

Change – The transformative power of citizen science

Exploring the marriage of citizen science & living labs – in support of green, social and digital transitions

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Abstract

The European Commission has identified the role of Living Labs and Citizen Science as needed tools for the process of citizen-centric knowledge valorisation. Backed by the Memorandum of Understanding (MoU) between the European Citizen Science Association (ECSA) and the European Network of Living Labs (ENoLL) signed in 2023, this workshop sought to bridge these two worlds for mutual benefit and increased societal impact. During the workshop, we (1) introduced the features of Living Labs; (2) co-created practical examples on how Citizen Science and Living Labs can provide joint contributions in support of green, social and digital transitions; and (3) started to identify action items where the ECSA and ENoLL communities join forces to empower citizens to become true change makers. Although providing important first insights, the workshop revealed a need to develop a better understanding of the relationships and possible mutual benefits between Citizen Science and Living Labs. Next steps include a follow up mirror workshop at Open Living Lab Days conference 2024.

Keywords: citizen science, living labs, ECSA, ENoLL, mutual learning.

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Introduction

The accelerating changes in our daily lives request a holistic approach to public governance that accounts for green, social and digital transitions. It is imperative that citizens are not left out of the equation, and Citizen Science (CS) approaches can greatly contribute. However, there are also other ways of engaging citizens, academia, the public sector and industry in collaborative research and innovation, such as Living Labs (LL), Fab Labs and Maker Spaces—just to name a few.

It remains challenging to understand how existing methods and tools could be used in combination to address the grand challenges of our turbulent times (a goal shared by all initiatives). While LL struggle to engage citizens in their innovation process but succeed to involve key stakeholders to address local societal issues, CS can provide the missing piece while generating new knowledge aligned with societal needs to foster social innovation.

In this context, the European Commission (EC) has identified the role of LL and CS as needed tools for the process of citizen-centric knowledge valorisation (EC 2024). A big number of projects have been funded to investigate the impact of CS in society (Mačiulienė et al. 2021), as well as its role in the new European Higher Education Space (Vilariño 2024). Backed by the Memorandum of Understanding (MoU) between the European Citizen Science Association (ECSA) and the European Network of Living Labs (ENoLL) signed in 2023 (ECSA and ENoLL 2023), this workshop sought to bridge these two worlds for mutual benefit and increased societal impact.

Methodology applied during ECSA 2024

During the workshop, we (1) introduced the features of LL; (2) co-created practical examples on how CS and LL can provide joint contributions in support of green, social and digital transitions; and (3) started to identify action items where the ECSA and ENoLL communities join forces to empower citizens to become true change makers.

Participants were expected to bring their experiences, questions, and individual perspectives. They left the event with a deeper understanding of LL and their role in societal transformation; insights into practical applications of CS in LL; opportunities for knowledge exchange; and a chance to contribute to a roadmap for future collaboration.

A four-phased co-creation method was used in groups, each addressing one of four pre-selected real case studies, related to contemporary challenges in health, energy transition, climate adaptation and Artificial Intelligence (AI), as follows:

- **Phase1: Introduction to Case Study.** Participants read general information (aloud or silently) given on the LL case study to prepare for the discussion and to be able to make proposals.
- **Phase2: Integration of CS in the LL.** Participants were invited to a role-play with the question: “As a CS expert, you join the LL. What would you add to the LL case?”, to use their CS experience to

add more value proposition to the LL in four categories identified with a different colored hexagons, containing the following information (5WH):

- WHO – How to increase Citizen engagement?
 - WHAT – Which CS methodologies could you bring?
 - HOW – What other services could you imagine?
 - WHY/WHERE/WHEN – How can we address challenges closer to society?
- **Phase3: Win - Win - Win.** Participants were invited to answer the question: “What are the benefits & positive impacts of the marriage of CS & LL?”. Three different colors were used per stakeholder.
 - **Phase4: Creating bridges.** Participants addressed the “Definition of actions to unify both communities”, through answering the question: “What concrete actions could start to bridge the communities?”, constructing an action plan based on the previous exercises maps and defining a “must-go” action to be done for creating a strong and efficient bridge between CS & LL. Participants again used hexagons of different colors.

