

At the time the Journal “Conservation Science in Cultural Heritage” was founded in 2001 (when it was called “*Quaderni di Scienza della Conservazione*”), the University of Bologna’s Digital Library, AlmaDL, had already been carrying out its constructive activity of preserving and making its digital collections available online to support teaching and research.

In particular, OJS constituted the open source platform for the management and publication of digital scientific journals. It was among these journals that “Conservation Science in Cultural Heritage” started its life and subsequently continued its annual publication to become in 2007, an international bilingual Journal in both print and electronic versions, in English and Italian.

Perseverance, the conquest of spaces and the consequent evaluations (made by the most varied, national and international scientific Institutions), the Journal has achieved over the years as regards the scientific quality of the contents of the publications, are all based on interdisciplinarity and internationalization.

The technical-historical Journal has also been able to rely on the sound organization and acknowledged expertise of the staff that constitutes Alma DL. And, in reference to this competence and to several problematic moments related to the 17-year history of the Journal, I would particularly like to express my profound gratitude to Maria Laura Vignocchi, Publishing manager and head of the Digital Library of Bologna University, who has accompanied me along the way with her advice, suggestions, but also with her constructive improvements in the appearance and content of the works published and disseminated by AlmaDL within the OJS platform.

Accompanied by her collaborators, at first Andrea Zanni and then Piero Grandesso, who is the author of the present work, the synergy of the advantageous partnership has enabled the Journal to achieve the current results, as testified by the statistical data provided by AlmaDL, as well as by EBSCO (Elton Bryson Stephens Company) and Facebook.

It is therefore only right for me to include this foreword to Piero Grandesso’s paper, in which he states, clearly and effectively, how AlmaDL has incremented and changed its structure compared to the situation presented five years ago in a previous paper by Maria Laura Vignocchi, published in the Journal. This is the result of the hard, but commendable and highly positive work carried out by the Publishing Service of the AlmaDL at the University of Bologna on the international scene.

Editor-in-Chief

THE ACADEMIC PUBLICATION SERVICE *ALMADL* JOURNALS AND THE NEW CHALLENGES OF OPEN ACCESS

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1. Introduction

Five years have passed since the publication of a paper, in this very same Journal, about *AlmaDL Journals* publishing service [1]. *AlmaDL Journals*¹ is an academic service managed by the University of Bologna Digital Library and is based on the renowned open source publishing platform Open Journal Systems (OJS)². It provides both the publishing platform and the technical support to Editorial Teams of the University that want to publish in Open Access.

Since 2012 both the service and the scholarly Open Access publishing ecosystem, have seen a steady growth [2], marked by deep transformations and new challenges. With this brief paper we would like to review the service transformations along with the evolution of the surrounding field, taking this as a rare opportunity for self-analysis and as a base for future planning. Experience matured so far has taught us that only investments in quality help new editorial initiatives to overcome the risk of irrelevance and failure.

2. Evolutions in Open Access Publishing

In the last five years several evolutions have impacted not only the field of Open Access publishing, but the whole sphere of scientific publishing. A significant step towards the affirmation of Open Access publishing models (in particular the model known as the “Gold Road” to Open Access) was represented by fundamental changes in the legal frame made by the European Union.

Starting from the EU Research Framework Programmes, FP7 and Horizon 2020, and the *EU recommendation on access and preservation of scientific information* [3], the European Union has played a great role in the surge of Open Access publications and several countries have promoted specific national policies to foster Open Access. In Italy a significant step toward Open Access was gained in 2013 after a previous decree (91/2013) was converted and approved as Law 112/2013. This introduced into Italy the principle of mandatory Open Access publication for publicly funded research.

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The increased need for Open Access journals eventually gained the interest of various publishers who started their own Gold Open Access journals, predominantly finding the application of Author Processing Charges (APC) as the business model to cover publishing costs and provide a margin of profit. Bibliometry and journal reputation play a leading role in driving preferences for researchers wishing to publish, a fact that leads to some major problems regarding Gold Open Access. Among them is the increase in APCs, that not uncommonly have reached figures of several thousands of euros, and the advent of hybrid Open Access. The latter simply refers to the option to publish a single Open Access article in a subscription based journal — provided the payment of a mostly higher than average APC is made — resulting in so called «double dipping», since research institutions will have to pay both for publishing and for the journal subscription [4].

