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Citizen Science in Greece: Account of an experience so far

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Abstract

This article examines the Citizen-Enhanced Open Science in Southeastern Europe Higher Education Knowledge Hubs (CeOS_SE) project as a regional initiative dedicated to advancing open and participatory research practices within higher education institutions. Focusing on Greece's expanding citizen science landscape, the study highlights the role of the Library and Information Center (LIC) of the University of Patras, in fostering Open Science and community engagement. By leveraging CeOS_SE, the LIC has transformed from a traditional academic resource center into a dynamic knowledge hub that supports the co-production and dissemination of scientific knowledge, thereby strengthening the integration of citizen science within Greece's research and societal contexts.

Keywords: Citizen science, Library, Library and Information Center, University of Patras, CeOS_SE, Open Science, Greece

Introduction

Citizen Science in Greece has been an expanding domain, and the country's natural diversity and environmental challenges provide an ideal backdrop for meaningful Citizen Science participation. The Citizen-Enhanced Open Science in Southeastern Europe Higher Education Knowledge Hubs (CeOS_SE)¹ project represents a regional initiative designed to advance open and participatory research practices throughout Southeastern European academic institutions.² CeOS_SE establishes a structured platform for developing and integrating Open Science practices, with particular emphasis on fostering citizen science engagement within university environments. Through its coordinated framework, CeOS_SE encourages higher education institutions and their libraries to implement targeted activities, such as collaborative partnerships and innovative pilot projects.

Academic libraries increasingly serve as pivotal agents in the transformation of scholarly communication and the democratization of knowledge. The Library and Information Center (LIC) of the University of Patras³ exemplifies this role. It serves as the central hub of the institution's library system and services and is comprised of the main library along with three branch units. Together with the departmental libraries and reading rooms located throughout the university's academic departments, they form the foundation of the university's scholarly communication

¹ CeOS_SE Community, Zenodo, accessed August 18 2025, https://zenodo.org/communities/ceos_se/.

² CeOS_SE Project. "Citizen-Enhanced Open Science in Southeastern Europe Higher Education Knowledge Hubs", Funded by the European Union Erasmus+ Programme, accessed August 19 2025, <https://ceosse-project.eu>.

³ University of Patras, Library and Information Center, "Library and Information Center", accessed August 10 2025, <https://library.upatras.gr/english/>.

infrastructure. The LIC ensures the systematic acquisition, organization, preservation, cataloguing, and dissemination of knowledge sources in both physical and digital form, therefore facilitating teaching, research, and innovation.

Beyond that traditional approach and mission of supporting teaching, research, and innovation within the university community and in response to the emerging trends and the evolving demands of higher education, the LIC has strategically broadened its mission beyond its traditional scope. It increasingly engages with wider societal needs, particularly through its involvement in Open Science (OS) and Citizen Science (CS) initiatives. The LIC participated in the Citizen-Enhanced Open Science in Southeastern Europe Higher Education Knowledge Hubs (CeOS_SE) project to facilitate its institutional development and expand its strategic capacity in supporting contemporary research methodologies. Through involvement in CeOS_SE, the LIC sought to enhance its role in fostering Open Science Practices, promoting community engagement and to position itself as a central knowledge hub within the ever-growing field of Citizen Science.

Citizen Science in Greece

Citizen Science (through the trials and turbulations of many scholars) can be defined, loosely, as: *the active participation of non-professionals in scientific inquiry*. It refers to the partnership between the scientific community and the non-professional scientific public.⁴ A form of collaboration where members of the public, often without formal scientific training, meaningfully contribute to various stages of the research process alongside professional scientists, thus bridging a gap of the scientific community and the general public by having the public actively participate in the research process and not just making them the recipients of such research.

CS has slowly, but steadily, gained prominence in European research policy over the past decade but especially when it was published in a part of the Open Science Policy Platform (OSPP)⁵. Organizations, like LIBER (Ligue des Bibliothèques Européennes de Recherche – Association of European Research Libraries) and League of European Research Universities (LERU)⁶, have included Citizen Science in their strategic roadmaps regarding open science since 2018.⁷

Greece, on a large scale, has embraced Citizen Science as a vital component of environmental monitoring, conservation and sustainability efforts. The country's natural diversity, featuring ancient forests, mountains, coastlines, and a myriad of islands, offers expansive opportunities for scientific discovery and public participation. Citizen Science in Greece not only aids in addressing pressing ecological and environmental challenges but also enriches public scientific literacy and engagement. Some of the key focus areas in Greece are biodiversity and climate change monitoring⁸, marine and aquatic ecosystems⁹, and urban environment¹⁰.

