

Thoughts on the long-term digital preservation of scholarly journals

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Online publishing has become a dominant trend in the publishing of scientific, technical, and medical (STM) journals. Almost all STM journals already publish online, and the proportion of those that publish online-only is increasing rapidly. Online publishing obviously requires a completely different approach to preserving journal content. All storage devices are based on magnetic phenomena and are governed by the laws of physics. Stored digital information can spontaneously become erroneous or corrupted over time, and this problem can be worsened when the ambient magnetic field is stronger and the temperature is higher. Therefore, digital information needs to be carefully stored in an environment where the temperature and the ambient magnetic field are well-controlled and must be backed up periodically. Many difficult technical problems are also associated with managing complex file structures and formats as a database grows. These tasks require considerable effort and expenses. Thus, it seems natural to ask whether journal publishers or the institutions that keep their digital materials have sustainable plans and resources to preserve journals for a long period of time.

Scholars who have published research papers in journals would strongly hope that their papers will be read by and helpful for not only their contemporary researchers, but also future generations of researchers in decades to come. Ideally, digital information should be accurately stored and easily accessible for hundreds of years rather than just decades. This is not a simple task, however, and it requires careful consideration and research from various aspects of information technology (IT). Many small academic society publishers around the world, which are responsible for a significant portion of STM journal publications, do not have the capacity to tackle the task of reliable long-term storage of digital materials. These publishers often entrust the management of digital materials to small IT companies, which may have rather limited capabilities. We may also raise questions about whether some commercial publishers with a short history that publish a very large number of papers have a firm intention and reliable plans to keep their digital information stable for a long period of time.

In a related but wider context, the authors of the recently proposed Principles of Open Scholarly Infrastructure have articulated similar concerns and urged the establishment of a social consensus and norms to ensure the sustainability and the openness of academic digital archives [1]. These authors appear to be concerned about the possibility that digital information will be predominantly controlled by a small number of global conglomerates unless there are conscientious social efforts. I believe that academic research papers are of great value as part of

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the human cultural heritage and are not just the property of copyright holders. After the copyright period has passed, I think that it is natural and inevitable for papers to be made open-access and managed by public archives. These archives should be supported by society and managed by dedicated non-profit organizations. In the past, Korean dynasties used to publish four copies of official history books and kept them separately in four different places, so that these precious public records would be safely preserved in case of war or emergency. I feel that academic digital information also needs to be treated in a similar spirit—that is, as an important public property that has to be preserved for a very long time. Perhaps now is the time for society to start an active discussion on the long-term digital preservation of academic information.

Conflict of Interest

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Reference

1. Bilder G, Lin J, Neylon C. The principles of open scholarly infrastructure [Internet]. openscholarlyinfrastructure.org; 2020 [cited 2022 Aug 9]. Available from: <https://doi.org/10.24343/C34W2H>