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Two-dimensional books for the new Open Access academic publishing*

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ABSTRACT

Metadata have become a key element of scientific communication. Indeed, the content of a publication – that is, what we love, discuss and judge – is no longer the alpha and omega of a scientific publication nor its exclusive centre of gravity. Books are gradually taking the form of an iceberg, whose visible part is represented by the content, while the submerged part is constituted by metadata. In the current communication approach of scientific research, metadata and dissemination go hand in hand, as metadata provide a huge contribution to the success of the research itself. In this paper, I will illustrate how – in the field of today's scholarly publishing – best practices, simple metadata, and cataloguing indicators such as DOI and ORCID are taking on the task that was once accomplished by chariots pulled by sturdy horses coming out of Aldo Manuzio's workshop: spreading books and the discoveries of scientific research all over the world.

KEYWORDS

Two-dimensional book; Open access book; Metadata; Academic publishing.

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I. Metadata and Scientific Communication.

Metadata is one of the most crucial topics in the educational training of cataloguers, archivists and technicians in the publishing world. For decades, metadata have accompanied books, contributing to their preservation and distribution. Until recently, however, they were just external and subsidiary elements to the scientific publication: monographs, edited volumes, and journal articles were only identified by their intelligible content, and nothing else.

Today this is no longer the case, and this article aims to describe the new scenario of scholarly publications. In this scenario, metadata have gained a new dimension, one that was unimaginable until a few years ago.

Metadata have become the protagonist of scientific communication, where a publication consists not only in its content, but also in the set of metadata associated with it. In other words, what we read, what we are passionate about or annoyed by, or bored by, what we discuss and finally evaluate, is no longer the alpha and omega of that publication, its centre of gravity. Metadata – commonly known as "the hidden data", the silent descriptive properties, or the endless tables of categories that relentlessly capture, and standardize the elusive qualities of a text – have risen to the fore.

To better convey the magnitude of this change, some facts known to the specialist as well as to the general public are worth recalling.

Let us consider, for example, the most prominent ancient Greek philosopher, Aristotle. The Philosopher is a very popular historical figure, indeed, and yet we know so little about his life. Even his contributions to human knowledge have grey areas, to the point that even his best-known book the "Physics", consisting in a collection of treatises, is a text reconstructed by his pupil Andronicus of Rhodes *a posteriori* and centuries after Aristotle's death.

However, if we had Aristotle's ORCID and the DOI of "Physics" we would have two perfectly defined entities, which could be processed by a machine capable of carrying out countless services. In other words, Aristotle is to ORCID as "Physics" is to DOI and, more or less, this is the functional strength of the so called "digital revolution". Aristotle and "Physics" possess certain intrinsic features – they are brilliant, seminal, and sometimes uncertain, obscure, as life is – while ORCID and DOI have others – they can be boring, plain, but also certain, clear, and cheap as machines are. Mutatis mutandis, it is basically the last battle of an ancient war that has involved mathematicians, physicists and philosophers and focused on continuum vs. discretum, that is the world of Continuum against the world of Discrete, truly an endless story.

As we mentioned earlier, the content of a scientific publication is no longer the sole centre of gravity of a book. Books are gradually taking the form of an iceberg, whose visible part is represented by the content, while the submerged part is constituted by metadata.

The book-iceberg association may seem an odd one, but it is not new in the field of literature. Ernest Hemingway, interviewed by George Plimpton in 1958, explained the art of fiction with these words: "I always try to write on the principle of the iceberg. There is seven-eighths of it underwater for every part that shows. Anything you know you can eliminate and it only strengthens your iceberg. It is the part that doesn't show [...]. But the knowledge is what makes the underwater part of the iceberg". (Hemingway 1958)

Moving from literature to academia, metadata and dissemination of scientific discoveries go hand in hand in the current scholarly communication approach. Metadata not only provide a huge con-

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tribution to the success of research, but more importantly, they are a part of it. In Hemingway's words, they are the knowledge that makes the underwater part of the iceberg.
The transformation underway places the book and its constituent elements before several economic, social and even philosophical considerations. As a matter of facts, if the features of a given object change, the way of interacting with it also changes. Furthermore, if that object is a vehicle of human knowledge, the situation becomes exponentially more complicated and, at the same time, intriguing.

