

# BUSINESS MODELS FOR ELECTRONIC OPEN ACCESS JOURNALS AND DISCIPLINARY DIFFERENCES: A PROPOSAL

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## Abstract

Reports results of a research that aimed at studying the use of business models in the context of open access electronic scholarly journals publishing. Additionally, the work approaches disciplinary differences, particularly in terms of three issues, namely required publication speed, funding and features that involve the edition of a scholarly journal. In this context, the study aimed at proposing a model that allows identifying required elements to design business models appropriated to open access scholarly journals publishing. Along with identifying the elements, the study looked at the relationships between these elements and differences found between knowledge fields. Based on a bibliographic survey, the research adopted a qualitative approach that consisted of analysing the content of the literature reviewed. As a result, a business model for the activity of open access electronic journal publishing has been proposed. Based on Stähler's approach, the model entails a set of four components, namely value proposition, products and/or services, value architecture and source of resources. Derived from this basic model, three other models are presented, each one representing particularities of the three major divisions of knowledge, Sciences, Social & Human Sciences and Arts & Humanities. As conclusion, features of business models for Sciences are considerably different from the other two divisions. On the other hand, there are important similarities between business models for the Social & Human Sciences and for Arts & Humanities.

Keywords: Business models; Open access to scientific information; Scholarly communication; Disciplinary differences.

## 1. Introduction

Science advancement occurs when knowledge is shared amongst members of the scientific world. Researchers discussions both promote and improve science constructs, although barriers are constantly found within the scholarly communication system. High prices of scholarly journals subscription, for instance, have made access to science findings unfeasible. Moreover, there is a high preoccupation amongst scholarly journal publishers regarding the protection of their rights.

Due to this fact, the movement of open access to scientific information is brought to light as a major initiative in favour of the wide and unrestricted dissemination of research results in electronic media. Both the green road (institutional repositories) and the gold road (open access journals) have become the two main ways of providing open access to scientific information. The present study focus on the later, taking into account that it consists of a feasible alternative to the traditional scholarly journal publication model.

It seems natural to ask how to maintain the publication of an open access scholarly journal without having resources from subscription or access charges. The answer comes from the use of business models in a creative way, as they constitute a method through which each publisher can build and use its own resources in order to offer a better value than its competitors and, then, achieve a long-term sustainability [1]. Such method allows an entrepreneur to better understand his/her own business when outlining it in a simplified way. From the resulting models, it is feasible to organise businesses, besides increasing value appropriateness to a given business.

Taking account of the present time, in which economic environment is highly uncertain, competitive and changing, business decisions become difficult and complex. In this sense, the use of such models is strategic to any kind of organisation, including open access scholarly journal publishers. This is because using these models facilitates analysing, understanding and explaining empirical relationships found in this kind of businesses [2].

Van Der Beek et al. [3] emphasise that studies about business models can be grouped in two categories. The first one describes specific business models. They consist of model taxonomies in which business models pertaining to the same category share common features such as price policies and clients relationship. The second one comprises studies that define and analyse business models components. Within this later, Linder & Cantrell [4] explain that business models components are simply bits of a model, each of them representing a specific feature of a business. The present work adopted this later approach and it is justified by Mahadevan [5], who reports that

studying only the models without looking at their components leads to focusing on very specific features of how a sector makes business.

It is important to notice that apparently, there is no consensus on which components should comprise a business model. Hence, this research objective is, from the perspective of open access electronic scholarly journal publishing, identify a set of components that better correspond to such reality.

In the elaboration of a business model it is fundamental for a journal publisher to consider, before any other thing, particularities concerning the knowledge field with which his/her journal is concerned. It is even more important when these particularities involve disciplinary communication patterns. Meadows [6] explains that the nature and features of each field of knowledge lead to the adoption of different ways of carrying out research. Consequently, the way of communicating results is different, too. Therefore, publishers as intermediates in the scholarly communication process need to focus on these patterns in order to produce and offer outputs that better attend the needs of their clients. Because of being fairly recent as compared to the existence of scholarly journals as a whole, the suitability of business models for open access journals from different fields of knowledge becomes a relevant factor to the success of these journals.

## 2. Research methodology

The purpose of this study is both exploratory and descriptive. Exploratory, because in the literature reviewed no studies were found having the same focus of this research, that is, to study the main components of business models not limiting to that concerned with profits. Descriptive, to the extent that there are, already, data respecting disciplinary differences in the literature pertaining to this topic.

