

D2.3

 Technical gap analysis and high-level
community transition plans

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Abstract	CRAFT-OA identified key technical gaps faced by institutional publishing service providers (IPSPs) as well as institutional publishing tools and technology providers (IPTPs). They range from insufficient compliance with technical standards to challenges related to



publishing software. The data sources used in this document include deliverables, reports, surveys, and interviews from the CRAFT-OA and DIAMAS projects. In order to address the identified gaps, CRAFT-OA will improve key publishing software, provide toolkits, and resources such as training materials based on the upskilling curriculum. Several proposed solutions (key exploitable results) will be sustained after the end of the project. DIAMAS will prepare guidelines, a tool suite, and further training material. The community transition plan offered in this document will help disseminate the proposed solutions, supporting the Diamond OA publishing community.

APPROVAL PENDING

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Disclaimer



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List of Acronyms

APC	Article Processing Charge
ARK	Archival Resource Key
BPC	Book Processing Charge
CAP	Common Access Point
CC BY	Creative Commons Attribution
CMS	Content Management System
COUNTER	Counting Online Usage of NeTworked Electronic Resources
CRedit	Contributor Roles Taxonomy
DADAO	Decoupled Accelerated Decentralized Asynchronous Optimization
DB	Database
DCH	Diamond Capacity Hub
DDH	Diamond Discovery Hub
DIAMAS	Developing Institutional Open Access Publishing Models to Advance Scholarly Communication
DOAJ	Directory of Open Access Journals
DOAS	Diamond Open Access Standard

DOI	Digital Object Identifier
EDIB	Equity, Diversity, Inclusion and Belonging
EOSC	European Open Science Cloud
EQSIP	Extensible Quality Standard in Institutional Publishing
ERA	European Research Area
ERIH+	European Reference Index for the Humanities and Social Sciences
FAIR	Findable, Accessible, Interoperable, and Reusable
GDPR	General Data Protection Regulation
HTML	Hypertext Markup Language
I4OC	Initiative for Open Citations
ISSN/eISSN	International Standard Serial Number
IPSP	Institutional Publishing Service Provider
IPTP	Institutional Publishing Tools & Technology Provider
JATS	Journal Article Tag Suite
KBART	Knowledge Bases and Related Tools
KER	Key Exploitable Result

LGBTQIA+	lesbian, gay, bisexual, transgender, intersex, asexual, aromantic and agender plus those who are part of the community, but for whom the abbreviation does not accurately capture or reflect their identity
LTS	Long Term Support
MS	Milestone
OA	Open Access
OADJ	Open Access Diamond Journal
OAI-PMH	Open Archives Initiative Protocol for Metadata Harvesting
OJS	Open Journal Systems
OpenAIRE	Open Access Infrastructure for Research in Europe
ORCID	Open Researcher and Contributor IDentifier
OS	Operating System
PCI	Peer Community In
PDF	Portable Document Format
PHP	Hypertext Preprocessor
PID	Persistent Identifier
PKP	Public Knowledge Project

ROR	Research Organization Registry
SEO	Search Engine Optimisation
URL	Uniform Resource Locator
WCAG	Web Content Accessibility Guidelines
XML	Extensible Markup Language
ZRC SAZU	Slovenian Academy of Sciences and Arts

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1 EXECUTIVE SUMMARY

The CRAFT-OA project aims to consolidate the Diamond Open Access (OA) publishing landscape through various activities, including the improvement of the technical and organisational infrastructure of Diamond OA. One of the project's tasks is to analyse technical challenges faced by Institutional Publishing Service Providers (IPSPs) and Institutional Publishing Tools and Technology Providers (IPTPs). Complementarily, the Developing Institutional Open Access Publishing Models to Advance Scholarly Communication (DIAMAS) project focuses on mapping the landscape of institutional publishing in Europe¹ to elevate academic publishing standards. The project also addresses several technical aspects, and provides valuable information for this analysis.

The technical gap analysis presented in this deliverable (CRAFT-OA D2.3) is based on various data sources, including projects' deliverables, such as CRAFT-OA D3.1 "Report on Standards for Best Publishing Practices and Basic Technical Requirements in the Light of FAIR Principles"² or CRAFT-OA D3.2 "Report on challenges and help measures faced by OA journals and platforms"³ (CRAFT-OA D3.2), as well as surveys and interviews for different stakeholder groups. The topics covered in these sources include standards for best publishing practice, technical requirements, as well as challenges of OA journals and platforms in applying them. Furthermore, the analysis covers the use of OJS (Open Journal Systems), the most widely used publishing software⁴, as well as Lodel, the maintenance of OJS and Lodel installations, challenges linked to that, and other topics.

The technical gap analysis within CRAFT-OA D2.3 reveals gaps ranging from insufficient application of technical standards to challenges related to publishing software, and proposes solutions to them. After pinpointing the most significant gaps of IPSPs and IPTPs, the deliverable introduces measures and describes activities in CRAFT-OA and DIAMAS to mitigate them. Among others, the CRAFT-OA project will implement technical enhancements to OJS. The project will provide extensive information such as training materials based on the upskilling curriculum, recommendations, toolkits, and more. Several solutions are classified as Key Exploitable Results

¹ Armengou, C., Aschehoug, A., Ball, J., Bargheer, M., Bosman, J., Brun, V., de Pablo Llorente, V., Franczak, M., Frantsvåg, J. E., Hersperger, O., Klaus, T., Kramer, B., Kuchma, I., Laakso, M., Manista, F., Melinščak Zlodi, I., Mounier, P., Pölönen, J., Pontille, D., ... Wnuk, M. (2023b). *Institutional Publishing in the ERA: Results from the DIAMAS survey*. Zenodo. <https://zenodo.org/doi/10.5281/zenodo.10022183>

² Armengou, C., Edig, X. van, Laakso, M., & Umerle, T. (2023a). *CRAFT-OA Deliverable 3.1 Report on Standards for Best Publishing Practices and Basic Technical Requirements in the Light of FAIR Principles* (under EC review). Zenodo. <https://doi.org/10.5281/zenodo.8112662>

³ Laakso, M., Edig, X. van, Fenner, J., Armengou, C., Gingold, A., Pispiringas, L., & Šterbenc Svetina, B. (2024). *CRAFT-OA Deliverable 3.2: Report on challenges and help measures faced by OA journals and platforms* (under EC review). Zenodo. <https://doi.org/10.5281/zenodo.10496594>

⁴ Bosman, J., Frantsvåg, J. E., Kramer, B., Langlais, P.-C., & Proudman, V. (2021). *OA Diamond Journals Study. Part 1: Findings*. Zenodo. <https://doi.org/10.5281/zenodo.4558704>



(KERs) and will be sustained after the end of the CRAFT-OA project. DIAMAS will provide a tool suite, guidelines, and training material.

This deliverable presents ways of overcoming the challenges across the diverse institutional publishing community, mainly represented by IPSPs and IPTPs, with a special focus on Diamond OA publishing. This document offers a high-level community transition plan that will enable propagating suggested solutions for closing the technical gaps and maintaining a high level of technical proficiency within the Diamond OA publishing community. The suggested high-level community transition plan consists of three phases: analysis, transition and stabilisation, while the activities and outputs of CRAFT-OA and DIAMAS (tasks, milestones, deliverables, and other outputs) are mapped to the phases.

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2 INTRODUCTION

The CRAFT-OA and Developing Institutional Open Access Publishing Models to Advance Scholarly Communication (DIAMAS) projects investigated challenges that Institutional Publishing Service Provider (IPSPs) and Institutional Publishing Tools & Technology Provider (IPTPs) face and identified a number of gaps. This deliverable focuses primarily on technical ones. They range from insufficient compliance with technical standards to challenges related to publishing software. However, other caveats are also considered in order to provide a more comprehensive picture of the difficulties faced by the Diamond Open Access (OA) publishing community. This approach eventually helps to propose solutions and create a transition plan towards a more resilient, better-connected, and overall strengthened community with enhanced capacity.

A thorough analysis is crucial for finding ways of overcoming challenges at the level of individual publishing services and across the Diamond OA publishing community in all its variety. This deliverable starts with a definition of the Diamond OA community and continues with the technical gap analysis. The gap analysis is based on different information sources:

- the results presented in the deliverables:
 - CRAFT-OA D3.1 “Report on Standards for Best Publishing Practices and Basic Technical Requirements in the Light of FAIR Principles”⁵,
 - CRAFT-OA D3.2 “Report on challenges and help measures faced by OA journals and platforms”⁶
- several surveys:
 - “Institutional Publishing in the ERA: results from the DIAMAS survey”⁷,
 - “CRAFT-OA requirement survey for OJS installation and update toolkit” (performed in task T4.4⁸),
 - the survey for Lodel managers conducted by OpenEdition (not published yet),
- surveys and polls conducted during the Summer School for Journal Editors in Telč (Czechia)⁹,
- the document “Interviews for CRAFT-OA”¹⁰.

⁵ Armengou et al., 2023a.

⁶ Laakso et al., 2024.

⁷ Armengou et al., 2023b, later mentioned as the DIAMAS survey.

⁸ Varachkina, H., Nygård, A.-J., Meinecke, I., Beucke, D., Rosiński, C., Wołczuk, N., Souplet, J.-C., Stojanovski, J., & Bria, M. (2024). *Results of the CRAFT-OA requirement survey for OJS installation and update toolkit* [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.10853503>

⁹ The first CRAFT-OA summer school took place on May 27th-June 1st 2024; <https://www.craft-oa.eu/summer-school-2004/>

¹⁰ Pellin, E., & Verdicchio, D. (2024). *Interviews for CRAFT-OA* (Version v2). Zenodo. <https://doi.org/10.5281/zenodo.11657987>



These data sources offer diverse perspectives on technical gaps, catering to various stakeholder groups: from editors to platform providers, including system administrators of platforms.

After identifying the most significant gaps, the deliverable proposes possible solutions to them. The outputs of CRAFT-OA and DIAMAS aim to help overcome them, e.g. through the upskilling curriculum and training materials; through toolkits providing information on publishing software installation and update, through the DIAMAS guidelines and tool suite (under development). Key Exploitable Results (KERs), which are sustainable outputs of the CRAFT-OA project, include Diamond Discovery Hub (DDH), Open Access Infrastructure for Research in Europe (OpenAIRE) publishers dashboard, further development of Open Journal Systems (OJS) (core functionality and plugins), “Institutional publishing technical living handbook” (Living Handbook, for short) that is a useful information resource for communities of practice. Furthermore, both projects have issued policy recommendations addressing major challenges for institutional publishing in the European Research Area (ERA). Based on the proposed solutions, we offer a high-level transition plan for the global Diamond OA community that aims at closing the gaps and keeping the level of technical proficiency among institutional publishers supporting the Diamond OA model.

