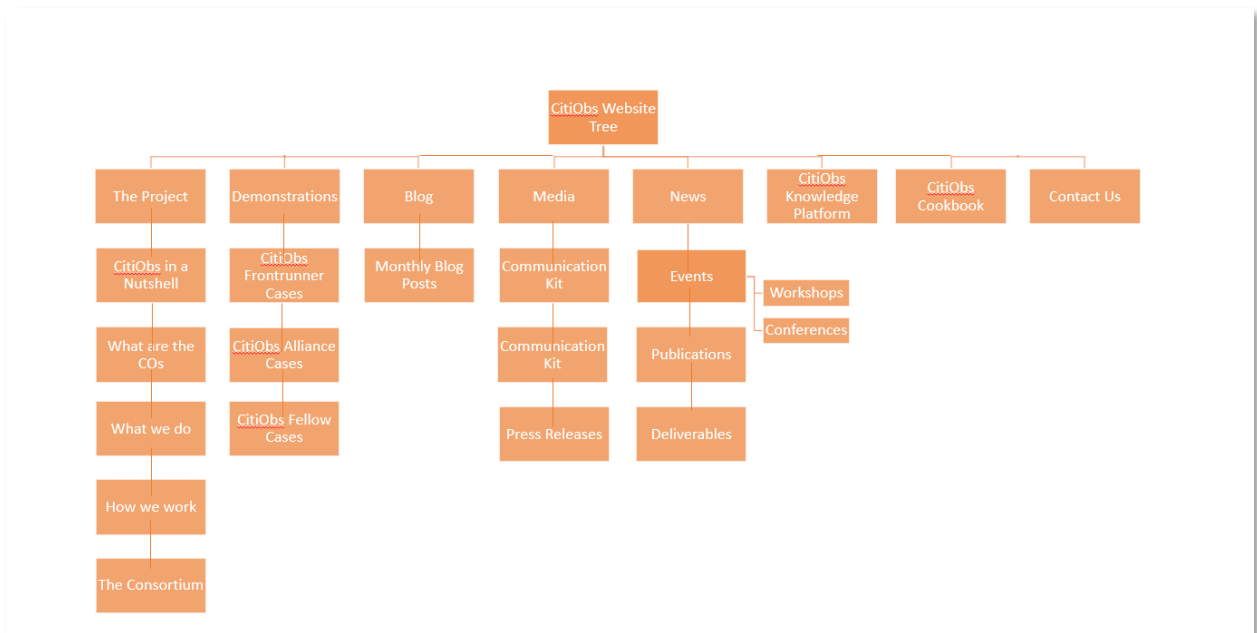
Figure 14: CitiObs Website Tree (as from M19)
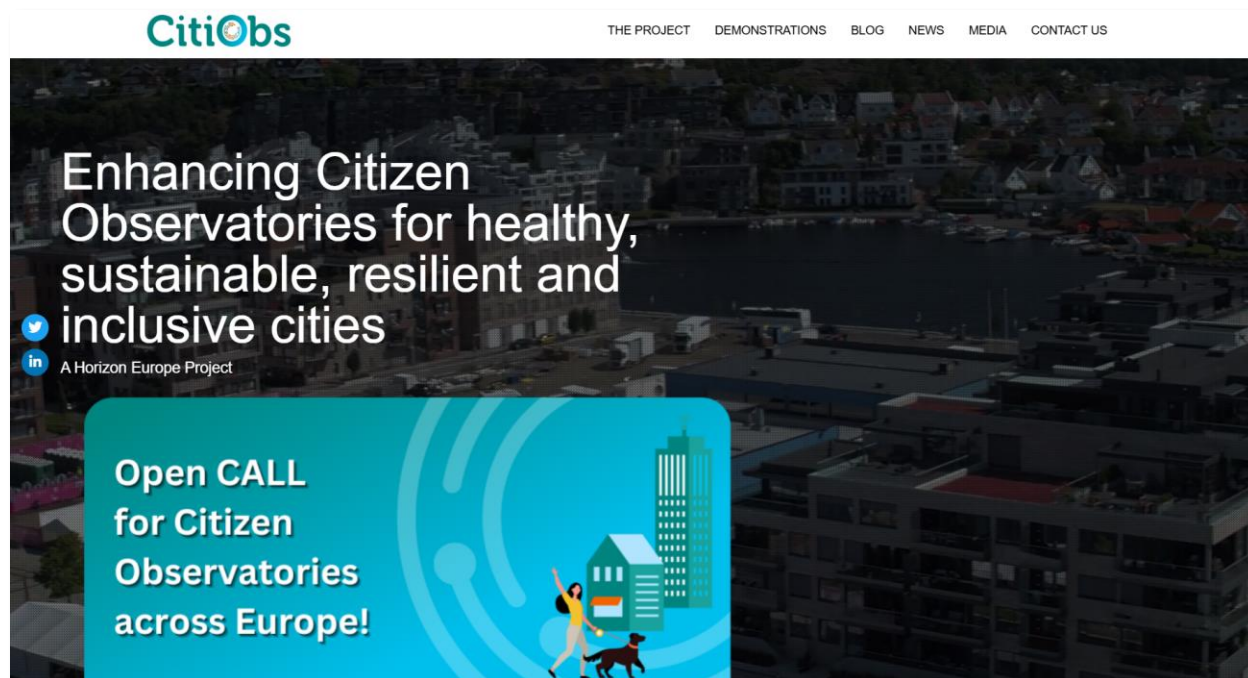
Figure 15: CitiObs homepage

2.3.2. E-mail Account

CitiObs Consortium created an email address dedicated to the project (citiobs@nilu.no) which stakeholders may use to address any issues related to the project. The email account will be displayed in all dissemination materials and tools, such as the website and the press kit in order to give the opportunity to any potential stakeholder to contact the project coordinator. NILU will be the recipient of any emails received and will respond to them as soon as possible. Furthermore, NILU will forward any enquiries, comments, and information to the respective project partners, if necessary.

2.3.3. Social Media

Social media accounts constitute valuable communication and dissemination tools for the CitiObs project. Created based on the guidelines provided by the European Commission[7] on M1 and updated weekly LinkedIn, X and Mastodon accounts are key components of the project's D&C plans.

2.3.3.1. LinkedIn **(25) CitiObs: Overview | LinkedIn**

The project's LinkedIn page (Figure 16) maintains an active and dynamic presence with a consistent schedule of weekly posts. The active presence is enhanced with participation in discussions and comments related to our field. LinkedIn plays a significant role in the D&C strategy by effectively connecting with a substantial portion of the relevant target audiences, particularly CS practitioners. However, a distinctive challenge arises on this platform - the inability to directly invite users to follow the CitiObs page. This feature is restricted to personal LinkedIn accounts, placing the responsibility on each partner to utilise their individual networks and extend invitations to their connections, thereby promoting the growth of our followers.
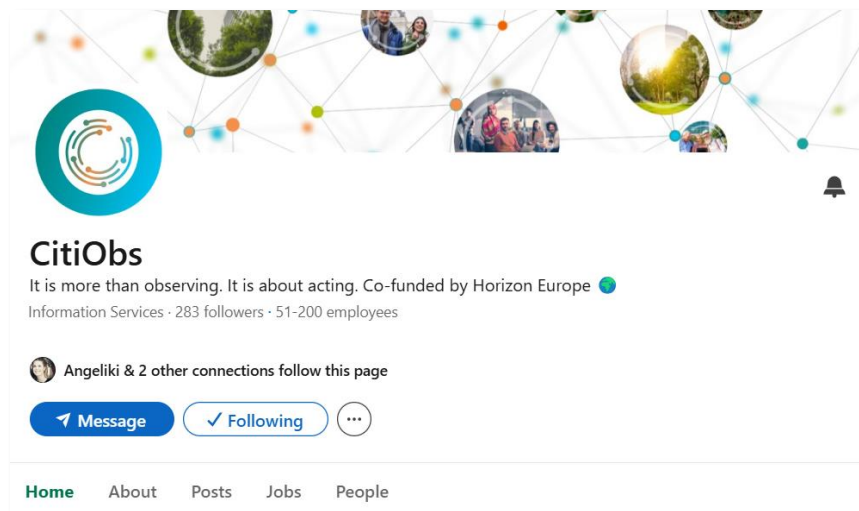
Figure 16: CitiObs LinkedIn Account

2.3.3.2. X CitiObs (@CitiObs) / X

The CitiObs X (Twitter) account (Figure 17) serves as a highly active platform, allowing the communication messages to reach a broad and diverse audience. The project's strategy for X (Twitter) is finely tuned to facilitate the precise identification and connection with individuals within the primary target audience. This includes scientists, especially those advocating for citizen science, active citizens in the citizen science domain, and individuals affiliated with Citizen Observatories. In addition to these primary groups, the outreach strategy extends to secondary target audiences, such as those interested in air quality and air pollution, sustainability, or those passionate about inclusivity and diversity. Furthermore, the account connects with individuals engaged in other European projects, and members of marginalised communities. This approach allows CitiObs to maximise its outreach to both the core stakeholders in our field and broader communities with aligned interests. Since the commencement of this approach in August 2023, X followers increased by ~935%. More specifically the follower base has expanded from 86 followers to more than 890 as of June 2024. It is important to note that our Twitter audience is notably specific, predominantly comprising individuals deeply interested in citizen science and Citizen Observatories.

Furthermore, Twitter's 'Lists' feature has proven to be a valuable tool to approach relevant interest groups. This feature allows users to categorise accounts they follow into specific groups, providing a convenient way to organise content and discover content tailored to particular interests. CitiObs is consistently added to lists with pertinent themes such as "Science Rocks," "EU Projects," and "Citizen Science". With consideration of the collective followers of these lists, CitiObs posts reach an additional 1000 individuals, broadening the project's visibility. While there may be some overlap between these followers and the project's direct followers, this engagement avenue significantly contributes to the communication efforts.