Additionally, the study adopted a methodology essentially qualitative, building itself on the interpretation of the literature. It is important to notice that the present research makes use, during the analysis, of the inductive reasoning, assuming that the model generated has the potential to reflect itself on a broader reality. Conjointly, it availed itself of another kind of reasoning: the deductive. By studying business models in the electronic environment, the researchers inferred deductively that this knowledge is applicable to the activity of publishing scientific periodicals of open access, since it is produced in the electronic environment.

Bibliographic research was the technical procedure of choice. In analysing the texts, two approaches were used. The first one is the codification and categorization method, proposed by Kvale & Brinkman [7], who explain that this method attributes to one or more keywords the

capability of identifying a communication appearing subsequently. The other method used was that of interpretation, whose key feature is to allow the interpreter to move beyond what is actually said, bringing out structures and relationships not apparent in the text.

### 3. Discussion

Based on the literature analysis, the present study discusses the use of business models in the context of open access scholarly journals. The study sought for knowledge on the business models theme in order to apply it to the scientific publication activity. Therefore, business models components that are feasible to open access electronic scholarly journal publishing have been looked at.

After a careful analysis of the literature, it has been decided to adopt Stähler's [8] approach, because it allows the analysis of key aspects involving journal publication. The author describe four components of a business model:

- Value proposition. It is concerned with the offer of differential values for users, in view of the intense market competitiveness. Within the context of journal publishing, these values can be offered to business clients (readers, libraries), internal partners (reviewers, authors) and external partners (sponsors, publicity teams).
- Services and/or products. It consists of the description of services and products offered, taking careful account of their feasibility to user needs. In the present research, it was necessary to characterise journals in relation to writing style, presentation (text proportion, graphs, figures and tables), average number of pages per article, periodicity, minimum number of articles per year and average number of refused submissions.
- Value architecture. This component is strongly associated with intrinsic aspects of a specific enterprise, as it is the description of how it is organised in order to offer values to its clients and partners. The present research took into account specific aspects of a publisher in terms of market design (target audience), as well as internal and external architecture.
- Source of resources. It describes the way a business obtain resources needed to is sustainability. These resources can come from three sources. The first concerns additional services (in the context of this research they can consist of selling print copies, convenient forms of licenses, specific charges for different types of distribution and so on). The second is related to external partners (sponsorship, publicity, expositions and conference co-work). Finally, there are contributions and funds from foundations,

institutional subsidies, government agencies, voluntary contributions and so on [9].

These components are hereafter adopted in the proposition of business models for open access scholarly journals publishing. The first model is generic and from this three more models have been proposed for the three major divisions of knowledge.

### 3.1 Generic business model for open access scholarly journals publishing

The relationship between these four components allowed the proposition of a generic business model (Fig. 1) for open access scholarly journals. This model shows how sources of revenue serve as input to the component 'value architecture', which, in turn, drive other characteristics of the editorial business, making it cyclical.

As can be observed, value architecture better organises the publisher business, helping him/her to offer the correspondent value proposition to its clients and partners. Clients are then attracted to have the journal, bringing about a greater demand, which, in turn, calls the attention of sponsors and advertisers, who financially invest in the business. The same happens to authors and reviewers as partners. When a publisher offers services that correspond to their yearnings, there is a tendency of getting a greater offer of their work, as well as an increase of better offerers' work. This, in turn, attracts sponsors and advertisers.

In the context of disciplinary differences, particularities of the three major divisions of knowledge have been associated to each component of the generic model. Such association has allowed the proposition of three additional, specific models. The model for the Sciences (Fig 2) shows a distinct configuration from those for Social & Human Sciences (Fig. 3) and Arts & Humanities (Fig. 4). An additional observation is the inference that the Sciences business model should attract a greater number of clients and partners than the other two divisions, because their authors make more use of journals than those from the others.