3 COMMUNITY

A community can be defined as “people who are considered as a unit because of their common interests”¹¹. Diamond OA publishing is such a common interest. Against this background, the CRAFT-OA project pursues the overarching goal of strengthening the Diamond OA publishing community and enhancing its capacity. The CRAFT-OA community is defined as Diamond OA publishing individuals, groups, organisations and infrastructure providers who use, adopt, develop, promote and/or fund Diamond OA publishing solutions.

This deliverable concentrates on identifying and overcoming technical gaps faced by institutional publishing communities represented by IPSPs and IPTPs, their platforms and journals, as well as individual journals that deal with technical aspects of publishing on their own. In doing so, we pay special attention to IPSPs and IPTPs following the Diamond OA publication model. IPSP is any entity that provides services and/or infrastructure to authors and publishers for scholarly publishing. Institutional Publishing Tools and Technology Provider (IPTP) is any entity that provides tools and/or technologies such as standards, code, hardware and software that enable any user and service provider to perform specific tasks or operations to achieve their objectives.

IPSPs and IPTPs consist of individuals with different profiles: editors, journal managers, system administrators, developers, scholarly communication professionals and more, for whom different technical gaps or different aspects are of relevance. To tackle the challenges IPTPs and IPSPs experience laid out below as well as in terms of community-building, CRAFT-OA and DIAMAS work to deliver the building blocks of an infrastructure for the Diamond OA community. These building blocks include a dedicated network of IPSPs and IPTPs for them to connect, collaborate and showcase their services among community members. Ultimately, CRAFT-OA and DIAMAS outputs like the IPTP/IPSP network will contribute to a larger Diamond OA publishing community structure¹² that consists of the Diamond Capacity Hub (DCH) as well as national, local and disciplinary capacity centres serving as first line assistant to their respective Diamond OA communities. This infrastructure (first at the level of IPSPs/IPTPs and then at the DCH level) will propagate solutions offered by CRAFT-OA and DIAMAS and will facilitate technical maturity and best practice on a larger scope.

¹¹ Cambridge Dictionary (n.d), Community. *Meaning of community in English*. In *Cambridge Dictionary*. Retrieved May 28, 2024, from <https://dictionary.cambridge.org/dictionary/english/community>

¹² Mounier, P., & Rooryck, J. (2023, 23 December). Towards a federated global community of Diamond Open Access. A discussion paper. *Hypotheses*. <https://thd.hypotheses.org/296>



4 GAPS

This section analyses the gaps that IPSPs and IPTPs, as well as their platforms and journals face in achieving OA standards and best practices, as identified so far by the CRAFT-OA and DIAMAS projects. The two deliverables of the CRAFT-OA project, CRAFT-OA D3.1¹³ and CRAFT-OA D3.2¹⁴, identified and addressed challenges in achieving technical standards for OA publishing (analysing the use of identifiers, metadata inclusion, content preparation and website features). The DIAMAS survey conducted between March and May 2023 identified difficulties in achieving editorial standards and policy implementations for Diamond OA publishing (analysing governance and editorial management, the impact of Open Science/OA policies on institutional publishing, funding and its impact on the operation of journals, indexation of journal content and its impact on visibility and discoverability and gaps regarding the adoption of aspects of equity, diversity and belonging). The “Interviews for CRAFT-OA”¹⁵ is a source of qualitative data which provides detailed information on the already mentioned gaps and introduced additional ones, e.g. those related to reviewing and plagiarism detection. The first CRAFT-OA Summer School for journal editors¹⁶ was held at the end of May 2024. It was designed for editors who are familiar with OJS. The results of the surveys completed by the participants before (to find out what they expected and needed) and during (to find out what else the participants needed and in what format) the Summer School are presented.

Challenges in OJS publishing software identified in the CRAFT-OA T4.4 survey¹⁷ are also presented. The audience targeted by the survey were OJS system administrators and IPSPs. The survey aimed to gather recommendations for the OJS installation and update toolkit (questions focused on time-consuming tasks, difficult tasks and the problems with OJS) as part of T4.4. In December 2022, a survey of users of Lodel outside OpenEdition was launched (questions focused on identifying the composition of these users, the main use of Lodel, support, documentation and the user needs).

4.1 Challenges and Help Measures Faced by OA Journals and Platforms

The CRAFT-OA deliverable D3.1 “Report on standards for best publishing practices and basic technical requirements in the light of FAIR principles”¹⁸ compiled technical best practices from

¹³ Armengou et al., 2023a.

¹⁴ Laakso et al, 2024.

¹⁵ Pellin & Verdicchio, 2024.

¹⁶ <https://www.craft-oa.eu/summer-school-2024/>

¹⁷ Cf. the data set Varachkina et al., 2024.

¹⁸ Armengou et al., 2023a.

various sources (Plan S technical implementation guidelines¹⁹, Extensible Quality Standard in Institutional Publishing (EQSIP) V1²⁰, DOAJ Seal²¹, and the OpenAIRE guidelines²²) and organised them around the Findable, Accessible, Interoperable, and Reusable (FAIR) principles. The report highlighted the significance of interoperability for research outputs' discoverability, reuse, and reproducibility and emphasised the role of rich metadata and persistent identifiers (PIDs) in resource discovery.

In the CRAFT-OA deliverable D3.2 "Report on challenges and help measures faced by OA journals and platforms"²³ the technical best practices recommended for Open Access Diamond Journals (OADJs) identified in CRAFT-OA D3.1²⁴ were organised into four modules: 1. **Identifiers** (International Standard Serial Number (ISSN/eISSN), Open Researcher and Contributor Identifier (ORCID), Research Organization Registry (ROR), Archival Resource Key (ARK), Handle and Funder Digital Object Identifier (DOI)/PID), 2. **Metadata** (Metadata exchange for harvesting, OpenAIRE Guidelines, Mass metadata export, Knowledge Bases and Related Tools (KBART), Metadata about OA status, Registering of a self-archiving policy, Direct deposition in an OA repository, Metadata under CC0, "Open Citations" standard compliance), 3. **Content** (Human- and machine-readable information about the OA status, copyright holder and licencing, provided in each publication in a non-proprietary format, Full text in machine-readable format, Text and data Mining is technically supported, Deposited in a digital preservation service) and 4. **Website features** (Search Engine Optimisation (SEO), alerting services, sharing to social networks, post-publication evaluation and commenting, support for multimedia and open peer review, Unique Uniform Resource Locator (URL) for landing pages, URLs linking to related research objects, Counting Online Usage of NeTworked Electronic Resources (COUNTER)). The analysis includes a description of each standard, its use and technical support options for OJS, Janeway and Lodel software. It was guided by data from various sources, including surveys on the OADJ landscape (the DIAMAS survey described below) and information from the Directory of Open Access Journals (DOAJ). The deliverable also contains case studies of four journal platforms, each of which hosts multiple

¹⁹ cOAlition S (2019). <https://www.coalition-s.org/addendum-to-the-coalition-s-guidance-on-the-implementation-of-plan-s/principles-and-implementation/>

²⁰ Armengou, C., Redhead, C., & Rooryck, J. (2023). *D3.5 Extensible Quality Standard in Institutional Publishing (EQSIP) V1.0 under EC review (V1.0)*. Zenodo. <https://doi.org/10.5281/zenodo.7923916>. Since then the EQSIP developed into Diamond Open Access Standard (DOAS): Consortium of the DIAMAS project (2024). *The Diamond OA Standard (DOAS) – version 1.1*. <https://doi.org/10.58121/Z15S-JY03>

²¹ DOAJ (n.d.) <https://doaj.org/apply/seal/>

²² OpenAIRE (2018). *OpenAIRE Guidelines for Literature Repository Managers v4*. <https://openaire-guidelines-for-literature-repository-managers.readthedocs.io/en/v4.0.0/>

²³ Laakso et al., 2024.

²⁴ Armengou et al., 2023a.

journals: Journal.fi²⁵, Hrčak²⁶, Slovenian Academy of Sciences and Arts (ZRC SAZU)²⁷ and Open Edition²⁸. These case studies offer valuable insights into the support and adoption of standards, highlighting how the gaps appear in different national and technological contexts.

The gap analysis identified three main problems for reaching compliance with key mandatory and recommended technical standards: 1. technical challenges stemming from the lack of uptake of modern publishing tools/content management systems (CMS) and relying on alternative solutions, 2. lack of awareness about the reasons behind implementation of technical standards (lack of awareness about the benefits of implementing functionalities related to existing standards), 3. limitations in expertise – IPSPs lacking sufficient human resources to implement and sustain solutions which ensure compliance with standards. This can be challenging for many OADJs that have limited resources in their editorial team.

4.2 Gaps identified by the DIAMAS survey

Complementary to the CRAFT-OA project, which focuses on technical aspects of institutional Diamond OA publishing, the DIAMAS project focuses on editorial standards and policy recommendations for Diamond OA. In the synopsis of the DIAMAS landscape report “Institutional Publishing in the ERA; results from the DIAMAS survey”²⁹, Arasteh & Blake hence summarise findings regarding the areas “Governance and Editorial Management”, “Open Science Practices”, “Financing and Operations”, “Visibility and communication”, and “Equity, Diversity, Inclusion and Belonging (EDIB)”. The final results are based on a survey answered by 685 respondents carried out from March to May 2023 that aimed to better understand the current landscape of institutional publishing (i.e. publishing performed by academic organisations) in the ERA. It has to be stated that the survey cannot be considered representative. The questionnaire was widely distributed, and the respondents chose to participate on their own behalf. The survey indicates that IPSPs participating in the survey overall maintain high editorial standards, prioritise Open Science principles, and often follow a Diamond OA model approach. Typically, these publishers operate on a small scale, with limited budgets, output, and staffing. Consequently, they heavily rely on voluntary and in-kind contributions, posing significant obstacles to their publishing endeavours. They are diverse in terms of the types of publications they handle, but have extensive publishing expertise.