The role of big publishers in Open Access is testimony to the increased requirements of quality, requested by researchers, within Open Access publishing and the need to cope with higher professional standards promoted by leading publishers.

On the other hand, the level of maturation achieved in the Open Access publishing panorama implies an ever-growing variety of publications with huge differences in quality and robustness, including a number of predatory initiatives. The widespread phenomenon of online scientific predatory initiatives is at the basis of the increasing demand for better quality assessment of journals. The wide range of malpractices is not, however, limited to so called «predatory publishing» but expands to include the hijacking of journals and websites, misleading metrics that mostly provide fake Impact Factor, bogus conferences and a number of general issues regarding misconduct that affect the peer review process [5].

Thus, there is an urgent need for tools to improve the retrieval and filtering of quality scientific content, plus the need for more advanced instruments to discriminate and contrast malpractices and to enhance publication trustworthiness. It is also from these needs that several services were launched and have subsequently influenced the scientific publishing panorama. They include: ORCID, the permanent identifier for researchers³; Publons and Reviewer Credits, platforms that keep track of the peer review process and give reviewers due credit⁴; Emerging Sources Citation Index, a new product by Clarivate Analytics' Web of Science, that acts as an intermediary step for new sources to be included in the main products of the Core Collection⁵.

2.1 New criteria for evaluating quality

One of the main projects that underwent complete refurbishing and is now amongst the main landmarks for Gold Open Access publishing is the Directory of Open Access Journals⁶. In 2012 DOAJ started a long process of metadata enrichment and revision of the inclusion criteria which culminated in a highly anticipated reapplication process to all the journals indexed in its database in January 2015. The reapplication process took more than one year and implied the exclusion of almost 3300 indexed journals that failed to provide the newly required data: since March 2014 a newly introduced application form requires extensive information regarding journal policies, copyright and publication charges⁷, effectively pushing indexed journals toward better quality and transparency in their organization and management [6].

Another factor that impacted greatly on the work of *AlmaDL Journals* was the approval of new rules promoted by ANVUR⁸, the Italian agency for scientific evaluation,

regarding journals. In recent years, the rules have been amended a number of times⁹, requiring some work to cope with the new requirements. The newer version of the rules for journal classification also imposed tighter requirements in tracking the different stages in the peer review process and in transparency, in general. In addition, the evaluation of a journal's inclusion in the bibliographic databases, Web of Science and Scopus, gained more relevance.

It is in light of these new recommendations and requirements and based on the experience of some submissions to Scopus - which were not always successful, that we decided to aim at enhancing the overall editorial and publishing quality of our journals.

2.2 Ever-evolving web technologies

The web is the natural environment for Open Access publishing and a publishing initiative cannot ignore its rules. The technological development of the web is continuous and advances in web design and web communication are becoming increasingly important in readers' engagement and retention. Although scholarly readership is somehow less exposed to typical phenomenon influencing generic Internet users such as the transition to mobile devices, the evolution of the web means continuously improving and upgrading publishing solutions.

The attention to best practices regarding user experience (UX) is affecting scholarly publishing with a certain delay - particularly Open Access initiatives - and should be taken into account due to their consequences on readership retention.

One of the advances we can underline is "responsive design" as a solution to the mass transition of Internet users from personal computers to mobile devices. Although responsive design is not a new concept - it was already well known in 2012, as was the shift towards mobile devices - it did not penetrate scholarly communication until very recently. If the number of users accessing Internet from mobile devices has exceeded access from desktop devices since 2014¹⁰, Open Access publishing appears not to have acknowledged this shift, with a wide number of publishing services still not providing a suitable user experience to non-desktop users.

From the analysis of traffic data through the *AlmaDL Journals* collection, we still see the predominance of desktop users in 2017, but the number of users accessing via mobile devices and tablet is steadily increasing and is currently between 15% to 30%, depending on the specific journal. These percentages cannot be ignored. A journal's website needs to provide an adequate experience for this readership.

