

## ADVANCING OPEN SCIENCE IN UKRAINE THROUGH ALIGNMENT WITH THE BARCELONA DECLARATION AND RESEARCH TRANSPARENCY

**Bianca Kramer,**

Barcelona Declaration on Open Research Information

**Abstract.** *This paper examines the role of open research information in advancing Open Science in Ukraine, with particular attention to alignment with the Barcelona Declaration on Open Research Information. It argues that open, interoperable, and reusable research meta-data constitutes a critical enabling layer for effective science governance, policy monitoring, and international collaboration. The study analyzes the current state of Open Science implementation in Ukraine, including the National Plan for Open Science, and highlights the contribution of key infrastructures such as ORCID, the Open Ukrainian Scientific Content Initiative (OUCI), and the Ukrainian Research Information System (URIS). Drawing on both international and national literature, the paper identifies major challenges, including fragmented research information systems, limited institutional capacity, and insufficient regulatory frameworks. At the same time, it demonstrates that Ukrainian institutions, particularly academic libraries, play an increasingly important role in promoting transparency, data stewardship, and interoperability. The paper concludes that engagement with the principles of the Barcelona Declaration provides a strategic pathway for strengthening Ukraine's research ecosystem, enhancing its resilience, and facilitating its integration into the European Research Area.*

**Keywords:** *Open Science, open research information, Barcelona Declaration, research data management, data stewardship, interoperability, Ukraine, research infrastructure.*

### INTRODUCTION

In recent years, open science has become a practical policy priority rather than a purely theoretical concept. Across Europe, transparency, accessibility, and reuse of research outputs are increasingly viewed as essential conditions for effective science governance. The publication of the Barcelona Declaration on Open Research Information in June 2023 marked an important shift in this discussion by placing research information at the center of the open science agenda. Instead of focusing only on open access to publications or research data, the declaration draws attention to metadata describing research activities—researchers, institutions, projects, funding, infrastructures, and outputs (Barcelona Declaration, 2024).

This focus is highly relevant for countries where research information remains fragmented, partially closed, or dependent on commercial data providers. Limited access to structured research information restricts evidence-based decision-making, increases institutional costs, and reduces the ability of national systems to participate fully in international research cooperation. From this perspective, the Barcelona Declaration addresses not only technical issues of openness but also broader questions of research governance, transparency, and equity.

For Ukraine, the relevance of the Declaration is closely linked to national science policy developments. The Ukrainian government has officially approved a National Open Science Plan (Cabi-

net of Ministers of Ukraine, 2022). This policy document defines concrete objectives and measures, including open access to research results, improved research data management, and expanded access to research infrastructures. Importantly, it also emphasizes the need for interoperable research information systems that support transparency and policy monitoring. In this context, the goals of the Barcelona Declaration align directly with Ukraine's existing strategic commitments rather than introducing an external or parallel agenda.

Analytically, open research information can be seen as an enabling layer for the successful implementation of the national Open Science plan. Without open, reliable, and reusable metadata on research activities, it is difficult to assess research performance, identify gaps in infrastructure, or design effective support mechanisms. The declaration's emphasis on openness and interoperability corresponds to these practical needs, particularly in a research system that is undergoing transformation under conditions of limited resources and ongoing crisis.

The international dimension is another critical factor. Ukraine's integration into the European Research Area requires not only policy alignment but also technical and informational compatibility with European research infrastructures. Open research information makes Ukrainian institutions more visible, supports participation in international projects, and reduces barriers to cross-border collaboration. In this sense, openness is not an abstract value but a functional requirement for international cooperation and trust.

Therefore, engagement with the principles of the Barcelona Declaration should be understood as part of a broader strategy to strengthen Ukraine's research system. It supports the implementation of national open science policies, enhances access to research infrastructures, and reinforces the international connectivity of Ukrainian science. Taken together, these factors demonstrate that open research information is a key instrument for sustainable development, resilience, and integration of the Ukrainian research ecosystem into the global scientific community.

## LITERATURE REVIEW

The development of Open Science principles has gained considerable momentum in recent years, both globally and within Ukraine. Open Science emphasizes the accessibility and transparency of research processes, fostering collaboration and increasing the reproducibility and impact of scientific work. Key frameworks that guide the adoption of Open Science practices include international policy documents such as the Barcelona Declaration and national initiatives, including the National Plan for Open Science in Ukraine.