²⁵ <https://journal.fi/>

²⁶ <https://hrcak.srce.hr/>

²⁷ <https://ojs.zrc-sazu.si/>

²⁸ <https://journals.openedition.org/>

²⁹ Arasteh, S., & Blake, O. (2024). *The European landscape of institutional publishing - A synopsis of results from the DIAMAS survey*. Zenodo. <https://doi.org/10.5281/zenodo.10551710>

The majority of the platform representatives that responded to the survey is involved in editorial management (e.g. peer review management) and applies rather traditional forms of peer review (double or single anonymisation). While the majority of content is published OA, there are differences in terms of publications types (e.g. journals (90%) are more often published OA than books (58%)) as well as regional differences (Eastern Europe is the champion in providing OA to content published by institutions (97%)). Also, differences among academic disciplines were observed. Among the respondents, the social sciences show an above-average output of OA publications across all types. In the humanities, this trend is observed for journals but not for books. Conversely, in engineering and technology, the proportion of OA publications is consistently below the survey average for all types of outputs.

The survey also had a look at the influence of Open Science/OA policies on institutional publishing. The authors of the study concluded that policies have a significant effect. Currently, the political support for OA in journals is higher than for books. However, it must be taken into account that more journal publishers responded to the survey than book publishers. Regarding the effect of such policies, it was concluded “that future actions aiming at enhancing the capacities for OA in institutional settings are most efficient when embedded in current institutional and/or national contexts, and aligned with already existing policies.” (p. 16). Content wise, the policies mainly addressed copyright, licensing, and self-archiving. One gap identified in this regard was that although Open Science licences are widely used, only a slim majority of respondents choose a licence fully aligned with OA principles, guaranteeing extensive reuse and redistribution rights. For example, a significant portion of publishers who responded do not provide an article publication pathway compliant with the Creative Commons Attribution (CC BY) requirement of cOAlition S funders. With regard to other Open Science practices, the gaps seem to be even more prominent: preprint submissions, adoption of Initiative for Open Citations (I4OC), implementation of open peer review, policies on the sharing of research data, or the declaration of author contributions according to Contributor Roles Taxonomy (CRediT) are not widespread. However, disciplinary publication cultures might explain some of these gaps to a certain extent.

Among the publishers surveyed, 71% operate fully Diamond OA for journals and 27% for books. However, only slightly over 25% offer all their journals and books in OA without levying Article Processing Charges (APCs) or Book Processing Charges (BPCs). Among publishers with a completely Diamond OA publishing portfolio, 54% depend on a fixed and enduring subsidy from a parent organisation. Nearly 20% of publishers rely on periodically negotiated subsidies from their parent organisation. Furthermore, slightly over 50% depend on time-limited grants or public/private subsidies from external sources, with 21% relying on them highly or very highly (p. 19). As mentioned before, institutional publishers and service providers often rely on small

annual budgets. The obtained responses suggest that publishers and service providers frequently operate under substantial financial constraints, impacting various aspects of their operations. The lack of financial resources was ranked first by the platforms when asked about challenges for the sustainability of their operations. Indexation serves as a gateway for increasing the visibility of publishers' outputs. However, the survey revealed that many respondents encountered financial challenges in fulfilling this requirement. Similarly, financial constraints also hindered the ability of publishers to meet accessibility standards for contents. The lack of financial resources is also reflected in rather small staff numbers in the surveyed publishing organisations. Collaborations have the potential to reduce costs. For the respondents, such collaborations would be most attractive in the areas of IT, training and support, as well as production.

Perceived gaps regarding visibility and discoverability are very present among the responses: 55% express the wish to enhance the indexation of their content. The challenges faced in this regard mostly referred to the ability to comply with the various criteria including meeting the metadata requirements or to financial constraints as recurring membership fees. The majority of publishers and service providers communicate with their communities through newsletters and social media accounts. Less than half of the responses indicate that they display usage metrics.

The survey found considerable gaps regarding the adoption of EDIB measures, but also that variation between platforms is large. More than half of the publisher and service providers were not able to implement any aspect surveyed (age (career-stage), gender, sexual identity (including LGBTQIA+³⁰), ethnicity and culture, religious background, socio-economic background (e.g. within a country, or global north/south), educational and professional background (inside/outside academia), language (multilingualism), caring responsibilities, disability) while more than a quarter indicated that they addressed at least three of these aspects³¹.

4.3 Gaps identified by the interviews for CRAFT-OA

Interviews for CRAFT-OA³² complement the quantitative findings of the DIAMAS survey³³ with qualitative insights, identifying the needs and challenges faced by institutional platform providers and editors. These semi-structured interviews were conducted with five editors and six platform providers. The topics addressed in the evaluation of the interviews are the editorial system and

³⁰ The acronym LGBTQIA+ stands for lesbian, gay, bisexual, transgender, intersex, asexual, aromantic and agender plus those who are part of the community, but for whom the abbreviation does not accurately capture or reflect their identity.

³¹ See Arasteh & Blake, 2024, p. 25.

³² Pellin & Verdicchio, 2024.

³³ Armengou et al., 2023b.

hosting, indexing, the production of publication formats and quality management. The responses of the editors and those of the platform providers were evaluated separately.

Platform providers expressed the need for a higher level of standardisation of formats and processes, as well as technical improvements for their infrastructures and services. Editors typically seek the most comprehensive support possible for post-publication (metadata, formatting, indexing, corrections, promotion) from platform providers, but platform providers expect editors to consider the technical and organisational tasks involved in publishing as part of their responsibilities as editors of a scholar-led journal.

Editors have scarce resources for conversion into publication formats other than Portable Document Format (PDF), and Extensible Markup Language (XML) is still used rather rarely as a publication format. Some platform providers manage the production of the publication formats, but the scope that can be handled in-house by platform providers is quite small. Conversion functionality within publishing software will facilitate the format conversion, e.g. in the form of an OJS plug-in.

The interviews revealed significant difficulties for journals in finding reviewers and managing the reviewing process. The authors of the document suggest: “A closer organizational and possibly technical link with institutionally supported/financed review platforms would be worth considering here – especially as Peer Community In (PCI)”³⁴. The interviews also showed that many editors are not ready for the initial effort in setting up the processes for submissions and reviewing, and therefore do not fully utilise the potential of the platforms.

The interviews demonstrated that there is an urgent and clear need for plagiarism detection tools within publishing systems, as well as efficient (open source) tools for generating publication formats with minimal manual effort. Additional OJS plug-ins for the workflows of creating output in different formats, plagiarism check etc. will be appreciated by editors.

Registering journals for indexing is another daunting task for editors and a significant challenge for platforms. The aggregator providers' processes lack transparency, and the indices appear to be compiled in a random and arbitrary manner.

³⁴ See Pellin & Verdicchio 2024, p. 15.

4.4 Community feedback from the CRAFT-OA Summer School

In addition to the interviews for CRAFT-OA³⁵, further community feedback was gathered on the occasion of the first CRAFT-OA Summer School for Journal Editors in Telč (Czechia). The summer school was designed for editors proficient in OJS and offered basic as well as advanced training to refine editorial skills and elevate the standards of Diamond OA publishing. Among the topics covered were some from the Reusable Upskilling Curriculum (CRAFT-OA D2.2)³⁶, e.g. training on XML publishing.

Community feedback was collected in three steps: first, a survey was carried out before the summer school, second, polls were driven after each presentation and workshops during the summer school, and third a follow-up survey is currently being conducted. Additionally, a workshop dealt with KER 4, the Living Handbook. Participants contributed to shaping the handbook by creating prototype users – so-called “personas” – to support visualising the users and their needs, as well as by creating and discussing use cases and workflows based on these personas. The collected feedback stresses already identified gaps and points out new ones. It also demonstrates that solutions developed within CRAFT-OA contribute to bridging the gaps, and answers the question of which training materials on specific topics should preferably be provided in which formats.

The survey carried out before the summer school consisted of 14 questions. It addressed the knowledge level of the participants as well as their expectations in order to learn about their needs. The answers showed that the participants formed a heterogeneous, dedicated group that gave elaborate answers to the questions raised in the survey. It should be emphasised that for most of them multilingualism is an issue and XML publishing is rarely in use.

During the summer school, short polls carried out by using Mentimeter³⁷ (15 in total) were conducted after each event (workshop or presentation). The polls always consisted of two questions: first asking what additional information on the recent topic is needed, second asking about the preferred format the requested information should have.

The need for in-depth information and training focus on the thematic areas of metadata, publication platforms, OJS/plugins, metadata, publication formats as well as standards and policies. Mostly, topics concerning XML publishing and related workflows were addressed. It should be stated that the polls were also used to express satisfaction with information and

³⁵ Pellin & Verdicchio, 2024.

³⁶ Kupreyev, M., Fenner, J., & Müller, L. (2024). *CRAFT-OA Deliverable 2.2 Reusable curriculum for upskilling trainings* (under EC review). Zenodo. <https://doi.org/10.5281/zenodo.10943284>

³⁷ <https://www.mentimeter.com/>

training given during the summer school. Furthermore, the feedback shows the desire for more practical, detailed and beginner-friendly resources. The need for a central source of information like the living handbook was addressed. Regarding the question in which formats support should be offered, it can be stated that general guidelines and training materials are preferred. Text-based information (articles) is also desired, but to a lesser extent. Checklists and videos are the least popular.

Several participants expressed their interest in continuing the mutual exchange within a network. Among others, the follow-up survey invites participants to become part of the CRAFT-OA & DIAMAS network for IPSPs and IPTPs.

4.5 Publishing software challenges

4.5.1 OJS

OJS is a free open source software for the management of academic journals, created by the Public Knowledge Project (PKP). The CRAFT-OA project pursues the goal of simplifying the installation and update procedures for publication software and plans to create a deployment and upgrading toolkit for OJS. As part of this task, CRAFT-OA conducted a survey. Its purpose was to gather requirements for a future installation and update toolkit. The survey targeted individuals responsible for OJS installation, updates, deployment, and maintenance. It was distributed to OJS system administrators of European journals hosted in a repository (based on the Beacon dataset³⁸) and to IPSPs identified by the DIAMAS project.

In total, 197 complete responses were received, including 179 from participants directly involved in OJS installation, updates, and maintenance³⁹. The vast majority of respondents (132 = 74%) are system administrators, who also have other roles in their institutions.

³⁸ Khanna, S., Raoni, J., Smecher, A., Alperin, J. P., Ball, J., & Willinsky, J. (2021). *Details of publications using software by the Public Knowledge Project* [Data set]. Harvard Dataverse. <https://doi.org/10.7910/DVN/OCZNVY>

³⁹ Varachkina et al., 2024.



