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New initiatives in scholarly publishing

'Publish or perish' is an adage that we are all familiar with. It is mirrored by the growth in the number of scientific papers. As a consequence of this growth, the existing publishing system faces a number of problems.

One of the main problems is that the system is sluggish: it takes several months, sometimes up to a year and a half, before a submitted paper actually appears in print. Because of this delay, the role of the traditional scientific journal in scientific communication is seriously diminished. Scientists frequently use other means to communicate their results, for instance by sending each other preprints of their articles. The main added value of the journal is in quality assessment: it has become a distinct factor in evaluating academic research programmes and is sometimes even the basis for the funding of research groups.¹ This contrasts with the reasons for the first scientific journals in the 17th century: scientists needed to record research results, to establish ownership of those results and to communicate with their peers about them.

Another important aspect of the traditional system of scientific publishing is that it is becoming unaffordable because of vast price increases, which are often higher than general inflation. These rises lead to the cancelling of subscriptions, which in turn causes new increases.

The conclusion is that the system is in urgent need of innovation. In principle, that innovation is easy with modern information technology. In practice, however, innovation seems difficult to achieve. Traditional commercial publishers are not anxious to stimulate innovations that could seriously change the established process of scientific communication. Their main reason for being in the publishing business is to make a

The FIGARO

project: a new

approach towards

academic

publishing

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ABSTRACT: The current difficulties of scholarly publishing are set out and a response to them based upon publishing by the institutions of the authors involved is described. An account of the role of the FIGARO Project in facilitating such a response is then given.



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profit. Innovations are uncertain and thus pose a threat to the stability of their businesses and profits.

Also, many scientists are cautious when it comes to publishing their results. They are not eager to publish in media other than established, reputable journals. That is understandable because of the crucial role traditional journals play in quality assessment procedures. To a large extent, scientists derive their reputation from the journal's reputation. Furthermore, they are often unaware of the financial problems caused to libraries by the pricing policies of publishers.

While traditional publishers are reluctant to change the system of academic publishing, the academic community itself is undertaking projects that may lead to innovation. It can afford to do so, because with the help of information technology, the distribution of its members' publications is a less hazardous activity than it was in the world of print publications.

In my opinion, it is a good thing that different lines and strategies are being pursued by different organizations. It is impossible to predict the future of academic publishing and it is too early to declare a standard for it. Rather we should facilitate the rising of a new order in scientific information processes; in so doing so we should not be afraid of a certain degree of chaos.

In these initiatives it can be seen that the traditional roles (publisher, subscription agent, bookseller, library, etc.) in the information chain are changing. In fact, it becomes clear that the borders between these roles are not given by god or nature, but that there is a continuum from producer to consumer of information. The borders within this continuum are determined by historical factors and technical possibilities. In innovative publishing models other borderlines can be observed. The traditional role of a publisher may well be performed by different parties: peer review and distribution might, for instance, be organized by different parties.

The FIGARO project is an example of a new initiative that changes traditional roles.

The FIGARO project: its philosophy

Two Dutch universities (Utrecht and Delft)

and two German universities (Oldenburg and Hamburg) have taken the initiative to set up an infrastructure for academic e-publishing in Europe and to establish a network of content providers making use of this infrastructure. This project, called FIGARO, is a European extension of the Dutch Roquade project (<http://www.roquade.nl>)² together with the German GAP project (German Academic Publishers, (<http://www.dl-forum.de/Foerderung/Projekte/germanacademic/>)) and is financially supported by the European Commission (€1.4 million).

The name FIGARO is an acronym for the Federated Initiative of GAP and Roquade.

The mission of FIGARO reads as follows (see <http://www.figaro-europe.net>):

As a partner organisation within the European academic community, our mission is to enhance scientific communication by improving the speed, simplicity and cost, which we aim to do through innovations in scholarly publishing.

We strive to provide effective and efficient e-publishing services to individual scientists and scientific organisations through the use of a shared organizational structure and the utilization of open source and standard base software tools wherever possible.

We are committed to supporting our customers by facilitating scientific communication and the publishing process in a way that allows them to retain ownership of their work as well as present their own profile or identity.

FIGARO has three overall strategic objectives:

1. To realize technical innovation in the fields of collaborative document modelling and the development and implementation of a Web-based shared workflow model.
2. To realize business process innovation through the establishment of a collaborative business model for e-publishing within a virtual community of academic institutions and SMEs (small or medium enterprises).
3. To build an actual networked organization and production platform based on

the results of the above innovations. This networked organization also constitutes an effective distribution channel for emerging technologies and new standards in this field.

FIGARO aims to support a variety of publishing models with a single technical and organizational infrastructure, which is modular and also allows for the use of as many or as few modules as are needed.

So FIGARO will support:

- journals;
- publication sites with or without peer reviewing (peer reviewing may take place before or after publication);
- institutional repositories and other forms of open archives;
- co-publishing with traditional publishers, producing the electronic version of a journal that is already published in print

The reason for offering extensive as well as limited options is that many scientists are not yet ready to use new ways of publishing; they will thus be provided with an infrastructure that facilitates a gradual transition from traditional publishing to highly sophisticated models.