The Barcelona Declaration, endorsed by a range of European research stakeholders, emphasizes the need to open up scientific processes, improve accessibility to scientific knowledge, and enhance collaboration across disciplines and borders. It advocates for increased transparency, open access to research outputs, and the integration of diverse stakeholders into the research process. This framework underscores the notion that open science not only accelerates scientific discovery but also democratizes the dissemination of knowledge, making it accessible to all, from researchers to policymakers.

Scholarly literature on Open Science reveals that the global adoption of these practices remains uneven. While European countries are generally at the forefront of integrating open research principles, challenges persist in countries like Ukraine, where institutional and infrastructural readiness varies. The National Plan for Open Science, approved in Ukraine in 2022, aligns with European policies and integrates several essential principles of the Barcelona Declaration, including open access, FAIR data principles (Findable, Accessible, Interoperable, and Reusable), and the fostering of international collaborations.

Several international studies highlight the broader context in which Ukraine's Open Science policies are being developed. For instance, the research by J. Brown (Brown et al., 2016) emphasizes

the importance of linking authors, publications, and workflows through systems like ORCID, which can foster a more interconnected research environment. Similarly, J. Burgelman (Burgelman et al., 2019) discuss the growing importance of Open Science for the European Union, framing it as a critical policy area for ensuring that science evolves to meet the needs of the 21st century.

The benefits of Open Science extend beyond transparency and collaboration, as it has been shown to contribute to economic development by creating a more efficient and innovative research ecosystem. For example, S. Ottonicar (Ottonicar et al., 2020) argue that emerging economies can significantly benefit from embracing Open Science, as it enables access to global knowledge and strengthens local research capacities.

Despite the clear benefits, the implementation of Open Science in Ukraine faces several obstacles. These include the limited awareness of Open Science principles among researchers, the lack of sufficient training and infrastructure, and the fragmented implementation of Open Science practices across different research institutions. As the article by A. Zharinova (Zharinova et al., 2024) notes, while Ukrainian institutions like university libraries are making strides in implementing data steward services, much work remains to integrate Open Science principles into everyday academic practices. The ongoing support of initiatives such as the National Consortium ORCID Ukraine is crucial in addressing these challenges, offering training programs, and fostering awareness. The integration of digital identifiers for researchers is a cornerstone of Open Science, as it enables the accurate tracking of scholarly outputs, improves collaboration, and enhances the transparency of research activities. One such identifier system is ORCID (Open Researcher and Contributor ID), which ensures that researchers are uniquely identified and that their contributions are easily traceable. The National Consortium ORCID Ukraine plays a pivotal role in promoting the use of ORCID iDs within Ukraine's scientific community. By promoting the adoption of ORCID identifiers across institutions, the Consortium enhances the transparency of research activities, facilitates cross-border collaboration, and ensures that Ukrainian researchers are recognized in global scholarly networks. The article highlights the Consortium's efforts in raising awareness, conducting seminars, and supporting two major infrastructure projects: the OUCI and the Ukrainian Research Information System (URIS). A significant challenge highlighted by the authors is the technical complexity of implementing ORCID's tools, such as the ORCID Affiliation Manager, in Ukrainian scientific institutions. The article also touches upon the difficulties in ensuring seamless data interoperability between ORCID, Ukrainian repositories (such as DSpace), and journal publication platforms (like OJS). Despite these challenges, the National Consortium ORCID Ukraine continues to drive the adoption of Open Science practices, contributing to a more transparent and collaborative scientific ecosystem in Ukraine.

However, substantial challenges remain, particularly in terms of capacity-building, institutional engagement, and technical interoperability. Continued international collaboration and investment in Open Science infrastructure will be essential for Ukraine to fully realize the benefits of an open, transparent, and collaborative research ecosystem, as outlined in the Barcelona Declaration.

Also, it is useful to consider comparative experiences from other European countries in implementing Open Science principles. For example, Finland and France, as documented during the TAIEX mission in 2025 (Ministry of Education and Science of Ukraine, 2025) have undertaken structured national programs to promote open access, data stewardship, and interoperability across universities and research institutions. These initiatives include clear national guidelines, capacity-building programs, and coordinated monitoring of implementation progress. Similarly, Serbia has demonstrated very concrete steps in the adoption of open science policies, such as the establishment of dedicated national offices for open access, mandatory institutional data management plans, and systematic integration of open research practices in higher education curricula. Comparing these experiences with the Ukrainian context highlights common challenges, including

institutional readiness, cultural acceptance among researchers, and alignment with international standards, while also offering practical models for policy design and infrastructure development.