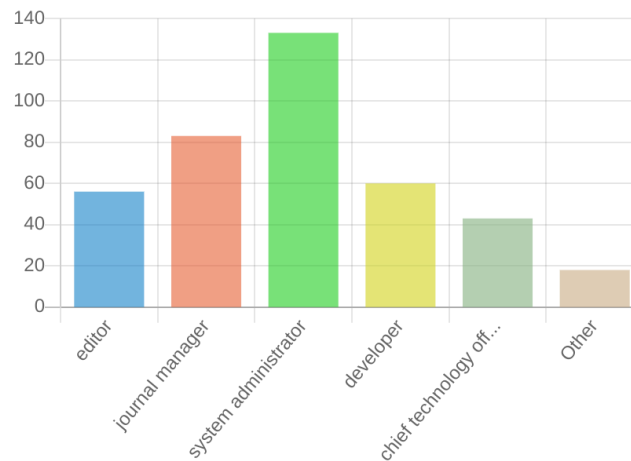


Figure 1: Participants' roles indicated in the requirements survey for OJS installation and update toolkit

On average, the participants spend 18.2 hours per month on OJS, which is roughly 10% of full-time employment and therefore a considerable amount of time. The survey participants mostly work in relatively small teams. Although the average number of editors in a team is ~18, half of the respondents work with only two editors or fewer (median value). The situation is similar with journal managers. On average, the teams have 11 journal managers, but half of the respondents work in teams with only one journal manager (or fewer). The teams have ~one system administrator, ~one developer on average (the median value is 0), and no chief technology officer (only a few have one). Survey participants have 90 people in other roles in their team on average, however the median value is 0 in this case.

The survey included a number of questions to get information on the system administrators' workload, expertise and challenges related to OJS. They can be grouped as follows:

- the most time-consuming tasks
- difficult tasks (in relation to the participant's technical skills)
- problems with OJS

Time-consuming tasks

Regarding the most time-consuming tasks, the survey participants had to rank the suggested options, choosing any number of items from the list. The top-ranked tasks were as follows:

Task	Number of responses	Percentage of responses
Upgrade	64	36
Installation	23	13
Bug-fixing	17	10
Maintenance of individual modifications/developments	14	8
IT infrastructure maintenance (Operating System (OS), logs, PHP (Hypertext Preprocessor), DB (Database)...)	13	7

Table 1: The most time-consuming tasks identified by the requirements survey for an OJS installation and update toolkit

Difficult tasks

Although Installation was among the most time-consuming tasks, it was mostly considered easy (49 = 27%), very easy (41 = 23%), or neutral (37 = 21%). Tasks that are considered difficult by the largest number of the survey participants are “upgrade” and “fix issues”. Upgrade is considered difficult by 61 survey participants (34%). Fix issues are considered difficult by 60 participants (34%). The same is true for “very difficult tasks”: upgrade and fix issues are leading with 38 votes (21%) for upgrade and 32 votes (18%) for fix issues. Developing plugins ranks third among very difficult tasks, with 29 votes (16%).

Other topics were marked as difficult by fewer participants: from 19 votes (11%) for backup and recovery to 46 votes (26%) for testing new versions. It is similar for very difficult tasks: from 7 votes (4%) for backup and recovery to 29 votes (16%) for developing plugins. If an option does not apply to the role or work of the survey participant, they could leave it unchecked. More than a half of the survey participants (98 = 55%) left unanswered the option "develop plugins" and slightly less than a half (77 = 43%) the option “maintain your OJS fork”, meaning that only about a half of OJS system administrators have these tasks as part of their job.

The survey offered a free text field for other difficult tasks that were not provided as an option in the previous question, and 40 participants (22%) made use of it, often describing their problems with OJS rather than commenting on the tasks that they consider difficult. The analysis of the given answers shows that the topic of upgrade was mentioned multiple times together

with concrete details describing individual cases, e.g. that database issues are a frequent cause of this problem.

Problems

The survey was filled in by 179 system administrators, and 129 of them faced problems with OJS: 101 (56%) report on update problems, 19 (11%) on migration problems, 9 (5%) on installation problems.

The OJS versions from which the update was performed can be seen on the left, and to which version on the right:

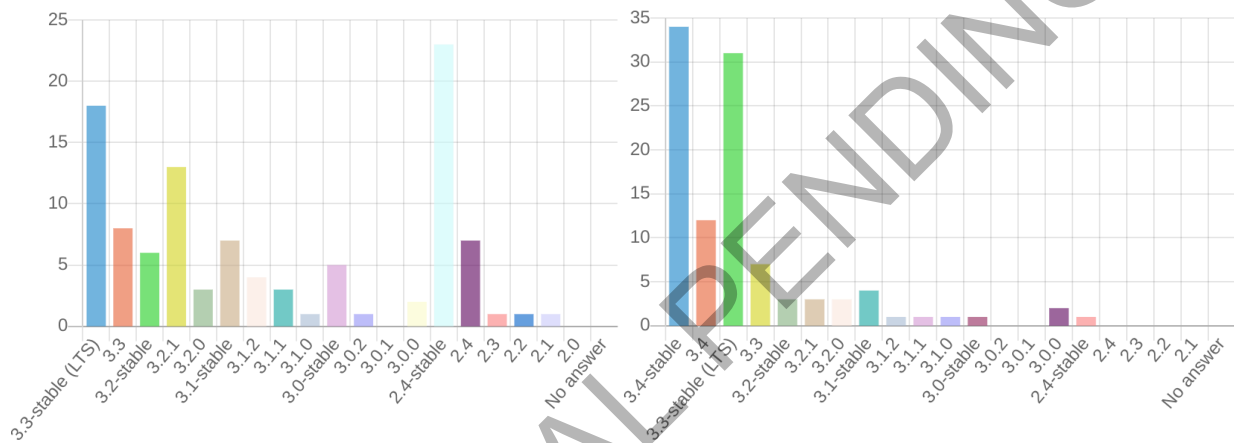


Figure 2: Distribution of OJS versions from which (left) and to which (right) the update is performed

The first graph demonstrates that 2.4.-stable or 3.3. (Long Term Support (LTS)) are the versions from which the update led to problems, and 3.3. (LTS) and 3.4.-stable are the versions to which OJS was updated when problems occurred the most.

The participants mentioned a range of specific migration problems, such as migration from older OJS versions or migration from proprietary or custom-made software. Beyond that, on-premise to cloud migration problems and difficulties with migration from a server with a different OS were named.

The survey aimed to identify to which degree certain aspects of OJS cause problems, on the scale from “Not at all a problem” to “Serious problem”. Running the upgrade/installation script without errors was expectedly the leader with 59 answers = 33%. Among moderate problems, the following ones were on the top:

Problem with	Number of responses	% of responses
OJS Plugins management	58	32
OJS Bug fixing	52	29
PHP versions and its packages dependencies	48	27
Mailing issues	45	25
OJS Security issues	44	25
Handling customized email templates during upgrades	41	23

Table 2: Moderate problems identified by the requirements survey for OJS installation and update toolkit

A number of free-text answers go back to database issues: “Database incompatibilities between versions”, “We have a large list of sql queries” (when upgrading), “I don’t have a quick way to update from one minor version to another”. The update problems were well summarised by one of the participants: “Problems vary depending on the age of the OJS, how many versions it has been through, how previous updates have been made, the size of the database...”

Among other problems that were named is the need to make changes in a theme due to changes in its parent theme, or to use a different theme due to an OJS upgrade. Another set of answers was related to server problems: those with the server setup and “bad experience running it on a Windows server”. Beyond that, accessibility issues (according to Web Content Accessibility Guidelines (WCAG 2.2.)⁴⁰) were mentioned. A participant involved in XML publishing named compatibility problems and non-adjustable features. Another one reported on issues with “modification of articles due to the fact that the journal is in two languages”. A further non-technical problem is simply the “lack of time from IT”.

Regarding the most problematic topic of upgrade, the most popular answer to the question “What is your strategy for the software upgrade?”, 39 survey participants (22%) answered that they have no upgrade strategy, 37 (21%) update after positive feedback from the community on their update, 34 (19%) update when an LTS version is available, 33 (19%) perform timewise

⁴⁰ World Wide Web Consortium (2023, 5 October). Web Content Accessibility Guidelines (WCAG) 2.2. W3C Recommendation. <https://www.w3.org/TR/WCAG22/>

updates. In the free text field, some participants provided further clarifications, e.g. in case they apply a combination of several strategies, or provided comments to other proposed options. As for the reasons for the chosen upgrade strategy, the vast majority, 112 survey participants (63%) indicated that they don't have time/resources to update the tools more regularly. In the comment section to this question, security concerns and bugs were prominent reasons.

In summary, the survey participants usually have small teams. Given that OJS takes a considerable percentage of their working hours, an assistance with the most problematic topics such as upgrading OJS or fixing issues could make a change and facilitate their work.

4.5.2 Lodel

Lodel is an open source, multi-site and multi-user CMS, specifically designed for scientific publishing. The software has been developed by OpenEdition and supports 3 of its 4 platforms. This tool is distributed with an open source licence⁴¹ and, in addition its broad in-house use⁴² by OpenEdition, it has its own community of “managers” who install it and use it for their own needs. In 2022-2023, Axis 3 of the Decoupled Accelerated Decentralized Asynchronous Optimization (DADAO) project⁴³ was carried out, whose objective was to improve the technical support for external uses of Lodel. A preliminary work aimed at identifying and quantifying the external uses of Lodel. Outside OpenEdition and by the end of 2022, Lodel was being used by at least 120 websites, including 12 platforms, mainly journal incubators from the Repères network⁴⁴. As a follow-up, a survey was launched in December 2022 in order to better understand who were the users of Lodel outside OpenEdition, especially the community of “managers” administrating the installation (either functionally or technically).

This survey was distributed on two French mailing-lists with approximately 1800 subscribers combined. 27 of the collected answers could be exploited.

The survey included 4 sets of questions.

1. Identification, aimed at better understanding how this community is composed.
2. Main use of Lodel
3. Feedbacks on the use of the software (qualitative aspects)
4. Feedbacks on the support, the documentation, and the needs.

⁴¹ <https://github.com/OpenEdition/lodel>

⁴² The three platforms host 629 journals, 131 book publishers and 54157 academic events (31.12.2023).

⁴³ Support System for the Development of Open Access, funded by the 1st French National Fund for Open Science
<https://www.ouvri.lascience.fr/open-access-development-support/>

⁴⁴ <https://reseau-reperes.fr/les-pepinieres>

When this survey was carried out, only versions 1.1 and earlier of Lodel were released. The latest version of Lodel, 2.0, has just been implemented in production in May 2024 on the OpenEdition books platform. It is not yet distributed as open source.