The CitiObs Twitter account also functions as a vital information resource, enabling the C&D team to be abreast of developments, events, webinars, and noteworthy projects in the broader domain of Citizen Science. Nonetheless, it is essential to acknowledge the concerns associated with X, which have led to a growing migration of the scientific community to alternative social media spaces. Emerging questions about the ethical use of X and observed shifts in social media trends signal the need for an evolving digital landscape. A notable advancement within this context is the increasing prominence of Mastodon, which will be explored in the following section.
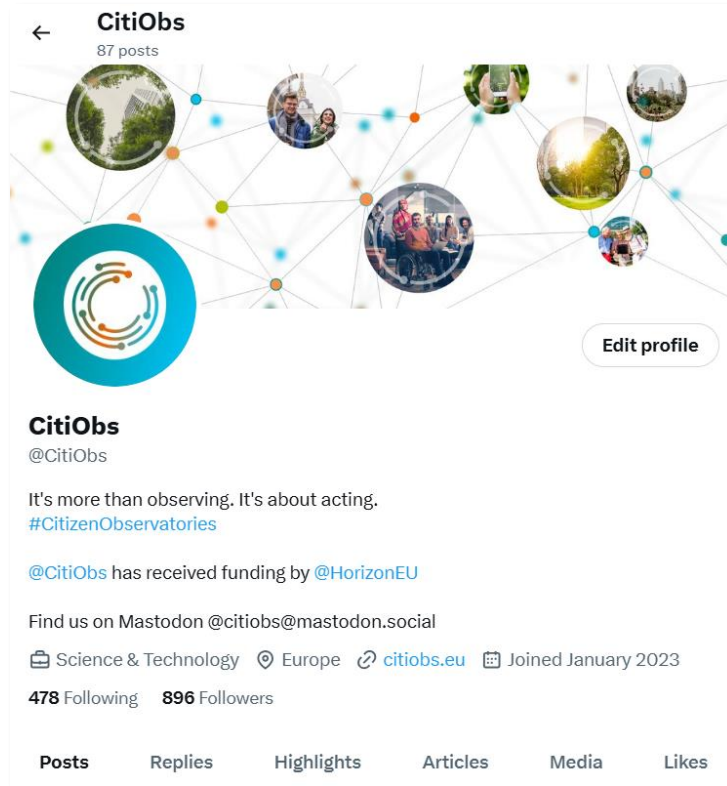
Figure 17: CitiObs X Account

2.3.3.3. Mastodon CitiObs (@citiobs@mastodon.social) - Mastodon

Elon Musk's involvement with X (Twitter) triggered many individuals to explore and migrate towards Mastodon, seeking a different digital landscape that aligns with their evolving preferences. CitiObs remains committed to staying abreast of these developments and strategically aligning with platforms that best serve our mission and values. Mastodon is an open-source, decentralised social network that offers a novel approach to social media, emphasising user control, privacy, and ethical communication. In the context of CitiObs, Mastodon has proven particularly promising. Since September 2023, the project's outreach focus on Mastodon has been intensive, aiming to establish a presence and share engaging content on the platform (Figure 18).

Effective from November 2023, CitiObs adopted a different approach on its social media platforms. The project implements a "post-first" policy on Mastodon and LinkedIn. Following this initial posting, the same content is shared on X with the closing "as posted on @citiobs@mastodon.social". Recognising the character limit constraints on Twitter, a condensed version of the original post is shared. This methodology allows the reach of a wider audience while encouraging them to move to Mastodon, where they can access the full content. The impact

of this strategy is constantly monitored and adjustments will be made to ensure optimisation of reach. However, it is important to note that Mastodon lacks analytics features, making it challenging for the C&D team to effectively monitor and report our outreach and engagement results. DreVen has registered on a third-party platform, MastoMetrics, which provides an overview of our follower increase, interactions, and posts, however, due to the nature of the platform, impressions of the project's posts cannot be monitored. Despite these challenges, the potential of Mastodon is acknowledged and the platform will be leveraged in all communication plans.

CitiObs project will continue to explore different platforms to increase the outreach of the project targeting diverse target groups. The project D&C plan underscores an ongoing commitment to adaptability and alignment with platforms that best serve its objectives.
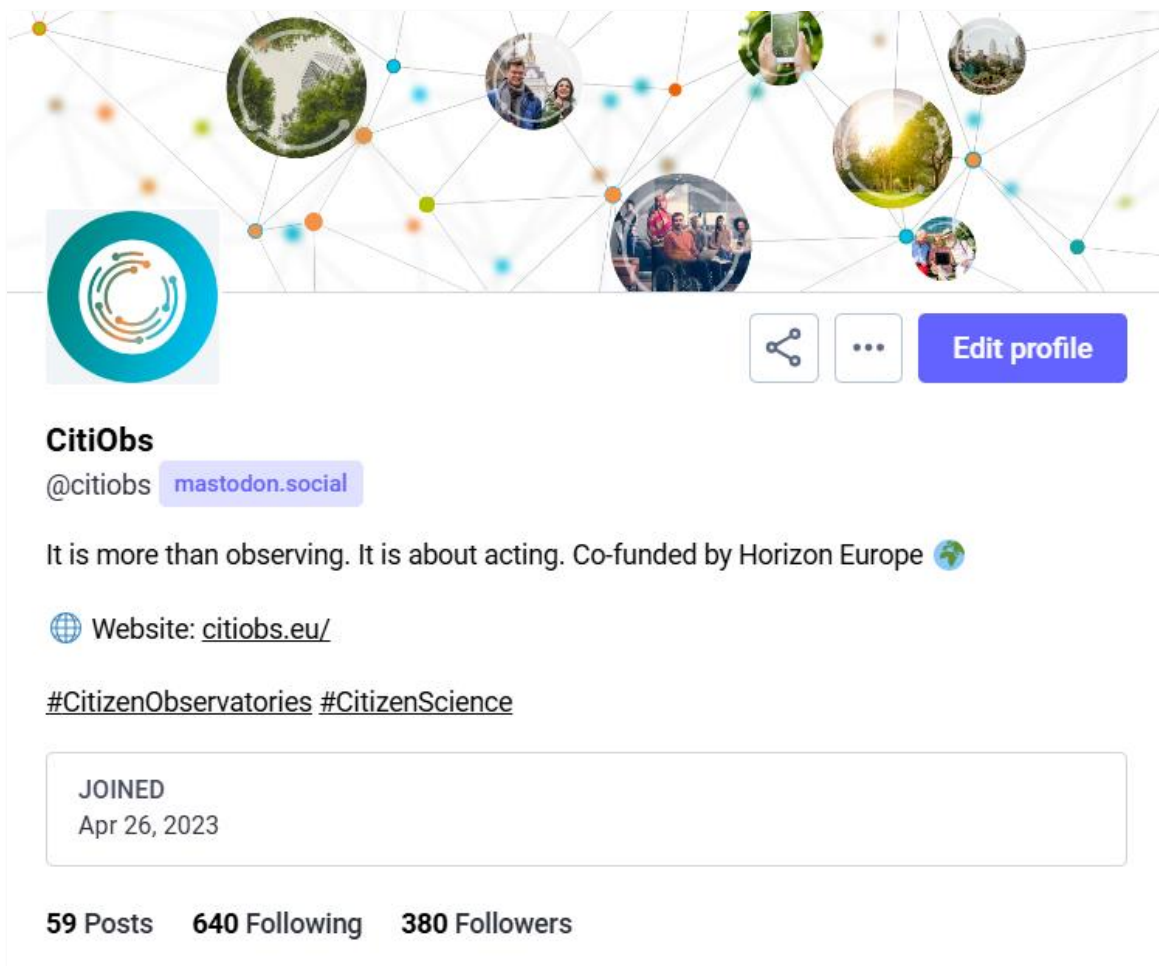
Figure 18: CitiObs Mastodon Account

2.3.3.4. Social Media Mentions and Tags

To enhance visibility on social media, specific mentions and tags have been identified. These are integrated into our social media posts to maximise reach and engagement. Utilising relevant hashtags and tagging key stakeholders, partners, and relevant initiatives, social media posts are amplified, they connect with a broader audience, and they foster greater interaction. This targeted approach aims to boost the project's online presence, drive traffic to the website, and ensure our updates and insights reach a wide and diverse audience. Table 1 consists of the list of hashtags that are currently used or will be used along with their relevant justification.

Table 1: Hashtags and Justifications

Hashtags	Justification
#CitiObs	The main hashtag of the project
#airquality#Airpollution	Targeting SoMe users interested in searching posts relevant to air quality
#citizenobservatories#CitizenScience	Targeting SoMe users interested in searching posts relevant to citizen science
#HorizonEurope#EU#EUfunding#EEA#EISMEA	Targeting SoMe users interested in searching projects funded by the European Union's Horizon Europe Programme.
#Diversity#Inclusivity#CommunityEngagement #Sustainability	Targeting SoMe users interested in searching posts relevant to values on participation, preservation and community engagement
#Sensors#datadriven	Targeting SoMe users interested in searching posts relevant to technology
#MissionCities#Frontrunners#Alliances #KnowledgePlatorm	Dedicated hashtags on different campaigns

Last but not least, both social media accounts of CitiObs will be following relevant initiatives to act as ambassadors of CitiObs in social media and contribute to its dissemination.

2.3.3.5. Social Media Branding and Visual Identity

Deployment of the CitiObs visual identity, designed to establish brand recognition, is applied across social media platforms. A pivotal component of this branding strategy is the distinct colour palette. Content has been strategically divided into specific categories; each assigned a unique colour. This deliberate use of colours acts as an immediate indicator of the post's content and its connection to the project, ensuring that the audience intuitively associates the posts with CitiObs.

- General posts: Recognisable by their calming and authoritative blue hue, these posts serve as the foundation, representing the core of the project and the knowledge it offers.

- Blog post content: The vibrant and engaging orange colour is reserved for posts related to the blog content, drawing attention and signifying valuable insights and updates from the project.

- Event-focused posts: Posts about participation in events, webinars, and conferences are distinguished by a refreshing green shade, symbolising growth, collaboration, and the dynamic nature of the project. In case of urgent event-focused posts that contain a "call for papers" or participation, the orange colour is used to boost the intention and the urgency of the post.

Each colour corresponds to specific HEX codes, ensuring precise and consistent usage across all content. This commitment to a unified visual identity enhances brand awareness, making CitiObs content easily identifiable at a glance.

2.4. Events

2.4.1. Workshops and Conferences

The significant impact of events, workshops, and conferences was recognised from the very early stages of the project. Consortium partners have actively engaged in disseminating the project by organising and participating in workshops, presenting at conferences, and attending various events. In order for the consortium to have a comprehensive understanding of the project's outreach and impact, a reporting process has been implemented by structuring a document and distributing it to partners. This document offers a structured platform for partners to report their actions and the events they have attended. Regular reminders about dissemination reporting are issued to ensure consistent tracking and management.