FIGARO's business model

There are two relevant aspects to FIGARO's business model. The first one is the network organization and the second one is the financial model. The outlines of both will be explained in this section.

FIGARO's network organization

FIGARO is a network organization, which implies that it is not hierarchical: there is no boss of FIGARO. The main reason for this organizational structure is the need for a strong input from the customers. Any hierarchical intermediary organization sooner or later will have its own persistence as its main objective. Such an attitude then becomes an obstacle to further innovation, although such continuing innovation is absolutely necessary in a rapidly changing environment like the e-publishing one.

The idea of a network organization is based on the creation of added value resulting

from the various specializations and strengths of the participating partners. This added value has to guarantee that the whole will be more than the sum of the individual nodes in the network.

A lot of organizations are already involved in one way or the other in the field of academic e-publishing:

- academic publishers, profit as well as not for profit;
- facilitators of e-publishing processes, like information technology companies but also university libraries;
- facilitators of certain aspects related to e-publishing: printing on demand, digital rights management, payment transfer, etc.

All these organizations have their own models, procedures and workflows. They function more or less successfully, and there is no need simply to create another organization in one of these fields. However, for any organization in any domain it is always possible to operate better: more efficiently, more cheaply, more quickly, more flexibly, more innovatively, and with improvement in the quality of its services. So the idea of FIGARO is to connect these organizations in a flexible network organization in which best practices will be gathered and distributed. For each of the partners there will be added value. These added values should be tailored to every participating organization and can for this reason be different in each case.

The network organization contains the following categories of partners: service providers, front offices and a co-ordinator.

The products of the service providers are facilities that may be shared by the front offices. The back office is the most important service provider for the e-publishing process; it is the technical infrastructure that enables FIGARO's clients to become publishers themselves. It supplies their front offices with software tools, know-how documentation, instruction and assistance. This back office service will be created in the FIGARO project.

There also may be other service providers, which are engaged, for instance, in marketing, printing on demand, digital rights management or payment services. Some or

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all of these service providers may co-operate with each other, but this is not obligatory.

The front offices are publishing agents: intermediaries to content providers in the academic community. They serve scientists, editorial boards, academic organizations, etc., that provide the content to be published. They make use of facilities provided by the service providers. They may use all or only some of those facilities: they can work with facilities of other service providers (outside FIGARO) or with facilities or tools that they have developed themselves.

In a way the front offices are the franchisees of the FIGARO services. A front office can be a university press or a university library which is supporting academic e-publishing, and it can also be a traditional publishing company which makes its print material electronically available with the help of the FIGARO services.

The support given by the front offices can vary depending on the content provider's request for support. This support can cover all technical facilities, as well as project management for setting-up new publications and implementing the project results. However, it can also be limited to a simple helpdesk function.

On the basis of their experiences, the front offices play an important role in the feedback and evaluation of the tools that are offered by FIGARO. They may co-operate among each other, but this is not obligatory.

The main constraints for front offices are:

- requirements concerning the quality (control) of the publication's content;
- requirements as to the quality of support given by the front office;
- principles concerning cost calculation for using the infrastructure and for the front office services;
- the way FIGARO is mentioned in their services and products.

The role of the co-ordinator is essentially to ensure that the whole of the FIGARO organization is more than the sum of the parts. The co-ordinator is responsible for:

- recruiting new front offices;
- referring new content providers to existing front offices;

- taking care that the front offices meet the FIGARO constraints (as mentioned above);
- stimulating synergy between front offices;
- regulating the dynamics within the network.

An important characteristic of this business model is that there is no central branding. Front offices or content providers may keep their own branding. If, for instance, Leuven University Press makes use of FIGARO's infrastructure, its publications will still be products of Leuven University Press. They are facilitated by FIGARO, but still have their own branding, which may be expressed as follows: 'Published by Leuven University Press, within the infrastructure of FIGARO'.

This construction has no simple equivalent in the classical publishing world. In fact, the traditional publishing role is now divided among several partners: the back office, the front office and the content provider. The way the publisher's role is divided depends on the relation between the partners.

In the present model of scientific communication, the journal integrates four basic functions of scholarly publishing:

- Registration (establishing intellectual property)
- Certification (certifying the quality/validity of the research)
- Awareness (assuring accessibility)
- Archiving (preserving for future use)

FIGARO disaggregates these functions and allows them to be fulfilled independently by different partners, and it especially separates the content from the services that add value to the content.