Moreover, to better reflect the national context, Ukrainian research on open science should be included in the review. I. Drach (Drach, 2025) examines the goals and benefits of Open Science in Ukrainian universities, highlighting how open practices can support teaching, research collaboration, and wider access to scientific knowledge. N. Shyshkina and O. Pinchuk (Shyshkina & Pinchuk, 2023) discuss how Open Science can support Ukraine's integration into the European Research Area, focusing on policy alignment, institutional development, and capacity building in higher education. T. Yaroshenko (Yaroshenko et al., 2022) analyze the role of universities and libraries in implementing Open Science, showing practical examples of how digital platforms, data management, and institutional policies are applied in Ukraine.

Including these studies helps to show how Open Science is being developed in Ukraine, complements the international examples, and provides concrete national context for comparing policies, practices, and challenges.

## RESULTS AND DISCUSSION

The first conference held under the framework of the Barcelona Declaration on Open Research Information took place on September 23–24, 2024, at Sorbonne University in Paris. As outlined in the Report of the Paris Conference on Open Research Information (1.0), a central theme of the event was the development of sustainable alternatives to proprietary research information systems and the need for actionable strategies to support the adoption of open, interoperable infrastructures.

One of the major concerns raised by participants was the lack of clear standards and requirements regarding the quality and completeness of open research data. This uncertainty poses a real challenge when institutions begin to shift away from commercial systems that often provide curated, structured data albeit at high financial and strategic costs. A second, equally pressing issue was the need for coordinated action, particularly concerning subscription cancellations and the risks associated with the sudden withdrawal from entrenched commercial ecosystems.

Another significant challenge discussed was the need for training and capacity-building to empower institutions and professionals to transition toward open infrastructures. Many research organizations remain heavily dependent on proprietary tools and workflows, and overcoming this inertia requires a deep investment in both human capital and institutional change management.

While the proposed actions at the conference were concrete and actionable, the report notes that they would benefit from being framed within a broader strategic and coordinated implementation framework. This broader context would allow for a synchronization of efforts across national and institutional levels, enabling participants to move from isolated experimentation to large-scale transformation (Barcelona Declaration on Open Research Information, 2024).

Further development of the Barcelona Declaration principles was discussed during the conference held in Bologna in April 2025, which brought together representatives of research infrastructures, libraries, policy bodies, and national research information system developers from across Europe. The participation of representatives from the State Scientific and Technical Library of Ukraine (SSTL) was particularly important, as it allowed Ukraine to engage directly in discussions focused on implementation rather than advocacy.

Unlike earlier events that primarily emphasized the conceptual value of open research information, the Bologna conference concentrated on operational aspects: governance models, sustainability of open infrastructures, coordination between national systems, and the role of public institutions in reducing dependency on proprietary platforms. For Ukrainian participants, this shift from principles to practice was especially valuable, given the country's current stage of rebuilding and modernizing its research information infrastructure. One of the key outcomes for Ukraine was

a clearer understanding of how national research information systems can evolve in alignment with the Barcelona Declaration without replicating commercial models. Discussions highlighted the importance of gradual transition strategies, mixed infrastructures, and the role of trusted public institutions such as national libraries in acting as coordinators rather than data owners. For SSTL, this reinforced its strategic role as the developer of URIS and as a national hub for open research information rather than a centralized controlling authority.

The Bologna discussions also underscored the importance of international coordination. Participants emphasized that open research information only becomes truly valuable when national systems are interoperable across borders. For Ukraine, this provided both technical guidance and political validation: alignment with European standards is not optional but a prerequisite for meaningful participation in the European Research Area.

For Ukraine, the insights and discussions from the Paris conference are particularly timely and valuable. The country's research ecosystem is undergoing a profound transformation, shaped not only by long-standing structural issues but also by the devastating impact of full-scale war. The State Scientific and Technical Library of Ukraine and other institutions working on the implementation of open science tools such as the Ukrainian Research Information System (URIS) stand to benefit significantly from the shared lessons, frameworks, and standards emerging through international dialogue.