Additionally, we have incorporated a dedicated section within this document that guides the identification of relevant events and conferences, aiding in the collective recognition of strategic opportunities. While the document suggests potential events, it is not prescriptive. Instead, it encourages each partner to critically evaluate these options and select those that align closely with their specific work and objectives. The document is refreshed and updated on a quarterly basis by all partners so new potential dissemination opportunities are presented.

For high-impact events of significant strategic value, such as the ECSA Conference, the Coordination along with the C&D team organise the overall participation of the project in which different actions complete a spectrum of strategic engagements of different partners. The consortium's participation in the ECSA 2024 Conference, included a workshop on inclusivity and diversity and a marketplace participation along with sister projects as well as a poster session. The consortium plans to engage in the ECSA 2025 & 2026 Conference, which is particularly significant as it will provide an excellent platform to share and disseminate our project outputs, especially as we approach the conclusion of our project. The Consortium will organise a pan-European hackathon in 2025 on the use of data collected throughout the CitiObs project, as well as a Strategic Policy Forum on the contribution of COs in order to tackle Air Pollution and Climate Change in 2026. This will be a half-day event in Brussels with high-level policy attendance as part of a larger EU event. Furthermore, the Consortium will organise a final event in 2026, in order to showcase CitiObs results and connect key national-level stakeholders across Europe.

A detailed list of all past participations as well as all participations or organisations of workshops can be found in the D4.8 Dissemination Report 1/2.

An indicative list of annual conferences for 2024-2025 is presented below in Table 2.

Table 2: Conferences CitiObs consortium partners may participate in 2024-2025

Conferences	Date and location
ECSA 2025	TBA
ASIC Air Sensors International Conference 2025	TBA
Smart City Expo	5-7 November 2024, Barcelona
OpenLab Conference	12 November 2024
ICESA 2024	18-20 November 2024, Lisbon
IoT Tech Expo Global 2025	5-6 February 2025, London
Second Global Conference on Air Pollution and Health	25 March 2025, Cartagena
ChangeNOW 2025	24-25 26 April 2025
Cities Forum 2025	TBA

2.4.2. Exhibitions and Fairs

CitiObs is committed to active participation in many exhibitions and fairs to further disseminate project objectives and progress. The project has already a successful joint participation in the Citizen Science Festival, an event scheduled as part of the ECSA 2024 Conference, and participation in a Public Streets Event and Day of Science in Mykolaiv Ukraine.

2.4.3. Virtual Events and Webinars

Online events which allow for interactive discussions, expert talks, and direct feedback, creating a sense of community and encouraging active participation, are scheduled throughout the project (Figure 19).

Figure 19: CitiObs and Sociobee webinar on Air Quality and Citizen Science Monitoring

2.5. Publications

To date, the project boasts one Scientific Publication and 10 Technical Publications on record, and there is an ambitious plan to compile a book containing all future academic papers from consortium partners, further showcasing the collaborative efforts and innovative findings of the project. The list of CitiObs publications is the following:

Scientific Publications:

- Opening science to society: how to progress societal engagement into (open) science policies. / Authors: U. Wehn, R. Ajates, C. Mandeville, L. Somerwill, G. Kragh and M. Haklay https://doi.org/10.1098/rsos.231309

Technical Publications:

- Can Citizen Science bring wonder into science?/ Author: Nuria Castell Can Citizen Science bring wonder into science? - CitiObs

- Who decides what is measured and acted on, and who is left behind?/ Author: Margaret Gold https://citiobs.eu/who-decides-what-is-measured-and-acted-on-and-who-is-left-behind/

- Exploring the CitiObs "Citizen-Led Action Toolkit"/ Authors: Jessica Carmen Guy, Óscar González https://citiobs.eu/exploring-the-citiobs-citizen-led-toolkit/

- Who has colour?/ Author: Andrea Reyes Elizondo https://citiobs.eu/who-has-colour/

- The Power of Mutual Learning in Citizen Observatories/ Author: Joao Paulo Tavares The Power of Mutual Learning in Citizen Observatories - CitiObs

- Rotterdam's journey towards cleaner air through Citizen Science/ Author: Eline Verhoeven Rotterdam's journey towards cleaner air through Citizen Science - CitiObs

- Mapping effects of industrial emissions in Kristiansand/ Author: Karin Ekman Mapping effects of industrial emissions in Kristiansand - CitiObs

- Navigating Citizen Observatory success: understanding stakeholder participation Dynamics/ Authors: Kelsey Wentling & Uta When Navigating Citizen Observatory success: understanding stakeholder participation Dynamics - CitiObs

- Identifying local challenges and fostering collaboration with Citizen Observatories in Barcelona/ Authors: Milena Calvo Juarez & Óscar González Identifying local challenges and fostering collaboration with Citizen Observatories in Barcelona - CitiObs

- Reflecting on the First Mutual Learning Workshop in Athens/ Author: Georgia Simadi
  [Reflecting on the First Mutual Learning Workshop in Athens - CitiObs](#)

The dissemination strategy includes the production of 15 Scientific and 30 Technical Publications over the lifespan of the project, by various partners, emphasising the submission of manuscripts to relevant peer-reviewed scientific journals. In addition to journal articles, the CitiObs consortium will continue to actively contribute to a variety of other dissemination channels. These include the technical blog posts published monthly on the dedicated CitiObs blog, which provide valuable insights into the project's tools and methodologies and constitute a significant portion of the project's technical publications.

Furthermore, the consortium will engage in publishing web articles, presenting at scientific conferences, producing white papers, and participating in other relevant initiatives from technology providers or domain-specific organisations. This multifaceted publication strategy is designed to maximise the visibility and impact of CitiObs research findings across both academic and industry platforms, ensuring that the project's methodologies and results are widely recognised and utilised.

A publication procedure document, Annex1, was drafted and shared with consortium partners in order to provide comprehensive guidance on the dissemination strategy for the CitiObs project, ensuring effective and strategic publication of research outcomes while safeguarding the Intellectual Property Rights (IPR) of consortium partners.

2.6. Communication Kit

CitiObs initial Communication Kit consists of a brochure and a factsheet (Figure 20) along with a general banner and poster intended for use during conference participation and other events. These materials serve as our initial assets. As reported on D4.8 Dissemination Report 1/2 the Communication kit has undergone several improvements on M14 in order to incorporate the updated Key Messages and updated project terminology.

Figure 20: CitiObs Factsheet

The Communication Kit has been significantly enhanced with the inclusion of the CitiObs Mission Video, originally produced for the project's participation in ECSA 2024. As we progress, our primary objective is to continually develop new materials and ensure that existing ones are regularly updated. Tailored communication materials are, and will continue to be, created to support major communication campaigns effectively.

Specifically, the Call for Alliance Cases will be bolstered by a suite of promotional materials including web banners, stickers, posters (Figure 21), and testimonial videos from the Frontrunner Cases workshops.

Figure 21: CitiObs Call for Alliance Cases Poster

As the project advances, we will produce dedicated communication materials such as one-page infographics, posters, videos, and web banners to promote the CitiObs Tool Kits, the CitiObs Cookbook, and the Knowledge Platform. These efforts are designed to maintain high engagement and visibility of the project's objectives and communication messages ensuring that stakeholders remain informed and engaged throughout the project's lifecycle.

2.7. Newsletters

In the age of digital communication, newsletters are a tool for disseminating project updates. However, the oversaturation of newsletters and the challenge of inspiring individuals to subscribe has led the consortium to reevaluate our approach. Crafting a compelling newsletter involves a substantial commitment of time and resources, including content creation, design, and graphics. To maximise the impact, a decision was taken to forgo the production of our standalone newsletter. Instead, a more strategic approach was adopted harnessing the power of well-established newsletters with existing subscriber bases, within the Citizen Science and Citizen Observatories community. An example of this is the European Citizen Science Lighthouse Newsletter, orchestrated by the European Citizen Science (ECS) project, with a steadfast commitment to furthering the fundamental objective of fortifying and broadening the citizen science community in Europe.(https://eu-citizen.science/subscribe) The ECS Lighthouse newsletters are published at approximately three-month intervals. The project appeared in the December 2023 issue and again in the June 2024 issue with an article about the Call for Alliance Cases. Another collaboration with the project's Consortium partner Eurocities was established and the Call for Alliance Cases will be supported with articles on the network's two newsletters.

In essence, our strategic approach to newsletters enables us to leverage the established audiences of respected publications, enhancing our project's visibility and reach within the dynamic realm of citizen science. We are seeking to establish collaborations with other similar newsletters as well.

2.8. Press Releases

Press releases play a crucial role in amplifying awareness about the CitiObs project. These releases are strategically timed to coincide with significant project milestones and updates, particularly preceding major outreach events, to maximise impact and engagement. A press release was issued in M6 to introduce the project 1st Press Release - CitiObs, a press release is scheduled in M21 to support the Call for Alliance Cases and a third press release is scheduled for M24 to enhance the introduction of the CitiObs Cookbook and Knowledge Platform. Each press release adheres to a formal format and professional language, ensuring consistency and clarity in communication.

To achieve broader dissemination and reach diverse audiences, the press releases will be translated by local partners into relevant languages. This localisation effort will facilitate better understanding and engagement across different regions and communities. The press releases highlighting the key achievements and notable developments within the project maintain continuous visibility and interest among stakeholders and the public. By strategically deploying these press releases, the D&C team aims to keep the public informed, attract media attention, and enhance the overall outreach and impact of the CitiObs project.

2.9. Consortium's Interaction

To ensure the efficient and smooth implementation of the CitiObs project and to maximise the visibility and dissemination of its results, effective communication among consortium partners is essential. DreVen will maintain regular contact with the consortium, providing updates on the preparation of dissemination materials and informing partners about new activities they can undertake throughout the project's duration.

Additionally, DreVen will monitor the dissemination progress of all partners by requesting a dissemination report every trimester. This report template is designed to capture input from each partner regarding their contributions to the dissemination of the CitiObs project and its outcomes.(*figure12, section2.2.3.5*) Partners are expected to complete the template after attending any event or meeting. All reports will be uploaded to the project's SharePoint, ensuring that every consortium partner has access to the latest information and can stay informed about the progress of their colleagues. This approach will facilitate coordinated and transparent dissemination efforts across the entire consortium.