Again, the essential role of the service provider is to present facilities that may be shared; the essential role of the front offices is in being intermediaries to the content providers. But there may be large differences in the way these roles are worked out in different cases. The relation between content providers and publishing agents may differ, depending on the support wanted by those content providers (editorial boards, for instance). Also, the relation between the service providers and the publishing agents may differ, depending on the amount the

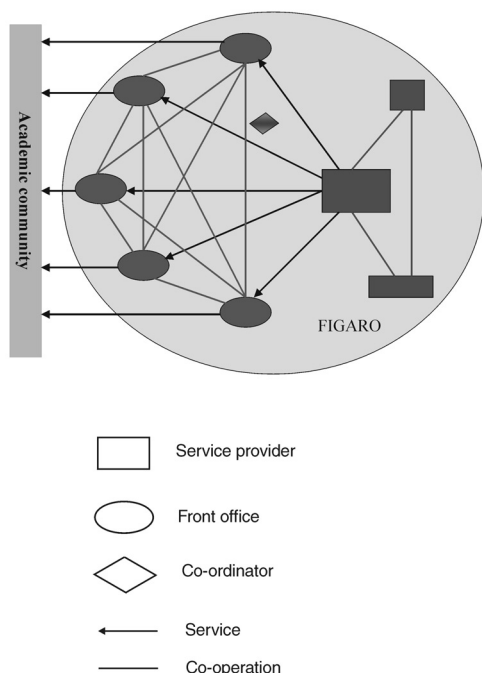


Figure 1 The network organization.

publishing agents make use of the shared facilities.

The network organization can be represented graphically as shown in Figure 1.

FIGARO's financial model

An important characteristic of FIGARO is that it is not for profit, which implies that it is operating on a cost recovery basis. This does not mean that there can be no co-operation with a partner who is working on a profit basis, but this partner should not make a profit directly out of the use of FIGARO's services; the profit has to be a result of the added value of the partner itself.

The back office is a financially independent entity, operating on a cost recovery basis.

The costs for maintenance and innovation of the back office and also the costs of the co-ordination are paid by the front offices. This implies that the more use is made of the back office, the lower the cost per user will be, because the costs do not increase proportionally with the extent of the use.

Of course, a front office needs money to pay for these services. The front office itself can collect its money in a number of ways:

- Structural funding from its parent institution. This may, for instance, be the case with a university library. If this library has the task of supporting e-publishing in its parent institution, it may pay for the use of the FIGARO tools by its university community out of the library budget provided by the university.
- The traditional model of subscription fees. This may, for instance, be the case in co-publishing activities with a commercial publisher.
- New models. The philosophy of FIGARO is consistent with a drive towards open access and thus to work towards new financial models for academic publishing.

To prevent misunderstanding: 'open access' does not mean that there are no costs involved.

Of course there are costs involved in publishing activities. 'Open access' means that the costs are not paid by the reader. This is fair, because, in fact, every scientific journal has some kind of monopoly from the viewpoint of the reader: the reader has no alternative, he/she needs the information contained in a journal and cannot trade an expensive journal for another, cheaper one, without being handicapped by loss of (often essential) information.

So who does pay in open access models? There are several possibilities:

- The authors may pay for publication, as a kind of page charge. The Florida Entomological Society, for instance, lets authors pay when they want (in addition to a print article) immediate free web access (a so-called IFWA fee).³ Authors do profit from this online access, because it has been shown that the number of citations rises by providing Web access.⁴
- Authors, or the institutions that employ them, may pay for the peer review because they profit from the acceptance of their contribution (*Review of Economic Theory*, see <http://www.elss.org.uk/?current=Review+of+Economic+Theory>).
- Institutions or societies may support a

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journal or site when they need a medium for their own discipline. This is the case, for instance, with the *International Journal of Integrated Care* (IJIC), published within the infrastructure of Roquade. The start of this journal was supported by a number of research groups working in this field (<http://www.ijic.org/>).

- Institutions or societies may buy the right for their members to publish in a certain journal or on a website. This is the case with BioMed Central, a for-profit organization introducing new financial models for academic e-publishing (<http://www.biomedcentral.com/>).
- Finally, of course, there is the possibility of grants, donations or sponsorships from (inter)national funding agencies, organizations like SPARC, or others.

Conclusions

The future structure of academic publishing is unclear and it is too early to make – and act upon – confident predictions about it. Thus, the academic community should initiate flexible new structures in scientific information processes that will be advantageous to the academic community itself. FIGARO is an initiative that has this ambition. It holds benefits for the academic community as well as for the partners that have taken the initiative.

There are a number of challenges in the present developments in academic publishing:

- The innovative use of technology
- The restoration of the primacy of communication
- The development of new measures for the impact of a publication in the academic community
- The development of new business models, aiming at open access

An important development in this context is the world-wide growing movement towards 'open access'. The Public Library of Science (<http://www.publiclibraryofscience.org/>), the Budapest Open Access Initiative (<http://www.soros.org/openaccess/>) and SPARC (<http://www.arl.org/sparc>) are examples of initiatives that support this movement. They support models other than the traditional one, for the publishing process as well as for the economic aspects.

For the financial aspects, however, there appears to be a dilemma. It is rather easy to construct a completely new economic model for academic publishing, in accordance with the interests of the academic community. But it is rather difficult to imagine how the present economic model may evolve into this new model.

We are therefore confronted with uncertainty and for some time there may even be some chaos. In my opinion this is a useful stage before a new order in academic publishing will arise.

FIGARO aims at making a contribution to the emergence of this new order.

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