⁴ Tiberius Ignat et al., "Merry Work: Libraries and Citizen Science", *Insights: The UKSG Journal* Vol. 31 (2018), <https://doi.org/10.1629/uksg.431>.

⁵ European Commission, Directorate General for Research and Innovation, *Progress on Open Science: Towards a Shared Research Knowledge System: Final Report of the Open Science Policy Platform*, Publications Office, 2020, accessed October 3 2025, <https://data.europa.eu/doi/10.2777/00139>.

⁶ P. Ayris et al., *Open Science and Its Role in Universities: A Road Map for Cultural Change*, Report, 2018, accessed October 3 2025, <https://www.leru.org/files/LERU-AP24-Open-Science-full-paper.pdf>.

⁷ Paul Ayris et al., *Liber Open Science Roadmap*. Zenodo, 2018, <https://doi.org/10.5281/ZENODO.1303002>.

⁸ Chrysostomos Galanos and Ioannis N. Vogiatzakis. "Environmental Citizen Science in Greece: Perceptions and Attitudes of Key Actors." *Nature Conservation* 48 (April 2022): 31–56, <https://doi.org/10.3897/natureconservation.48.79936>.

⁹ Evangelia Kagiali et al., "Four-Year Overview of Winter Colony Losses in Greece: Citizen Science Evidence That Transitioning to Organic Beekeeping Practices Reduces Colony Losses", *Insects* 14, no. 2, 193 (2023), <https://doi.org/10.3390/insects14020193>.

¹⁰ Konstantinos Ziliaskopoulos and Chrysi Laspidou, "Using Remote-Sensing and Citizen-Science Data to Assess Urban Biodiversity for Sustainable Cityscapes: The Case Study of Athens, Greece", *Landscape Ecology* 39, no. 2, article no. 9 (2024), <https://doi.org/10.1007/s10980-024-01793-4>.

The aforementioned areas allow for a wide spectrum of Citizen Science projects that engage various communities and skill levels. These domains enable the design and implementation of a diverse array of Citizen Science projects that accommodate participants with varying levels of expertise and backgrounds. Such initiatives facilitate not only data collection and research contribution, but they also provide opportunities for learning, skill development, social interaction, and a closer connection to Greece's natural heritage.

Citizen-Enhanced Open Science in Southeastern Europe Higher Education Knowledge Hubs

The LIC of the University of Patras participated in the European Union's Erasmus+ funded project Citizen-Enhanced Open Science in Southeastern Europe Higher Education Knowledge Hubs. CeOS_SE addresses the pressing need to bridge gaps between traditional academic research and the broader community by integrating citizen-generated knowledge into formal scientific processes. The project promotes the development of educational resources that empower both researcher and citizen to collaborate effectively. By engaging a wide spectrum of stakeholders, such as academic staff, students, librarians, policymakers, and members of the general public, it aims to cultivate a regional ecosystem supportive of co-created knowledge production.

A distinguishing feature of the CeOS_SE project is its emphasis on the role of academic libraries as pivotal knowledge hubs. Libraries are envisioned not only as repositories of scientific information but also as active facilitators of CS. This repositions and aligns libraries with the global trends recognizing libraries as essential knowledge hubs transforming the open and participatory science.

The LIC was the leader of the "PR5: Uptake of citizen science in Higher education curricula and open science practice in SE Europe" work package. During this period, with the help of its partners, it managed to conduct a survey targeting university students in Southeastern Europe regarding the inclusion of CS in their curriculum. Subsequently, interviews were conducted with professors and members of academia from Southeastern Europe to provide their perspectives on CS and where it fits within the curriculum. As far as Greece is concerned, while already having a variety of CS projects being conducted by universities, CS being introduced into the curricula has been faced with resistance so far.

All the reports and project results can be found in the Zenodo community of the CeOS_SE project. The video interviews can be found on the YouTube Channel of the project.¹¹

CeOS_SE outreach in Greece

Academic libraries in Greece currently play a limited role in Citizen Science initiatives, despite their potential to significantly contribute as community knowledge hubs. Citizen Science projects in Greece span diverse areas as mentioned above. However, libraries' involvement remains scarce, even completely absent in many cases.

Libraries possess unique resources that could enhance CS projects: access to information, expertise in digital and information management, infrastructure, and networks within local communities. They are trusted institutions capable of promoting inclusivity, offering training, outreach, and support to citizen scientists. This has the great potential to position libraries as ideal intermediaries and to become hubs bridging scientific research and public engagement.