In particular, Ukrainian institutions face the dual challenge of modernizing their research information systems while navigating constraints caused by limited funding, brain drain, and the destruction of research infrastructure. Learning from countries that have successfully implemented open research infrastructures or are in the process of doing so provides both practical models and political validation for taking similar steps. For instance, the coordinated subscription cancellations seen in some European countries can offer Ukraine a roadmap for reducing reliance on costly commercial databases, provided that alternatives with adequate quality controls are in place.

Moreover, the emphasis on capacity-building resonates strongly in the Ukrainian context, where there is an urgent need to train administrators, librarians, and IT personnel to manage open systems effectively. Ukrainian policymakers and research institutions can thus use the momentum generated by the Paris conference to advocate for a coherent national policy on open research information, rooted in international standards and informed by global experiences.

The implementation of the Barcelona Declaration on Open Research Information in Ukraine faces several challenges that stem from systemic, technical, legal, and cultural barriers. Each of these barriers presents unique obstacles that must be addressed for a successful transition towards an open research ecosystem. The following outlines these challenges in detail, providing context and analysis of their impact.

One of the most significant challenges facing Ukraine's research ecosystem is the absence of a robust national policy and regulatory framework specifically promoting open research information. Despite some progress toward digitalization, including the development of the URIS, there remains no cohesive national strategy mandating institutions to comply with open research data sharing and transparency principles. This gap has resulted in inconsistent practices across institutions: while some are actively embracing openness, others remain unaware of or resistant to the principles of FAIR data and open science.

The lack of legislative backing makes it difficult for academic and research institutions to implement systemic changes aligned with international standards such as those outlined in the Barcelona Declaration. Critical issues such as open metadata covering project data, funding information, affiliations, and research outcomes remain unresolved at the legislative level. In the absence of clear guidance or mandates, institutions often operate in silos, reluctant to share research outputs or provide transparency about publicly funded projects.

To address these challenges, Ukraine has introduced the National Plan for Open Science (NPOS), which sets strategic goals and outlines a roadmap for integrating open science principles nationwide. This plan demonstrates a clear commitment to aligning with European Union directives, including Directive (EU) 2019/1024 and Directive 2018/790, which promote open access to scientific data and research outputs. This plan has both strengths and weaknesses. The plan emphasizes harmonization with European frameworks, notably through the adoption of FAIR data principles and EU directives, which is critical for international cooperation and integration into the European Research Area. Also, NPOS assigns clear roles to implementing bodies such as the Ministry of Education and Science, the Ministry of Economy, and the National Academy of Sciences, along with specific deadlines and success indicators—an important step toward accountability and progress tracking.

The plan encourages integration with European data spaces, participation in Horizon Europe, and the development of institutional repositories, reinforcing Ukraine's commitment to cross-border scientific cooperation.

However, many core tasks particularly legislative amendments and the introduction of a dedicated law on open science are scheduled for 2024, but progress may be hampered by political and bureaucratic delays. While the plan outlines strategic actions, it lacks sufficient focus on building institutional capacity within universities and research organizations. Training programs and infrastructure to support open science professionals remain underdeveloped.

Although the NPOS mentions annual funding, it falls short of detailing long-term financial commitments or outlining strategies for securing international support, which may hinder full implementation. The plan includes outreach efforts but does not sufficiently address the need for public participation or broader cultural change around open science practices, which are crucial for long-term success.

The NPOS supports several key principles of the Bologna Declaration, which emphasizes academic mobility, quality assurance, and integration of knowledge across borders. Its provisions for international cooperation, open access to data and publications, and the development of standards for open science professionals align well with the Bologna Process. However, deeper integration of open science within university strategies and academic curricula is still needed to fully embed these practices in Ukraine's higher education system.

Another challenge stems from technical fragmentation and the lack of a unified approach to data management across Ukraine's research institutions. Research data is stored in a variety of disconnected systems within universities, the National Academy of Sciences of Ukraine, government agencies like the State Fund for Fundamental Research, and the National Research Fund, among others. Each of these systems operates independently, with little to no standardization or interoperability. As a result, there are significant barriers to sharing data or integrating research outputs from different sources. Many of the systems in place do not support widely accepted standards for data exchange, such as CERIF (Common European Research Information Format), DOI (Digital Object Identifier), ORCID, ROR (Research Organization Registry), Crossref, or OpenAIRE. This lack of interoperability hinders the seamless exchange of information between institutions, creating obstacles for the aggregation of research data into comprehensive national or international databases. Without shared data standards, collaboration becomes cumbersome, and Ukraine's research community risks falling further behind in global open science efforts.