3. Dissemination Plan

Dissemination involves utilising appropriate channels and tools to effectively promote project results to various target groups, including policymakers, public authorities, media, SMEs, and the general public. The dissemination plan outlines the strategy and activities that will be undertaken throughout the project's duration to achieve this objective utilising the available resources mentioned in the Horizon Europe - Dissemination and Exploitation guide to achieve maximum impact[8]. Therefore, the CitiObs dissemination strategy will take into consideration European Commission free-of-charge services to support dissemination and exploitation activities (for example: the Open Research Europe platform, Innovation radar, Horizon Results platform, etc.)[9].

3.1. Dissemination Objectives

As mentioned in D4.6 Dissemination, Communication and Exploitation Plan (1/2), the dissemination activities of a project are an essential part of it for its visibility. This is why it is important to ensure their successful implementation. Thus, there are certain principles they should comply with including the following:

- Finding the right messages in order to attract the desired stakeholders and using the appropriate channels to disseminate the project to them.

- Correlating every available means to promote and present the results of the project.

- Including a variety of dissemination channels and tools (e.g., social media, website, brochures, (virtual) conferences and meetings).

- Ensuring that the disseminated result is comprehensible and precise.

Dissemination activities are carried out throughout the project's lifespan to maximise the impact of its results. These activities support all work WPs, enhancing the project's visibility, innovation potential, and business opportunities. CitiObs places particular emphasis on identifying the target

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[8]   European Commission. Horizon Europe - Dissemination and exploitation. from https://rea.ec.europa.eu/horizon-europe-dissemination-and-exploitation_en#free-of-chargedissemination-and-exploitation-services

[9] European Commission, Open Research Europe Platform, https://open-research-europe.ec.europa.eu/

audiences and mapping the relevant stakeholders as well as the links between the consortium and the contact points within stakeholder groups, in order to implement targeted dissemination actions. The main objectives of the dissemination plan are to:

- Identify target audiences, messages, tools, connections and channels;

- Design dissemination tools to ensure the maximum visibility of the project;

- Distribute dissemination material through any appropriate means to promote CitiObs to all interested stakeholders;

- Provide accessibility to CitiObs' outcomes throughout the lifespan of the project, and

- Ensure the long-lasting visibility of project activities and results.

Dissemination activities are designed to ensure that CitiObs achieves maximum impact among all relevant stakeholders and target audiences. To ensure the success of these activities, the messages will be tailored to suit the specific needs and interests of each target group and updated regularly to accurately reflect the objectives and outcomes of the project.

3.2. Target Groups and Updated Key Messages

To maximise the impact of dissemination activities, the CitiObs Consortium identified its target audiences at an early stage of the project. In addition, during the Plenary meeting in Oslo, the consortium refined the key messages in order to accurately reflect the objectives, the methodologies and the expected results of the project. Table 3 presents the update on the key messages while Table 4 outlines the various target audiences, the updated key messages, and the most appropriate means of communication tailored to their characteristics.

Table 3: Key Messages as identified in GA and as updated in January 2024

Key Messages as Defined on Grant Agreement
CitiObs provides innovative methods and tools to engage citizens in monitoring and protecting the urban environment
CitiObs provides ready to use data and information for policies on air quality, noise, and climate adaptation
CitiObs provides cost-effective sociotechnical solutions to enhance the use of sensor data as complementary to authoritative data if the relevant data management principles and standards are applied
The CitiObs approach provides the means to engage citizens from all backgrounds, artists and makers in monitoring the environment creating creative representations of data and co-creating solutions/ actions to pressing environmental challenges
CitiObs standards are applicable for the particularities of citizen observations. CitiObs data and tools should be available in this infrastructure with other kind of data in benefit of research and policy
The CitiObs approach to enhancing COs provides the means to engage citizens and other key stakeholders in jointly addressing environmental challenges

Key Messages as Defined during Plenary Meeting in Oslo, January 2024
CitiObs is developing tools to support and empower citizen participation in community-based monitoring initiatives in the urban environment
CitiObs is developing tools and toolkits to aid the aggregation, standardization and validation of data from COs, such that they can be easily accessed, referenced and reliably used for decision-making
The CitiObs toolkits aim to enable and empower the inclusive engagement of citizens in community-based environmental monitoring initiatives, and citizen-led actions to address urban environmental issues
CitiObs enhances and scales community-based environmental monitoring by aggregating, standardizing, and validating citizen-gathered data onto an integrated platform for visualizing and analyzing environmental issues such as air quality
CitiObs is an initiative to enhance community based environmental monitoring by providing the tools and the methods to existing or new COs to increase uptake of citizen observations by policy makers

Table 4: CitiObs Target Group, Key Message & Means to reach them

Target Audience	Relevant bodies	Key Message	Means to reach them
Cities and networks	C40, Eurocities, Covenant of Mayors (EU), Global Covenant of Mayors, ICLEI, Resilient Cities Network, ERRIN, CEMR, Barcelona CitSci office	*"CitiObs is developing tools to support and empower citizen participation in community- based monitoring initiatives in the urban environment"*	Website, videos, fairs, exhibitions, newsletters, PRs, direct contacts, conferences, technical publications, white papers, policy
Associations, citizen NGOs	European Federation of Asthma and Allergy Ass,		

	Red Cross, ILGA; Disabled people's organisations, organisations for women and minorities		briefs, press releases, workshops
Policymakers and regulators at the National and EU level	DG ENV, DG ENER, DG CLIMA, DG MOVE, DG RTD, WHO, WMO, national governments/ministries, EEA, Zero Pollution Stakeholder Plat	*"CitiObs is developing tools and toolkits to aid the aggregation, standardisation and validation of data from COs, such that they can be easily accessed, referenced and reliably used for decision-making"*	Policy briefs, workshops, website, social media, direct contact
Citizen Science	ECSA, WeObserve CoP, GEO	*"CitiObs enhances and scales community-based environmental monitoring by aggregating, standardising, and validating citizen-gathered data onto an integrated platform for visualising and analysing environmental issues such as air quality"*	Website, social media
Practitioners' platforms and networks	CitSci, FabLab, OpenAir, EUCitizen. Science, EarthWatch, ESSRG, sensor. community,		Direct contacts, fairs, and exhibitions
Scientists working with urban environmental challenges			Publications, clustering, conferences, hackathons
Business/industry: Sensor and wearable manufacturers, data aggregators, solution providers			Fairs, exhibitions, direct contact, PRs, newsletters

International environmental networks	FAIRMODE, AQUILA, ACTRIS, ENBEL, EEB, HEAL		Publications, conferences, direct contact, exhibitions
Art, museum and education platforms and networks	ECSITE, Distributed Design, BAN, Public Art Fund, Libraries	*"The CitiObs toolkits aim to enable and empower the inclusive engagement of citizens in community-based environmental monitoring initiatives, and citizen-led actions to address urban environmental issues"*	Website, newsletters, communication kit, social media, press releases, workshops, hackathons, local community actions, fairs, etc.
Citizens, vulnerable & disadvantaged groups	Neighbourhood associations, elderly, women, people with disabilities, children, immigrants, LGBE		
International standardisation bodies, such as OGC, ISO **Cloud and research infrastructures such as EOSC, EGI, GAIA-X, DG INFRA**		*"CitiObs enhances and scales community-based environmental monitoring by aggregating, standardising, and validating citizen-gathered data onto an integrated platform for visualising and analysing environmental issues such as air quality"*	OGC relevant members' meetings and ISO member states EOSC Association blogs and EOSC task forces on EOSC requirements for participation
Funders, philanthropists		*"The CitiObs toolkits aim to enable and empower the inclusive engagement of*	Websites, conferences, direct contact, exhibitions

	citizens in community-based environmental monitoring initiatives, and citizen-led actions to address urban environmental issues" *"CitiObs is an initiative to enhance community-based environmental monitoring by providing the tools and the methods to existing or new COs to increase uptake of citizen observations by policymakers"*	

3.3. Language and Terminology

The primary language of CitiObs is English, as it is the most widely used language globally, facilitating effective dissemination of the project and its results to a broad audience. Consequently, all dissemination activities are conducted in English. However, for local dissemination efforts, the native language of the respective partner will be used. For instance, press releases will be translated into the local languages of each partner to ensure broader reach and engagement.

Additionally, all partners will follow the European Institute for Gender Equality (EIGE) gender-sensitive language in writing[10], and use the EIGE gender equality glossary and thesaurus[11].

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[10] EIGE, Toolkit on gender-sensitive communication: a resource for policymakers, legislators, media and anyone else with an interest in making their communication more inclusive, Publications Office, 2019, https://data.europa.eu/doi/10.2839/589287

[11] EIGE gender equality glossary and thesaurus, http://eige.europa.eu/rdc/thesaurus

3.4. Individual Dissemination Plan

Each partner within the CitiObs consortium meticulously crafted an individualised dissemination plan during the project's initial stages, which was documented in D4.6 Dissemination, Communication and Exploitation Plan (1/2) and is presented again in Table 5 below. These plans, thoughtfully outlined below, identify specific actions and networks available to each partner which are engaged in order to enhance the project's visibility across their respective countries within the European Union. The project's individual dissemination plan aims to effectively reach and engage with diverse local audiences, thereby maximising the project's impact and fostering broader awareness of its objectives and outcomes.