The functions and roles indicated by the respondents are for the most part typical of professions held in the French Higher Education & Research, particularly in the public sector of scientific publishing: IT, Publishing Officer, Editorial Manager, etc. Most of them indicated working in an academic structure, particularly those involved in journal incubators. These are the main users of Lodel outside OpenEdition. People who do not work in an academic structure are service providers. The main area of expertise is publishing (59%). It is followed by web & software development (48%). In terms of gap analysis, it is worth noting that approximately a half of the survey participants do not have expertise in IT administration or development, and therefore need service providers as well as better support for the Lodel installation.

Lodel is mainly (71%) installed for single platform multi-site use (one Lodel installation for several publishing websites) but it can also be used for a single publishing website only (16.5%). 12.5% of the respondents have deployed a multi-platform environment (several websites on different Lodel installations). This type of use is possible thanks to Lodel's initial specifications, which offer "a customisable editorial model for each website". However, our experience within OpenEdition is that this can lead to difficulties in maintaining the platform in the medium to long term. This is why the latest version of Lodel is designed to handle a single editorial model for all websites of the same platform. The results of the survey have indicated that a part of the community will need to be supported in order to adopt the new platform design. A third of the participants indicated that they also used other publishing software, mainly OJS.

As mentioned above, the survey was carried out on earlier versions of Lodel. All the respondents were using a version at least 1.X. They all seem to be aware of the different available information sources: Lodel blog, the mailing-list, GitHub issues, OpenEdition contact or support email addresses. However, several responses mentioned that information is not always up to date, or that an answer is not always provided to a question on the mailing list, an issue or a merge request on GitHub (at least from the OpenEdition team). This explains why some of them seek help from external service providers (in fact, these are mainly former OpenEdition members who are now self-employed). The lack of and need for community management is underlined. It is worth noting that an important part of this community is in the process of being better organised within the Repères network, a French-speaking network of OA scientific journal incubators.

5 SOLUTIONS

CRAFT-OA and DIAMAS identified gaps that the communities of practice are experiencing, both before the projects' implementation and as dedicated and planned tasks realised during the projects. Gap analyses revealed the complex and systemic nature of those gaps, which calls for different solutions to be devised and deployed.

Below, we discuss key solutions from both CRAFT-OA and DIAMAS that fall into the following categories:

- Training and education (sections 5.1, 5.2),
- Toolkits for publishing software (section 5.3),
- Tool suite and guidelines (sections 5.4, 5.5)
- KERs of the CRAFT-OA project (section 5.5)
- Documentation of the Aggregators' Requirements (section 5.6)

As is shown in the community transition plan (Figure 3), developed solutions are tested with the community, be it through delivering training, testing the tools or engaging the community in policy delivery so that both projects' results can be fully exploited.

5.1 Reusable Upskilling Curriculum

The CRAFT-OA deliverable D2.2 "Reusable Upskilling Curriculum"⁴⁵ offers a training framework for different stakeholders within the community to be adapted in accordance with the local and regional conditions. It enables trainers to choose from a modular break-down of topic areas, alongside suggested training contents and points to existing training materials for guidance. Additionally, a checklist and a guide for organising training events both online and offline is intended to help with the practical side of training. The target group of the training topics proposed in the curriculum largely intersects with that of the CRAFT-OA project and includes OADJ editors, reviewers and technical professionals but also IPSP and IPTP staff. Additionally, the proposed topics may also be of interest to software developers, researchers, research performing organisations, research infrastructures and libraries. The curriculum is available in a report format⁴⁶ as well as a GitBook webpage⁴⁷ and a GitHub Pages website⁴⁸.

⁴⁵ Kupreyev et al., 2024.

⁴⁶ Kupreyev et al., 2024

⁴⁷ Kupreyev, M., Fenner, J., & Müller, L. (2024a). *CRAFT-OA Deliverable 2.2 Reusable curriculum for upskilling trainings*. GitBook. <https://craft-oa.gitbook.io/d2.2-curriculum-for-upskilling-trainings>

⁴⁸ Kupreyev, M., Fenner, J., & Müller, L. (2024b). *CRAFT-OA Deliverable 2.2 Reusable curriculum for upskilling trainings*. GitHub. <https://operas-eu.github.io/craft-oa-d2.2/>



The training topics areas were developed⁴⁹ with a close consideration of the OADJs community’s challenges as presented by CRAFT-OA D3.2⁵⁰ and the DIAMAS landscape report⁵¹. They cover the following five thematic areas, each with several modules: Publishing systems; Metadata I: quality through standards; Metadata II: identifiers; Metadata III: licensing, OA and self-archiving policy; Content accessibility: provisioning, harvesting, depositing and archiving. The modular structure, that is summarised in Figure 3, allows for training sessions on both foundational and advanced levels and the dynamic combination of suitable topics depending on the local organisation, the target group and the mode of training.

APPROVAL PENDING

⁴⁹ A more detailed account of the creation of the Curriculum may be found in its “Background” section (Kupreyev et al. 2024, p. 15-19). It is also the foundation for the outline of the Curriculum in the present report.

⁵⁰ Laakso et al., 2024.

⁵¹ Armengou et al., 2023b.



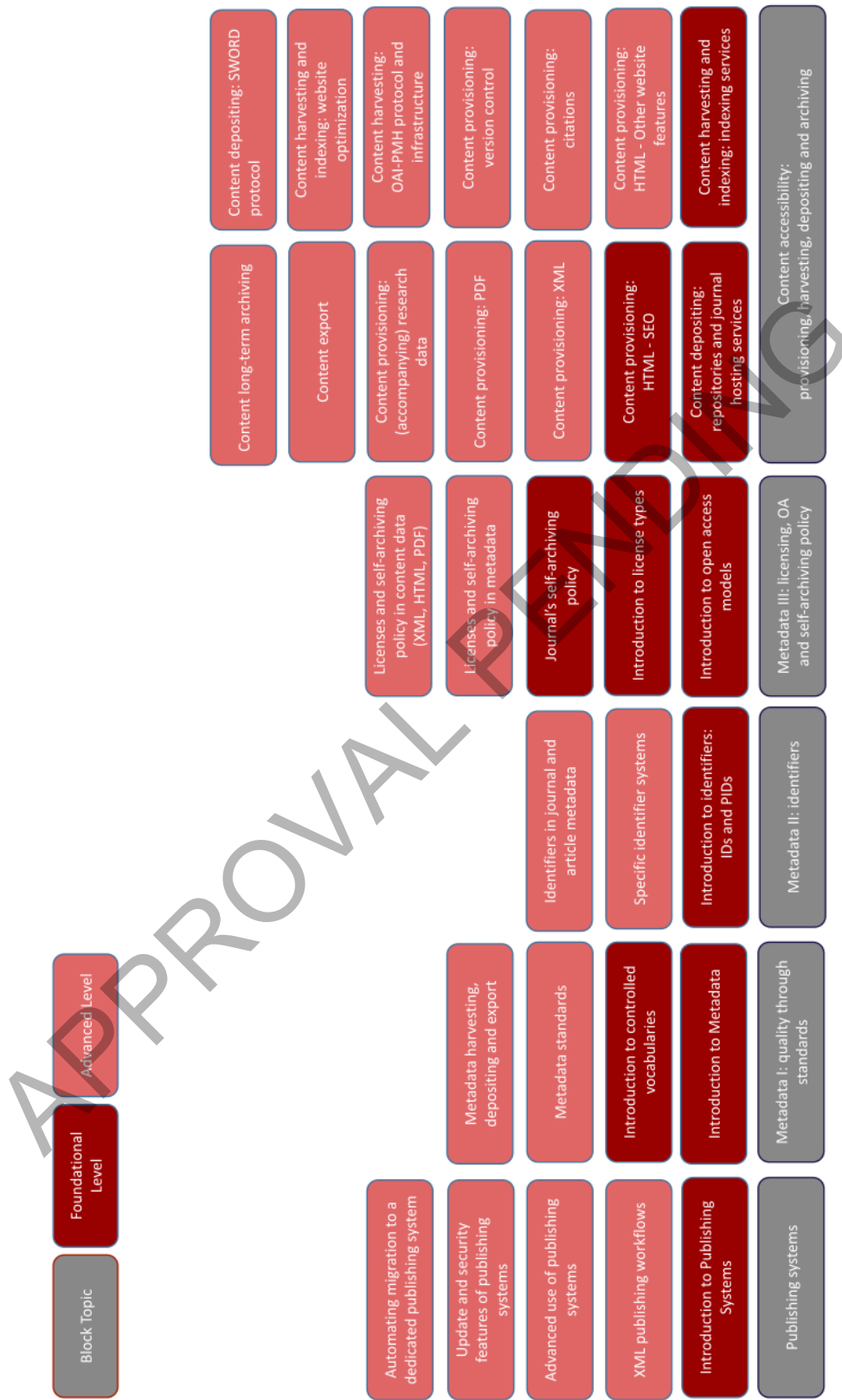


Figure 3: Modular build-up of the reusable curriculum for upskilling trainings (Kupreyev et al., 2024, p.30)

The topic block “Publishing systems” intends to raise awareness of the technological possibilities that a dedicated publishing system offers to OADJs. This is in accordance with the findings shared by Laakso et al.⁵² and Frantsvåg & Strømme⁵³ who underline that, with a suitable publishing system in place, the adherence to a number of technical publishing standards can be achieved rather easily. The sub-module “Update and security of publishing systems” in turn was added as a response to CRAFT-OA’s T4.4 survey⁵⁴ which states that two of the most often encountered challenges for technical staff who work with OJS are updating (60%) and security concerns (46%).

The wide field of metadata was divided into three thematic areas. The first one – “Quality through standards” – includes the foundational level module “Introduction to metadata” and more advanced ones such as “Metadata harvesting, depositing and export”. The variety of standards and best practices that OADJs encounter was extensively examined by Armengou et al.⁵⁵ in CRAFT-OA D3.1. The fundamental challenge for OADJs in following these Diamond OA standards and delivering high-quality metadata can be explained by the lack of human resources and skills.⁵⁶ Given the importance of identifiers in terms of indexation and accurate attributions on all levels, the second thematic area of the topic “Metadata” is entirely devoted to them. This echoes Laakso et al. who underline that certain identifiers, like the ROR, still require more knowledge and attention among OADJs.⁵⁷ The topic area “Licensing, OA and self-archiving policy” form the third part of the “Metadata” training. Here several introductory level modules can be found that foreground, e.g. licence types or self-archiving policies. Both topics may also be taught at the more advanced level, for instance including licences and self-archiving policies in content data in different formats, like XML, Hypertext Markup Language (HTML) or PDF. This topic area is placed along the lines of the findings by Laakso et al.⁵⁸ in regard to CC0 metadata and the self-archiving policies. The largest thematic area of the curriculum is that of “Content accessibility: provisioning, harvesting, depositing and archiving”. It includes a variety of topic modules that focus on the content level of OADJs, such as content provisioning in an XML format, long-term archiving of content or the harvesting of content under the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH) protocol, and is in line with previous research that attests to significant challenges in these areas⁵⁹.