Results

In addition to the facilitators, the workshop was attended by 50 people, 60% women and 40% men, from 20 to 70 years old. Co-creation took place in 6 groups of around 8 persons each. The figures below give some impressions.



Figure 1. Impressions for the use of hexagons during the co-creation session in Ph2: table on climate adaptation (left) and table on health (right).



Figure 2. Impression of the reporting back from the groups.

Whereas many case study specific results were collected, the main overarching findings were:

- Overall, in discussions about **who** should participate more in LL, the participants underlined that inclusiveness should be guaranteed—particularly of underrepresented groups, including children, youth, or low income population. It is challenging to engage them, but those voices should be heard, and ethical considerations taken into account.
- When discussing **what** CS methodologies could bring to the LL, participants highlighted a wide diversity, from generic and comprehensive to specific applications. In summary the participants suggested participatory action research, adapting methods or discussing results of research, co-creating new questions, or researching questions posed by communities (by students, in curriculum, following the science shop methodology).
- Considering the approaches **how** to engage people in LLs, newly proposed services include: i) standard Apps, standard data and GDPR guidance; ii) CS training, and re-use of engagement practices; iii) life-long learning possibilities, skills gained as pathways to work for youth and enhance live chances; iv) creating a knowledge hub, or co-chair a joint ECSA/ENoLL working group.
- From the deliberations on addressing challenges closer to society (**why/where/when**) participants suggested the installation of public poll stations (jars with pencils & pens, digital QRs) in public spaces (parks...), focusing on specific topics in the neighborhood (childcare, loneliness, social inclusion) to address community issues. Moreover, it is necessary to find a common language and dedicate time to listening. Having CS expertise represented within the LL community and in particular LLs would be generally advisable.

The participants concluded that **benefits** can come at different scales, and alongside the following dimensions:

- LL could benefit from the lessons learnt by CS on ethics, inclusiveness and equity, co-evaluation, strategies and methods. They might benefit also from a more citizen-driven, instead of technology-driven innovation, and an increase in knowledge generation - meaning that scientific knowledge meets everyday knowledge.
- For the CS community, LL offer the opportunity to increase the research impact, moving from research results to change and influencing politics and lead to policy changes based on evidence databases taken from real life-settings, making outcomes more relevant.
- Mutual benefits for CS and LL could come from working on inclusive structures, learning in workshops, or writing & submitting EU proposals, establishing links with other experts, to exchange and co-create knowledge. Sharings could be brought by joint conferences, shared stakeholders mapping, shared training and AI or shared principles.

Finally, suggested follow-up actions included:

1. Taking the high-level items of the MoU and substantiating those with more detailed points (such as the ones listed below).
2. Providing a more detailed introduction into LL to the CS community to allow for a wider debate.
3. Bringing existing ENoLL and ECSA working groups (for example on health) together to get to know each other and identify areas for collaboration.
4. Organizing joined workshops that focus on specific topics of common interest, e.g. how to increase resilience to climate change in neighborhoods.
5. Pairing up specific LL and CS projects that work on the same topic at the local level to learn from each other's experiences, methods and tools.

Conclusions and next steps

The workshop revealed a need to develop a better understanding of the relationships and possible mutual benefits between CS and LL—in the sense of the communities, approaches and individual projects, focusing on common/shared goals tackled through multidisciplinary teams focussing on methodologies instead of getting lost in terminology. Inclusiveness was highlighted as a way to widen impact, regarding the needs and focus of every project, and hearing all voices as a way to gain more impact.

Most of the participants had a CS background, so the results obtained focus on using common CS methods in LL, to have a science based approach. Accordingly, recommendations or comments are made from CS to the LL community. This setup made it more difficult to integrate methods from LL into CS projects, and a need to connect the scientific approach and data to day-to-day projects.

Next steps include a follow up mirror workshop at Open Living Lab Days conference 2024. For this follow-up workshop we are expecting to complete the joint value proposition in the opposite direction, i.e. how CS can bring value to the LL community to structured citizen-centric knowledge generation.

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