Since 2015 Google has been considering user experience from mobile devices as a ranking factor in searches¹¹, giving a more direct and urgent impact to the general unpreparedness of Open Access publishing in this regard. A big step towards a modern approach to web design has been achieved by several platforms after the release of the new version of Open Journal Systems 3.0, at the end of August 2016, although it is unlikely that the new version will be adopted promptly among the numerous OJS-based services. The new release takes into account the responsive design approach, reaching by default good usability even on small devices, and presents a number of optimizations in accessibility and readability of content, search forms, submission processes and so on.

3. Evolution of AlmaDL Journals

Since 2012 *AlmaDL Journals* has undergone a number of significant changes. The first relates to the turnover within the staff and the shift from IT experts internal to our staff, to the external support of the Web Technologies sector of the IT Center of the University of Bologna. The core of the staff dedicated to the service has remained a single full-time person, while the service has grown both in numbers and in areas of interest, thus requiring the definition of priorities for the various desiderata.

Table 1. Number of journals in AlmaDL Journals platform with increment relative to 2012. Journals are counted only if they have published issues. Data for 2017 and 2018 is estimated.

Year	Journals	Increment since 2012
2012	17	N/A
2013	19	11,76%
2014	20	17,65%
2015	27	58,82%
2016	30	76,47%
2017 (est.)	35	105,88%
2018 (est.)	37+	117,65%

Between 2012 and 2017 the number of journals participating in the service increased from 17 to 33, with 6 additional journals that will soon start to publish on our platform. Of the current journals that appear, one has yet to release its first issue, expected by the end of this year; a small number of journals have suspended publication; this means we are just preserving their past issues. Considering these figures, we can affirm that by the end of 2017 the number of journals will have increased by more than 100% since 2012.

Of the last 16 new acquisitions, nine represent new projects that have published their first issue within *AlmaDL Journals*, while others come from a variety of previous publishing experiences: traditional print publishers, scientific online publishers, and online self-publishing. For a number of the newly acquired preexisting journals, the service also covers past issue recovery and preservation.

3.1 OJS submission tracking

Following the new requirements from ANVUR and aiming at an overall improvement in publication quality, *AlmaDL Journals* is actively fostering the adoption of the OJS online submission process as a replacement for the more common submission via email. The adoption of a proper tracking system for submission processing - preferably not limited to peer review - is becoming urgent with the growth of several journals and after specific examples of the low reliability of manual tracking via email. The possibility of tracking the whole process, from peer review to the editing of an article, is essential in the case of legal complaints and to dramatically reduce the risk of mistakes and malpractice.

Poor user experience, the complexity of the whole process and a common lack of confidence with the web by some parts of the scholarly community are among the

reasons for the slow adoption of submission tracking. Adoption of the OJS submission tracking has been very slow - up until a few years ago only 4 journals in the collection were using it. However, after its implementation, in one case the positive outcome of a highly internationalized journal¹² has led to a new initiative to promote the system within other journals. The submission tracking process of the *AlmaDL Journals* platform has been recently revised with a complete upgrade of the prepared emails and a better layout for the back-end - at least for some journals that have adopted a new standard graphic design. New training programs for editorial teams, complete with peer review simulations run in a test instance of the platform, should hopefully extend its adoption to almost 20 journals.

3.2 Policies and Plagiarism prevention

In order to comply with the new requirements in terms of completeness and clarity of journals' policies, *AlmaDL Journals* engaged each editorial team in a process that strongly improved most of the journal policies adopted, in particular the Open Access Policy and the Peer Review Process description, along with a better understanding in adopting an Ethical Code of Conduct. As regards Open Access policy, an effort was made to improve understanding of copyright choices and limitations, and all the journals adopted a self-archiving policy that was submitted to SHERPA/RoMEO¹³. On the occasion of preparing for reapplication to DOAJ, *AlmaDL Journals* also took the initiative to upload a cleaner version of article metadata for each journal.

Plagiarism detection and management have long been an issue under consideration and was finally offset after a couple of critical events: the first was a public claim of plagiarism, an accusation that revealed itself to be groundless. Due to the online submission tracking and the adoption by the journal of a Code of Conduct, the editorial team was able to properly address the accusations and give transparent feedback on the matter. A second case of suspect plagiarism was raised in the first half of 2017 in this journal and ended with a retraction [7].