⁵² Laakso et al., 2024.

⁵³ Frantsvåg, J. E., & Strømme, T. E. (2019). Few Open Access Journals Are Compliant with Plan S. *Publications*, 7(2), 26. <https://doi.org/10.3390/publications7020026>

⁵⁴ Cf. section 4.5.1 in this report and for the dataset Varachkina et al., 2024.

⁵⁵ Armengou et al., 2023a.

⁵⁶ Armengou et al., 2023b.

⁵⁷ Laakso et al., 2024, p. 32.

⁵⁸ Laakso et al., 2024, p. 55.

⁵⁹ Kupreyev et al., 2024, p. 18-19.

By breaking the complex technical challenges that OADJs face down to the modular structure, the Reusable Upskilling Curriculum enables the Diamond OA community to acquire the skills necessary for effective transitions. At the same time, users of the curriculum are put into a position to prioritise topics in accordance with the local and regional conditions. In this way, the curriculum provides a framework for training that may be applied in the transition as well as the stabilisation phase.

5.2 Training, training materials and self-assessment toolkit

In T3.3 of CRAFT-OA training material is created in order to address the gaps and challenges identified by CRAFT-OA D3.2⁶⁰ and grouped into thematic areas by the Upskilling Curriculum⁶¹. Next to a FAIR self-assessment toolkit and in-person training sessions, webinars and other formats are planned over the course of the task until summer 2025. Due to the geographical distribution in the ERA of the partners in this task, it is possible to both deliver training to the wider OADJs community and on a more localised level.

The activities in task T3.3 include hands-on workshops for local publication platforms and events like the first CRAFT-OA Summer School in May 2024⁶², the PUBMET Summer School on Scholarly Communication⁶³ in September 2024 and the CRAFT-OA Tech Event⁶⁴ in Turin in October 2024. The training sessions aim at different levels of expertise and make use of different modes of presentation to cater for the diverse Diamond OA community. So far, several introductions to XML publishing and creating Journal Article Tag Suite (JATS) XML from DOCX documents on the Croatian publishing platform Hrčak have been delivered⁶⁵. Additionally, a guide to journal indexing and databases was presented at the CRAFT-OA summer school alongside a workshop on modes of XML publishing and data quality. Other planned training sessions will address the issue of long-term archiving of Diamond OA journals in the form of a self-paced course or coffee lectures on indexing and identifiers. A FAIR self-assessment tool (which deploys the same software as the Diamond Open Access Standard (DOAS) self-assessment tool⁶⁶ (cf. section 5.4 DIAMAS Tool suite and Guidelines of this document)) will also be developed. Further topics and modes of training encompass tutorials on identity and access management of users, workshops on semi-automation of indexation workflows and a mapping of training material for technical standards

⁶⁰ Laakso et al., 2024.

⁶¹ Kupreyev et al., 2024.

⁶² <https://www.craft-oa.eu/summer-school-2004/>

⁶³ <https://pubmet2024.unizd.hr/>

⁶⁴ For more information on the CRAFT-OA Tech Event cf. <https://www.craft-oa.eu/craft-oa-tech-event/>

⁶⁵ <https://www.srce.unizg.hr/en/news/workshop-creating-jats-xml-docx-documents-hrcak/869>

⁶⁶ <https://diamas.fecyt.es/>

that already exist. Moreover, the community's feedback will be taken into consideration in the training materials produced over the course of T3.3. This is gathered from other work packages, e.g. the feedback that was collected during and after the CRAFT-OA summer school, and will be collected during the CRAFT-OA Tech Event, where one session is dedicated to evaluating existing training material with the participants. This allows a direct interaction with the community and facilitates the adaptation of future activities according to the community's needs.

All materials produced during T3.3 of CRAFT-OA will be made available online, following the FAIR-principles, and thereby stay available for training without CRAFT-OA trainers after the end of the project. Task 3.3 directly equips the participants of training or users of training materials or the FAIR self-assessment toolkit to drive transition in their local context and beyond in the transition as well as the stabilisation phase.

5.3 Toolkits for OJS and Lodel

5.3.1 OJS

The OJS toolkit by CRAFT-OA will comprise a collection of materials and instructions which address the most pressing needs of the OJS community and will tentatively deal with the topics of installation and upgrade, as well as pre-installation decisions. The OJS toolkit will aim at solving problems experienced by OJS system administrators. Challenges identified by the survey described in section 4.5.1 indicated what topics require a better coverage than currently present in various OJS materials, including the official documentation. Such challenges encompass among others update and fixing issues.

Apart from the identified gaps as the foundation for the toolkit, the replies to the direct question "How much do you think an OJS toolkit is needed for the following topics?" of the above-mentioned survey will be used as well. The participants were suggested to evaluate answer options on a scale: "No need", "Nice to have", "Interesting", "Indispensable", "I don't know". As a result, the topics that were considered indispensable are: Update: 109 = 60.89%, Security: 83 = 46.37%, Configuration: 73 = 40.78%, Troubleshooting database: 69 = 38.55%, Installation: 62 = 34.64%. Many of the topics for which the participants wish to have a toolkit coincide with the identified gaps. Update and security are still among popular topics, but also new topics, such as configuration, appear. These responses will be taken into consideration when creating the toolkit.

Currently, the toolkit is in the early development stage, and many aspects have not been defined yet, such as what technology will be used for it, and what structure the toolkit will have. Some

topics currently planned are OJS pre-installation information, e.g. what are the specificities of the OJS software, why or when to choose it over other software solutions, which installation to choose: single or multi-tenant, and more.

5.3.2 Lodel

The Lodel survey (conducted in Winter 2022-2023) helps OpenEdition better understand the gaps between Lodel 1.X software distribution and the community needs. With the future release of the next version of Lodel and according to the OpenEdition strategic plan, its team wants to improve and extend the community management to facilitate the community's involvement and contribution to the source code.

As part of CRAFT-OA T4.4, OpenEdition will collaborate with other CRAFT-OA members currently working on the toolkit for OJS and will create a similar toolkit for Lodel. The initial steps will involve releasing the source code for Lodel 2.0 under an open-source licence, along with the "Lodel installation manager" documentation.

5.4 DIAMAS Tool suite and Guidelines

The DIAMAS project is building an online Common Access Point (CAP) that will serve as a one-stop shop for institutional publishers and others interested in accessing project outputs, such as information and support, training material, self assessment tools and a forum to support interaction and knowledge exchange⁶⁷ from the DIAMAS and the CRAFT-OA projects.

The DIAMAS tool suite and guidelines have been written to directly support institutional publishers looking to implement DOAS⁶⁸, which was launched by the project in July 2024.

The tool suite is a collection of short high-level articles to support IPSPs. It serves as a broad introduction and entry point to the DOAS. Each one of the seven standards are introduced and explained by a number of short, approximately 500-word articles. Some have been split into bitesize sections to avoid them becoming too long. Contents are:

1.0 Funding

2.0 Ownership and governance

⁶⁷ Souyiultzoglou, Irakleitos, & Arasteh, Sona (2024, 24-26 April). *The DIAMAS Common Access Point: a Suite of Tools and Resources to Support Institutional Open Access Publishing* [Conference poster presentation]. Opening collaboration for community-driven scholarly communication OPERAS Conference 2024, Zadar, Croatia.

<https://doi.org/10.5281/zenodo.10958494>

⁶⁸ Consortium of the DIAMAS project, 2024.

- D2.3 Technical gap analysis and high-level community transition plans
- 3.0 Open Science practices
- 4.1 Editorial quality
- 4.2 Editorial management
- 4.3 Research integrity
- 5.1 Software and Interoperability
- 5.2 Metadata
- 5.3 Preservation and content formats
- 6.0 Visibility, indexation, communication, marketing and impact
- 7.0 EDIB
- 7.1 Gender diversity
- 7.2 Accessible/inclusive website, content and metadata
- 7.3 Multilingualism

The articles have been peer-reviewed internally and also by members of the tool suite and guidelines editorial board, who fed back extensively on content.

In addition to the 14 articles, there are a number of supporting sections, including an introduction to Diamond OA and an introduction to DOAS. A glossary, set of keywords and a frequently asked questions section are also included in the tool suite.

In addition to the short introductory articles in the tool suite, the DIAMAS guidelines go into more depth on specific topics to help IPSPs to comply with EQSIP (now DOAS) defined in “Extensible Quality Standard in Institutional Publishing (EQSIP) V2.0 for Diamond Open Access” (DIAMAS D3.2)⁶⁹. The guidelines will be linked to the corresponding tool suite articles. Links to the guidelines will also be provided in the self-assessment tool.

The guidelines were developed after analysing the following documents:

- Report on the gap analysis results (DIAMAS D3.3)⁷⁰
- CRAFT-OA D3.1⁷¹
- CRAFT-OA D3.2⁷²

⁶⁹ Rico-Castro, P., Rooryck, J., Melinščak Zlodi, I., Stojanovski, J., Ševkušić, M., & Armengou, C. (2024). *D3.2 Extensible Quality Standard in Institutional Publishing (EQSIP) V2.0 for Diamond Open Access*. Zenodo. <https://doi.org/10.5281/zenodo.10726732>.

⁷⁰ Brun, V., Torny, D., & Pontille, D. (2023). *D3.3 Report on the gap analysis results_ Under EC review (1.0)*. Zenodo. <https://doi.org/10.5281/zenodo.10083615>

⁷¹ Armengou et al., 2023a.

⁷² Laakso et al., 2024.



In particular, DIAMAS D3.3 was used to identify where there was a specific need for further help and in-depth information on how to comply with the new standards. In the first iteration of the guidelines, 17 topics were expanded upon based on the topics from this analysis.