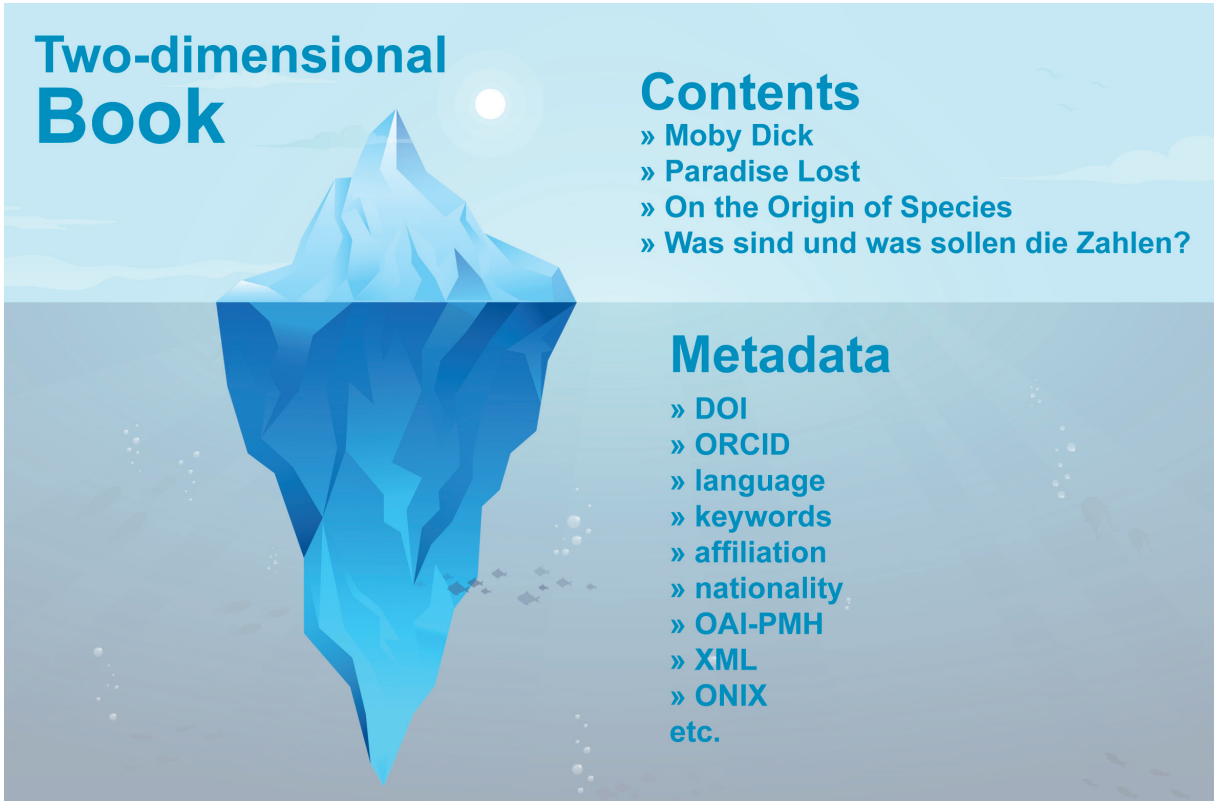

Fig. 1. Icebergs and two-dimensional books (CC BY 4.0)