Access to research metadata is another critical challenge. Many scientific institutions in Ukraine still restrict open access to their research data, either by limiting it to specific users or withholding it entirely. This selective sharing of research information often arises from concerns about security risks, particularly in the context of the ongoing war in Ukraine. Research data, especially related to defense, technology, and strategic sectors, can be sensitive, and there are valid fears about expos-

ing such information to potential adversaries. Additionally, there are concerns about competition for funding—institutions may be reluctant to share research data that could be used by competitors in grant applications or collaborative efforts. The reluctance to embrace open data policies also reflects broader apprehensions about intellectual property and the potential for loss of control over research outcomes. As a result, many Ukrainian institutions are caught between the need for transparency and the imperative of protecting national security and institutional interests.

At the same time, there is a lack of understanding or interest among some parts of the academic community regarding the importance of open research information. The cultural shift towards openness, especially in the context of research data sharing, is still in its infancy in Ukraine. For many researchers and academic leaders, the idea of freely sharing data and research outputs with the global community remains foreign. This is compounded by a lack of expertise in open science practices, data management, and digital identifiers (PIDs) within universities and research institutions. Training and capacity-building are crucial to overcoming these barriers, but the current shortage of specialists in fields such as open data management and digital infrastructure means that many institutions lack the necessary human resources to fully engage with open science initiatives. This cultural and educational gap not only limits the understanding of the benefits of open science but also hinders the development of a more collaborative and open research environment in Ukraine.

Moreover, the implementation of open science practices varies across Ukrainian research institutions, depending on their specific roles and functions. Each institution has approached the integration of open science principles differently. For instance, the State Scientific and Technical Library of Ukraine, as the administrator of the Ukrainian Research Information System (URIS) and the leader of the national ORCID Ukraine Consortium, has concentrated its efforts on awareness-raising, organizing seminars, and supporting two key infrastructure projects — OUCI and URIS. This leadership role allows SSTL to promote open research information in a more structured way, directly influencing the national research landscape.

On the other hand, university libraries across the country have been at the forefront of implementing services like data stewardship, which supports researchers in managing their data in compliance with open science principles. This shift is vital for fostering a more open and transparent research ecosystem, especially considering the growing demand for research data management and accessibility. Furthermore, with 64 members of the ORCID Consortium in Ukraine, including institutions like universities, this network is playing a crucial role in facilitating the adoption of persistent identifiers (PIDs) in research, helping to enhance the tracking of academic affiliations and ensure the visibility of research outputs on an international scale.

However, despite these efforts, challenges remain in achieving a cohesive national approach to open science. The disparate levels of engagement across institutions reveal a need for more consistent and widespread implementation of open science policies and practices. The educational and cultural shifts required to embrace open research are not uniform, and more systemic efforts are needed to ensure that these changes reach all sectors of the academic community, from large research institutions to smaller universities and regional academic bodies.

In conclusion, while certain institutions like SSTL and university libraries are making notable strides, a unified, strategic push from the government and academic leadership is essential to create a culture of openness and collaboration in Ukraine's research ecosystem. This will require targeted investments in training, capacity-building, and infrastructure, as well as more consistent national policies and frameworks that ensure open science principles are implemented across all academic and research institutions.

Another significant hurdle is institutional inertia. Many research institutions in Ukraine are deeply embedded in traditional academic and bureaucratic structures, making them resistant to change. Shifting towards open research information systems requires substantial institutional support, but

many institutions are slow to adopt new practices, especially when they are not supported by clear financial incentives or guidance from higher authorities. This inertia is often driven by bureaucratic barriers — internal policies, outdated administrative processes, and a general reluctance to alter established practices. Even when institutional leaders recognize the benefits of adopting open research principles, there may be resistance at lower levels due to concerns about additional workload, lack of familiarity with new systems, or fear of disrupting existing workflows. As a result, many institutions may continue to rely on outdated systems, preventing them from participating fully in the global shift towards open science.