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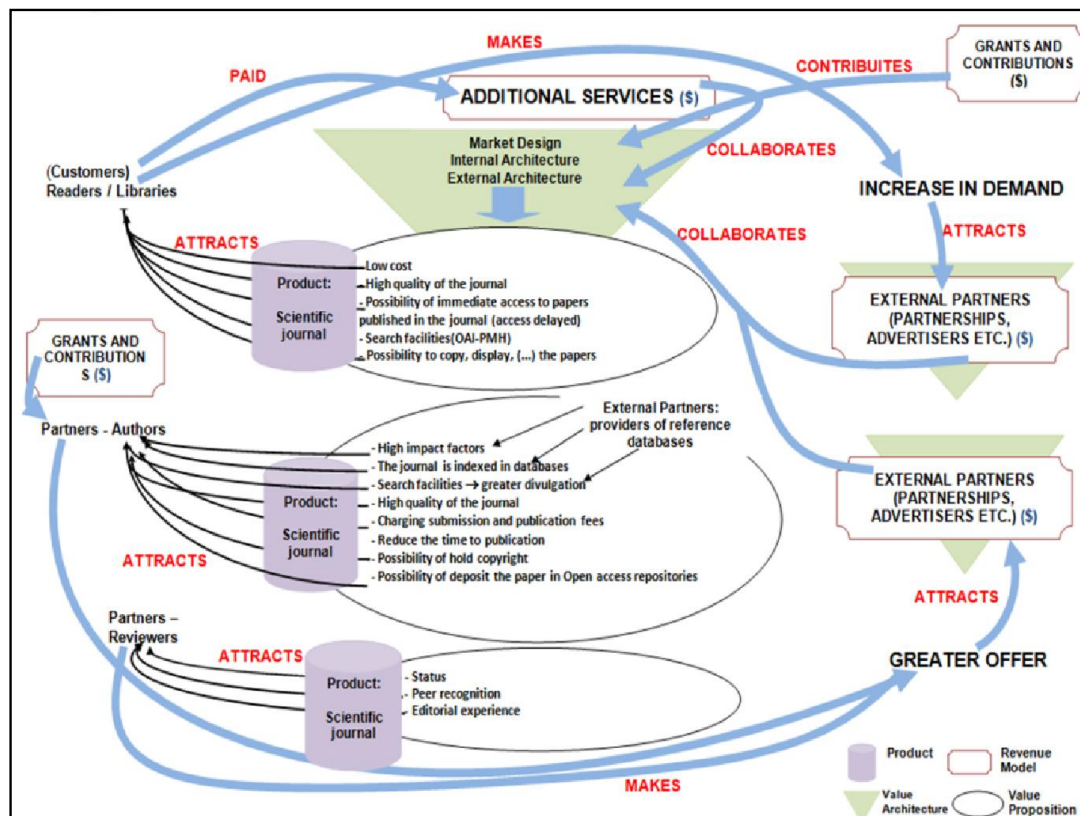


Figure 1 – Business model for the activity of open access electronic scholarly journals publishing

### 3.2 Business model for open access scholarly journals in the Sciences

Each particularity of the Sciences, as compared to the other two divisions of knowledge (Social & Human Sciences and Arts & Humanities) is reflected on components of the business model, as shown below and depicted in figure 2.

Value proposition	<ul style="list-style-type: none"> <li>– Immediate access to readers is more applicable to Sciences than to the other two divisions. Publication speed is higher [10] and citations achieve the top faster [11].</li> <li>– Shorter time between submission and publication because of its dynamic aspect, making time an important value.</li> <li>– The possibility authors have to deposit a preprint correspond to the needs of researchers from the Sciences [12]. There is actually a tendency of researchers from this division to use less formal methods of disseminating their results [13].</li> </ul>
	<ul style="list-style-type: none"> <li>– Authors from the Sciences write shorter sentences, therefore, easier to be read [14].</li> <li>– Literature review found mostly as footnotes [15].</li> </ul>

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Products and/or services	<ul style="list-style-type: none"> <li>– Articles with more figures and equations [16], which may lead to higher editorial costs.</li> <li>– Average number of pages is lower [16].</li> <li>– Higher amount of articles [13], perhaps justifying more options of titles available to publish in.</li> <li>– Higher proportion of articles co-authored [10].</li> <li>– Lower refusal rates [10].</li> </ul>
Sources of resources	<ul style="list-style-type: none"> <li>– Research in the Sciences requires greater support, making contributions and funding higher [10];</li> <li>– Because of that, the “author pays” model is more attractive, leading to a likely greater impact factor.</li> </ul>