II. What are Books Becoming? A Few Remarks on Research and Lifecycles

The mandatory starting point on any consideration on books nowadays is asking ourselves what the book is turning into. What seems quite clear is that, in the multifaceted academic publishing scenario, metadata, cataloguing indicators such as DOI and ORCID, and best practices – which are crucial guidelines on good scholarly publications – will increasingly play a significant role in the creation of a book (Adema and Stone, 2017; Capaccioni 2014).
Getting more specific, the new shape of books – in which content and metadata are bonded together like the two sides of the same iceberg – is becoming more and more embedded in the research lifecycle. As scholars experience every day, the research lifecycle consists of various stages, the main being: Planning and Funding, Conducting Research, Considering Publishing Options, Writing and Submitting the Manuscript, Peer Review, Publishing Contract and License, Publish-

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ing and Dissemination, Reuse of Research. All together, these stages represent the lifecycle of any research.
Regardless of the disciplinary fields (HSS or STM), of cultural traditions, of the scholar being a scientist in a large research group working under a mountain chasing down subatomic particles, or a philologist working alone among manuscripts looking for Machiavelli unpublished works, the result will be the same. To be active agents of the new scenario of scientific communication, books must be fully embedded in the research lifecycle featured above. Basically, this transformation is already happening, right now.

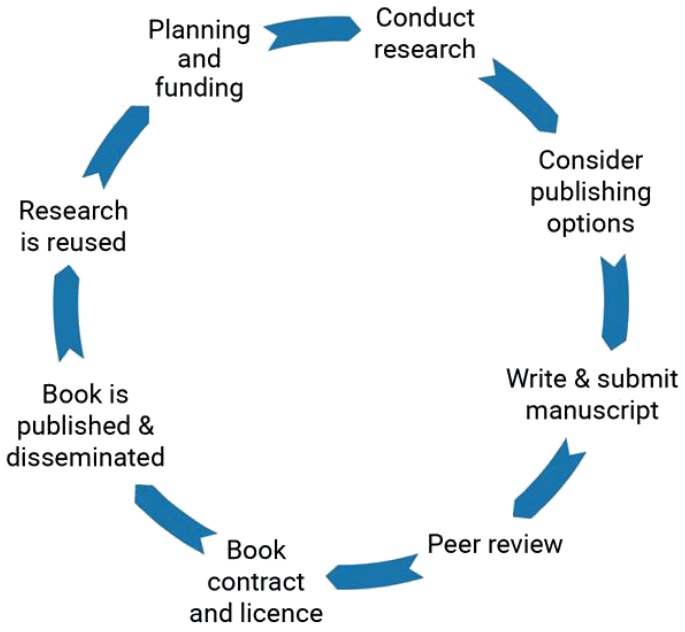

Fig. 2. Research lifecycle (OAPEN OA Books Toolkit, CC BY 4.0)

Observing the process from a practical point of view, what does it mean that books are getting more embedded in the research lifecycle? To answer this question, a closer look at another cycle will help, that of the publishing lifecycle. At the origin of a scholarly work such as a monograph, a research is proposed, funded, and reported on. Then the monograph is evaluated to assess its quality, and it is edited by peers. After that, a publisher provides editing, layout, and publication services, and the work is published. Then, it is disseminated according to a well-defined access model. Works are distributed in print or online, through libraries, retailers, and on the Web, and preserved (copies or versions of the work may be saved for posterity). Obviously, the work is then reused in a constant evolving lifecycle (works get read, cited, and recombined).

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Fig. 3. Publication lifecycle (Berkeley Library Scholarly Communication Services, CC BY-NC 4.0)

The iceberg-volume may interact in an unprecedent way with the entire publication lifecycle, where creation, evaluation, dissemination, access, and preservation are not actions performed around the book, but rather key features of the book itself. By linking the research lifecycle and the publishing lifecycle, digital books have the potential to innovate the whole scenario, by providing new tools and solutions in the four main areas of a publication, namely: (i) authorship, (ii) publishing formats, (iii) evaluation process, and (iv)access, considered as dissemination and impact.