Finally, the implementation of open research systems in Ukraine faces significant financial and technical resource limitations. The transition to open science infrastructures requires substantial investments in technology modernization, as well as training for personnel involved in managing these systems. This includes updating information management systems to support open data standards, integrating digital identifiers (such as DOI, ORCID, ROR), and providing the necessary IT infrastructure for data sharing. However, in the context of Ukraine's ongoing war and economic difficulties, funding for these initiatives is often limited. The government and research institutions must balance priorities, with immediate concerns such as defense, rebuilding infrastructure, and responding to the humanitarian crisis taking precedence over long-term investments in digital infrastructure. Consequently, the implementation of open science practices, while essential for Ukraine's integration into the global research community, often becomes a secondary priority.

While the Barcelona Declaration on Open Research Information presents a valuable framework for Ukraine's transition to an open research ecosystem, its implementation is constrained by a complex mix of systemic, technical, legal, cultural, and financial challenges. Addressing these barriers will require concerted efforts from both the government and research institutions, as well as international cooperation and expertise. Overcoming these obstacles is critical for ensuring that Ukraine can fully embrace the benefits of open research and contribute meaningfully to the global scientific community.

### **Core Principles of the Barcelona Declaration and Their Relevance for Ukraine**

The Barcelona Declaration on Open Research Information is built around several key principles that are directly applicable to the Ukrainian context.

First, the declaration emphasizes openness by default for research information, particularly metadata related to publicly funded research. In Ukraine, important steps have already been taken in this direction through the development of URIS and open services such as the OUCI. However, open access to metadata remains uneven across institutions, and further regulatory clarification is needed to ensure that openness becomes a standard practice rather than an exception.

Second, the principle of interoperability is central to the declaration. This includes the use of common standards, persistent identifiers, and open formats. Ukraine has made tangible progress through participation in the ORCID Consortium and the gradual adoption of identifiers such as ORCID iDs and DOIs. At the same time, broader implementation of standards like CERIF, ROR, and alignment with OpenAIRE guidelines remains a task for the coming years, particularly at the institutional level.

Third, the declaration stresses community governance and public control over research information infrastructures. This principle is especially relevant for Ukraine, where reliance on commercial databases has historically shaped research assessment and reporting practices. The Bologna conference reinforced the idea that national public institutions libraries, research councils, and ministries must take responsibility for governance models that ensure transparency, sustainability, and accountability. While SSTL and several university libraries are already acting in this role, a more explicit national framework is still required.

Fourth, the declaration highlights sustainability and long-term commitment. Open research infrastructures cannot rely solely on short-term projects or donor funding. For Ukraine, this presents a significant challenge, given financial constraints and competing national priorities. Nevertheless, the integration of open research information goals into the National Plan for Open Science creates an opportunity to link sustainability to state policy and international support mechanisms.

In addition, the full-scale war in Ukraine has introduced specific challenges that directly affect the development of open science. The destruction of research infrastructure, displacement and emigration of scientists, disruptions in international collaborations, and shifting national priorities have all slowed the implementation of open research practices. These conditions require targeted strategies to maintain and rebuild research capacities, support remote and decentralized access to scientific information, and ensure that open science initiatives continue despite the ongoing conflict.

Finally, including concrete quantitative indicators helps to illustrate progress and make the analysis more convincing. As of 2025, Ukraine has 64 member institutions in the ORCID Consortium, more than 27,000 researchers with ORCID IDs, and OUCI indexes approximately 179 million publications. These figures demonstrate both the scale of engagement and the remaining potential for expansion, providing a measurable baseline for future development of open research infrastructures.

Participation in international events such as the Bologna conference has demonstrated that Ukraine is not starting from zero. Awareness of open research information principles is growing, key infrastructures are in place, and professional communities particularly libraries are actively engaged in implementation. These achievements position Ukraine as a participant rather than an observer in the European open science landscape.

At the same time, several tasks remain unresolved. These include the need for clearer legislative mandates on open metadata, stronger coordination between national stakeholders, systematic capacity-building programs, and stable funding models. Importantly, the Bologna discussions made it evident that international cooperation is not merely supportive but essential: shared standards, joint infrastructures, and policy alignment reduce risks and accelerate progress.

In this sense, engagement with the Barcelona Declaration and related international forums serves a dual function for Ukraine. It provides a structured framework for domestic reform while simultaneously embedding Ukrainian research infrastructures into a broader European ecosystem. This combination is crucial for ensuring that open research information becomes a durable and effective component of Ukraine's scientific development rather than a fragmented or symbolic initiative.