Driven by these experiences, *AlmaDL Journals* decided to start an experimental adoption of a service for plagiarism detection, and to make it available to each editorial team. A proper plagiarism detection service can serve not only to minimize the risk of plagiarism, but also as a powerful tool to improve the quality of citations within each paper. The adopted service is currently iThenticate¹⁴ and its effectiveness will be evaluated annually based also on budget constraints and its effective adoption by editorial teams.

3.3 Web Design, responsiveness and SEO

In order to encourage readership and provide better user experience, *AlmaDL Journals* introduced a series of optimizations and a new layout. Although the platform, OJS in the version 2.4, is not optimized for small resolutions, responsiveness was achieved by customizing the platform code, and preparing a properly crafted stylesheet. The increasing need for a modern and responsive layout prompted the realization of a sustainable and serial solution to prepare a customized and responsive layout for each journal.



Figure 1. The new graphics of the AlmaDL Journals index.

The result is *AlmaDL Journals Layout*¹⁵, a solution for generating Cascading Stylesheets used to set up the graphic appearance of a website. The stylesheets are meant to make OJS 2.4 responsive - although with a few minor compromises - so that a journal can be comfortably accessed regardless of the screen size of the device. The major need for sustainability was accomplished by converting each possible customization into parameters and options that could be enabled or set via simple changes, while maintaining a general standard structure. This allowed for the progressive extension and optimization of the graphic solution, while it was progressively proposed and applied to several journals, with relatively small effort in generating each specific layout.

In only a couple of years this effort has resulted in a new layout for the *AlmaDL Journals* index and for nine preexisting journals. The new layout has also been applied to another six new journals and in the coming months the layout will be provided for a further 4 applying journals. In the long term the goal is to apply the responsive layout to nine other journals that have no custom layout and that until now have had to rely only on the default and unresponsive OJS 2.4 layout. This was meant to achieve not only responsiveness - thus avoiding the penalty in generalist search engines for non-responsive websites, it was also meant to improve general readability of the journals, clearer navigation and interaction within the platform and to make the back-end used for submission, peer review and editing, less confusing.

The future transition to the newer OJS version 3.0 should allow for a better service, which will be more compliant with current web standards and best practices¹⁶. The transition is not currently scheduled, due to limitations in workforce activities and the

need for time to allow a proper, deep analysis of the changes in the editorial workflow and other significant areas.

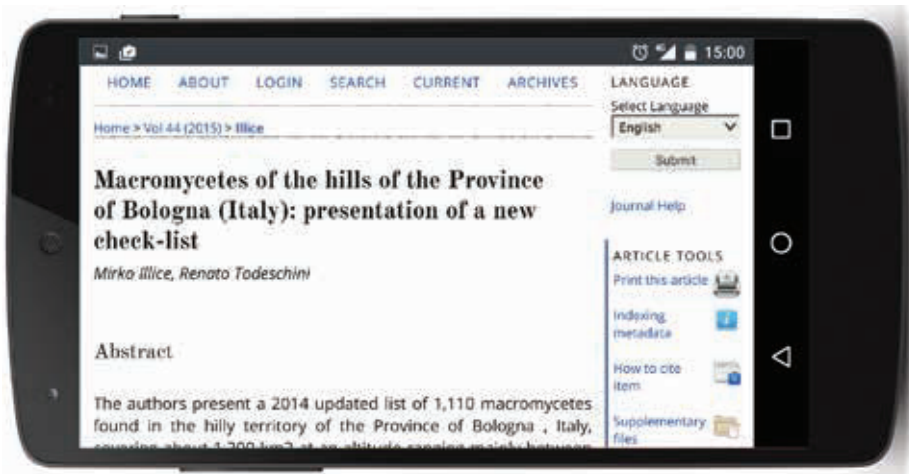


Figure 2. Demo of the responsive layout.

Other improvements to the currently installed OJS 2.4 platform were only tested in an experimental form and have not yet been deployed, also due to the above-mentioned turnover of the IT staff. They included the adoption of new formats for metadata exposure - Schema.org¹⁷ being the first in consideration - and the visualization of more information at article level - such as the section with peer review status and download numbers for each article.