The "FUP Scientific Cloud for Books" project provides with a suitable example on such topic, since it was conceived to develop a model of working practices that would ensure the production of the new generation monographs described in this article.

Launched in 2019 by the Firenze University Press, the project has captured the ongoing change of books with the aim to increase the dissemination and impact rates of its monographic publications (Guerrini and Ventura 2009). In a communicative landscape in which metadata and the dissemination of scientific discoveries go hand in hand, metadata become co-responsible for the success of a scientific publication. The project was also aiming at filling the gap existing between scientific journals, where digital has enhanced both visibility and impact, and the monograph (British Academy 2018, 2019; Guatelli and Pierno 2015, 85–113). It is a matter of fact that the latter, while representing a fundamental tool for academic dissemination and career progression, is still a rather marginal player in the digital revolution.

The project aims at providing a systematic and thorough attribution of machine-readable metadata and formats (Guatelli 2018, 2020, 47–57). Such attribution applies to all the four key areas of a publication, as already mentioned. Therefore, any digital volume must meet the following standards:

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- Authorship: all the authorial components of a volume must be identified by a defined set of metadata. Therefore, the authors of books or single chapters, editors, but also the those involved in the evaluation process (such as editor-in-chiefs, members of scientific boards, referees, research institutions and funders) are systematically described by using simple but effective metadata: first/last name, affiliation, nationality, ORCID, e-mail;
- Publication formats: volumes are currently published in multi-format editions. These can be, for instance, PDF, epub, html, or xml. Particular emphasis must be put on machine-readable formats, as they are functional both to machine-learning processes and information retrieval (IR) systems, and to the processes of dissemination through indexes and aggregators, such as DOAB, OAPEN, WorldCat, OAlster, ProQuest, EBSCO, SBART, OPENAIR, etc.
- Evaluation: each volume must clearly report the characteristics of the evaluation process to which it has been subject. The scope here is a wide one, as it includes references to the applied best practices (namely, peer review policy, open access policy, copyright and licensing policy, publication ethics and complaint policy, e.g. https://fupress.com/fup-best-practice-in-scholarly-publishing) and to the referee list of the book series, also providing the reader with basic statistical data on the refereeing process (date of paper submission, date of acceptance, and the like).
- Access, dissemination and impact: among the four areas, the innovations related to access, dissemination and impact are particularly remarkable and deserve further analysis:
  i) Open Access: Firenze University Press fully supports Open Access publishing as it is an exceptional tool to share ideas and knowledge in all disciplines with an open, collaborative, and non-profit approach (Delle Donne 2010, 125–50; 2018; European Commission 2019; Ferwerda, Pinter, Stern, and Niels 2017). Open Access books and book chapters allow the research community to achieve wide and rapid dissemination across all book formats, as well as a high impact for their research. All FUP content and metadata are published in Open Access, released under Creative Commons licenses stating the Author as the copyright holder (https://fupress.com/open-access-copyright-and-licensing-policy).
  ii) Dissemination: to increase discoverability, access and shareability of peer-reviewed research, the publisher endeavours an ongoing activity of indexing of its books and book chapters on dedicated platforms for hosting, dissemination, discovery, and preservation. It supports and encourages research libraries, as well as profit and non-profit indexing services, to list its series, books and book chapters among their electronic resources. All our book metadata are openly available for download in various formats by any indexing service (OAI-PMH, XML, etc). Metadata are released under the Public Domain Dedication license (CC0 1.0) (eg. https://fupress.com/distributions-indexing-and-abstracting-policy).
  iii) Impact: For each book and book chapter published, Firenze University Press provides the author with periodically updated usage statistics (about books and book chapters downloads and views) according to the international standard currently used in positioning and evaluation processes (the COUNTER Code of Practice for Release 5 standard).