Table 5: Individual Dissemination Plan

Dissemination Plan	Target Audience
NILU	
From NILU we will use different channels to disseminate the project: - Press release, news release to local newspaper from Kristiansand and/or forskning.no - Posts on NILU's SoMe: Facebook, Instagram, Twitter and LinkedIn - News story on NILU's website - Advertisement in newspaper - Seminar/s, webinar/s and workshop/s - Researchers' night	- Kristiansand municipality (and other Norwegian municipalities) - Citizens from Kristiansand (and from other Norwegian cities) - Universities and Research institutes - Maker spaces linked to the University - Norwegian Asthma and Allergy Association - Public Health Institute - General public
NECU	
NECU will use such channels to disseminate the project:	- NECU networks - General public

Project page on the NECU website. - Posts on NECU`s social media: Facebook, Instagram, Twitter - Presentation of the project on different: seminars, webinars, workshops, conferences, etc. - Publishing of articles, and press releases	- Schools and Universities - Local and national communities and institutions
ULEI	
ULEI will use different channels to disseminate the project, for different purposes: - The university website and CWTS Institute website - Internal and external newsletters - Local press releases to Leiden community newspapers and neighbourhood magazines - Social media channels of the University, the CWTS institute, and the Citizen Science Lab (primarily Twitter, Mastodon, LinkedIn, and Instagram) - Newsletter and social media channels of the CS-NL network - Local Seminar/s, webinar/s and workshop/s - The partnerships and communication channels of 'Leiden Kennisstad'	- Colleagues and the Dutch Academic community - Local Societal partners of the Citizen Science Lab, particularly the local Art+Science ecosystem and NEB ecosystem - The City of Leiden and its partners, particularly CSOs and local initiatives - The residents of Leiden and the surrounding region - Members of the Dutch CS network (CS-NL), particularly grassroots initiatives and AQ monitoring networks

Fab Lab BCN	
Fab Lab BCN - Project present on the FLB website and newsletter - Blog posts to disseminate project activities - SoMe presence (LinkedIn & Instagram) Distributed Design Platform - Project present in newsletter and website - SoMe campaign for participation in local and global activities/ Open Calls - Blog posts to disseminate project activities - Creative Talents + citizen-led action projects part of the DDP Online Exhibition	- Creative Talents - Makerspaces - Community champions in Barcelona - Local network of schools in Barcelona - Smart Citizen Community
DRAXIS	
DRAXIS is an environmental software SME with strong experience in successfully bringing software solutions on air quality to the market. Through its participation in various projects, DRAXIS has acquired a broad knowledge and experience in the project's domain and has built strong connections with stakeholders that share a common interest in the Project's topic. DRAXIS plans to disseminate information	The target audience will be the Draxis network (clients, interested parties etc), partners, local and regional organisations, and other groups/individuals

regarding CitiObs through its network by taking part in a variety of dissemination activities (e.g., social media posts, participation in events, announcements through the website etc.)	
DreVen	
DreVen focuses on developing real-life environmental ICT solutions by using, combining and integrating remote sensing technologies, compound algorithms, GIS and other datasets to build multi-functional web-based information systems, mobile applications, crowdsourcing platforms, workflow-based digital services and other software solutions mainly in the fields of climate change, air quality, energy and circular economy. Thus, DReVen will disseminate the project to its network by taking part in a variety of dissemination activities (such as announcements through its website, participation in events, etc.)	DreVen's partners, local and regional organisations, DreVen's broad network, as well as other groups and individuals
Airly	
At Airly, we provide a cutting-edge, hyper-local, real-time air quality monitoring solution through the largest global network of sensors, an open-source platform and advanced analytics & forecasting capabilities. We currently work with over 500 cities around the world to help them demonstrate their commitment to their citizens and take data-driven initiatives. Airly's mission to become	Local and national governments, infrastructure providers, urban planning, building management

the single source of truth for air quality is rapidly developing with over 30k accessible data points covering over 40 countries.	
RIVM	
The project was presented in English on the RIVM website (rivm.nl). Project news and updates are presented on the Measure Together website (samenmeten.nl) in Dutch and disseminated through the Measure Together newsletter. Posts on Twitter (@rivm and/or @samenmeten). Public presentations at conferences, local community meetings, and stakeholder meetings.	General public, Measure Together community, citizen science communities, and stakeholders.
UCD	
Video to launch the citizen observatory, promotion on social media	Schools, local communities
CREAF	
- Project page on the CREAF website. - Posts on CREAF`s social media: Instagram, Twitter, LinkedIn. - Presentation on the CREAF blog. - Presentation of the project on different: seminars, webinars, workshops, conferences, etc. - OGC standardisation events and meetings. - Publishing of articles, and press releases.	- General public, public administration, Universities/academia - Citizen science communities

EuroCities	
Eurocities is the network of the larger cities across Europe. It has over 205 members across 38 European countries. Eurocities has a monthly online newsletter that is distributed to its members, a well-established and visited website which showcases city stories, a strong social media presence (Twitter, LinkedIn, etc) and several forums and working groups in which its members can be engaged. Eurocities often has events (e.g. annual conference) with its members and is present at numerous events at the European level (e.g. European Week of Regions and Cities, EU Green Week, EU Sustainable Energy Week, Cities Forum, World Urban Forum, etc). Through the CitiMeasure project, there is also now an established community of practice comprising cities, universities research institutions, and other citizen science stakeholders.	- City administrations/municipalities across Europe – both practitioners and politicians - European Commission and EU institutions, including on air quality, mobility and climate neutrality

Secure Dimensions	
- OGC standardisation events (4x / year) - Conferences like ECSA, EOSC, GEOSS	- Government, industry - European Commission - General public - Citizen Scientists

AirSentinels	
- LinkedIn Articles	- Cities and local communities

- Public presentation (conferences) - Workshops - Direct Introduction to stakeholders (city representatives, air quality agencies)	- Schools - AQ agencies - Private sector
IHE Delft	
- Press release, - Posts on IHE: Facebook, Instagram, Twitter and LinkedIn - News story on the IHE website - Seminar/s, webinar/s and workshop/s, conferences - local community meetings, and stakeholder meetings.	- General public - Universities/academia - Local communities - Local/regional/national institutions - Rotterdam case-related stakeholders

3.5. Synergies with Other Projects and Initiatives

CitiObs project has a dedicated task of establishing synergies with other projects and initiatives and facilitating the necessary liaison and regular interactions with prominent and relevant EU projects. The collaboration with relevant initiatives reinforces the efforts of constant knowledge exchange and engagement with the academia, scientists, and citizen science practitioners' relevant stakeholders. Regular interactions have already been established with sister projects funded under the same topic, such as GREENGAGE and UrbanReLeaf through the co-organisation of three workshops and a marketplace at the ECSA 2024 conference and the participation at the EuroGEO week in Bolzano in October 2023. Additionally, liaisons are formed with other EU-funded projects on pertinent topics as needed, including iCHANGE, SOCIO-BEE, CompAir, and ECS and two webinars have been scheduled in June and July 2024.

Furthermore, CitiObs is engaging with citizen science networks and initiatives (such as ECSA, Sensor. Community, and OpenAQ) as well as public and private stakeholders and networks that can benefit from CitiObs observations. These include ECMWF+CAMS partners, ACTRIS, CIVITAS, FAIRMODE, C40, Climate-KIC, Cities Alliance, and the Covenant of Mayors.

A comprehensive mapping of the stakeholders involving all partners to identify relevant projects and connections took place during the Plenary meeting in Oslo in January 2024 and it is an on-going activity which will be continued throughout the lifespan of the project identifying roadmaps and the liaisons for opportunities for effective knowledge transfer.

4. Dissemination and Communication Plan

For the dissemination and communication efforts of CitiObs, a long-term strategy has been crafted by DreVen. Designed to streamline and organise continuous outreach for the project, ensuring a steady flow of information and facilitating interactions among consortium members, the plan contains the following communication activities.

- Continuous update of the CitiObs website and enhancement of its content throughout the lifespan of the project

- Weekly Posts on SoMe accounts

- Monthly Blog Posts (except in summer months)

- Continuous engagement in Conferences, Events & Workshops

4.1. Dissemination and Communication Plan Calls for Alliance and Fellow Cases

Communication and dissemination plans are tailored for each major campaign to ensure comprehensive support. These plans clearly outline each action, ensuring that every partner understands their role and knows what information is available for contribution.

The communication and dissemination plan supporting the Call for Alliance Cases, which encompasses all actions and synergies with relevant networks and the time plan of each action, is detailed in Table 6 below.

Table 6: Dissemination and Communication Call for Alliance Cases

COMMUNICATION ACTIONS	JUNE		JULY				AUGUST					SEPTEMBER				OCTOBER				
	W4 17-23	W5 24-30	W1 1-7	W2 8-14	W3 15-21	W4 22-28	W1 29-4	W2 5-11	W3 12-18	W4 19-25	W5 26-31	W1 2-8	W2 9-15	W3 16-22	W4 23-29	W1 1-6/10	W2 7-13/10	W3 14-20/10	W4 21-27/10	W5 28-31/10
CitiObs Owned Media																				
Website																				
Sticker Home Page																				
Dedicated Page																				
On Line Application Form																				
Video																				
Blog Post (CitiObs website)																				
CitiObs LinkedIn																				
CitiObs Twitter																				
CitiObs Mastodon																				
Press Release																				
Partners/ Stakeholder Networks (announcement or press release)																				
Other Networks																				
ECS Network																				
Lighthouse Newsletter Article (**deadline June 10**)																				
Post in EU Citizen Science Blog			Shall we involve the other Networks on the 1st or 2nd burst of the CALL																	
Eurocities Network																				
Eurocities Website / An engaging article probably an Interview/ link to the call																				
Eurocities Internal Network Newsletter (monthly) article																				
Eurocities External Newsletter article																				
Shared Posts on Eurocities LinkedIn X and Facebook Platforms																				
Eurocities will further Disseminate the Press Release																				
Net Zero Cities Project Group / Community of Practice - post on their portal																				

Dedicated communication plans will be developed throughout the project's lifespan to support various major campaigns, including the launch of the CitiObs Cookbook and Knowledge Platform. These tailored plans will ensure each campaign is strategically promoted, enhancing visibility and engagement. Each plan will detail specific actions, and collaborative efforts to maximise the impact and reach of the messages.

5. Exploitation Plan

One of the greatest challenges for any EU-funded project is ensuring the long-term sustainability of its results and impacts. The primary objective of CitiObs is to integrate COs into multi-level transition governance to drive societal transformation towards sustainable development. This initiative aims to raise awareness and promote actions to mitigate the effects of climate change and environmental degradation on both public health and the planet. Through COs, citizens engage in multi-level governance by providing validated data, knowledge, and citizen-led initiatives to monitor and protect the urban environment. Ultimately, CitiObs helps develop a more cohesive strategy for utilising and validating citizen-collected data, supporting the objectives of the European Green Deal and enhancing the Global Earth Observation System of Systems (GEOSS).

Citiobs' exploitation plan focuses on project results with potential for commercial, societal, and political use. It also addresses the practical application of these results in additional research and innovation activities beyond the scope of the project. Ultimately, the exploitation plan's goal is to connect the project's exploitable results with the Expected Outcomes and impact of the project, with respect to the GA. This is achieved through the partner's initial exploitation plan and activities, as described in section 5.1 Identification and Characterisation of Exploitable Results (Routes).

The development of products and services tailored for municipalities and other stakeholders, such as CS projects, together with the support of analytical tools for citizens and local communities lead to the enhancement of governance using advanced technological and methodological tools, and the enhancement of capacity and skills of the observer communities. This way they contribute to Expected Outcome 1 "A more widespread participation of citizens, (e.g., new and/or existing associations/groupings of citizens observers) in the monitoring, observation, and protection of the urban environment, complementary to governmental measures". At the same time, they contribute to Expected Outcome 3 "Broader use of data and information collected by citizens in policy and research, with crowdsourcing and citizen observations acknowledged as valuable information complementary to authoritative observations".