Further improvements were made based on Search Engine Optimization best practices and much more could be achieved. The idea behind this kind of intervention, such as the setup of a proper meta description in the HTML header, providing a Favorites Icon, setting a custom Robots.txt to avoid double indexing for web spiders, is that discoverability, readability and accessibility of Open Access Scientific publications should always be a top priority.

3.4 Publication formats and better workflows

Better quality, improved dissemination and readability are the main reasons for the latest project that *AlmaDL Journals* has been experimenting in the final months of 2017: a new workflow for full-text publication formats. Due to the lack of dedicated expertise and staff, the service has never really addressed the matter of publication formats as an option and Open Journal Systems has never provided any tool for the preparation of galley files.

This lack of assistance has left Editorial Teams alone in preparing their own publication formats, which has meant being limited to using, with only one exception, PDF files. The same generation of PDF galley format for full-text articles has been managed differently by Editorial Teams depending on the availability of expertise, dedicated funds and on the eventual familiarity with the document preparation and typesetting system, LaTeX¹⁸. If journals of statistics, information science and mathematics have no

problems in PDF preparation, the production of full-text publication formats constitutes a huge problem for most journals in the field of humanities and social sciences.

This situation has led to an increasing number of difficulties in layout preparation and an overall poor quality in the generated PDFs, with problems such as inactive links, fonts that are not embedded and common difficulties in filling the PDF with useful information such as the article's DOI. There was, moreover, the consideration that publishing only in PDF format was not the best solution when considering accessibility, readability and web archiving; several experiments in HTML galley publishing also revealed that - from the reader perspective - the HTML format was by far the preferred choice, aside from being a specific web-first format.

During submission processing optimization, *AlmaDL Journals* started to explore a few solutions for a workflow that also included full-text editing and layout, in order to obtain a better-quality PDF and an HTML file format, that would possibly enable future conversion into other formats, in particular JATS XML and TEI XML. This has resulted in an experimental workflow based on an open source text conversion tool, *pandoc*¹⁹, and the conversion of articles into plain text files, formatted in Markdown, a simple syntax for written text, and with articles' metadata in YAML, a simple format for structured data. Employing proper templates and adequately trained editorial teams, we aim to use this workflow to produce PDF, HTML and potentially other formats, for each article, with overall improved quality and a reduced risk of editorial mistakes. The first issues based on this workflow should be published by the end of 2017, with the perspective of extending the solution to other journals during 2018. This may be accomplished provided that adequate solutions are adopted to make it sustainable for *AlmaDL Journals*, considering that at the moment conversion of each article using the new workflow requires major intervention by our service. In a couple of years, or at least before migrating to the newer version of OJS, it will be appropriate to analyze web traffic data to evaluate the effectiveness of these changes.

Given the actual Open Access publishing ecosystem, *AlmaDL Journals'* aim is to find the right compromise between quality improvement and service sustainability.

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Notes

¹ <https://journals.unibo.it/>

² <https://pkp.sfu.ca/ojs/>

³ <https://orcid.org/>

⁴ <https://publons.com/> and <https://reviewercredits.com/>

⁵ http://wokinfo.com/products_tools/multidisciplinary/esci/

⁶ <https://doaj.org/>

⁷ a version of the old form is available in the Wayback Machine: <https://web.archive.org/web/20131223055145/http://www.doaj.org:80/suggest>

⁸ Agenzia Nazionale di Valutazione del Sistema Universitario e della Ricerca, <http://www.anvur.org/> is the Italian National Agency for the Evaluation Universities and Research Institutes in Italy

⁹ a short report on several poorly documented changes in the rules are available at author's

personal website (in Italian), *Quali differenze tra i regolamenti ANVUR?*: <http://pierog.it/2017/06/quali-differenze-tra-i-regolamenti-anvur/>, along with the latest comparable versions of the rules: <https://gist.github.com/piero-g/aba4845e2c3a17e887eab7c8a7dda5ec> [Both accessed: 10 October 2017].

¹⁰ for an insight of mobile access see *Mobile Marketing Statistics compilation*, from Smart Insights. Available at: <http://www.smartinsights.com/mobile-marketing/mobile-marketing-analytics/mobile-marketing-statistics/> [Accessed: 10 October 2017].