1. Revenue streams
2. Diamond OA Policies
3. Governance
4. Copyright, author's right policy
5. Use of open licences in OA publishing
6. Research data sharing policy
7. Preprints
8. Self-archiving policy
9. Handling negative research results
10. Availability of research protocols, methods and software
11. General Data Protection Regulation (GDPR) and personal data
12. Choosing a platform
13. Metadata formats and export, identifiers, CRediT tags, bibliographic references, JATS XML or equivalent
14. Marketing, communication and visibility
15. Usage and metrics
16. Gender diversity
17. Multilingualism

The tool suite and guidelines will be updated as required. In the coming months, a sustainability plan will be written to address this for the tool suite and the guidelines.

The tool suite articles and guidelines are currently under review and will be finalised and translated into at least one other European language during summer 2024. The tool suite articles and guidelines will be published as part of the CAP in autumn 2024.

5.5 CRAFT-OA KERs

KERs are sustainable solutions developed by CRAFT-OA that play a crucial role in aiding the community transition plan by enhancing the capacity of the Diamond OA community. These KERs are considered essential for this effort as they provide practical and effective means to bolster the capabilities and infrastructure of this community. To date, CRAFT-OA has identified five KERs, each designed to address unique challenges and opportunities within the Diamond OA landscape. By leveraging these KERs, the Diamond OA community can achieve a more equitable, robust and resilient publishing ecosystem. These five KERs are:



5.5.1 KER1: Diamond Discovery Hub

A comprehensive registry for institutionally published and scholar-led OA journals without author fees in Europe, designed to improve the visibility and discoverability of Diamond OA journals, thereby tackling the challenge of lacking visibility, discoverability and recognisability of Diamond OA journals. The journals for DDH will be identified based on a set of operational criteria⁷³.

5.5.2 KER2: OJS core features

The OJS core feature enhancements introduce a collection of new features for the OJS platform. These enhancements include GDPR-compliant solutions for handling user and reviewer data, improved support for multilingual content and metadata, and enhanced interaction with diverse controlled vocabularies, taxonomies, and PIDs. Additionally, automated metadata checks are introduced to elevate metadata quality standards. As OJS is the most widely used journal management system globally, these features have the potential to impact the Diamond OA community both in Europe and worldwide. They will be integrated into future releases of OJS, as well as Open Monograph Press and Open Preprint Systems, ensuring ongoing maintenance and development by the PKP community. This will foster greater interoperability among systems, promote equitable access to publishing tools, and enhance collaboration across the Diamond OA community.

5.5.3 KER3: OpenAire publisher dashboard

Dedicated dashboards tailored specifically for publishers of Diamond OA journals. The KER mostly targets institutions but also other non-profit companies. The dashboards will have indicators and metrics to assess the quality and compatibility of the publications' production, thereby helping to establish Diamond OA within the larger framework of Open Science. By monitoring and benchmarking scholarly production, impact, collaborations, linked data and authors, these dashboards will serve as an innovative tool for the Diamond OA community.

5.5.4 KER4: Institutional publishing technical living handbook

Provides comprehensive information, standards, tools and training materials for institutional publishing in Diamond OA. It will be co-designed in collaboration with the publishing community to ensure that the content is relevant, practically applicable and up to date. The Living Handbook provides clear explanations of Diamond OA concepts, technical solutions and supporting training materials.

⁷³ Arasteh, S. (2024, 5 July). Operational Diamond OA Criteria for Journals. *CRAFT-OA Blog*. <https://www.craft-oa.eu/operational-diamond-oa-criteria-for-journals/>

This community-based approach in developing the Living Handbook actively supports and enhances collaboration among members of the Diamond OA publishing community.

5.5.5 KER5: OJS Diamond plugins

OJS Diamond Plugins are being developed to facilitate the editorial workflow, recognising that many journal editors manage their publications as a secondary task alongside their primary roles as researchers, as highlighted by the OA Diamond Journals Study. These plugins will enhance the discoverability and indexation of journals by automatically connecting them to key databases and aggregators such as OpenAIRE and European Open Science Cloud (EOSC), thereby increasing their visibility and accessibility in the scholarly community.

5.6 Documentation of the Aggregators' Technical Requirements

The deliverable CRAFT-OA D5.1 “Scalable and Adjustable Documentation of How to Understand the Aggregators' Technical Requirements”⁷⁴ addresses the problems mentioned in the DIAMAS survey⁷⁵ and highlighted by the interviews for CRAFT-OA. This document collects the requirements of major aggregators, such as DOAJ, European Reference Index for the Humanities and Social Sciences (ERIH+), GoTriple, Google Scholar, OpenAIRE Graph, OpenAlex, Pubmed, Scopus, Web of Science. It will help journals to understand their requirements better, make improvements to adhere to these requirements, and ultimately be listed in the aggregators that the journals consider relevant.

⁷⁴ Gingold, A., & Cuel-Oller, N. (2024). *CRAFT-OA Deliverable 5.1 Scalable and Adjustable Documentation of How to Understand the Aggregators' Technical Requirements* (under EC review). Zenodo.

<https://doi.org/10.5281/zenodo.12634606>

⁷⁵ Armengou et al., 2023b.

6 POLICIES AND RECOMMENDATIONS

Both DIAMAS and CRAFT-OA have released policy briefs: “Towards an enhanced and aligned institutional publishing landscape in the ERA”⁷⁶ (DIAMAS D1.3) and “CRAFT-OA Deliverable 1.5: Short Policy Brief”⁷⁷ (CRAFT-OA D1.5). Recommendations published in these documents aim to support the implementation of Diamond OA as a standard publication practice in the scholarly communication ecosystem. They also provide feedback to funders and intend to impact future funding programs, which is important for the sustainability of Diamond OA. In alignment with the focus of the projects, the policy recommendations issued by DIAMAS focus on how to establish a federated Diamond OA infrastructure and on how to solve challenges for IPSPs. Complementary, the policy recommendations issued by CRAFT-OA focus on enhancing the technical infrastructure of the scholarly communication system and put an emphasis on solving the challenges that arise for IPTPs within the context of scholarly publishing. The policy recommendations of both projects present an overarching strategic activity aiming to facilitate a high-level community transition. Below, they have been summarised in a table connecting them to the challenge they address, and the respective project outputs dedicated to aid the community transition in that regard.

Challenge	Recommendations	Projects outputs
Lack of understanding and awareness among institutions and societies regarding their publishing responsibilities.	<p>Help institutions better identify and organise their publishing activities in terms of a distinction between public, scholar-owned Institutional Publishers (IPs) who hold legal, ethical, or scientific responsibility and ownership of journal titles on the one hand; and (public or private) Service Providers (SPs) who carry out specific activities with more limited responsibility in the publishing process on the other.</p> <p>Engage a dialogue with scholarly societies about their activities, roles and responsibilities as institutional publishers.</p>	Policy recommendations, overall advocacy work done by both projects

⁷⁶ Rooryck, J., & Mounier, P. (2023). *D.1.3 Towards an enhanced and aligned institutional publishing landscape in the ERA approved by the EC*. Zenodo. <https://doi.org/10.5281/ZENODO.10405904>

⁷⁷ Bargheer, M., Müller, K., Waldmann, T., Varachkina, H., & Klaus, T. (2024). *CRAFT-OA Deliverable 1.5 Short Policy Brief*. Zenodo. <https://doi.org/10.5281/ZENODO.10497418>



<p>Federate and harmonise institutional publishing at national level and at the level of the ERA</p>	<p>Develop Capacity Centres for institutional publishing at the national level in countries that lack national coordination to provide tools, guidelines, governance, and funding. Coordinate their action and seek for synergies at the ERA level through a Capacity Hub that would share resources and set common quality standards at European level</p>	<p>DCH, translation, translation of project outputs such as the DOAS</p>
<p>Current best practice guidelines in institutional publishing are overlapping with minor variations, but they address only academic journals and not IPSPs. The fragmentation into many overlapping documents makes it difficult to identify common aspects and the variations that are necessary to accommodate specific needs.</p>	<p>Ensure alignment of quality standards in institutional publishing by encouraging institutional publishers to adopt and co-create specific variations of the Extensible Quality Standard for Institutional publishing in different disciplines and communities (EQSIP, now DOAS), with the help of the Capacity Hub and Centers, who will develop a stepwise roadmap for this purpose.</p>	<p>DOAS, DOAS self-assessment tools</p>
<p>institutional publishing requires globally shared standards</p>	<p>Invest in international cooperation for alignment of quality standards and guidelines in institutional publishing worldwide.</p>	<p>DCH, Global Diamond Alliance</p>
<p>Lack of funding to sustain interoperable technical frameworks and technical services</p>	<p>OA publication funds currently supporting the corporate sector with APCs and transformative agreements include an annual proportion for strategic investments into Diamond OA infrastructure and Diamond OA journals.</p> <p>Research funders implement funding programmes to promote Diamond OA.</p>	<p>Policy recommendations, enhancement of interoperability via OJS & OJS Diamond Plugins</p>

	<p>The identification of national, regional and/or disciplinary and target group specific areas that need to be improved will enable research funders to develop funding schemes tailored to Diamond OA.</p> <p>RPOs and scholarly information infrastructures to engage in joint Open Science and Diamond OA publishing activities to improve interoperability, strengthen standardisation and promote networking.</p>	
<p>High level of collaboration within the Diamond OA community needed</p>	<p>Funders, scientific infrastructures and RPOs support establishing and promoting communities of practice. They clearly define their responsibility and position and declare long-term engagement with the respective communities of practice, allowing them to thrive.</p> <p>Dedicated bodies targeting an aligned, international Diamond OA model as well as supporting community building are considered a basic infrastructure for capacity building and equipped with adequate funding.</p>	<p>IPSP/IPTP network, DCH, Global Diamond Alliance, Institutional publishing technical living handbook</p>
<p>Discoverability, recognition, and visibility of Diamond OA journals in need of improvement</p>	<p>With recognised standards, improved interoperability and the usage of shared services such as the CRAFT-OA DDH, Diamond OA journals will become more visible, easier to find and better recognised.</p> <p>Funders consider services like the above-mentioned in particular because they are crucial for a FAIR and sustainable scholarly communication system.</p>	<p>DDH, OJS Plugins, OJS Diamond Plugins</p>

	<p>Instead of relying on mainstream research assessment aggregators, open infrastructures are used for a more nuanced evaluation of scientific information.</p> <p>Indexation in an OA infrastructure such as DOAJ is the baseline for a Diamond OA journal. As building blocks for a transparent, open, trustworthy and equitable scholarly publication system, they have to be funded accordingly.</p>	
<p>Diamond OA not yet fully established within the overall perception of Open Science</p>	<p>The EOSC as “a system of systems” and a source of trusted information needs OA service and content providers to mirror the (biblio-)diversity of the Open Science landscape. EOSC roadmaps take the specific needs of the publishing sector into account.</p> <p>Smaller Diamond OA journals receive support - especially technologically - to join the EOSC. Infrastructures that create the basic prerequisites for EOSC onboarding are considered necessary preparatory work for an all-encompassing EOSC.</p> <p>Investment into basic infrastructures will help to strengthen and sustain the bibliodiversity of content and the equitable nature of the EOSC.</p>	<p>OJS Diamond Plugins</p>

Table 3: DIAMAS & CRAFT-OA policy recommendations/challenges/project outputs mapping.