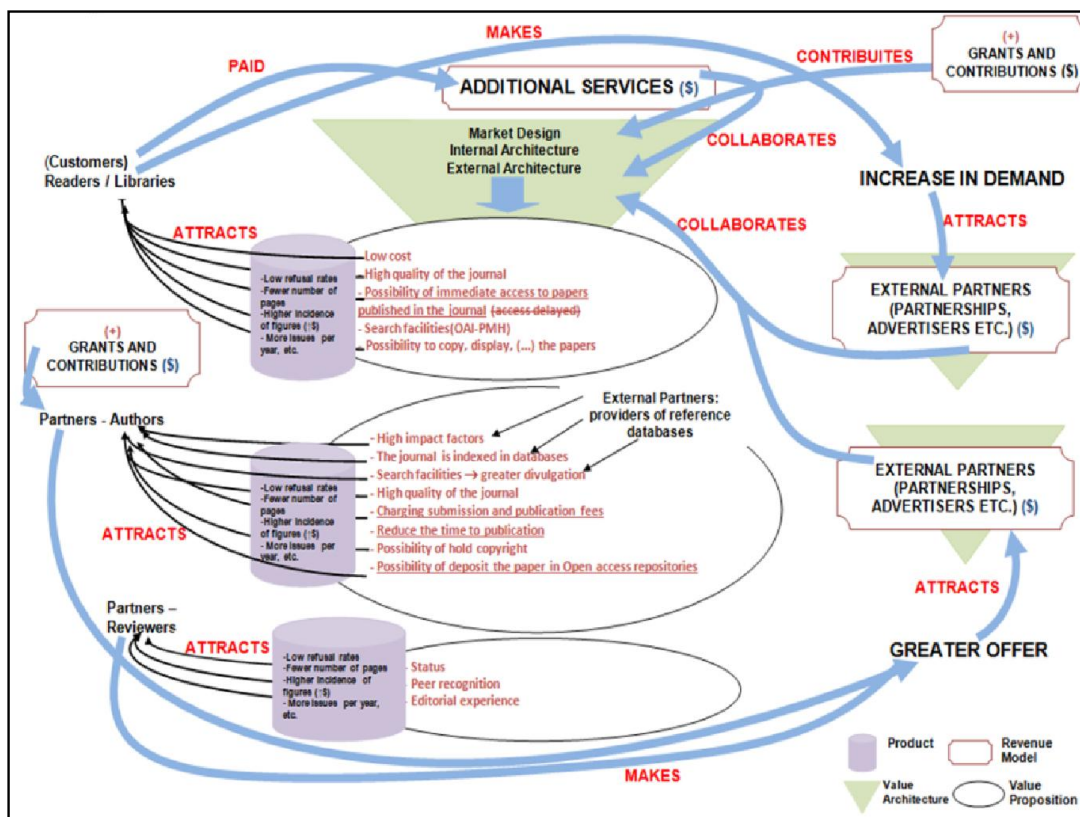


Figure 2 – Business model for the activity of open access electronic scholarly journals publishing in the Sciences

### 3.3 Business model for open access scholarly journals in the Social & Human Sciences

With reference to Social & Human Sciences, because this division encompasses a variety of disciplines, there are also a variety of communication patterns, ranging from the Humanities to the Sciences. So, grouping them in a unique set is a limitation of this study. However, according to what has been found in the literature, it was possible to obtain a

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list of interesting particularities for the proposition of a business model, as shown below and in figure 3.

Value proposition	<ul style="list-style-type: none"> <li>– Publishing slowness [10] makes the possibility of immediate access to results non-attractive. However, an exception is found concerning disciplines with communication patterns close to the Sciences.</li> <li>– A smaller period of time between submission and publication is not an attractive issue, because of the slowness cited above [10]. For the same reason, the delayed open access model becomes attractive.</li> <li>– Depositing in preprint repositories is not a well-accepted praxis [12] and does not constitute a differential value. Although researchers from more flexible disciplines can informally communicate their work in progress, they do prefer to publish results in more formal channels [13].</li> <li>– Offering of low access cost journals does constitute a differential value because research funding is smaller [10] as also is the number of researchers with access.</li> </ul>
Products and/or services	<ul style="list-style-type: none"> <li>– Sentences are longer and more difficult of being read [14].</li> <li>– Amongst empirical disciplines, literature review and methodology are sections appearing in the beginning of the text and references at the end[15].</li> <li>– Literature is purely in textual form with occasional occurrence of tables and illustrations [16].</li> <li>– The average number of pages is greater [16].</li> <li>– The amount of articles is higher[13].</li> <li>– Co-authored articles are lower than in the Sciences and higher than in the Humanities [10].</li> </ul>
Sources of resources	<ul style="list-style-type: none"> <li>– Research funding is smaller as is the number of researchers with access to it [10]. The author-pay model is, therefore, not attractive either</li> </ul>