The addition of the environmental data user in the Decision Support System (DSS), a user which collects in-situ data, provides new data points that enhance the temporal and geographical coverage of existing datasets. This continuous data collection contributes to building a long series of environmental data, which are crucial for observing trends and changes over time. Finally, the

collected data can be integrated with major observation systems like Copernicus, European research infrastructures, and GEOSS, thus enriching their datasets and improving the overall quality and reliability of environmental monitoring. Based on this, the enrichment of the DSS with an environmental data user contributes to Expected Outcome 2 "Greater availability of qualitative and quantitative in-situ data for long time series and better geographical coverage, contributing to the in-situ component of existing observation systems (such as Copernicus, European research infrastructures and GEOSS)".

As with the exploitation plan, the exploitation activities presented in section 5.4 Description of Necessary Activities for Achieving Exploitation boost the exploitation of the results and connect them with the Expected Outcome and Impact of the project. The establishment of training programmes to educate citizens, sensor operators, community leaders, and policymakers empowers individuals with the knowledge and skills needed to participate in environmental monitoring. This education facilitates greater citizen involvement. Incorporating results into institutional best practices and guidelines ensures that citizens have a clear framework to follow, making it easier for them to engage in monitoring activities effectively and accurately. Additionally, a user-friendly portal with interactive features and resources enhances accessibility and engagement, encouraging more citizens to participate and collaborate in environmental protection efforts. Collectively, all these activities contribute to Expected Outcome 1.

Examining these activities from a different perspective, the establishment of guidelines and best practices helps standardize data collection methods used by citizens, improving the quality and reliability of the data they collect. Also, educating citizens on how to apply these guidelines ensures that the data collected is consistent and meets the necessary standards for use in scientific and policy contexts. Furthermore, expanding the guidelines' reach from local to global communities increases the volume and diversity of data available, enhancing its value for research and policymaking. As a result, these exploitation activities also contribute to Expected Outcome 3.

What's more, by providing guidelines and training on the use of existing toolkits and new methodologies, the initiative encourages the broader adoption and development of innovative tools for environmental monitoring, while a user-friendly portal where resources can be downloaded facilitates the dissemination and use of these toolkits and methods. Based on this, these actions contribute to Expected Outcome 4 "Increased use of existing toolkits and development of new toolboxes (methodologies, methods, technologies) for broad use, which could include the development of efficient passive sampling systems. Finally, training

programmes that include information on using wearables and low-cost technologies can increase their adoption among citizens. Educated users are more likely to utilise these technologies effectively, contributing to comprehensive environmental observation, and therefore leading to Expected Outcome 5 "Leveraged use of wearables for citizens and other low-cost technologies in the domain of environmental observation."

Participation in workshops, seminars and conferences helps raise awareness about CS and its importance. These events educate participants about how they can get involved in monitoring and protecting the environment. They also provide opportunities for citizens to connect with researchers, policymakers, and other community members, fostering collaborations that can lead to increased participation in environmental monitoring initiatives, thus contributing to Expected Outcome 1. Participation leads citizens, researchers, and policymakers to share knowledge and best practices. This exchange can enhance the credibility and utility of citizen-collected data in research and policymaking. In addition, these events showcase successful case studies and research that utilize citizen-collected data, highlighting its value and encouraging broader acceptance and use in formal research and policy contexts. Therefore, participation in the above events contributes also to Expected Outcome 3. Moreover, these events often showcase the latest methodologies, technologies, and toolkits. Participants can learn about and adopt these tools, increasing their use and fostering the development of new ones. The events also provide a platform for collaboration among participants, which can lead to the creation of new toolboxes and methodologies tailored to citizen science needs. As a result, this participation connects CitiObs results with the Expected Outcome 4.

The encouragement of research collaborations promotes widespread participation. These collaborations help to engage citizens and communities in environmental monitoring activities. After starting the collaboration, the promotion of involvement and feedback ensures that many different groups are involved in the process, which can lead to increased citizen engagement. The acknowledgement and celebration of contribution fosters a sense of ownership and pride, motivating more citizens to participate. All these activities contribute to Expected Outcome 1. The consistent validation and enhancement of data ensures that data collection methods are up-to-date and robust. This leads to higher quality and more reliable in-situ data. By involving diverse stakeholders, data collection efforts are geographically and contextually expanded, improving coverage and data richness. These activities directly connect with Expected Outcome 2. In parallel, research collaborations ensure that the data collected by citizens is used in scientific research and policymaking. The continuous update of data guarantees they remain relevant and

credible for use in policy and research contexts. Moreover, by sharing updates all stakeholders are well-informed, encouraging them to continuously use citizen-collected data in research and policy decisions. Hence, the above-described activities also contribute to Expected Outcome 3.

The revision of the guidelines based on stakeholder feedback helps the new and existing toolkits to be user-friendly, to be effectively integrated and utilised. This contributes to Expected Outcome 4. The regular update of guidelines to include the latest technological advancements ensures that wearables and low-cost technologies are effectively utilised and promoted. Additionally, collaborations with educational institutions and businesses can drive innovation in wearable technology and other low-cost solutions, enhancing their use in environmental observation. These activities contribute to Expected Outcome 5.

The utilisation of social media and user engagement campaigns increases public awareness and participation. These platforms provide an accessible way for citizens to engage with environmental monitoring efforts. These actions connect the project results with Expected Outcome 1. Additionally, the use of webinars and newsletters can educate researchers (along with citizens) about the value and application of citizen-collected data, encouraging its use in policy and research, thus contributing to Expected Outcome 3.

This section outlines the comprehensive methodology, the general strategy, and the tools and techniques that will be implemented to form, by the end of the project, a detailed and well-founded plan, which will outline the partners' final intentions for exploiting the project results. This plan should also examine the consortium's business cases and establish a corresponding business strategy.

It is worth noting that, since the project is in its second year, the current phase is the second and final one, having started after the end of the first year. The first phase, which concluded successfully in M12 with the D4.7 Business and Exploitation Plan (1/2), focused on the initial identification and description of the exploitable results. At the same time, it addressed Intellectual Property (IP) and market aspects of the results. The second and current phase addresses the continuation of the project beyond its conclusion while offering updates on previously disclosed information. This phase of the Exploitation Plan includes the following steps:

- Identification and characterisation of exploitable results (routes)

- Review of IP assets

- Screening of potential risks/barriers

- Description of necessary activities for achieving exploitation

The second phase occurs from M13 until the project's conclusion and pertains to the final Business and Exploitation Plan (D4.3, M48).

5.1. Identification and Characterisation of Exploitable Results (Routes)

The first step refers to the update of critical aspects of the Key Exploitable Results (KER) such as their Unique Value Proposition (UVP), their targeted customer/end-user segments, the project partner(s) associated with each exploitable result, and the deliverable(s) connected to each result. Also, the exploitable route of the result must be declared (commercial/non-commercial). Regarding the Exploitation Mode of the results, since this aspect is heavily dependent on the maturity of the results, it will be explored more thoroughly at the later stages of the project and will be presented in D4.3. This update, presented in Table 7, happens as new information becomes available after the input of partners.

Table 7: Critical Aspects of the Key Exploitable Results

KER	UPV	Customers/End-users	Partners	Linked deliverables	Pathway
KER 1: Scientific knowledge – scientific publications and datasets	The ability to improve the quality, effectiveness, and adaptability of policymaking by integrating up-to-date scientific knowledge and incorporating a collaborative feedback process with relevant stakeholders.	- Researchers - Policymakers - Regulators	NILU, UGOT, NECU, IHE, ULEI, RIVM, UCD, CREAF, EUROC, DRAXIS	D1.1, D1.2, D1.3, D1.4, D2.2, D2.3, D2.5, D3.1, D3.2, D3.3, D3.4, D3.5, D3.6, D4.2	Non-commercial

KER 2: CitiObs Cookbook and Knowledge Platform with tools and guidance	The provision of an easy-to-use and easy-to-find platform that consolidates and links relevant, proven toolkits for enhancing COs and CS. Currently, similar information is dispersed across various sources. Additionally, the platform is highly interactive, featuring user journeys that guide users through the vast amount of information, directing them to what is most relevant to their specific situations and interests. As a result, the platform delivers customised information rather than the general cases presented in existing sources.	- Universities - Research centres - Cities - NGOs - Policymakers and regulators - Practitioners - Scientists	All	D4.2	Non-Commercial
KER 2.1: Leave No One Behind Toolkit	Leverages existing and cutting-edge knowledge and expertise, augmenting them with new content developed through CitiObs. It aims to establish a common understanding of how to act ethically and effectively in the context of air quality (e.g., COs, policymakers, etc.) and showcases the best practices available to achieve this. This makes it an essential tool for all	- Policymakers - Public Authorities - Cities and networks - Associations - Practitioners' platforms and networks, - Scientists - Sensor and wearable manufacturers	ULEI & All partners	D1.1, D1.5	Non-Commercial

	stakeholder groups interested in the "Leave No One Behind" concept. Its value primarily stems from being a concise and easy-to-understand resource that advances state-of-the-art knowledge.	- Data aggregators - Solution providers, International environmental networks - Art, museum and education platforms and networks - Citizens, vulnerable & disadvantaged groups - International standardisation bodies - Cloud and research infrastructures - Funders, philanthropists			
KER 2.2: Low-Cost Sensor Toolkit	It features an easy-to-use approach and provides updated, consolidated knowledge validated through numerous projects. Additionally, it offers a service that is innovative and scarcely available in the realm of air quality monitoring and COs.	- COs - Sensor providers - Authorities	NILU, IAAC, RIVM, AS, AIRLY	D2.2	Non-Commercial
KER 2.3: Citizen-led action toolkit	The value originates from establishing a link between Citizen Observatories and creative networks and collectives. Its primary benefit is the provision of up-to-date, consolidated knowledge,	- COs - Practitioners - Policymakers	IAAC, Fab Lab	D1.4	Non-Commercial

	validated through various European projects. The innovative aspect of the results is rooted in its co-creation approach and the engagement of existing creative networks (and ultimately individuals).				
KER 2.4: Smart Citizen Data Platform	It is the sole open data platform that adheres to CitiObs principles. Additionally, its innovative feature is the linkage it provides between sensors and data aggregators.	- COs - Sensor providers - Data aggregators	IAAC	T2.2.4	Non-Commercial
KER 3: A shared multi-media repository of inspirational and training material (video, articles, blog posts, photos)	It is a platform dedicated to up-to-date material for raising awareness about pressing environmental challenges and offers unique benefits and advantages to its users: Diverse Multimedia Content; Educational Resources and Tools; Actionable Insights and Calls-to-Action; Accessible and Inclusive. Additionally, it stands out as one of the few platforms showcasing innovative solutions proposed by COs, further enhancing its value and appeal.	- Civil organisation - Academia - COs - Practitioners - Educators and Students - Environmental enthusiasts and Activists	NILU and all CitiObs partners	D3.2, D3.3, D4.5	Non-Commercial
KER 4: CitiObs Decision	Collect, standardise, and compile all the data from the	- Academia - Cities	NILU, DRAXIS,	D2.4	Commercial