7 HIGH-LEVEL COMMUNITY TRANSITION PLAN

As defined in section 3, this document focuses on the Diamond OA Publishing community with particular focus on the communities represented by IPSPs and IPTPs, as well as individual journals that deal with technical aspects of publishing on their own. Through a transition plan presented here, we are conceptualising how the impact of CRAFT-OA and DIAMAS leads to a transition of the Diamond OA community towards a more resilient, better connected and overall strengthened community with enhanced capacities.

A high-level community transition plan is a phase-based approach, delineating how CRAFT-OA and DIAMAS contribute to the overarching goal of improving the capacity of the Diamond OA community to fulfil their mission. The following paragraphs of this section showcase a transition plan which begins with the analysis of existing gaps, the implementation of solutions and then ensuring their sustainability after completing both projects under the envisioned umbrella of a Global Diamond Alliance.

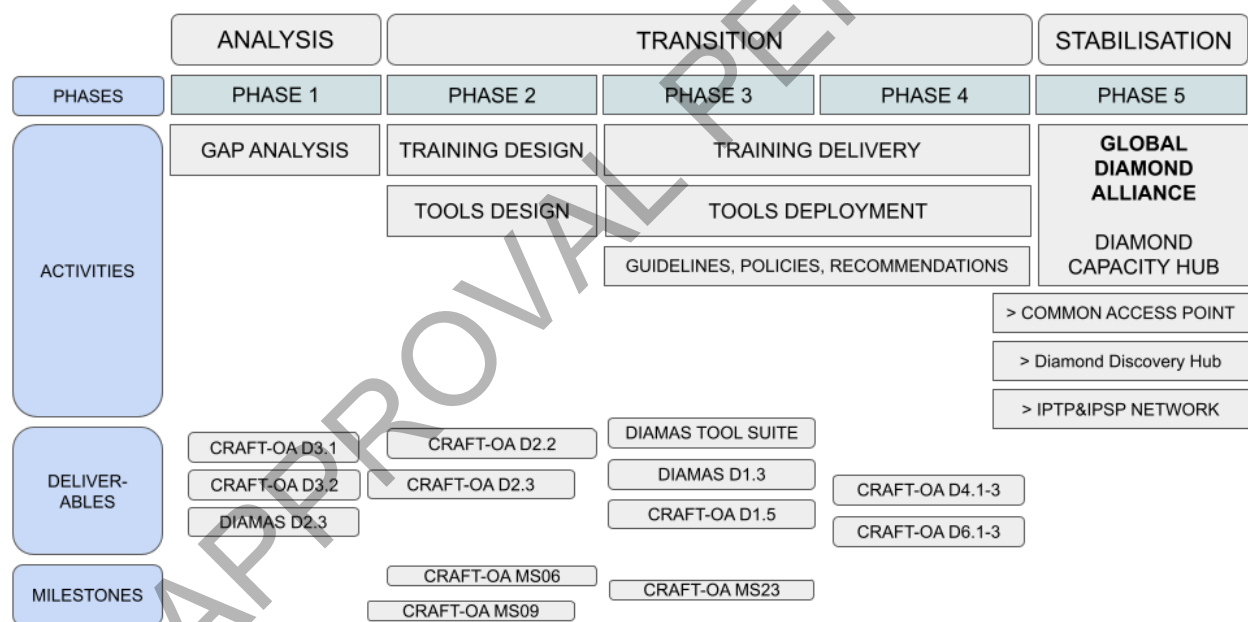


Figure 4: Community transition plan

This plan consists of three major steps: analysis, transition and stabilisation.

As discussed in section 4, CRAFT-OA and DIAMAS have devoted considerable time to the **analysis** investigating the existing technical gaps through CRAFT-OA D3.1⁷⁸ and CRAFT-OA D3.2⁷⁹ or the DIAMAS survey⁸⁰.

⁷⁸ Armengou et al., 2023a.

⁷⁹ Laakso et al., 2024.

⁸⁰ Armengou et al., 2023b.

The transition plan itself has been devised and implemented between phases 1 and 2 (between the “analysis” and “transition” steps) to better conceptualise the overarching goal of efforts undertaken by the CRAFT-OA and DIAMAS project.

The **transition** step consists of conceptualisation activities (phase 2) contributing to the requirements engineering, services design, training design, etc. followed up by the implementation phase (phase 3 and 4) through which solutions are being delivered to the community for testing, feedback and are being finally deployed. Phase 2 is well-represented by the creation and delivery of “Reusable curriculum for upskilling trainings” (CRAFT-OA’s D2.2) and through the requirement engineering and documentation for T4.1 (“Data privacy and multilingualism in journal platforms”), T4.2 (“Enhancing hosting platform interoperability and complementarity between tools”) and T4.3 (“Metadata quality and extensibility”) (Milestone (MS) 06) as well as the requirement engineering for DDH (MS09). CRAFT-OA D2.2. (Kupreyev et al., 2024) and defined requirements are then being used in phases 3 and 4 to deliver training in phases (CRAFT-OA’s MS23 “Training materials on implementing technical standards and self-assessment toolkit available”) and to deploy technical solutions such as those aimed at improving OJS and Lodel tools (CRAFT-OA’s D4.1, 4.2 and 4.3), integrate Diamond OA resources into EOSC (CRAFT-OA’s D6.1, 6.2, 6.3) or launch the DDH. Both DIAMAS and CRAFT-OA have released policy briefs and recommendations to help the community’s transition with the examples of DIAMAS D1.3 “Towards an enhanced and aligned institutional publishing landscape in the ERA”⁸¹ and CRAFT-OA D1.5 “Short Policy Brief”⁸² and will release further policy briefs in the future.

The envisioned **stabilisation step** refers to the period which goes beyond the DIAMAS and CRAFT-OA projects and describes the desired state, where the Global Diamond OA Community is supported with numerous infrastructural initiatives such as the Global Diamond OA Alliance⁸³, capacity hubs (e.g. the DCH for the ERA), and Diamond Capacity Centres that serve as first-line assistance for the Diamond OA community. With CRAFT-OA and DIAMAS outputs alike serving as building blocks for the DCH, the stabilisation phase is considered an exploitation phase of project results.

This community transition plan serves as a valuable contribution to the exploitation strategies for key exploitable results from both projects. In addition, the diverse community’s efforts to form a sustainable future for the Global Diamond Community will gain from a deeper

⁸¹ Rooryck & Mounier, 2023.

⁸² Bargheer et al., 2024.

⁸³ <https://www.unesco.org/en/articles/announcing-global-diamond-open-access-alliance>

understanding of current initiatives. Time-defined step-based approach also offers an opportunity to refine and make adjustments, as well as to complement the planned activities.

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8 CONCLUSIONS

In this deliverable, we presented a detailed analysis of gaps (especially the technical ones), faced by IPSPs/IPTPs, their platforms and journals, paying special attention to Diamond OA publishing. We described the activities and outputs of CRAFT-OA and DIAMAS that will help bridge these gaps. Finally, we offered a high-level community transition plan, outlining a phase-based approach that demonstrates how CRAFT-OA and DIAMAS contribute to enhancing the Diamond OA community's capacity to achieve its mission.

The gap analysis shows that the adaptation of many technical standards (section 4.1) is insufficient. In order to address this gap, CRAFT-OA is working on OJS (section 5.3.1) and Lodel (section 5.3.2) toolkits that will facilitate the migration to modern software products that are tailored specifically for journal publishing and make it easier to comply with the standards using the functionality of these tools.

To address the issues of standardisation of formats and processes (section 4.3) as well as gaps concerning metadata (sections 4.1, 4.2, 4.3), CRAFT-OA is working on improving the publishing software, such as OJS core features (section 5.5.2) including a better interaction with different controlled vocabularies, taxonomies, and PIDs. Additionally, automated metadata checks are introduced to elevate metadata quality standards (section 5.4). Multilingualism features, which were among the identified gaps in the DIAMAS survey (section 4.2) as well as at the Summer School (section 4.4), will be implemented as well.

The lack of technical standards' awareness (section 4.1) will be tackled by offering training and providing training materials (section 5.2) (based on the upskilling curriculum (section 5.1)) , the Living Handbook (section 5.5.4), the DIAMAS tool suite and guidelines (section 5.4), as well as other information sources produced in CRAFT-OA and DIAMAS.

Several of the challenges related to OJS software such as upgrade or security issues (section 4.5.1) will be addressed by the OJS toolkit (section 5.3.1). Other identified issues serve as a source of information and call for action for OJS developers. OpenEdition will use the feedback from the survey on Lodel (section 4.5.2) to release an improved version of the Lodel software, as well as to create an installation manager documentation for the Lodel community (section 5.3.2).

In order to increase visibility and discoverability (section 4.2), CRAFT-OA will offer the DDH for Diamond OA journals (section 5.5.1). CRAFT-OA released a documentation of the requirements of major aggregators (CRAFT-OA D5.1 (section 5.6)) to address the indexing challenges (section

4.3) that journals experience and is developing OJS Diamond plugins (section 5.5.5) facilitating automatic connections to key databases and aggregators such as OpenAIRE and EOSC.

Given the fact that Open Science/OA policies have a great impact on institutional publishing, both CRAFT-OA and DIAMAS released their short policy briefs (section 6) providing recommendations based on the analysis and current results from the two projects. These policy recommendations aim at facilitating a high-level community transition (section 7).

Our high-level community transition plan of overcoming gaps is presented by the framework which includes a transitional phase where technical gaps are addressed, as well as a stabilisation phase which describes the exploitation of projects' results and the plan to enhance the technical capacities of the Global Diamond OA community. This improvement goes hand-in-hand with the establishment of a global and federated infrastructure for diamond OA, of which the DCH and Diamond Capacity Centres are an integral part.

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