## CONCLUSION

The Barcelona Declaration on Open Research Information provides a coherent reference framework for rethinking how research information is created, governed, and reused in contemporary research systems. For Ukraine, its relevance goes beyond normative alignment with European values and reflects concrete needs related to system modernization, policy coherence, and international integration.

The analysis presented in this paper shows that Ukraine has already taken meaningful steps toward open science, particularly through the adoption of the National Plan for Open Science and the development of national infrastructures such as URIS and OUCI. These initiatives demonstrate an institutional readiness to move toward greater transparency and interoperability. At the same time, progress remains uneven, largely due to the absence of a fully consolidated legal and regulatory framework for open research information. Without clear mandates and shared standards, open practices continue to depend on institutional initiative rather than being embedded in the research system as a whole.

Participation in international discussions, including the Paris conference in 2024 and the Bologna conference in April 2025, has played an important role in shifting the focus from general

advocacy to practical implementation. For Ukrainian institutions, these forums provided not only technical guidance but also strategic orientation. In particular, they highlighted the importance of public governance of research information infrastructures, gradual transition away from proprietary systems, and sustained investment in skills and coordination. The involvement of the State Scientific and Technical Library of Ukraine in these processes confirms its emerging role as a national coordinator and facilitator of open research information rather than a centralized authority.

Despite these positive developments, several structural challenges remain. Institutional capacity is still limited in many universities and research organizations, particularly in research data management, interoperability standards, and the use of persistent identifiers. Cultural resistance and low awareness among parts of the academic community continue to slow adoption, while financial constraints and wartime priorities complicate long-term planning and infrastructure investment.

To address these challenges, practical recommendations for different stakeholders include:

Governmental bodies should consolidate national policies on open research information, provide clear legal mandates for data sharing, and ensure stable funding for both national infrastructures and capacity-building programs. Regular monitoring and reporting mechanisms should be established to track progress and support accountability.

Universities and research organizations are encouraged to embed open research practices in institutional policies, provide training for staff and researchers in data management and interoperability, and adopt shared standards and persistent identifiers to ensure long-term usability of research outputs.

Libraries and information centers should continue to take on coordinating roles, support infrastructure development, provide methodological guidance, and facilitate knowledge exchange between institutions. They can also act as focal points for promoting awareness and adoption of open research practices among researchers.

Individual researchers are encouraged to actively engage with open science infrastructures, follow best practices in data management, and contribute to the development of interoperable, reusable research outputs. Participation in international professional networks and collaborative initiatives will further strengthen their skills and ensure alignment with European and global standards.

International engagement remains a critical enabling factor. Alignment with European standards, participation in shared infrastructures, and involvement in international professional networks help reduce risks, build trust, and compensate for domestic resource limitations. In this respect, the Barcelona Declaration functions as both a policy reference point and a practical tool for embedding Ukrainian research information systems into the broader European Research Area.

Ukraine's pathway toward open research information is already underway, but its sustainability depends on coordinated national policies, targeted capacity-building efforts, and continued international cooperation. Strengthening these dimensions will allow open research information to become a stable element of the national research ecosystem, supporting transparency, resilience, and the long-term integration of Ukrainian science into the global research community.

## REFERENCES

- Barcelona Declaration on Open Research Information. (2024). *Report of the Paris Conference on Open Research Information (1.0)*. Paris Conference on Open Research Information, Sorbonne University, Paris, France. Zenodo. <https://doi.org/10.5281/zenodo.14054244>
- Brown, J., Demeranville, T., & Meadows, A. (2016). Open access in context: Connecting authors, publications and workflows using ORCID identifiers. *Publications*, 4(4), Article 30. <https://doi.org/10.3390/publications4040030>