¹¹ <https://support.google.com/adsense/answer/6196932?hl=en> [Accessed: 10 October 2017].

¹² we are referring to Almatourism <https://almatourism.unibo.it>, the journal can now rely exclusively on online proposal

¹³ <http://www.sherpa.ac.uk/romeo/index.php>

¹⁴ <http://www.ithenticate.com/>

¹⁵ <https://github.com/piero-g/almadl-journals-layout>

¹⁶ OJS 3: *New Features Overview*, in Public Knowledge Project. Available at: <https://pkp.sfu.ca/2016/09/01/ojs-3-new-features-overview/> [Accessed: 10 October 2017].

¹⁷ <http://schema.org/>

¹⁸ <https://www.latex-project.org/>

¹⁹ <http://pandoc.org>

References

- [1] Vignocchi, M. *et al.* (2012) 'AlmaDL Journals: Quality services for open access scientific publications at the University of Bologna', *Conservation Science in Cultural Heritage*, 12(1), pp. 191–213. doi: 10.6092/issn.1973-9494/3396.
- [2] Piwowar, H. *et al.* (2017) *The State of OA: A large-scale analysis of the prevalence and impact of Open Access articles*. e3119v1. PeerJ Preprints. Available at: <https://peerj.com/preprints/3119> (Accessed: 19 October 2017). European Commission (2012) 'Commission Recommendation on access to and preservation of scientific information'. Available at: http://ec.europa.eu/newsroom/dae/document.cfm?doc_id=2123.
- [3] European Commission (2012) 'Commission Recommendation on access to and preservation of scientific information'. Available at: http://ec.europa.eu/newsroom/dae/document.cfm?doc_id=2123.
- [4] Pinfield, S., Salter, J. and Bath, P. A. (2017) 'A "Gold-centric" implementation of open access: Hybrid journals, the "Total cost of publication," and policy development in the UK and beyond', *Journal of the Association for Information Science and Technology*, 68(9), pp. 2248–2263. doi: 10.1002/asi.23742.
- [5] Dadkhah, M., Maliszewski, T. and Teixeira da Silva, J. A. (2016) 'Hijacked journals, hijacked web-sites, journal phishing, misleading metrics, and predatory publishing: Actual and potential threats to academic integrity and publishing ethics', *Forensic Science, Medicine, and Pathology*, 12(3), pp. 353–362. doi: 10.1007/s12024-016-9785-x.
- [6] Marchitelli, A. *et al.* (2017) 'Helping journals to improve their publishing standards: A data analysis of DOAJ new criteria effects', *JLIS.it*, 8(1), pp. 1–21. doi: <https://doi.org/10.4403/jlis.it-12052>
- [7] Kaptan, K. (2017) 'RETRACTION: Heritage Management Of Temple Tanks In An Urban Scenario: A Case Study Of Thirupporur, a Traditional Town In the State of Tamilnadu, India, by Kubilay Kaptan', *Conservation Science in Cultural Heritage*, 16(1), pp. 365–367. doi: 10.6092/issn.1973-9494/7176.

Biographical notes

Piero Grandesso works on scholarly Open Access publishing and is in charge of the journal publishing service of the University of Bologna: *AlmaDL Journals*, where he has prepared the layout for OJS 2 journals and the workflow for multiple publication formats. Open Access passionate and former wikipedian, he has a Master's Degree in history.

Summary

AlmaDL Journals is an Open Access publishing service of the University of Bologna, Italy. After 5 years from the publication of the first paper in *Conservation Science in Cultural Heritage* about the service, we review the transformations and the growth it has experienced during this time span, with a look at the changes that have occurred in Open Access publishing that have driven and inspired the modifications adopted by AlmaDL Journals.

Riassunto

AlmaDL Journals è un servizio di pubblicazione Open Access dell'Università di Bologna, Italia. A cinque anni dalla pubblicazione del primo articolo sul servizio in *Conservation Science in Cultural Heritage*, esaminiamo le trasformazioni e la crescita che AlmaDL Journals ha sperimentato in questo intervallo di tempo, con uno sguardo ai cambiamenti che si sono verificati nel settore delle pubblicazioni Open Access che hanno guidato e ispirato le modifiche adottate da AlmaDL Journals.