Support System	participating observatories, offering a user-friendly platform that facilitates scientifically informed decision-making.	- Private Sectors - Policymakers - Data aggregators - Public authorities	CREAF, SECD, IAAC, RIVM		
KER 5: Standards for data and services interoperability. Open Geospatial Consortium standards and best practices for STA+. New generation of OGC Web API standards	Increased interoperability among sensors owned by citizens and other smart city sensors. Its primary benefit is the integration of diverse sensors and devices, which simplifies data utilisation and application development while introducing a new standardisation approach to citizen science.	- IT developers - COs - Citizen observer groups - Governmental agencies - Academia	CREAF, SECD, NILU	D2.1, D2.4	Non-Commercial
KER 6: Standards for metadata and Common terminologies for data quality. Updated version of QualityML vocabulary to observations	Enables seamless interoperability among air quality datasets and enhances data traceability, facilitating its reuse and integration with other datasets. Consequently, a set of guidelines and best practices can establish a robust framework for enhancing traceability, interoperability, and validation among air quality datasets, particularly those	- COs - Citizen observer groups - Cities - Academia - Governmental agencies	NILU, CREAF, RIVM	D2.1, D2.5	Non-Commercial (i.e., regarding the standards of metadata for the project, the foreseen exploitation type is non-commercial

provided by citizens	generated by citizen-operated sensors, which is currently lacking in today's air quality dataset landscape.				but there is an ISO license. For the updated version of QualityML vocabulary the chosen exploitation type is non-commercial).
KER 7: Data validation and analysis tools- An open-source sensor data analysis package integrating data validation of IoT sensors and wearables, generation of DRI high-resolution maps and hands-on online tools	It provides substantial value through an accessible, intuitive, and adaptable solution designed to tackle data quality concerns associated with low-cost sensors. Its value proposition stems from: Enhanced Data Reliability: By identifying and rectifying issues linked to low-cost sensor measurements, bolstering data reliability. User-Friendly Design: Tailored with usability in mind, it caters to researchers, citizen scientists, and environmental agencies. Customisability: Its modular structure enables users to customise analysis according to	- Academia - COs - Policymakers - Industry - Non-profit organisations	NILU, UCD, IAAC, RIVM	D2.3, D2.4	Non-Commercial

	their specific requirements, enhancing flexibility. Versatility: Applicable to both stationary and mobile sensor data, it expands its applicability. Essentially, it introduces an innovative, open-source solution prioritising data quality assurance and improvement for low-cost stationary and mobile sensors. This contribution advances environmental data monitoring techniques, a feature not commonly found in current air quality monitoring practices.				
KER 8: AUTHENIX - A web service providing authentication to citizens and services in an integrated way	A CO can significantly increase the volume of observations, potentially tripling it, and offer datasets for regions not monitored by official in-situ methods, along with user authentication.	- Air quality monitoring companies - Environmental / Climate change consulting services companies - Urban planning and smart city developers	SECD	D2.1, D2.4	Commercial
KER 9: High-resolution environmental maps. Exploitation of	The use of CO data for air quality mapping on both continental and regional scales is highly effective, making these	- Government agencies - Urban planners - Environmental NGOs	NILU	D2.3, D2.4	Non-Commercial

CO data in synergy with information from the Copernicus Space Component and/or model output for providing relevant mapping results at various spatial scales	maps among the most accurate available.	- Researchers - Academia - Policymakers - COs - Private sector			
KER 10: NILU's Sensor Data Platform (NSPD) - HBase database and several REST APIs for configuring sensors and submitting and retrieving data	With its scalability, data security, and user-friendly interfaces, NSDP addresses the varied needs of COs, CS projects, academia, Policymakers, the private sector, and smart cities. This makes it a versatile and adaptable solution for efficient sensor data management and analysis. Additionally, NSDP provides a complete solution for managing sensor data and facilitating data analysis across a wide range of customer segments. One key advantage of the NSDP platform is its flexibility, allowing for seamless handling of custom	- Academia - Policymakers - COs - Private sector - Smart cities	NILU	D2.1, D2.3, D2.4	Non-Commercial

data formats from various sensor data providers. Its scalability supports expansion through distributed data and processing, making it a versatile and future-proof solution. Furthermore, NSDP introduces an innovative approach to sensor data management with the integration of HBase and REST APIs, along with the unique feature of optional data hosting, analysis, and post-processing services, distinguishing it from traditional sensor data platforms. Finally, the NSDP platform offers comprehensive training, user support, community collaboration, and continuous development, making it a holistic solution for enhanced data-driven decision-making and research outcomes.				

As shown in Table 7, there are fourteen project results identified as having potential for exploitation. Additionally, six project partners (40% of the total) have identified one or more exploitable results, with an average of two exploitable results per partner. Of these exploitable results, 86% (12) are expected to be used in a non-commercial manner by their respective owners, while 14% (2) are intended for commercial exploitation.

Specifically, the exploitable result titled "Standards for metadata and common terminologies for data quality. Updated version of QualityML vocabulary to observations provided by citizens," is categorised as non-commercial. According to input from CREAF, "the standards of metadata for

the project will be exploited non-commercially, but an ISO license is available. The updated version of the QualityML vocabulary is anticipated to be exploited in a non-commercial and open-source manner."

Attention will be focused on the second phase of CitiObs to ensure that joint owners outline each entity's contribution, detailing their exploitation rights and responsibilities. Based on input from the partners, several key insights have emerged. Most of the jointly developed results (10 out of 11) are intended for non-commercial exploitation, with only one (1 out of 11) expected to be commercially exploited.

On average, eight consortium members jointly own an exploitable result, as many jointly developed results involve almost the entire consortium. Therefore, it is crucial that during the second phase, involved parties establish a joint ownership agreement to clearly describe their contributions and agree on issues related to the exploitation and dissemination of the joint results.

All scientific partners will contribute to the scientific knowledge created and exploited by CitiObs and will provide or update their input in the framework of D4.3. For the result "Data validation and analysis tools," it is noted as joint ownership; however, UCD may wish to solely exploit the algorithms developed for this result in the future. This intent will be explored further in later project stages. Additionally, based on NILU's input, UCD, IAAC, and RIVM have contributed to this result through multiple meetings to agree on the methods used in the data analysis package and by sharing previous experiences.

For the result "Leave no one behind toolkit," according to ULEI's input, all consortium partners will contribute to and validate the creation of the toolkit throughout the project's duration.

Moving forward, it is important to assess whether the project partners maintain their interest in exploiting certain results or continuing ventures they have previously initiated. To do this, it is essential to harness synergies, prepare tailored questionnaires for the joint owners, and organise workshops aimed at enhancing both commercial and non-commercial exploitation of the identified results.

5.2. Review of Intellectual Property (IP) Assets

The second step addresses the Intellectual Property (IP) aspects of the project. Specifically, it focuses on issues such as the Background and Foreground IP related to the identified exploitable results that are being investigated, the selected means of IP protection (e.g., patent, utility model, trademark, etc.) and the roles and rights of every consortium member involved in an exploitable output. Table 8 describes the aforementioned information.

Table 8: Exploitable Outputs per Partner

Project partners (No of results)	Background IP	Protection of Background IP	Other owners	Intention of Protection of Exploitable Results (Foreground IP)
NILU (8)	Yes	No	Yes	Yes
DRAXIS (1)	Yes	No	Yes	Yes
CREAF (1)	No	No	Yes	No
IAAC (2)	Yes	Yes	Yes	Yes
ULEI (1)	No	No	Yes	No
SECD (1)	Yes	No	No	No

Only IAAC reported having an active IPR background for their results, categorised as "Other," specifically under the licenses CC 4.0 Share Alike, GNU Free Documentation License, and GNU Affero General Public License v3.0.

It is worth noting that not all partners have identified foreground IP for their results. For IAAC, foreground IP applies to all their exploitable results and falls under the same licenses as their background IP.

Almost all project partners (5 out of 6) who identified exploitable results indicated that other project partners contributed to at least one of their results. However, there are four results (~29%) for which the partners declared sole ownership. These results are "High-resolution environmental

maps" (NILU), "NILU sensor data platform" (NILU), "Smart Citizen Data Platform" (IAAC), and "AUTHENIX - A web service providing authentication to citizens and services in an integrated way" (SECD).

During the second phase of this step, project partners receive guidance on determining the appropriate channels for exploiting their results. The tailored workshops will assist partners in selecting the most suitable pathway for their exploitable results, considering the type of exploitation (non-commercial or commercial) and the use model (license, transfer of rights, policy recommendations, guidelines, standards, etc.).

5.3. Screening of Potential Risks and Barriers

This step of the exploitation strategy centres on pinpointing potential risks (such as partnership risks, market risks, management risks, etc.) that could impact the exploitation of the results. During the first stage of this step, risks have been identified for the minority of the results. These risks are:

- Operational & Development risks, relevant to the quality of the result.

- Market risks: The above risks might lead to a lack of trust and demand from customers/end-users. Also, there is the risk of a mismatch between the result's capabilities and market demands and the risk of the inability to predict market trends or technological advancements.

- IPR/Legal risks: Unintentional use of unauthorised hardware, software and algorithms without a license. Trade secrets risk theft or leakage.

- Management risks: Risks related to organisational hinders/failures. In addition, the lack of strategic direction and leadership experience might result in reduced productivity.

The second phase of the exploitation plan will encompass a thorough risk analysis for a chosen set of exploitable results and propose mitigation measures that extend beyond the project's timeframe.