The project provided the LIC with a pivotal opportunity to actively engage in the 28th Panhellenic Academic Libraries Conference held in 2022. At the conference a comprehensive

¹¹ YouTube, playlist, "Citizen Science Videos", YouTube, accessed August 19 2025, https://youtube.com/playlist?list=PLjOZUDPQebUGUguyvrrnYngf9eJl1hLE&si=eQfRvtmZk6ZzLr_K.

presentation titled "The Library as a Knowledge Hub for Citizen Science" was delivered, which explored the evolving role of academic libraries in supporting and facilitating citizen science activities. In addition to the presentation, the LIC organized and conducted a workshop entitled "Citizen Science and the Role of Academic Libraries." This interactive session aimed to deepen understanding among librarians, researchers, and other stakeholders about the strategic importance of libraries in the citizen science ecosystem.

Moreover, two more workshops were organized and conducted. One more workshop was organized and conducted in collaboration with the Greek research team of the Citizen Scientists Investigating Cookies and App GDPR compliance (CSI-COP)¹², an EU Horizon's funded research program in 2022. The workshop was directed at students, part of EESTEC (Electrical Engineering STudents European assoCiation) and the research that the students were called to conduct concerned the compliance of websites and applications with the General Data Protection Regulation (GDPR).

Another one was conducted during the Thessaloniki International Book Fair in 2023. The workshop was titled „Citizen Science and the Importance of Its Dissemination" and its participants were students from the Department of Library Science, Archives, and Information Systems of the International Hellenic University. The objective of the workshop was to introduce citizen science to the students, who are future professionals, aiming to showcase best practices and foster sufficient interest and engagement for its sustainable presence.

The workshops, among others, provided practical insights into how academic libraries can integrate citizen science into their services, including supporting data curation, offering training and resources to citizen scientists, and fostering collaborations between academic institutions and the wider public. Attendees engaged in discussions about challenges such as data quality assurance, participant motivation, and bridging disciplinary and cultural divides.

Conclusion

CeOS_SE stands as a pioneering model that embodies an innovative and inclusive paradigm for conducting scientific research. By promoting the democratization of research processes, CeOS_SE effectively challenges traditional boundaries between academic experts and the wider public, enabling broader participation in knowledge creation. This inclusivity serves to enhance scientific literacy among diverse communities, empowering citizens as informed contributors and collaborators in scientific endeavours.

Within this framework, the Library and Information Center (LIC) of the University of Patras becomes an example of the transformative potential of academic libraries in advancing these objectives. The LIC increasingly embraces a broader civic mission, positioning itself as a knowledge service institution that actively serves society beyond the confines of the university. This expanded role is crucial in bridging the often-perceived divide between academia and civil society, creating channels through which scientific knowledge can flow bi-directionally and be co-created with public stakeholders.

By facilitating engagement, training, and dissemination activities that incorporate citizen contributions, the LIC exemplifies how academic libraries can democratize access to science and foster inclusive research cultures. Through its involvement in citizen science initiatives, the LIC transcends its conventional identity as a service center and advances toward becoming a proactive participant in the co-production of knowledge. Ultimately, CeOS_SE and the LIC's evolving role underscore the vital importance of embedding citizen science and open science principles within higher education infrastructures to promote socially relevant, accessible, and collaborative scientific advancement.

¹² CSI-COP, accessed August 18 2025, <https://csi-cop.eu>.

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Грађанска наука у Грчкој: досадашње искуство

Сажетак

Овај рад разматра пројекат Citizen-Enhanced Open Science in Southeastern Europe Higher Education Knowledge Hubs (CeOS_SE) као регионалну иницијативу посвећену унапређењу отворених и партиципативних истраживачких пракси у институцијама високог образовања. Фокусирајући се на растући контекст грађанске науке у Грчкој, студија истиче улогу Библиотечко-информационог центра (БИЦ) Универзитета у Патри у подстицању отворене науке и ангажовања заједнице. Кроз CeOS_SE пројекат, БИЦ је трансформисан из традиционалног центра академских извора у динамично средиште које подржава копродукцију и дисеминацију научних сазнања, чиме се јача интеграција грађанске науке у истраживачки и друштвени контекст у Грчкој.

Кључне речи: грађанска наука, библиотека, Библиотечко-информациони центар, Универзитет у Патри, CeOS_SE, отворена наука, Грчка