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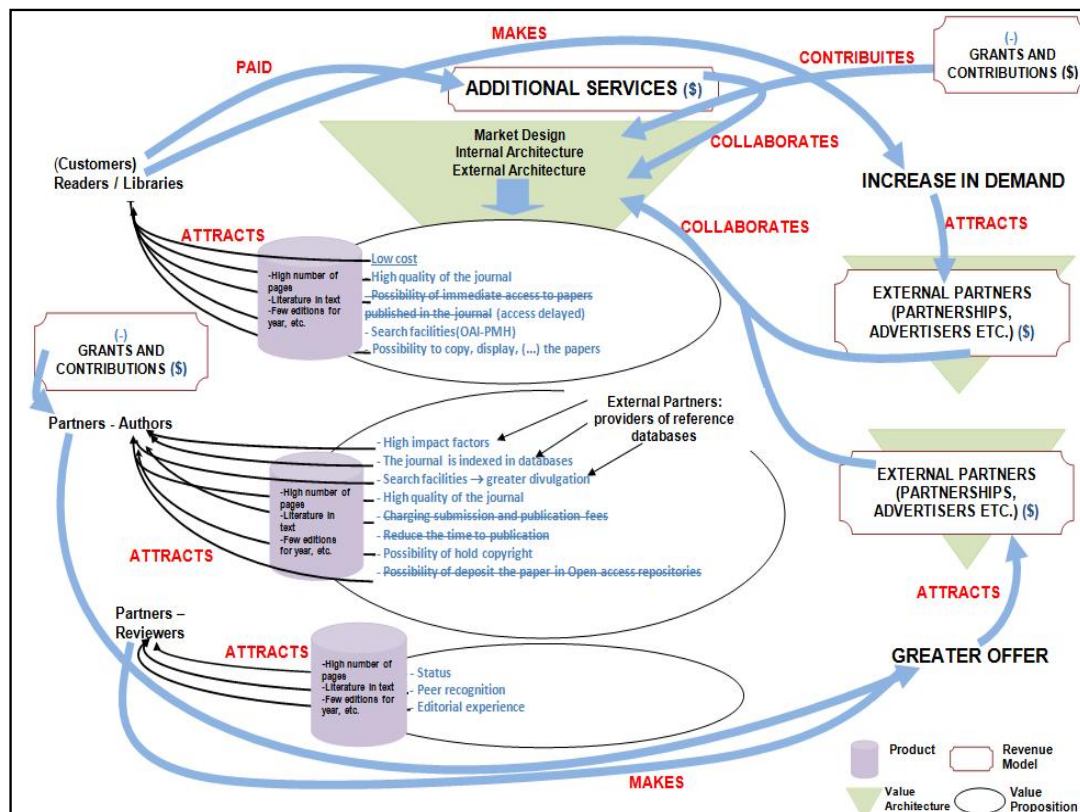


Figure 3 – Business model for the activity of open access electronic scholarly journals publishing in the Social & Human Sciences

### 3.4 Business model for open access scholarly journals in Arts & Humanities

It is well known within the scholarly community that researchers from Arts and Humanities make more use of books than of journals [17]. However, journals have their proper importance in the division. Therefore, the proposition of a business model for the activity of open access scholarly journal in Arts & Humanities should take into account particularities shown below. Some peculiarities are presented in comparison with Sciences and Social & Human Sciences.

Value proposition	<ul style="list-style-type: none"> <li>– Immediate access to published work does not constitute a differential; neither does the smaller period of time between submission and publication. This is because speed of publication is low [10]. Delayed access model might be feasible to the peculiarities of the area.</li> <li>– Allowing researchers to deposit results in a digital repository is not a well-accepted praxis. Researchers from more flexible disciplines may informally communicate their work in progress but do prefer formal channels to their final results [13].</li> </ul>
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	<ul style="list-style-type: none"> <li>– Offering of low access cost journals does constitute a differential value because research funding is smaller [10] as also is the number of researchers with access.</li> </ul>
Products and/or services	<ul style="list-style-type: none"> <li>– Sentences are longer and more difficult of being read [14].</li> <li>– Amongst some specialties, literature review and methodology are sections appearing in the beginning of the text and references on footnotes [15].</li> <li>– In some disciplines articles have less informative titles than the common praxis in other areas [10].</li> <li>– Abstracts, though very usual in most areas, are rare [10].</li> <li>– Literature is purely in textual form with occasional occurrence of tables and illustrations [16].</li> <li>– o número médio de páginas de um artigo é maior nas Humanidades do que nas Ciências Naturais [16];</li> <li>– The average number of pages is higher [13]. Researches count on less journal alternatives to publish.</li> <li>– Co-authored articles are lower than in the Sciences and higher than in the Humanities [10].</li> <li>– Refusal rates are much higher [10].</li> </ul>
Sources of resources	<ul style="list-style-type: none"> <li>– Research funding is smaller as is the number of researchers with access to it [10]. The author-pay model is, therefore, not attractive either <i>submissão de trabalhos não é um diferencial nessa área.</i></li> </ul>