5.4. Description of Necessary Activities for Achieving Exploitation

During this step, partners develop a roadmap of actions to ensure the exploitation of project results both during and after CitiObs. They also review and update the individual exploitation plans created during the project proposal stage.

The partners have provided information regarding their initial individual exploitation plan. These include:

- Developing products and services tailored for municipalities and other stakeholders, such as CS projects, to enhance governance using advanced technological and methodological tools.

- Supporting analytical tools for citizens and local communities while enhancing capacity and skills in collaborating with observer communities.

- Broaden existing user stories of the DSS to incorporate new environmental data users.

- Incorporate the DSS as a service within the partner's existing portfolio. Explore the integration of the results into other project partners' current portfolios or platforms as a feature, offering a comprehensive technological solution. Provide a proof-of-concept example through the project to demonstrate to other stakeholders (e.g., policymakers, municipalities, industry players) how the results can be integrated into their portfolios.

Based on the partners' input, there is a detailed description of the activities which will boost the exploitation of the results. Table 9 presents these activities.

Table 9: Activities to achieve Exploitation

Activity
Incorporate the results into institutional best practices, guidelines, and recommendations. Establish training programmes to educate citizens, sensor operators, community leaders, and policymakers on the guidelines' application. Create a user-friendly website or portal where users can access the guidelines, download resources, and participate in discussions. Include interactive features to build a sense of community. Expand the guidelines' reach from local communities to a global audience.
Participate in workshops/seminars/conferences relevant to CS.

Incorporate the results into various projects or initiatives. Encourage research collaborations with potential stakeholders, such as Front Runner Cities, Implementer COs, Follower COs, environmental organisations, NGOs, educational institutions, and businesses to consistently validate and enhance the guidelines produced considering scientific progress. Promote involvement and feedback from a wide range of stakeholders. Frequently revise the guidelines to include user feedback, technological progress, and changing best practices. Share updates through newsletters and online announcements. Acknowledge and celebrate the communities and individuals who actively contribute to air quality monitoring in accordance with the guidelines.

Utilise social media, webinars, newsletters, and user engagement campaigns. For instance, launch interactive initiatives to boost user participation, such as challenges, contests, or social media campaigns encouraging users to share their environmental actions and experiences. Create awards or recognition programmes, feature success stories on the platform, and emphasise the positive impact of citizen-operated sensors.

Engage in discussions with the consortium about each member's exploitation rights and responsibilities based on their contributions. Deliberate on potential pricing strategies and the selected business model. Seek advice from experts during this process.

During the later stages of the project, the final exploitation roadmap is revised to include the latest findings and insights from the project's lifecycle. This comprehensive step details strategies and actions for effectively utilising project results, ensuring their long-term sustainability and impact. It outlines specific steps for both commercial and non-commercial exploitation of the project results. The plan serves as a guide for partners to navigate the post-project phase, maximising the value and reach of the project's achievements.

5.5. Timetable of Actions

Table 10 presents an estimate of the time plan that corresponds to the aforementioned methodology for the rest of the project's lifetime (M19-M48).

Table 10: Timetable of Actions

Date	Action	Outcome
M19-M20	Initial development of tailor-made E&S questionnaires.	Develop draft templates utilising input from our partners to facilitate efficient collaboration during the exploitation workshops.
M21-M26	Tailored Exploitation Workshops, divided into joint and sole ownership results.	Assist partners in describing and characterising their results to maximise their utilisation, based on their contributions. Guide them in selecting the most appropriate actions and pathways for exploiting their results, whether through commercial or non-commercial means. Additionally, provides support in choosing the best utilisation model, such as licensing, transferring rights, policy recommendations, guidelines, or standards.
M27-M28	Development of tailor-made Exploitation questionnaires.	Creation of final templates tailored to each result, where the CitiObs partners can provide their updated input regarding Exploitation and Sustainability aspects.
M29	Distribution of E&S questionnaire.	Opportunity for the consortium to update the input submitted in the first phase and provide additional information that refers to the final Exploitation and Sustainability of the project.
M30-M32	Collection and evaluation of input.	Finalisation of E&S aspects, such as mapping of IP issues, expression of commercialisation intent, declaration of Sustainability aspects, etc.

M33-M34	Conduction of PESTEL analysis.	Evaluate the environment in which the results will be utilised and assist the partners in making important adjustments during the development of the result.
M35-M36	Conduction of a SWOT analysis for the business cases of CitiObs.	Assess the four factors of the analysis, and help the partners make clear and effective exploitation plans.
M37	Develop a thorough risk analysis questionnaire.	Creation of a template document, where the CitiObs partners can provide their detailed input regarding the risks of the results.
M38	Distribution of risk analysis questionnaire.	Opportunity for the consortium to enrich their input regarding the risks of their results.
M39	Collection and evaluation of risk analysis input.	Finalisation of risk analysis aspects, such as the mitigation measures needed to avert the risk, which will make the result even more mature and exploitable.
M40-M42	Creation of joint ownership agreements	Assist the partners in creating joint ownership agreements. Clearly outline each entity's role, considering their respective rights and obligations regarding exploitation. Reach a consensus on matters concerning the utilisation and distribution of the joint results
M43-M48	Development of the final CitiObs Business and Exploitation plan.	Submission of D4.3 in due time (M48).

6. Conclusion

This document represents the updated version of D4.6 Dissemination, Communication, and Exploitation Plan (1/2) submitted in M3. As the project progressed to M18, it provided more detailed and updated information on the project's target audiences and key stakeholders, alongside with better description of the various actions and channels that are leveraged to effectively promote CitiObs' outcomes. Updated dissemination and communication strategies are outlined, providing a clear roadmap for engaging with the intended audiences, and stakeholders. Furthermore, the document details the updated exploitation plan, which is implemented throughout the project's duration.

Recognising the dynamic nature of the project, this plan continues to serve as a foundational blueprint, intended to evolve in alignment with the ongoing developments. This revised plan is set to be updated and refined as necessary and the results will be monitored and presented on D4.4 Dissemination Report 2/2.

7. ANNEX 1

Publication Procedure

This document aims to provide clear guidance on the procedure for disseminating the outcomes of CitiObs through publications. The objective is to encourage the effective dissemination of results, while upholding the intellectual property rights (IPR) owned by the partners within the consortium.

Obligation to disseminate

The obligation to disseminate the project's results is a fundamental requirement outlined in Article 17 of the Grant Agreement. This article stipulates that each beneficiary must share their project's results with the public as soon as possible, in a publicly available format, subject to any restrictions due to the protection of intellectual property, security rules or legitimate interests.

Open Science

All CitiObs publications will be Open Access, meaning that the published article is immediately accessible in open access mode, and at no cost for the reader. The beneficiaries must ensure open access to peer-reviewed scientific publications relating to their results. In particular, they must ensure that:

- at the latest at the time of publication, a machine-readable electronic copy of the published version or the final peer-reviewed manuscript accepted for publication, is deposited in a trusted repository for scientific publications
- immediate open access is provided to the deposited publication via the repository, under the latest available version of the Creative Commons Attribution International Public License (CC BY) or a license with equivalent rights; for monographs and other long-text formats, the license may exclude commercial uses and derivative works (e.g. CC BY-NC, CC BY-ND) and
- information is given via the repository about any research output, or any other tools and instruments needed to validate the conclusions of the scientific publication.

For additional details, please refer to the OpenAIRE webinar and slides on "Horizon Europe Open Science requirements in practice".

Lead author responsibilities:

To proactively address and prevent potential conflicts regarding co-authorship and embargo concerns, partners planning a dissemination action will notify other affected partners in advance, offering them co-authorship. At the onset of the process and once all involved partners agree on the lead author, a notification will be sent to the consortium via email. This message will include the name of the media, title, a brief abstract of the action, and the expected delivery date. While the 45-day rule stands as a general minimum, it is understood that some dissemination actions, like scientific papers, may require an earlier start. The goal is to ensure the consortium is informed as soon as there is an intention to begin a dissemination action.

Co-author responsibilities:
A co-author is responsible for promptly responding to the lead author's request and providing the necessary high-quality materials for the dissemination action to achieve an excellent outcome. If the lead author does not receive the required materials, they should reach out to the partner and remind them about the necessary inputs. In the event that the contributing partner does not comply, it will be assumed that they are no longer interested in co-authoring the dissemination action. Consequently, the lead author has the authority to remove them from the list of authors.

Procedure:
A folder called "Pending" has been created inside the "Publications" folder, which will contain all publications pending to review. The lead author is responsible for uploading the document in the folder at least 15 days before the submission of the deadline and sending an email to the consortium to review the draft. The title of the document should include the name of the event or journal and the deadline date (e.g. ECSAConference2026_31-09-2025.docx).
If the publication is in a different language than English, a comprehensive summary in English should accompany the original language.
Once submitted, the final version of the document should be uploaded by the lead author to the "final" folder.
Partners have 10 days to review the document immediately after it has been posted on "pending". If they detect any IPR issue, they can react by contacting the Coordinator and the Party or Parties proposing the dissemination action and request modifications or to withdraw the action due to embargo issues. If the Party or Parties proposing the dissemination, with the mediation of the coordinator, cannot get an agreement in the next 5 days, the publication needs to be postponed or withdrawn.

The "Publications" folder also contains a template with the acknowledgement of the funding agency. If the template cannot be used due to specific guidelines, please adhere to the appropriate format and ensure to acknowledge the funding agency as required.

Recognizing the funding agency
Articles 17.2 & 17.3 of the Grant agreement state that any dissemination of results must acknowledge EU support and display the European flag (emblem) and funding statement: "Funded by the European Union. Views and opinions expressed are, however, those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Executive Agency (REA). Neither the European Union nor the granting authority can be held responsible for them."
EU's emblem can be accessed here.

Green or Gold Open Access
The publications on scientific journals shall follow either the "green access model" or the "gold access model". To increase the scientific impact "gold access model" is preferable. However, selecting "gold" means that, in many of the current journals, the authors shall pay a considerable amount of money to ensure openness to everyone. The lead author will pay the "gold open

access" fee for the publication. Despite the selection of gold or green access model, the lead author should publish the paper in a public repository.

At least 45 days prior
- Lead author: Announce the dissemination action to the consortium via email. The email should include:
1. Media name
2. Title
3. Short abstract of the action

15 days prior
- Lead author: Upload a draft on the pending folder and notify the consortium via email. The name of the document should follow this template: NameofConference_date.docx

5 days prior
- Review and react on identified IPR issues.

After publication
- Move document to the "final" folder, upload in a public repository.