

# Transitions in Scientific Edition Processes: Threats and Opportunities

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Scientific journals have changed since they appeared more than 352 years ago; the first ones created being associated to the dynamic of scientific associations and to the communication and public discussion needs of the generated knowledge. Today, there are thousands of journals in all knowledge areas and in every region of the world; nonetheless, their edition process, content assessment, accessibility, visibility, and diffusion, as well as their management models, have changed, especially in recent years.

Changes in the development of information and communication technologies have created multiple transformations. Journals change from paper formats to electronic formats and this represents a transformation in the way knowledge is communicated to other researchers, such as the ones undergoing training and studies, and society; we are just starting to see this change. Commercial companies that saw a business opportunity in this direction, such as Plos One, have moved forward down the road and today they offer radically different ways to distribute information, where interactivity becomes more and more the focus of communication. Researchers can access the data and ask questions that the original researcher did not wonder; actually, some journals are already allowing them to review the original databases in order for them to make replicas and generate new questions or identify false knowledge. These new resources allow for better ways for interaction between the researcher, his team, and the evaluators. Furthermore, with every passing day we have greater access to the metrics of information systems in real time, which include not only the ones from WOS and Scopus, but also the ones from Google and Almetrics, such as Facebook and Twitter mentions, among others, in addition to article downloads from the journal. Not only commercial companies are heading in this direction to transform content edition; the XML JATS methodology, developed by Marcalyc from Redalyc, already took the lead and it is incorporating many of these

innovations to the journals. Universitas Psychologica is on this path.

On the other hand, open access has brought numerous questions about the access to knowledge mediated by resources implications; one of such questions is the discussion about the very high rates that journals charge to research consumers. This creates breaches of access to those who cannot afford them and to the producers of the studies themselves. As recently established by Larivière, Haustein and Mongeon (2015) in an analysis of more than 45 million documents, 50% of the natural sciences and biomedics, 70% of the social sciences, and 20% of the human sciences, are in the hands of 5 big editorial houses. It is necessary to discuss and recognize the implications of this concentration, especially among the citation and knowledge visibility dynamics, that now are trapped by another externality: the editorial market competition mechanics. This is, obviously, another complex transition.

It is also necessary to mention the transitions linked to the measurement systems, as I previously said; there is nobody today that does not dimension that the young field of scientometrics is in a continuous and vertiginous search of indicators, which, on their own, are insufficient; the Impact factor of WOS (JIF); the Scimago Journal Rank (SJR); the Source Normalized Impact per Paper index (SNIP); the Hirsch index (H) and its derivations in quartiles; the multiple indexes derived from Google's metrics; the ones from international cooperation, such as the one created by Redalyc; the ones linked to downloads, or more so, the social and academic networks metrics such as Research Gate, Mendeley, Facebook or Twitter, today generate many increasingly complex transitions that not always editors and editorials that are not part of the big houses are prepared to face. These transitions threaten the survival of the scientific initiatives that are an important source of sustainability for open access to quality knowledge today.

Lastly, nowadays, journals are more than just content management scenarios and they

suffer external pressures from the assessment systems for researchers, which depend on publications to formalize or close their projects, and to secure future financing from production incentives; all of this without leaving aside institutional and external assessments related to the accreditation systems and rankings. As we previously elaborated, these measuring systems, besides being unsteady, become an additional threat for scientific publication that is not related to the big editorial industry.

These threats can become opportunities, however, they require institutional and governmental decisions that allow creating the necessary knowledge infrastructures for the complex transitions that our journals are living. It is clear that if these decisions are not made, many journals, especially the university journals of the region, will disappear, and with them all the investment done, and the knowledge that they hold will tend to vanish too.

## References

- Larivière, V., Haustein, S. & Mongeon, P. (2015). The Oligopoly of Academic Publishers in the Digital Era. *PLoS ONE*, 10(6), e0127502. <https://dx.doi.org/10.1371/journal.pone.0127502>