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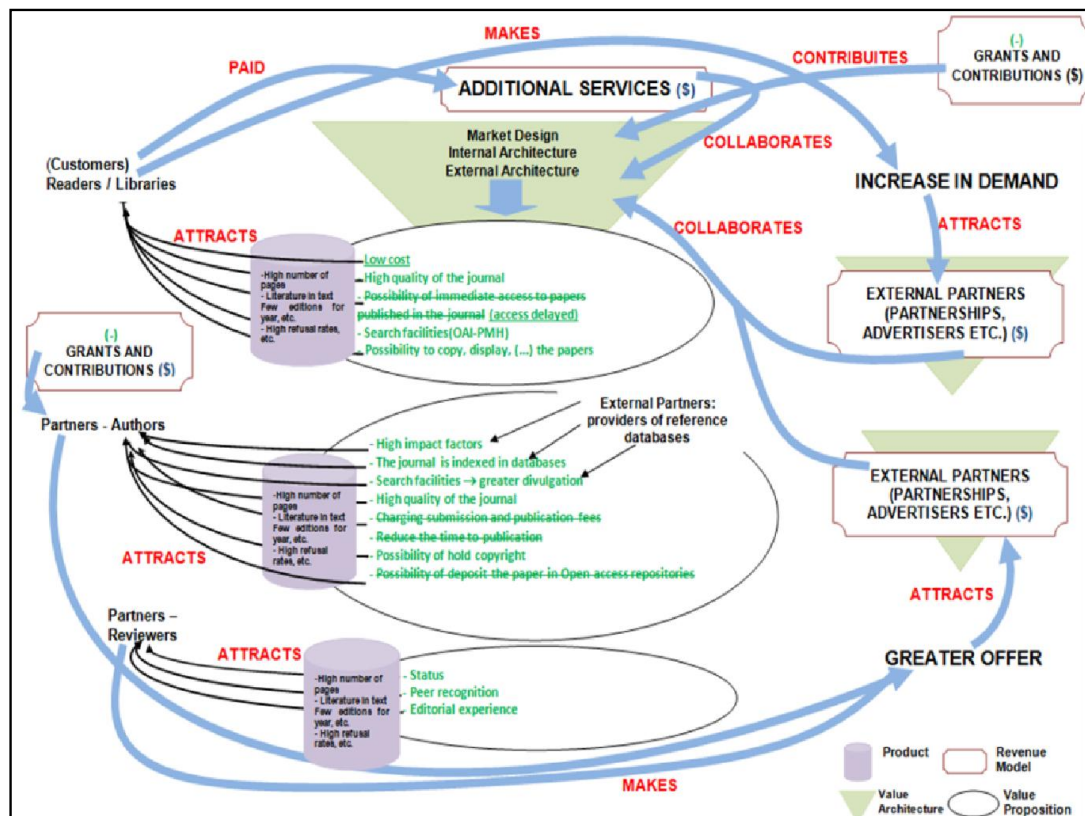


Figure 4 – Business model for the activity of open access electronic scholarly journals publishing in Arts & Humanities

#### 4. Conclusion

The results obtained and discussed in this research enable to conclude that the conception of a business model for the editorial milieu is strongly associated with two important conditions. On a macro level, it is associated to the peculiarities of the different disciplinary areas. On a micro level, it is concerned with the context of a given publisher. Specifically, regarding to the disciplinary differences, the study showed that the configuration of business models for the Sciences distinguishes itself markedly from the other areas. On the other hand, the business models for the Social Sciences and Humanities and the Arts and Humanities are similar.

Perhaps the most critical issue in planning is the process of choosing and integrating the different overtones of a business setting and to integrate them into a model. The manner a publisher selects, implements and combines sundry components will reflect its idiosyncratic context—philosophical, cultural, technical and disciplinary. The business models proposed herein are just some amongst many resulting from the analysis of the publication context of open access scholarly journals. Therefore, it is beyond the intent to consider the present model as a standard for the

publication of scholarly journals; on the contrary, it intends to serve as a spawning ground for new and more perfected ideas.

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