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By applying the formula briefly summarized above, the resulting editorial product becomes an innovative digital book featuring a deep interaction between content and metadata. Monographs implemented in this way can ensure high indexes of dissemination, filling the gap with scientific journals that used to have an edge in the area of impact until recently (Vincent 2013, 107–119; Gatti and Mierowsky 2016, 456–59; Neylon, Montgomery, Ozaygen, Saunders, and Pinter 2018).
To use a charming and historical example, best practices, metadata and cataloguing indicators, such as DOI and ORCID (Jisc 2018; Tsuji 2018; UK Research and Innovation 2020), are taking on the task that was once accomplished by chariots pulled by sturdy horses coming out of Aldo Manuzio's workshop: spreading books and the discoveries of scientific research all over the world.
The iceberg-book approach promoted and realized within the framework of the "FUP Scientific Cloud for Books", however, is not limited to enhancing dissemination; rather, its innovative approach consists in expanding the identity of the book in its two dimensions, under and over the ocean. This is the real strength of such an approach.
Born as a pioneering experiment, the project is yielding greater fruits than the most optimistic forecasts, even hinting at potential further development. The revolution behind the iceberg-book is somehow reminiscent of both the cathedral and the bazaar described by Eric Raymond in his famous essay (Raymond 1999). In software development, the author described two models, one closed and verticalized, the cathedral, and one open to user interaction, the bazaar. The new digital book preserves both verticalization and closure (the book always has an author and specific "boundaries") and the participation of different subjects, both in production and in open access fruition. Its open and shareable part is only at the beginning of a transformation process that could one day turn readers as well into active subjects in the certification/dissemination of monographs. As has recently been pointed out on open access (Capaccioni 2019), one must keep in mind that scholarly communication is always a space within which different actors act and are all relevant. Speaking of the future inclusion of readers in the process, we do not know what will eventually happen to the iceberg, but it will be extremely inspiring to watch it unfold.

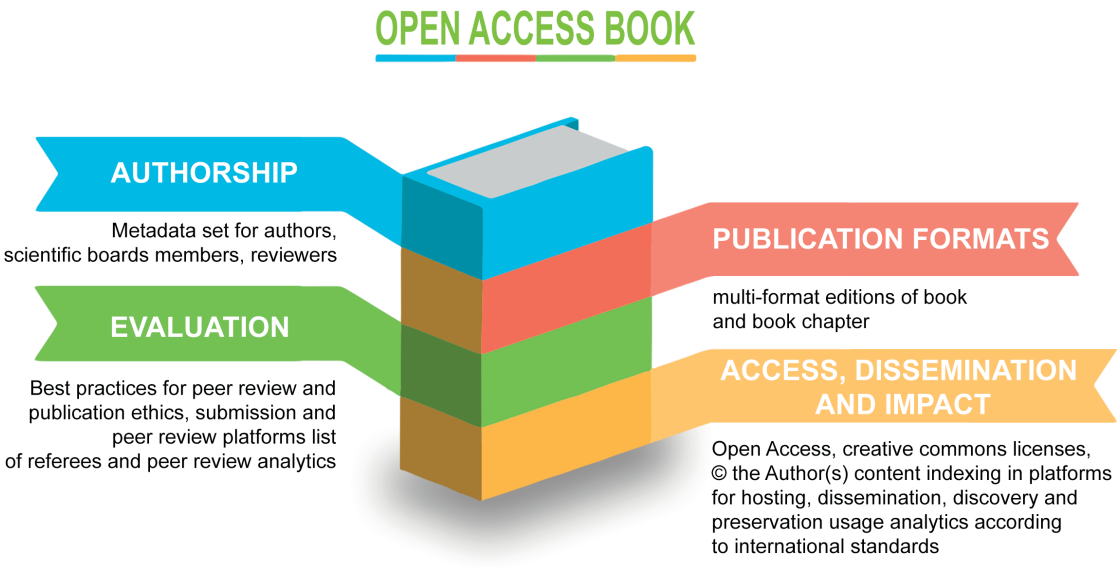

Fig. 4. Open Access Books (CC BY 4.0)

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