- Burgelman, J.-C., Pascu, C., Szkuta, K., Von Schomberg, R., Karalopoulos, A., Repanas, K., & Schoupe, M. (2019). Open Science, Open Data, and Open Scholarship: European Policies to Make Science Fit for the Twenty-First Century. *Frontiers in Big Data*, 2(43). <https://doi.org/10.3389/fdata.2019.00043>
- Cabinet of Ministers of Ukraine. (2022, October 8). *On approval of the national plan for open science* (Order No. 892-r). Available at [KMU website](#) [in Ukrainian]
- Drach, I. (2025). Open science in universities: Goals and benefits. *Naukovyy visnyk Uzhhorodskoho universytetu. Seriya: Pedagogika. Sotsialna robota*, 1(50), 90–93. <https://doi.org/10.24144/2524-0609.2022.50.90-93> [In Ukrainian]
- Marín-Arraiza, P. (2023). *ORCID welcomes Ukraine to global consortia*. ORCID. <https://info.orcid.org/orcid-welcomes-ukraine-to-global-consortia/>
- Ministry of Education and Science of Ukraine. (2025). *TAIEX mission: Updating the National Plan for Open Science*. Ministry of Education and Science of Ukraine. (2025). *TAIEX mission: Updating the National Plan for Open Science*. <https://surl.li/zpqdiy> [in Ukrainian]
- Otonicar, S. L. C., Arraiza, P. M., & Armellini, F. (2020). Opening science and innovation: Opportunities for emerging economies. *Foresight and STI Governance*, 14(4), 95–111. <https://doi.org/10.17323/2500-2597.2020.4.95.111>
- Shyshkina, M., & Pinchuk, O. (2023). Open science in the context of Ukrainian education integration into the European Research Area. *Herald of the National Academy of Educational Sciences of Ukraine*, 5(1), 1–7. <https://doi.org/10.37472/v.naes.2023.5124> [in Ukrainian]
- Zharinova, A., Tsybenko, I., Zhrebchuk, S., & Fedchuk, A. (2024). The role of the national consortium ORCID Ukraine in advancing open science policy. *Vidkryta nauka ta innovatsii*, 1(1). <https://doi.org/10.62405/osi.2024.01.03>
- Yaroshenko, T., Serbin, O., & Yaroshenko, O. (2022). Open Science: The Role of Universities and Libraries in Modern Changes in Scientific Communication. *Digital Platform: Information Technologies in the Socio-Cultural Sphere*, 5(2), 277–292. <https://doi.org/10.31866/2617-796X.5.2.2022.270132> [in Ukrainian]

## ПРОСУВАННЯ ВІДКРИТОЇ НАУКИ В УКРАЇНІ ЧЕРЕЗ УЗГОДЖЕННЯ З БАРСЕЛОНСЬКОЮ ДЕКЛАРАЦІЄЮ ТА ПРОЗОРІСТЮ ДОСЛІДЖЕНЬ

**Анотація.** У статті досліджується роль відкритої наукової інформації у розвитку відкритої науки в Україні з особливим акцентом на узгодження з положеннями Барселонської декларації про відкриту наукову інформацію. Обґрунтовано, що відкриті, інтероперабельні та придатні до повторного використання метадані досліджень є ключовою передумовою ефективного управління наукою, моніторингу політик та розвитку міжнародної співпраці. Проаналізовано сучасний стан впровадження принципів відкритої науки в Україні, зокрема реалізацію Національного плану відкритої науки, а також роль інфраструктур, таких як ORCID, Ініціатива з відкритого доступу до українського наукового контенту (OUCI) та Ukrainian Research Information System (URIS). На основі міжнародних і вітчизняних досліджень визначено основні виклики, серед яких фрагментованість інформаційних систем, обмежена інституційна спроможність та недостатня нормативно-правова база. Водночас показано, що українські установи, зокрема академічні бібліотеки, відіграють дедалі важливішу роль у забезпеченні прозорості, розвитку дата-stewardship та впровадженні інтероперабельних рішень. Зроблено висновок, що імплементація принципів Барселонської декларації є важливим стратегічним кроком для зміцнення наукової

системи України, підвищення її стійкості та інтеграції до Європейського дослідницького простору.

**Ключові слова:** відкрита наука, відкрита наукова інформація, Барселонська декларація, управління дослідницькими даними, дата-стюардство, інтероперабельність, Україна, наукова інфраструктура.

#### INFORMATION ABOUT THE AUTHOR

**Kramer Bianca** — Barcelona Declaration on Open Research Information, The Netherlands; e-mail: bianca@sesameopenscience.org; ORCID: 0000-0002-5965-6560

#### ІНФОРМАЦІЯ ПРО АВТОРА

**Крамер Б'янка** — Барселонська декларація з відкритої дослідницької інформації, Нідерланди; e-mail: bianca@sesameopenscience.org; ORCID: 0000-0002-5965-6560



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